SPECIAL MEETING

SACRAMENTO CITY COUNCIL

— JANUARY 13, 1986 —
JANUARY 27, 1986
FEBRUARY 3, 1986
FEBRUARY 6, 1986
7:00 P.M.

I HEREBY CALL a Special Meeting of the Sacramento City Council to be held at the following locations within the Sacramento Community Center Complex, 1100 14th Street, Sacramento, California, and the following dates and times:

7:00 P.M., Monday, January 13,1986, Community Center Theatre

7:00 P.M., Monday, January 27, 1986, Community Center Theatre

7:00 P.M., Monday, February 3, 1986, Community Center Theatre

7:00 P.M., Thursday, February 6, 1986, Community Center Exhibit Hall C

The purpose of the Special Meeting is to consider and act upon the following:

Various matters regarding requests for property located within the North Natomas Community:

A. Environmental findings.
B. 1974 City General Plan Amendments.
C. North Natomas Community Plan.

If the City Council completes its business on February 3, 1986, the February 6, 1986 meeting will be cancelled.

ISSUED: This 9th Day of January, 1986

Anne Rudin

ANNE RUDIN
MAYOR

ATTEST:

Lorraine Magana

LORRAINE MAGANA
CITY CLERK

This goes with
Ap meeting of
2/6/86

COMMENTS ON AGRICULTURAL IMPACT MITIGATION STRATEGY FOR THE NORTH NATOMAS COMMUNITY PLAN (M84-007)

TABLE OF CONTENTS

TAB	DOCUMENT
22	5/29/85 Letter from Robert A. Knight of County of Sacramento Health Department
23	7/8/85 Letter from Natomas Central Mutual Water Company
24	Agins v. Tiburon
25	Penn Central Transp. Co. v. New York City
26	Mitigation Strategy
27	U.S. v. Fifty Acres of Land

DIEPENBROCK, WULFF, PLANT & HANNEGAN

LAW OFFICES

300 CAPITOL MALL

17TH FLOOR

SACRAMENTO, CALIFORNIA 95814

(916) 444-3910

TELECOPIER
(916) 446-1696

TELEX
70-5328

FORREST A. PLANT
JOHN J. HANNEGAN
ROBERT R. WULFF
JOHN S. GILMORE
DAVID A. RIEGELS
DENNIS M. CAMPOS
JACK LOVELL
JOHN E. FISCHER
CHARITY KENYON
KAREN L. DIEPENBROCK
FORREST A. PLANT, JR.
THOMAS G. MOUZES
JEFFERY OWENSBY
MICHAEL D. WELCH
MARGUERITE E. C. MOSNIER
FRANK P. FEDOR
STEVEN W. RAY
JO PITTMAN LOWE

JOHN V. DIEPENBROCK
R. JAMES DIEPENBROCK
CYRUS A. JOHNSON
THOMAS A. CRAVEN
WILLIAM B. SHUBB
JAMES T. FREEMAN
DENNIS R. MURPHY
WILLIAM W. SUMNER
FRANCIS M. GOLDSBERRY II
BRIAN T. REGAN
RAYMOND M. CADEI
KEITH W. McBRIDE
TIMOTHY R. MURPHY
DAVID K. HUSKEY
LAWRENCE B. GARCIA
FELICITA S. YOUNG
WILLIAM J. COYNE
PATRICIA J. HARTMAN

February 3, 1986

OUR FILE NO. _____

SUBJECT: Comments on Agricultural Impact Mitigation Strategy for the North Natomas Community Plan (M84-007)

Ann Rudin, Mayor, and
Members, City Council
City of Sacramento:

We have reviewed the Agricultural Impact Mitigation Strategy for the North Natomas Community Plan (M84-007) (hereinafter "Strategy") and offer the following comments on behalf of our clients (see, tab No. 1,) who are located in the "boot" (see, tab No. 2). Our clients have owned and/or worked their farms which range in size from 10-220 acres for as long as 60 years (see, tab No. 1.) The aggregate sum of our clients' lands is only 800 acres which is an extremely small percentage of the total agricultural land in the City and County. Indeed, the boot accounts for less than 0.5% of the dollar value of the County's total agricultural production.

The Strategy seeks to respond to the impacts resulting from the Master Plan's goal of establishing greenbelts and imposing permanent agricultural areas. To compensate the owners for this restriction on use of their land, the Strategy proposes the creation of a TDC system whereby designated

permanent agricultural areas (sending areas) are assigned development credits to be sold on the open market to those wishing to develop property within the designated urban development areas (receiving areas). Upon sale, an easement must be granted by the sending area in favor of a proposed land trust which permanently locks the land into an agricultural use designation.

The Strategy presents a number of problems as respects our clients' lands.

(1) The Strategy (see tab No. 3 at page L-76) is predicated upon the assumption that the agricultural lands are and will remain viable and productive (see tab No. 4).

(2) The suggested TDC system is wholly inadequate as a means of compensating our clients for the unreasonable restriction placed upon the use of their property. This, we believe, results in an unconstitutional "taking" of property without just compensation.

(3) The Strategy requires that the County zone the client lands for permanent agriculture. The requirement ignores the action by the County Board of Supervisors which, after several days of hearings last summer, voted to exclude all "boot" lands south of the canal from the Greenbelt Referendum then under consideration.

We urge that the "boot" should be excluded from any

permanent agricultural use zone. This position has found substantial editorial support (See tab No. 5) and will not interfere with the County's goal of preventing interference with the Metropolitan Airport. (See tab No. 6.) Further, none of the land within the "boot" is subject to the Williamson Act (See tab No. 7).

I

FARMING IN THE "BOOT" IS ECONOMICALLY INFEASIBLE

A. Farmers In The "Boot" Are Experiencing Substantial Losses.

The draft EIR argues that farming will continue to be viable and will "prosper" in the North Natomas area (see, tab No. 4). In support of this argument, the EIR estimates the net profits from a model tomato farm in a typical year to be $36,400 while net profits from a model rice operation are estimated to be $33,100. (See, tab No. 8.) However, actual figures from one of the "boot's" largest producers, Perry Farms, show annual losses in 1982 of $44,690, in 1983 of $118,624, and in 1984 of $8,161, totaling $171,475 and an average annual loss of $57,158.38. (See, tab No. 9 at page 2.) The Perry's are generally regarded as better than average farmers (See, tab No. 10) and based on the several days of testimony by other farmers in the region before the Board of Supervisors, their problems are not unique.

1. Estimates From The EIR Are Incorrect.

The great discrepancy between the estimates provided in the EIR and the actual Perry Farms figures is due to gross inaccuracies in the models relied upon by the drafters. These inaccuracies were described in detail in our comments addressed to the Planning Commissioners on October 18, 1985. (See, tab No. 11.) In summary:

(1) The EIR apparently assumes chemical spraying costs of approximately $35 per acre (See tab No. 12) while the actual Perry Farms' cost was $357 per acre. Independent research clearly supports this latter figure (See tab No. 13, University of California Extension Service, Economic Management Cost Studies at page 5 and Sample Cost Of Production at pages 17-21).

(2) The EIR estimated tomato harvest costs at $4 per ton while the Perry Farms actual cost was $14 per ton. Again, independent research supports this latter figure (see tab No. 13, Sample Cost of Production at page 21).

(3) The EIR assumed a rice selling price of $9.20 per hundred weight while Perry Farms received a selling price of $6.50 per hundred weight (see, tab No. 14). The Perry Farms price is supported by RGA and Farmers Rice Coop records showing the average price of $6.50 per sack over the last five years. Parenthetically, RGA and Farmers Rice Coop

account for 75% of all rice grown in California.

(4) Rice yields in the "boot" are estimated in the EIR to be 80 sacks per acre while Perry Farms got 75 sacks per acre. (See tab No. 14.) Information from the ASCS indicates that the average yield in the "boot" is about 50 sacks per acre.

It should be clear that the estimates provided in the EIR are not only overly optimistic but altogether unrealistic. Obviously, the actual financial experience of a farmer with 40 years experience is far more valuable in assessing the economic viability of farming in the "boot" than estimates provided by non-farmers. It is noteworthy that the EIR conclusions are at total variance with those reached by Kevin Platt of the SWA Group, prime consultant to the North Natomas Community Plan, who testified before the joint City/County Planning Commission that agriculture would not generally be a viable land use within this area during the next 20 years (See tab No. 15).

B. The "Boot" Is Not "Prime" Aricultural Land.

The area within the "boot" suffers from poorly producing soils due to alkali, high water table and poor drainage. (See, tab No. 16.) Indeed, in a letter to Perry Farms, the Yolo Engineers and Surveyors, Inc., concluded that

due to these conditions, "I would advocate a reduction or cessation of ranch development on your part other than maintenance items". (See, tab No. 16, letter dated July 5, 1985.)

Poor soil conditions in the "boot" is largely responsible for the lower production in this area. One of the chief causes of the poor soil conditions is inadequate drainage. While the draft EIR recognizes this problem, the drafters assert that "problems with high-water table historically have been managed in the North Natomas area with drainage channels and tile drains". (See tab No. 12 at page 224.) Interestingly, however, Perry Farms possesses the only tile drain in the area which was installed on only six acres of land at great expense. Further, drainage channels have not alleviated the drainage problem for the past 40 years.

In light of the unique problems facing our clients in the "boot", there is little hope that farming conditions will improve.

C. Encroaching Urban Development Will Further the Infeasibility of Farming In the "Boot".

It is hoped that the foregoing discussion successfully demonstrated the present economic infeasibility of farming in the "boot". Yet, despite the unviability of continued agricultural production in this area, the Community

Plan would designate this area for permanent agricultural uses. In addition, the Plan further contemplates urban development to within 500 feet of the "boot's" borders. The effect of this development will be devastating to our clients. (See tab No. 16.)

1. Urban Development Will Seriously Conflict With Agricultural Uses.

The draft EIR correctly points out some of the obvious conflicts arising from the competing urban and agricultural uses. These negatives effects include:

(1) Interference with agricultural operations (e.g. limitations on pesticide/herbicide applications, burning, operational hours, etc.),

(2) "Trespassing, vandalism, and theft due to the proximity of urban uses to agricultural uses",

(3) "Land value impacts due to proximity to urban areas which tends to increase land value in anticipation of future urban development. This increase reduces the probability that farmers would make long-term investments to maintain the productive potential of the land." (See tab No. 17, draft EIR at pages L-56 through L-71 including exhibits.)

2. These Conflicts Will Have A Devastating Impact On Farming.

The conflicts identified in the EIR are indeed real. For example, the Sacramento County Agricultural Commissioner has informed Perry Farms that in light of current regulatory controls relating to aerial spraying near developed areas and FAA rules prohibiting turn-arounds over populated areas, the use of aircraft for pest control could be made next to impossible. (See, tab No. 18 at page 1.)

The Commissioner pointed out an additional problem of a more perplexing nature. Currently, Sacramento Air Pollution Control District Regulations prohibit burning in Natomas when the wind is blowing out of the north to protect the City of Sacramento. Following development to the north of the "boot", the Commissioner suggests that "it will be very difficult to allow any burning because people will be impacted by either a north or south wind, unless several miles separate the burning from the people" (See tab No. 17 at page 2). Because of the predominantly southerly and northerly wind directions in this area, and the urbanization of the downwind lands in North and South Natomas, it is likely that burning (essential to farming operations) will be banned year-round. (See tab No. 19, Wind Flow Patterns.)

Recently, Perry Farms was informed by its aerial

spraying service that should development occur near to its borders, "the nonagricultural land will effectively block agricultural aircraft from treating these properties". (See, tab No. 20, letter dated July 5, 1985.)

Further conflicts include prohibitive regulations respecting use and application of pesticides (See, tab No. 21), noise restrictions (See, tab No. 22) and the difficulty and added expense of obtaining water service as a result of urban development (See, tab No. 23).

3. The Urban Development Faces Serious Risks From Nearby Farming.

The negative impacts of the competing urban and agricultural uses are not one-sided. The proposed urban development faces numerous risks including:

1. Exposure to pesticide/herbicide application,

2. Exposure to smoke (from burning) and dust (from soil preparation),

3. Exposure to noise (from machinery operations),

4. Hazards to children (e.g., irrigation channels, ditches and machinery),

5. Exposure to mosquitoes breeding in flooded fields. (See, tab No. 17, at page L-56.)

It should be noted that many of these potential risks to urban development and others have already developed

into real problems adversely impacting farming operations at Perry Farms. John Perry has reported the following conflicts:

"1) The inability to apply certain pesticides and herbicides within 500 feet of houses has required the application of more costly and less effective materials;

2) The inability to burn has required more expensive and less productive cultural practices;

3) The traffic on the Garden Highway has made the moving of farm equipment extremely difficult;

4) Complaints about crop dusters has delayed timely applications of pesticides and herbicides;

5) Complaints about agricultural noises has brought out the Sheriff's Department and the Health Department to investigate, which disrupts farming activity;

6) Complaints about our legal alien farm workers has brought out the border patrol to investigate causing our workers to lose valuable work time;

7) Residents being bothered by dust have illegally blocked agricultural right-of-ways;

8) Vandalism has destroyed equipment and ruined crops.

9) Dumping of garden refuse and garbage in irrigation ditches has damaged crops;

10) Complaints from residents about early morning

and late night farming activities has brought out the Sheriff's Department to investigate which disrupts the farming.

The above are just a few examples of problems which have occurred recently. Imagine the scene after the urbanization in south and north Natomas and the influx of people which will accompany it. Farming in this area will be finished."

II

THE STRATEGY UNREASONABLY RESTRICTS THE USE OF CLIENT LAND WITHOUT PROMPT AND ADEQUATE COMPENSATION

The Strategy proposes a system of transferable development credits (TDC) to compensate our clients for the designation of their properties for permanent agriculture uses. We submit that the Strategy unreasonably restricts our clients' legitimate use of their land without providing for prompt or adequate compensation for this restriction. As a result, the Strategy appears to constitute an unconstitutional taking of property without just compensation.

A. The Proposed Permanent Agricultural Zone Places An Unreasonable Use Restriction Upon Client Lands.

It has been clearly shown that our clients are

incapable of earning a reasonable return on their land in that they have been suffering substantial financial losses in recent years. The Plan contemplates a permanent agricultural use designation of our clients' property, thereby permanently locking them into a situation wherein they will be forced to either operate their land at a loss or shut down operations altogether. Further, the Plan calls for urban development to within 500 feet of agricultural operations. This will necessarily cause the numerous conflicts discussed above. The end result is the denial of any economically viable use of this land. As noted above, this fact was well known to the planners as evidenced by the testimony of Kelvin Platt (See tab No. 15).

1. Implementation of The Strategy Will Result in a "Taking" of Our Clients' Property.

The Fifth Amendment to the U. S. Constitution guarantees that private property shall not "be taken for public use without just compensation." According to the U. S. Supreme Court "the application of a general zoning law to particular property effects a taking if the ordinance. . . denies an owner economically viable use of his land." (See, tab No. 24, at page 112.) Further, the Supreme Court has held that "if an owner files suit and establishes that he is incapable of earning a 'reasonable return' on the

site in its present state, he can be afforded judicial relief." (See, tab No. 25, at page 641, note 13.)

For the above reasons, we believe that the unreasonable use restriction placed upon our clients' land constitutes a "taking" under the decisions of the U.S. Supreme Court. Indeed, the Strategy admits the inequity of the permanent agricultural use restriction and proposes the TDC System as the appropriate compensation. (See, tab No. 26 at pp. 6-7.)

B. The TDC System is an Inadequate Means of Compensating Our Clients for the Unreasonable Use Restriction.

The TDC system is an inadequate means of compensation for the unreasonable use restriction placed upon our clients' lands because it is far too speculative and uncertain. The uncertainty of the system is underscored by the following facts:

(1) The Strategy provides: "Ultimately, the value of a development credit is set by the amount an investor in the development area is willing to pay for the right to build the land use as designated in the community plan." (See tab No. 26, at page 28.) Clearly, the value of the credits and our clients' ultimate compensation depends on the amount a developer is willing to pay to build in the urban development area rather than what a willing buyer would pay for our clients' property. Since high land values in the development

are likely to reduce the value of the development credits, it is almost certain that the value of the development credits will not equal the fair market value of our clients' land. That our clients will not be adequately compensated is punctuated by the Strategy's allocation of double credits to Zone 1 land as opposed to Zone 2 land (client land) notwithstanding that Zone 1 is merely a meandering strip along the canal not served by any existing roads whereas the client land in Zone 2 is immediately served by the West El Camino interchange, El Centro and Garden Highway and is next door to already existing commercial development.

(2) The Strategy contemplates a complicated and lengthy process before our clients will be able to sell their credits and obtain compensation. Appropriate zoning ordinances must first be established in compliance with the Community Plan which create permanent agricultural uses in the "boot". (See, tab No. 26 at page 22.) At this point, the placing of an unreasonable use restriction and possible taking discussed above have occurred. Subsequently, urban development applications may be processed and approved. (See, tab No. 26 at pp. 22-23.) Obviously, a substantial period of time is likely to pass between the adoption of the Community Plan and final sale of the development credits by our clients. Hence, the TDC System unfairly requires our clients to suffer

through a protracted and indefinite waiting period before they will be compensated.

(3) The Strategy provides for compensation in the form of development credits based upon the size and location of the land in the sender area. (See, tab No. 26 at page 11.) Arguably, these credits have a money value, yet practically speaking, they are only worth what a developer is willing to pay. Further, whether they will ever be converted into money depends not on an act by the state, but rather on an act by some third party developer over whom the government has no control. Thus, in the final analysis, our clients receive development credits without a determined value and without a definite market, as such, this system is far too uncertain and speculative.

1. The TDC system does not provide "just compensation."

The U. S. Supreme Court has repeatedly held that "just compensation is to be measured by 'the market value of the property at the time of the taking contemporaneously paid in money'." (See, tab No. 27, at page 382.) (Emphasis added.) The TDC System fails to comport with these requirements in that 1) the development credits have no necessary relationship to the fair market value of the property taken; 2) the compensation is not contemporaneous

with the taking, and 3) compensation is in the form of development credits instead of money. Accordingly, the TDC system fails to provide "just compensation" to our clients.

Based on the foregoing discussion, it is submitted that the Strategy proposes an unconstitutional taking of our clients' property without just compensation.

III

CONCLUSION

Continued farming operations in the "boot" is no longer an economically viable proposition. The losses suffered by our clients are largely the result of the unique problems associated with farming in the "boot". These problems include poor soil productivity due to aklali, clay content, inadequate drainage and high water table, and restrictions on aerial spraying, noise and chemical application.

The Strategy and proposed Community Plan provide for urban development within a short distance of our clients' farms. This will result in restrictions on farming operations due to numerous conflicts with urban development and substantial risks to those within the development with the attendant threat of lawsuits against these landowners. In light of all of the above, it must be concluded that our clients cannot earn a reasonable return on their investments

and, as such, farming is infeasible in the "boot".

Lastly, in view of the fact that farming is no longer an economically viable alternative, we believe that the Strategy's designation of client lands for permanent agricultural use is both unreasonable and unconstitutional.

We appreciate your attention to our clients' concerns and hope that we have provided you with useful information in planning our City and County's future development.

Very truly yours,

JOHN V. DIEPENBROCK

DMW1/13

CLIENT LIST

	Size of Farm (Acres)	Years Owned/ Farmed
[ ] Perry Family, 1831 Garden Highway, Sacramento	220	40
[ ] Lawrence Raposa, 2320 Garden Highway, Sacramento	21	35
[ ] Irene Silva, 7330 Pocket Road, Sacto	29	40
[ ] Mary Leal, 101 3rd Street, Rodeo	10	60
[ ] Manuel Machado, El Centro Road, Sacto	48	40
[ ] John & Albert Martinelli, Rt 1, Box 81 Clarksburg	37	6
[ ] Donald Ekstrom/Tom Atkinson, 2600 Garden Highway, Sacramento	12	12
[ ] Charles Marston, Garden Highway, Sacramento	33	12
[ ] Ralph Marston, Garden Highway, Sacto	24	12
[ ] Terrance Moyer, 375 15th Street, Oakland	160	23
[ ] Percy Masaki, 481 Arden Way, Sacto	85	20
[ ] Weaver Family, Elk	15	25
[ ] Roxie Yenovkian, 1117 Alhambra Blvd., Sacramento	34	2
[ ] Dennis Bastio, Garden Highway, Sacto	40	40
[ ] Norm Brazelton, El Centro Road, Sacto	30	20

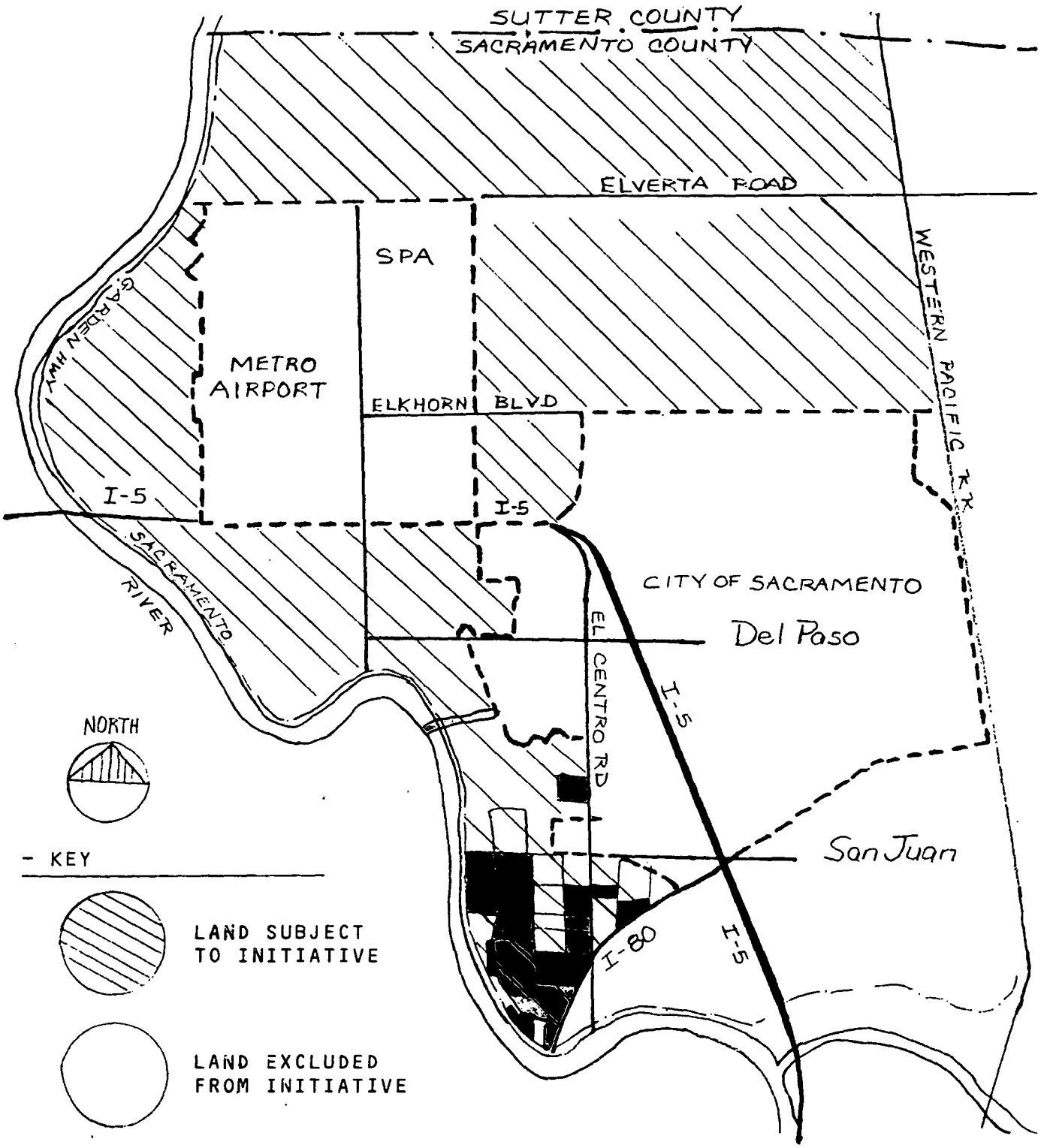

SUTTER COUNTY
SACRAMENTO COUNTY
ELVERTA ROAD
SPA
METRO AIRPORT
ELKHORN BLVD
WESTERN PACIFIC R.R.
GARDEN HWY
I-5
I-5
SACRAMENTO RIVER
CITY OF SACRAMENTO
Del Paso
EL CENTRO RD
I-5
NORTH
San Juan
I-80
I-5
- KEY
LAND SUBJECT TO INITIATIVE
LAND EXCLUDED FROM INITIATIVE

EXHIBIT A

L. AGRICULTURAL LANDS -- MITIGATION MEASURES

The Draft Community Plan briefly discusses techniques available to the City and County to preserve buffer zones designated on the Land Use Map. As discussed in the Community Plan, the buffer zones include a variety of proposals for greenbelts, agricultural preservation, open space, recreation, and elimination of development in environmentally sensitive areas, as well as buffering non-urban from urban uses.

The techniques discussed include acquisition, general plans and zoning, joint City/County Planning Commission and compensatory regulation such as transfer of development rights (TDR). The Community Plan concludes that rather than using one technique the County and City will need to use a careful blend of techniques to achieve political, legal, and economic permanence.

Alternatives A through E would result in progressively increased amounts of agricultural land taken out of production while providing no specific proposal for preserving the agricultural land remaining within the Study Area or in the surrounding Analysis Area.

The North Natomas Community Plan which is adopted should include a specific agricultural preservation strategy. Such a preservation strategy would have major implications for the final design of the Community Plan -- the location, uses, intensity, and design of development, as well as the form and content of the land use regulations.

This section describes a proposed preservation strategy for inclusion in the Community Plan which uses a variety of planning and agricultural preservation techniques. Implementation of the strategy would result in a permanent, exclusive agricultural district in both the Study Area and the surrounding lands in the Analysis Area. The strategy also includes consideration of a major amount of urban development, such as is designated in Alternatives B through E. [The urban development would be designed to limit impacts and conflicts with agricultural uses and also would be the major source of financing to implement the agricultural preservation strategy.]

No one strategy would work for all the Community Plan alternatives. The design of the strategy would have to be tailored to the specific Community Plan proposed for adoption.

factor, land values, has continued to increase well beyond values which can be justified by agricultural rent value.

Land value increases are documented in a subsequent section. Increased land values are due to the anticipated potential of the Study Area for urban uses. High land values eliminate the possibility of land investment for agricultural infrastructure and conservation practices.

External factors have changed substantially since the Mundie report was published. Most significantly, prices of crops grown in the area have fallen greatly while costs of production have continued to increase. This has resulted in reduced profits and losses for farmers in NOrth Natomas as well as throughout the County. In spite of the recovery of the national economy, the agricultural industry is still experiencing financial difficulties at all levels: local, regional and national.

The value of agricultural production in Sacramento County has fallen dramatically, due to decreased commodity prices (which has also been experienced nationally) and also because of the PIK program which has resulted in the removal of thousands of acres of agricultural land from production.

In spite of current economic conditions unfavorable to agricultural, farm operations in the North Natomas area remain viable and can survive and prosper as economic conditions improve.

Exhibits L-32 (tomatoes) and L-33 (rice) summarize the findings of the economic feasibility analysis. The associated documentation and assumptions are included in Appendix L-5.

The two exhibits show total revenue associated with crop production and sale on line 1. Variable Costs (line 2) include all direct costs to produce the crop such as labor, fuel, and materials. Line 2 is subtracted from line 1 to produce total income above variable costs (line 3). Total cash overhead, including land rent, interest on operating capital, and professional services (line 4); and ownership costs, including interest, taxes and insurance, and equity invested (line 6) are deducted from income above variable costs to produce net return (line 7). A management fee (line 8), typically five percent, is deducted from net return to produce pre-income tax economic return (line 9).

Both farm operations are shown to be profitable, given the assumptions used in the models. The key variables which will support continued feasibility of

The Sacramento Bee

Locally owned and edited for 128 years

JAMES McCLATCHY, *editor, 1857-1883*
C.K. McCLATCHY, *editor, president, 1883-1936*
WALTER P. JONES, *editor, 1936-1974*
ELEANOR McCLATCHY, *president, 1936-1978*

Volume 257—No.42,685
Wednesday, July 10, 1985

C.K. McCLATCHY, *editor*
GREGORY E. FAVRE, *executive editor*
PETER SCHRAG, *editorial page editor*
FRANK R. J. WHITTAKER, *general manager*

Editorials

The Greenbelt 'Boot'

It makes sense to put the farmland between the northern Sacramento city limits and Sutter County into an agricultural preserve for the next 20 or 30 years. Such a greenbelt would protect the Metropolitan Airport from urban encroachment; insulate from already-active land speculators the many farmers who want to continue farming there, and effectively check the urban sprawl now threatening to expand far beyond the city.

The greenbelt proposal before the Board of Supervisors today, however, goes below that logical area, which is roughly north of I-5 and Elkhorn Road. As drawn now, it includes all the unincorporated territory extending southward to I-80 — a boot-shaped section between the west city limits and the Sacramento River. In that "boot" are dozens of small farmers and landowners who can no longer farm profitably because of restrictions against the use of some pesticides (due to their proximity to the river), crop dusting and the movement of farm machinery on the roads in the area. It would be grossly inequitable to lock them into the greenbelt.

Moreover, their inclusion very likely would generate strong opposition to the greenbelt itself — possibly enough to defeat the plan at the polls. Its author, Tina Thomas, an attorney and former president of the Environmental Council of Sacramento, wants the supervisors to put the plan before the voters Nov. 5.

Thomas' original boundaries didn't include the boot area. She says her dozen or so meetings with landowners there persuaded her that it would be economically unfair and could very well rouse the Farm Bureau to organize a campaign against the plan. But Supervisor Ted Sheedy, whose district includes the greenbelt, insisted that the boundaries be drawn to embrace the area. Thomas says she reluctantly complied because Sheedy otherwise would have opposed the entire plan; then supervisorial courtesy toward projects in a member's district would have left it without support on the board.

Sheedy contends the boot should be included to prevent urban expansion into noise zones south and southeast of the Metropolitan Airport. Yet the contours of the noise zones specified in federal and state regulations do not extend into the bulk of the boot area. Where they dip below I-5, largely west of Power Line Road, the land already is owned by the county and thus is safe from encroachment. Noise control and the larger purpose of the greenbelt would still be completely served by redrawing the boundary to leave out most of the boot.

Even if it is excluded, the proposal could still draw formidable opposition. Already some environmentalists and others are denouncing the greenbelt as a scheme to benefit property values of developers who own adjacent North Natomas land inside the city. That's not the case, of course. Thomas' integrity in environmental concerns and her concern for the protection of farmland have long been amply demonstrated. And while an incidental result of the greenbelt might be to enhance those other land values, the same thing would be argued if there were no greenbelt and the supervisors tried to maintain agricultural zoning within that area against fierce pressure from developers.

That, in fact, is the final reason why the greenbelt approach — taking zoning decisions in that area out of the supervisors' hands — is desirable. This and future boards would be freed of those development pressures and the northwest metropolitan region would be spared the urban sprawl the board has permitted in areas like Laguna Creek. But the plan already has enough opposition. If it's to have the best chance to succeed at the polls, the boot should be left out of the greenbelt.

The Sacramento Bee

Locally owned and edited for 128 years
JAMES McCLATCHY, *editor, 1857-1883*
C.K. McCLATCHY, *editor, president, 1883-1936*
WALTER P. JONES, *editor, 1936-1974*
ELEANOR McCLATCHY, *president, 1936-1978*
Volume 257—No. 42,363
Monday, June 3, 1985

June 3 1985

C.K. McCLATCHY, *editor*
GREGORY E. FAVRE, *executive editor*
PETER SCHRAG, *editorial page editor*
FRANK R. J. WHITTAKER, *general manager*

Editorials

North Natomas Greenbelt

Sacramento County supervisors would do themselves a favor and take a long step toward better planning by putting on the Nov. 5 ballot a proposal to lock most of North Natomas in an agriculture-only greenbelt. That rich farmland, north and west of the city, is the next obvious target of land speculators poised to repeat there the crazy-quilt development that's been occurring elsewhere in the metropolitan region.

Farmers in the area would prefer to continue farming, but unless they're thus insulated against the pressures of land speculation they are not likely to be able to continue. And given the explosive and often uncontrolled growth permitted elsewhere in the county, the Board of Supervisors probably won't check the surge into North Natomas, either.

While ordinarily it's better to leave zoning decisions to the board, these plainly are not ordinary times. Sealing off that part of North Natomas for a reasonable future period would remove development pressures from the board and facilitate city-county coordination for other development in the area.

The greenbelt is the brainchild of Tina Thomas, an attorney, former president of the Environmental Council of Sacramento, and a longtime foe of uncontrolled urban sprawl. The agricultural preserve covers all the unincorporated territory between the city and the Sutter County line, west to the Sacramento River and east to the Western Pacific tracks. Developers in the adjacent Natomas area inside the city, who support the plan, have pledged to donate a second greenbelt strip to serve as a buffer between the main greenbelt and future urban growth.

There's one potential problem with Thomas' proposed boundary. Its tentative inclusion of the stretch of land south of I-5, between the city limits and the Sacramento River, would unfairly penalize the many small farmers in that section. Their proximity to the river and to expanding city residential areas means they can no longer farm economically because of restrictions on pesticide use, crop dusting and tractor mobility. It's wrong to deny them other land use options. Including them in the greenbelt almost surely would also provoke unnecessary organized farm opposition to the proposal.

Unfortunately, the plan will be seen by some as tantamount to endorsement of the sports complex development proposed by the Sacramento Sports Association in the city's North Natomas section. It shouldn't be regarded that way. The developers still have to demonstrate that their plan will not conflict with such other city goals as downtown revitalization. And the city has yet to complete a master plan that will dictate the course of that development. But unless the Thomas proposal is approved, even that plan will only be a rearguard action against uncontrolled growth to the north.

FIGURE 5

Sacramento Metropolitan Airport

Noise Area Boundary

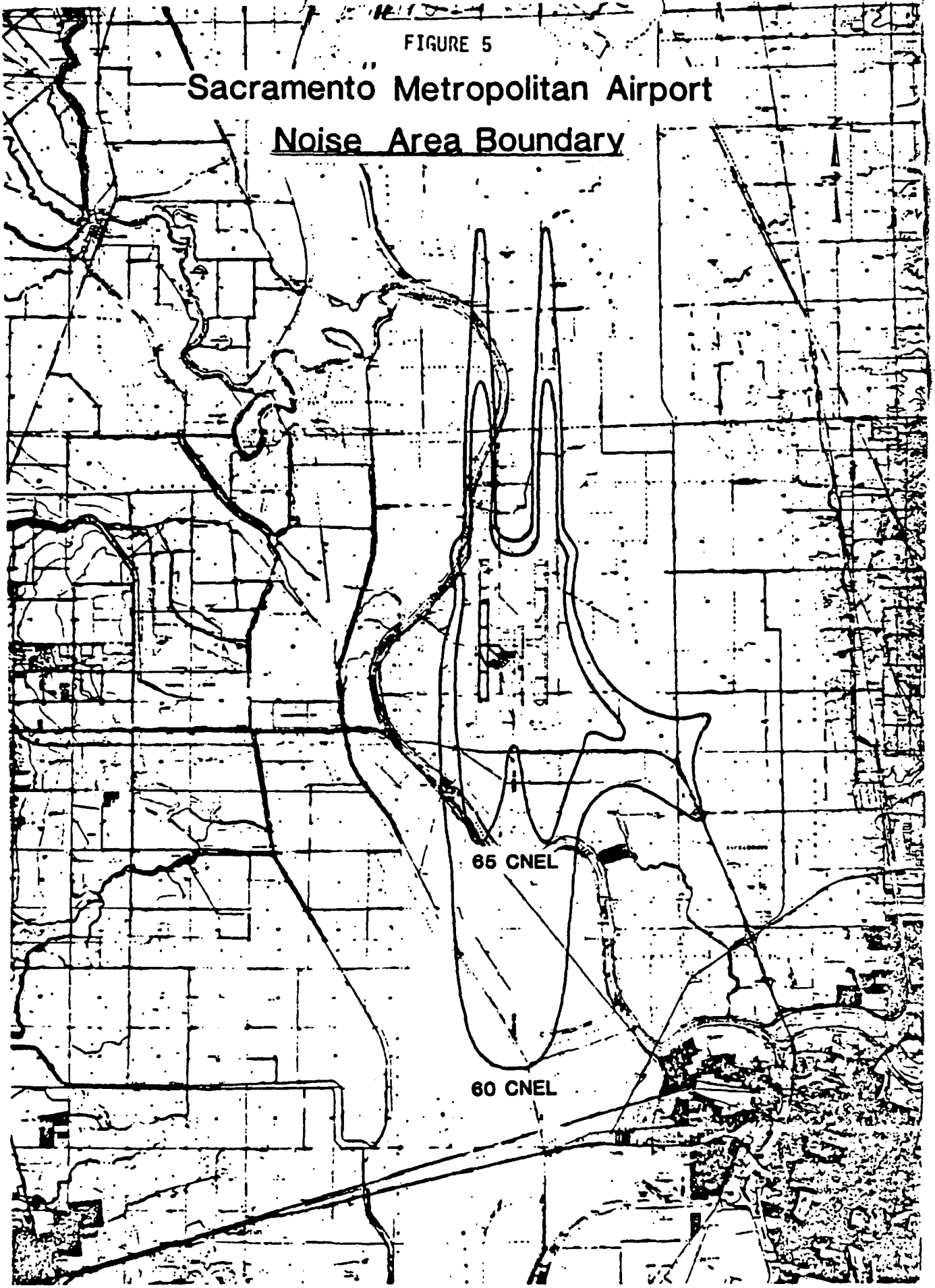
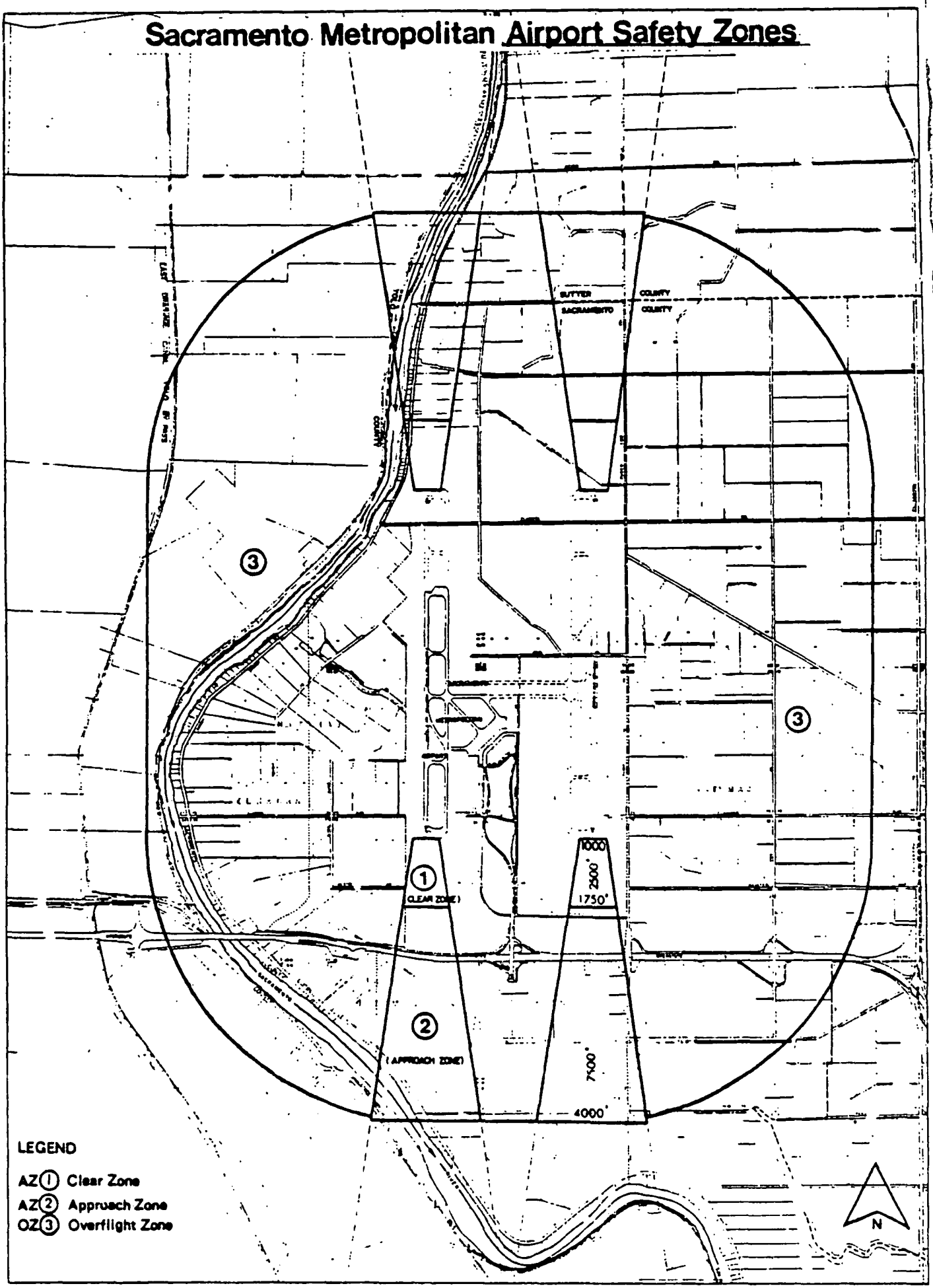


FIGURE 4


Sacramento Metropolitan Airport Safety Zones
SUTTER COUNTY
SACRAMENTO COUNTY
3
3
1
CLEAR ZONE
1000'
2500'
1750'
2
APPROACH ZONE
7500'
4000'
LEGEND
AZ 1 Clear Zone
AZ 2 Approach Zone
OZ 3 Overflight Zone
N

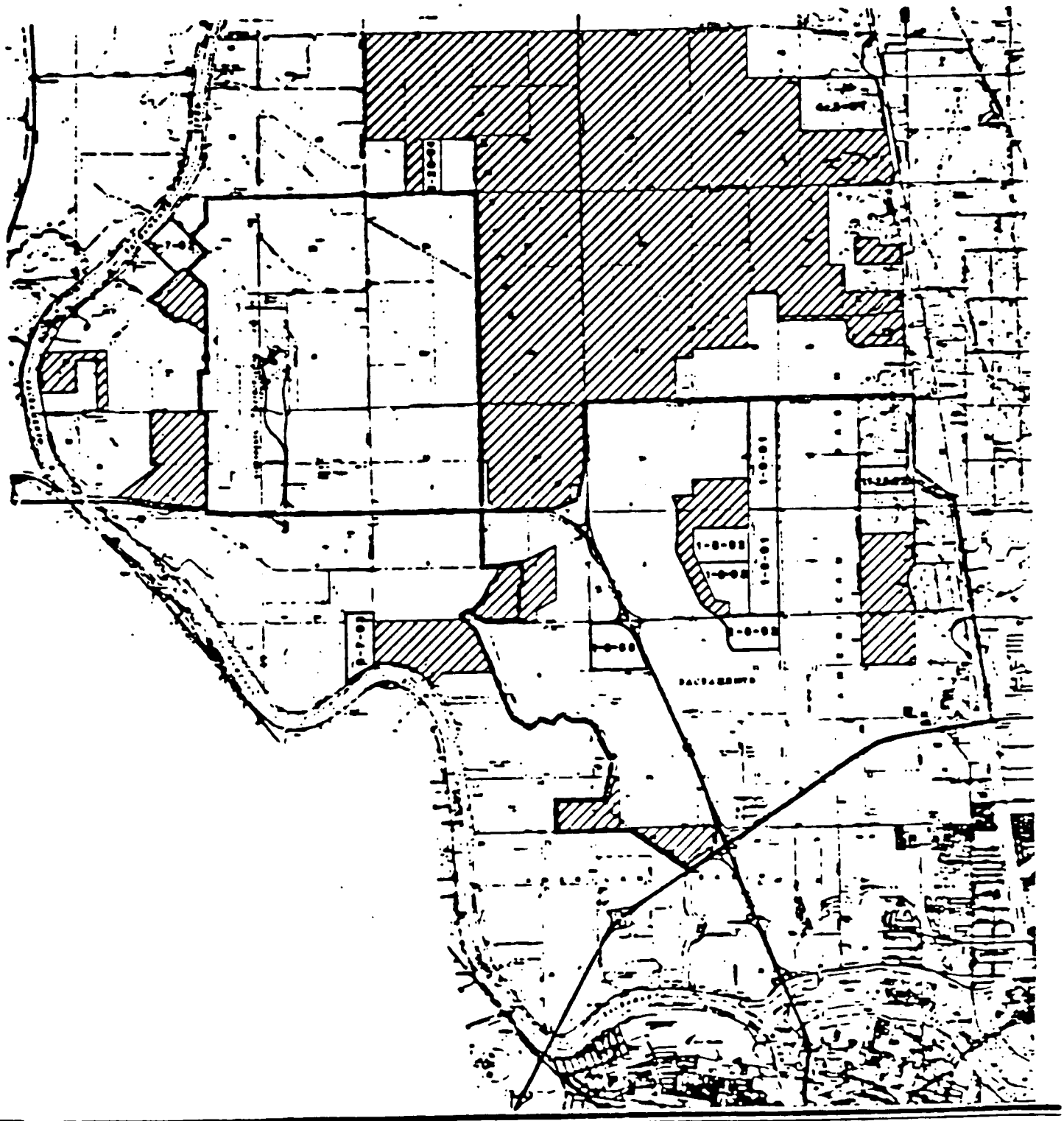


EXHIBIT L-13 WILLIAMSON ACT LANDS

Notice of Non-Renewal (Expiration date noted)

Existing Contract (Annually renewed for 10 years)

0 3200 6400 F

Source: City and County of Sacramento Planning Depts. 1984

SYNOPSIS

JOINT CITY/COUNTY PLANNING COMMISSION MEETING
AUGUST 30, 1984

REGARDING NORTH NATOMAS COMMUNITY PLAN
NOTICE OF PREPARATION
AND
ALTERNATIVE LAND USE SKETCH PLANS

GENERAL

Several Commissioners expressed serious concern about the North Natomas Planning Process and time schedule which was established by the City Council, as well as the lack of information which has been presented to date to justify an answer to the charge given the Consultant Team (i.e., to determine whether the North Natomas area should be urbanized at this time). Staff responded that the bulk of that analysis is still being prepared and will be presented at the October 4, 1984 meeting.

At this time, Commissioners took item C (alternative sketch plans) out of order on the agenda and heard the Consultant presentation.

ALTERNATIVE SKETCH PLANS

Kalvin Platt of The SWA Group gave a slide presentation of the three sketch plans and other projects which The SWA Group has implemented throughout the United States which relate to the features and issues of the North Natomas Planning Study.

Commissioner Simon commented that at the June 22, 1984 meeting, Commissioners reviewed the North Natomas Community Plan Background Report and agreed that the Assumptions contained in that Report were to guide the Consultant Team in preparing the sketch plans. Yet, in many instances, they haven't been. As an example:

1. A jobs/housing balance was to be assumed for the North Natomas area. The SWA Groups seven page explanation of the sketch plans indicates that each plan approximates a job/housing balance when considering adjacent communities. Commissioner Simon indicated that Plan No. 1 was based on an 80 percent ratio and that the other two Plans do less well.

2. It was to be assumed that Williamson Act lands were to be protected from proximate urban development yet Williamson Act lands are not strongly considered in any of the three Plans.

Kalvin Platt responded that agricultural uses would not generally be a viable land use within the Study Area during the 20 year planning horizon. Since Williamson Act contracts are for only a 10 year period, such lands were not protected except for specific designated sites on the sketch plans to be used for open space, greenbelts and to create a community identity for the area. His recommendation is that Williamson Act lands can't be protected for the 20

year period and he asked Commissioners to reject his recommendation if they did not agree and to give him additional direction. Commissioners took no action.

Kalvin Platt also requested Commission direction on the jobs/housing balance issue as to which area is to be considered (Study Area only or surrounding communities as well) and what percentage the balance is to be. He also requested direction as to how the Airport Special Planning Area (SPA) would relate to the jobs/housing balance issue inasmuch as approximately 2,000 acres have been designated for industrial use in the SPA yet the estimated market demand is for only 500 acres over the 20 year planning horizon. The remaining 1,500 acres may build out over a larger period but he needs to plan to house the employees now by designating appropriate amounts of residential land use.

Commissioner Simon stated that when new areas are opened for urbanization, a jobs/housing balance should be provided wtihin the Planning Area. She suggested that the percentage be 100 percent or even in excess of 100 percent of the areas residential needs.

Commissioner Holloway indicated that the North Natomas Study Area represents a 14,000 acre clean slate and that there is no reason why a full jobs/housing balance can't be met within the Study Area.

Commissioner Pollock commented that the Antelope/North Highlands area is planned as a residential community nearby to the east of the Study Area. If this area is developed 80 percent residential and North Natomas is developed with a 100 percent jobs/housing balance where are the Antelope/North Highlands residents going to work?

An unidentified Commissioner stated that you don't have to look as far as North Highlands. Jobs are needed in the Del Paso area and so the Commissioner is opposed to a 100 percent jobs/housing balance in North Natomas.

County Planning Director Sam Miller stated that whatever percentage is decided on and used in the Plan, the jobs/housing balance must be analyzed in the EIR and documented in the planning process as to the need and effect on surrounding communities.

Commissioner Hunter mentioned that if the North Natomas area has a tremendous locational and market advantage for housing and jobs as is so often stated, what will be the impact of urbanization of the Study Area on North Sacramento and other areas not so well endowed from a jobs or economic standpoint?

Kalvin Platt indicated that from his perspective, the Study Area is not an attractive area for residential as it now stands considering such things as Metro Airport and the freeway system. Instead, the Community Plan must create an overall environment suitable for residential uses if you are to bring residents into proximity to their jobs.

EXHIBIT L-32

Farm Unit Model -- Tomatoes

	Item	Typical Year
•	Gross Receipts from Production	
	-- Size of Farm Unit	160
	-- Total Revenue Per Acre	1,400
1	-- Total Revenue	$220,300
•	Variable Costs	
	-- Preharvest Cost Per Care Total	500
	-- Harvest Cost Per Acre Total	200
2	-- Total Variable Cost	$115,900
3	Income Above Variable Cost	$104,400
•	Cash Overhead	
	-- Land Rent (25.00%)	55,100
	-- Interest on Operating Capital (*)	6,500
	-- Accounting, Legal, Misc. Expenses	0
4	-- Total Cash Costs	$ 61,600
5	Income Above Cash Costs	$ 42,800
•	Ownership Costs	
	-- Total Interest	400
	-- Total Taxes & Insurance	2,500
	-- Equity Investment (Principal)	1,600
6	-- Total Ownership Costs	$ 4,500
7	Net Return	$ 38,300
•	Deductible Expenses	
	-- Total Interest	6,900
	-- Total Depreciation	13,100
	-- Total Other	173,500
	-- Total Deductible Expenses	$193,500
8	Return on Investment (@ 5%)	$ 1,900
9	Pre-Income Tax Economic Return	$ 36,400

* 80% of Operating Costs are Borrowed at 14%.

Source: Nichols • Berman and Economic and Planning Systems.

EXHIBIT L-33

Farm Unit Model -- Rice

	Item	Typical Year
•	Gross Receipts from Production	
	-- Size of Farm Unit in Acres	600
	-- Total Revenue Per Acre	$736
1	-- Total Revenue	$ 441,600
•	Variable Costs	
	-- Preharvest Cost Per Acre Total	(400)
	-- Harvest Cost per Acre Total	(100)
2	-- Total Variable Cost	$(274,300)
3	Income Above Variable Cost	$ 167,300
•	Cash Overhead	
	-- Land Rent (25.00%)	(110,400)
	-- Interest on Operating Capital (*)	(15,400)
	-- Accounting, Legal, Misc. Expenses	(0)
4	-- Total Cash Costs	$(125,800)
5	Income Above Cash Costs	$ 41,500
•	Ownership Costs	
	-- Total Interest	(500)
	-- Total Taxes & Insurance	(3,900)
	-- Equity Investment (Principal)	(2,300)
6	-- Total Ownership Costs	$ (6,700)
7	Net Return	$ 34,800
•	Deductible Expenses	
	-- Total Interest	(15,900)
	-- Total Depreciation	(14,200)
	-- Total Other	(388,600)
8	-- Total Deductible Expenses	$(418,700)
9	Return to Management @ 5%	$ 1,700
10	Pre-Income Tax Economic Return	$ 33,100

* 80% of Total Costs are Borrowed at 14%.

Source: Nichols • Berman and Economic and Planning Systems.

FINANCIAL ANALYSIS OF FARMING ACTIVITIES OF PERRY FARMS

CROP YEARS: 1982 THROUGH 1984

AREA: SOUTH OF SAN JUAN ROAD, NORTH OF I-80, WEST OF EL CENTRO ROAD

SOURCE OF DATA: PERRY FARMS

PERRY FARMS

Summary of Total Loss for the Years 1982 Through 1984

Property South of San Juan Road,

North of I-80, West of El Centro Road

	1982	1983	1984	Combined Total
Total Loss	$(44,690)	$(118,624)	$(8,161)	$(171,475)

Annual Average:
($57,158.33)

PERRY FARMS

1984 Crop Revenue and Costs

Property South of San Juan Road,

North of I-80, West of El Centro Road

Pop corn yield - 115 acres grown	221 tons
Gross revenues	$ 48,620
Rent - 33.3%	(16,190)
Growing costs per acre:	
$311.20 x 115 acres	(35,788)
Harvesting costs	(6,630)
Overhead - $30 an acre	(3,450)
Interest - $16 an acre	(1,840)
Net Loss on 1984 Pop Corn	$ (15,278)
Tomatoes yield - 55 acres grown	1,540 tons
Gross revenue	$ 81,620
Rent - 18%	(14,692)
Growing costs per acre:	
$621.00 x 55 acres	(34,155)
Harvesting costs	(21,560)
Overhead - $30 an acre	(1,650)
Interest - $30 an acre	(1,650)
Net Income on 1984 Tomatoes	$ 7,913
Corn yield - 115 acres grown	465 tons
Gross revenues	$ 65,565
Rent - 33.3%	(21,833)
Growing costs per acre:	
$311.20 x 115 acres	(35,788)
Harvesting costs	(3,450)
Overhead - $30 an acre	(3,450)
Interest - $16 an acre	(1,840)
Net Loss on 1984 Corn	$ (796)
Total Loss 1984	$ (8,161)

PERRY FARMS

1983 Crop Revenue and Costs

Property South of San Juan Road,

North of I-80, West of El Centro Road

Corn yield - 390 acres grown	910 tons
Gross revenues	$ 107,380
Rent - 33.3%	(35,758)
Growing cost per acre:	
$311.20 x 390 acres	(121,368)
Harvesting costs	(6,370)
Overhead - $30 an acre	(11,700)
Interest - $16 an acre	(6,240)
Net Loss on 1983 Corn	$ (74,056)
Tomatoes yeild - 138 acres grown	2,001 tons
Gross revenue	$ 100,050
Rent - 18%	(18,009)
Growing costs per acre:	
$621.00 x 138 acres	(85,698)
Harvesting costs	(28,014)
Overhead - $30 an acre	(4,140)
Interest - $30 an acre	(4,140)
Net Loss on 1983 Tomatoes	$ (39,951)
Sugar beets yield - 57 acres grown	1,140 tons
Gross revenues	$ 39,900
Rent - 22%	(8,778)
Growing costs per acre:	
$511.06 x 57 acres	(29,127)
Harvesting costs	(3,420)
Overhead - $30 an acre	(1,710)
Interest - $26 an acre	(1,482)
Net Loss on 1983 Sugar Beets	(4,617)
Total Loss 1983	$(118,624)

PERRY FARMS

1982 Crop Revenue and Costs

Property South of San Juan Road,

North of I-80, West of El Centro Road

Corn yield - 215 acres grown	709 tons
Gross revenues	$ 70,900
Rent - 33.3%	(23,610)
Growing costs per acre:	
$311.20 x 215 acres	(66,908)
Harvesting costs	(4,963)
Overhead - $30 an acre	(6,450)
Interest - $16 an acre	(3,440)
Net Loss on 1982 Corn	$ (34,471)
Tomatoes yield - 90 acres grown	1,737 tons
Gross revenue	$ 86,850
Rent - 18%	(15,633)
Growing costs per acre:	
$621.00 x 90 acres	(55,890)
Harvesting costs	(24,318)
Overhead - $30 an acre	(2,700)
Interest - $30 an acre	(2,700)
Net Loss on 1982 Tomatoes	$ (14,391)
Sugar beets yield - 103 acres grown	1,140 tons
Gross revenues	$ 90,125
Rent - 22%	(19,827)
Growing costs per acre:	
$511.06 x 103 acres	(52,633)
Harvesting costs	(7,725)
Overhead - $30 an acre	(3,090)
Interest - $26 an acre	(2,678)
Net Income on 1982 Sugar Beets	$ 4,171
Total Loss 1982	$ (44,690)

John TAYLOR FERTILIZERS

TELEPHONE 991-4451

POST OFFICE BOX 15289.... SACRAMENTO, CALIFORNIA 95851

Sacramento County Board of Supervisors and all interested parties:

I'm writing this letter on behalf of Perry Farms, and I consider them to be above average farmers.

I've worked for John Taylor Fertilizers Co. as a salesman/fieldman/pest control advisor for the past 27 years. The last 17 years I've worked in the Natomas area. For the past 17-year period of time Perry Farms has been a customer of mine, so I'm familiar with the land they farm as well as the surrounding land in the Natomas area. An honest appraisal by me is as follows: The good, productive ground (defined as being able to grow a good crop of tomatoes in any given year following either a wet or dry winter and growing orchard crops) is surrounded by Garden Highway on the south, Orchard Lane on the west, 880 on the north to San Juan Road and San Juan Road on the north to Northgate Blvd.and Northgate Blvd. on the east. There are some pockets of good ground adjacent to Garden Highway and following the river north.

All the ground west of El Centro Road and south of San Juan Road other than some narrow stretches on the river is extremely wet natured. A dark-colored soil type scattered through the area is even more wet-natured than the rest. Also there are some areas of alkalinity which are unproductive.

While this area is productive to a degree with very careful irrigation management, I don't see how it can be considered prime agriculture land. Because the ground is so wet-natured with poor sub-surface drainage, it could not grow orchard crops and is very marginal tomato ground.

There is development in the way of houses now along the river which makes it difficult for aerial application of pesticides, and aerial application in agriculture is here to stay as the fields are much of the times too wet because of irrigation to apply pesticides by ground equipment. With development also to the east of this area, it would make farming in the area very difficult. As it was in the development of the Northgate area, there would be complaints of dust and noise by farm equipment and aerial application would probably be impossible as it ended up to be at Northgate.

Respectfully,

Bill Meredith

Bill Meredith

Grow with John Taylor Fertilizers

DIEPENBROCK, WULFF, PLANT & HANNEGAN

LAW OFFICES

300 CAPITOL MALL, SEVENTEENTH FLOOR

SACRAMENTO, CALIFORNIA 95814

(916) 444-3910

TELECOPIER (916) 446-1696

TELEX 70-6328

FORREST A. PLANT
HN J. HANNEGAN
BERT R. WULFF
JOHN S. GILMORE
DAVID A. RIEGELS
DENNIS M. CAMPOS
JACK V. LOVELL
JOHN E. FISCHER
CHARITY KENYON
KAREN L. DIEPENBROCK
FORREST A. PLANT, JR.
THOMAS G. MOUZES
MICHAEL D. WELCH
TIMOTHY P. MURPHY
MARGUERITE E. C. MOSNIER
FELICITA S. YOUNG
STEVEN W. RAY
JO P. LOWE --

JOHN V. DIEPENBROCK
R. JAMES DIEPENBROCK
CYRUS A. JOHNSON
THOMAS A. CRAVEN
WILLIAM B. SHUBB
JAMES T. FREEMAN
DENNIS R. MURPHY
WILLIAM W. SUMNER
FRANCIS M. GOLDSBERRY II
BRIAN T. REGAN
RAYMOND M. CADEI
KEITH W. McBRIDE
JEFFERY OWENSBY
DAVID K. HUSKEY
LAWRENCE B. GARCIA
FRANK P. FEDOR
WILLIAM J. COYNE
PATRICIA J. HARTMAN

October 18, 1985

FILE NO 58/A

SUBJECT: Comments on Final EIR for North Natomas Community Plan

Lawrence Augusta, Chair
City Planning Commission
City of Sacramento
1231 I Street
Sacramento, California 95814

Baxter Culver, Chair
Policy Planning Commission
Sacramento County
700 H Srtreet
Sacramento, California 95814

Planning Commissioners:

Several weeks ago we appeared on behalf of our farmer-clients to comment on the Draft EIR for the North Natomas Community Plan at the August 1, 1985 public hearing. Recently, we received a copy of the Final EIR with the responses to our comments. We want to indicate our appreciation for addressing our specific concerns. Indeed, we fully recognize the difficulty of assessing the farming conditions in the Sacramento area. However, we must, again, bring to your attention the fact that the cost estimates relied upon in determining the feasibility of farming in the area of North Natomas, west of the city limits and south of the Metropolitan Airport, called the "boot", fall far short of

reality.

This letter will attempt to identify the major inaccuracies in the EIR and substantiate, to the degree possible, the actual facts and figures so as to provide a more accurate picture of farming in the "boot". The principal inaccuracies to be discussed include aerial chemical spraying costs, harvest costs, and yields of tomatoes, problems and solutions regarding high-water table, the market price, and yields of rice.

A. Aerial Chemical Spraying Costs for Tomatoes

According to the Final EIR, "[t]he primary difference between the two Models [Perry Farms and DEIR] is in variable cost assumptions for growing and harvesting. Regarding growing, the amount of chemicals and the corresponding aerial applications are the only significant differences." (See response to Comment L-26, at p. 223 of FEIR.) The response further states that the Perry Farms' Model figure is ten times greater than the DEIR's. In support of the DEIR Model, the response cites a Davis Model and interviews with other farmers.

We have independently researched these costs and have determined that the $357-per acre figure in the Perry Farms' Model is in line with figures produced by independent researchers.

In the Economic Management Cost Studies compiled by the University of California, Coooperative Extension of

Sacramento County, the cost per acre for aerial chemical spraying of tomatoes amounted to $401. (See page 5 of the Economic Management Cost Studies attached hereto as Exhibit "A".) Further, the Sample Cost of Production for the Woodland area compiled by the UC Cooperative Extension of Yolo County indicates an aerial chemical sparying cost of $297 per acre (See pp. 17-21 of the Sample Cost of Production attached hereto as Exhibit "B"). The difference between the costs of these two Models (Perry Farms and Yolo County) is accounted for by the fact that Perry Farms uses a ripening agent customarily used in the area, as well as a site-dress fertilizer as recommended by the fertilizer manufacturer.

It should be clear that the Perry Farms' Model figure of $357 per acre for aerial spraying costs is supported by the independent research cited. Therefore, we are curious to see the Davis Model relied upon by the drafters of the EIR. Obviously, there is a great disparity between our figures and those of the Davis Model since the drafters indicate that our figures are ten times too high. If the drafters' figures are accurate, the cost per acre for aerial spraying is somewhere in the neighborhood of $37 per acre. This figure obviously defies both logic and reason.

Parenthetically, the drafters of the EIR indicated that their figures are based on interviews with Farmers in the area. To the extent that Perry Farms is one of the three

tomato growers in the area, we are curious to know with whom the interviews were conducted.

B. Tomato Harvest Costs

Obviously, there is a gross disparity between the $4 per ton cost of harvesting found in the EIR and the $14 per ton cost of harvesting provided by the Perry Farms' Model. To assess the accuracy of these figures, we looked to the U.C. Extension Model of Yolo County which indicates a $10 per ton cost for harvesting. (See page 21 of Exhibit "B".) However, it is important to note that the UC Model is based on a 700-acre farm versus the 160-acre farm of Perry Farms. Obviously, the costs of such things as machine depreciation will be less as they are spread over a larger farm area. Accordingly, the U.C. $10 figure must be adjusted upward, appropriately, to reflect the actual costs incurred by a smaller 160-acre farm.

Thus, it should be clear that the $14 figure of Perry Farms is accurate insofar as it relates to the cost of harvesting a farm the size of those found in the "boot". We are uncertain as to the size of the farm in the Model used by the drafters. But, if a 700-acre farm produced harvest costs of $10 per ton, the drafters' Model must have been unrealistically large to the extent that it produced a $4 per ton figure. The $4 per ton figure, then, has no bearing on the actual farming costs in the "boot".

Regarding the response to comment L-27, the drafters admit that yields will vary among different farms but that interviews with local farmers support their yield figures which are far in excess of those submitted by Perry Farms. It should be noted that Perry Farms had the single highest yield in 1981 of any grower in Sacramento County delivering to Contadena Foods. While this fact alone will not support the yields provided by Perry Farms, it should indicate that the Perry Farms' yields are, at a minimum, typical of those of the growers in the area.

C. Rice Prices and Yields

Response to comment L-26 provides:

> "[T]he primary difference between the two Models is price and yield assumptions. Their Model asserts that our price ($6.60) [sic] is above current market levels and our yields (80) run counter to experience." [Note that the actual EIR assumed price was $9.20, not $6.50 which was the Perry Farms' price.]

In reply thereto, not only do we contend that the prices and yields run counter to actual figures, but we respectfully challenge the drafters to produce a rice grower in the area who has received anywhere near the $9.20 price per hundred weight for his rice in the past three years. Obviously, the drafters relied on the 1980 $14 per hundred weight price in reaching this conclusion. However, it should be emphasized that this price was a result of unprecedented price forces. The $14 per hundred weight figure is a complete

anomaly in the history of rice growing. This figure was never reached prior to 1980 or 1981 and it certainly has not been close since.

We have checked with the two largest rice concerns in California, RGA and Farmers' Rice Co-Op, who presently account for 75% of all rice production in California, and discovered that even they have not achieved prices anywhere near the $9.20 price assumed in the EIR. Their average price per sack paid over the last five years is in fact the $6.50 price used in the Perry model.

Respecting the rice yield difference of five sacks an acre (the difference betwen the 80 per acre figure found in the EIR and the actual $75 per acre figure of Perry Farms), we have been informed by the ASCS office that the average yield in the area of the "boot" is about 50 sacks an acre. This yield is obviously no where near 80.

It should be noted that Perry Farms has based its figures on a 75-sack-per-day yield despite the 50-per-day average found in the "boot". Clearly, Perry Farms is indicating a much higher yield than neighboring farms which we hope is suggestive of the good-faith efforts put forth by our client in providing accurate information and figures.

In any case, it should be obvious that the 80-sack, per-acre figure is unrealistic in that it not only far exceeds the average yield in the "boot", but it exceeds even the yield

of one of the area's top producers--Perry Farms.

D. Water Drainage Problems and Solutions

Lastly, we wish to address an obvious and gross inaccuracy respecting the high-water table. In our comment, L-28, we expressed the view that low-yields in the "boot" are caused in part by the extremely high water table. (See comment L-28 at page 223.) The response to our comment bears repeating:

> It is acknowledged that portions of the North Natomas study area suffer from high-water table. The soil classification often indicates this problem with the capability unit code (e.g. 11 W-2). The "W-2" is an indication of the level of constraint which high-water table or water retention placed upon productivity. The problems with high-water table historically have been managed in the North Natomas area with drainage channels and tile drains." (See p. 224 of the EIR) (emphasis added)

We find it curious that tile drains and drainage channels have historically alleviated this problem in the North Natomas area since we are aware of only one farm in the entire area with a tile drainage system. This is Perry Farms who installed the system at great expense on only six acres of land to accommodate kiwi fruit. Further, Perry Farms has not been able to control this problem through the use of drainage channels in over 40 years and is unaware of any other farmer who has been successful in this regard.

By way of concluding, we hope to have identified to you the gross disparity between the assumed facts contained in

the EIR and those presented by our clients based on years of farming experience in the "boot". Because of the unique geographical configuration and limitations, farming in the "boot" has been a challenging, and often times impossible task. Certainly, the proposed North Natomas development will make farming unfeasible in this area.

We appreciate your attention to our concerns and hope that we have provided you with a useful tool in planning our city's future developments.

Very truly yours,

JOHN V. DIEPENBROCK

(4) Perry Farms (TOMATOES): The primary difference between the two models is in variable cost assumptions for growing and harvesting.

Regarding growing, the amount of chemicals and corresponding aerial applications are the only significant differences. The Perry Farms' model assumes a very extensive application of a variety of pesticides and other chemical sprays. The amount and variety of chemicals indicated runs counter to typical practices in the area (as discerned through examining the DAVIS models and our interviews with other farmers). Perry Farms' chemical costs are almost ten times greater than the DEIR's.

Regarding harvesting, the difference is attributable to Perry Farms' contracting out both harvesting and transport (at $14 per acre). The DEIR model assumes harvesting equipment is owned and operated by the farm unit and that it contracts out only transport (at $7 per acre). Due to the nature of contracting costs (where another enterprise's overhead, profit margins, etc., are included in its price), it would be expected that the costs would be greater. Our harvesting method is not an unusual practice and reflects typical costs.

L-27 COMMENT: One of the reasons for the losses , compared to the more optimistic view of the EIR, is set forth under Tab M which compares the projected yields for the EIR with the actual yields generated or realized by the Perry Farms. (John V. Diepenbrock)

RESPONSE: The crop yields used in the estimates of total productivity, as well as those used for the farm unit economic analysis, are average yields based on historical data from the County Agricultural Commissioner, University of California at Davis, and interviews with local farmers. While it is true that some farmers in some years may experience lower yields, the converse, that higher yields are experienced, also is true.

L-28 COMMENT: One of the problems that gives rise to the lower yields is the fact that while this may be grade two soil in the abstract, the fact is that it is underlain by an extremely high water table with a resultant washing of the alkali salts up to the surface. (John V. Diepenbrock)

RESPONSE: It is acknowledged that portions of the North Natomas Study Area suffer from high water table. The soil classifications often indicate this

problem with the capability unit code (e.g. II w-2). The "w-2" is an indication of the level of constraint which high water table or water retention place upon productivity. The problems with high water table historically have been managed in the North Natomas area with drainage channels and tile drains.

L-29 COMMENT: The next point that we wish to make this evening is that fact, as recognized somewhat by the EIR, is that continued farming of the land in the "Boot" area is just not consistent with the urbanization that is now going on to the south across the freeway in South Natomas nor with Alternatives B through E. (John V. Diepenbrock)

RESPONSE: The EIR discusses the potential conflicts of urban development with surrounding agriculture. Hazards and nuisances potentially created by agricultural operations include exposure to pesticide and herbicide applications and exposure to smoke (from burning) and dust (from soil preparation). These hazards and nuisances are affected by wind patterns, and this fact is recognized in the EIR.

The EIR states that all alternatives would have a significant adverse impact on agriculture, both within the Study Area and in the surrounding area. The EIR does not conclude, however, that continued agriculture in this area is inconsistent with proposed urbanization. On the contrary, the EIR recommends the implementation of an agricultural preservation strategy as part of the community plan.

L-30 COMMENT: Would you explain to me and the Commission how, for example, site, I guess it's called cell 7 southwest and 7 northwest, which are within half mile or mile total area can come up with such radically different soil potentials index and site assessment figures? (Baxter Culver, County Planning Commissioner)

RESPONSE: The procedures for the scoring which led to the soil potential index and site assessment scores are documented in Appendix L-6. The variations, oftentimes dramatic, in the soil potential scores are the result of actual variations in soil types and other factors affecting the score. It is not unusual for soil quality to vary in the one mile distance reflected in the "quadrants" used in North Natomas.

ECONOMIC MANAGEMENT

1984-85 COST STUDIES

Cooperative Extension

University of California

SACRAMENTO COUNTY

SOLANO COUNTY

Prepared By:

LAWRENCE D. CLEMENT
Farm Advisor
Solano County
Cooperative Extension
2000 W. Texas Street
Fairfield, CA 94533-4498

Telephone: (707) 429-6381

JACK P. ORR
Farm Advisor
Sacramento County
Cooperative Extension
4145 Branch Center Rd.
Sacramento, CA 95827

Telephone: (916) 366-2013

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.

9/84
3000

University of California and U.S. Department of Agriculture cooperating

PRODUCTION COST STUDIES IN SACRAMENTO AND SOLANO COUNTY - 1984

GENERAL REMARKS

The following crop production studies represent an average cost estimate to assist growers in economic management of their individual enterprises. Individual line items per study represent the average regional cost to accomplish the task. In this study five major crops grown in the region were analyzed. Also included are cost of production estimates of three alternate or double crops. Since the two county regions encompass both mineral and organic soil types, cost estimates are also provided for corn and wheat grown on either soil type.

The intent of this study is to supply growers, lending institutions, consultants, chemical advisors, UC Farm Advisors, and all interested persons with information concerning potential returns and line item cultural costs. Actual cost will vary from farm to farm and from grower to grower, due to different soil types, operational size, types of equipment used, rotational patterns, salaries and wages, water costs, etc. Provided with each study is a blank column for growers to insert their own cost for each item. The cost estimates provided represent only annual cash cost for each crop. Provided, but not included, in the total cash cost per acre is an estimate of the non-cash cost encouraged in the farming enterprise.

The authors wish to express gratitude to those growers, industry personnel, and interested individuals who assisted in providing cost information and review of this study.

PARAMETERS

Hypothetical Farm Operation

Crop	Acres
Canning Tomatoes	500
Wheat	500
Sugar Beets	500
Corn	500
Alfalfa	300
TOTAL	2300

Alternate or Double Crops

Safflower	300
Grain Sorghum	300
Pink Beans	300

EQUIPMENT -- $750,000 investment in new equipment depreciated in 10 years. Interest rate at 12%.

PRODUCTION LOANS -- $750,000 at 14% with annual payback, three times per year.

LABOR -- Cultural labor at $5/hr., Irrigation Labor at $4/hr.

BUILDINGS -- 2 metal type including shop, 5 grain storage bins, 1 pole type, 1 employee house, misc. storage (chemicals, etc.). Estimated value at $186,000, $165,000 loan at 12% for 30 years.

REPAIRS AND MAINTENANCE -- Based on total farm operation with each crop being charged a proportionate share.

IRRIGATION -- Amounts are based on the average amount of water applied to each crop. Valued at $12.00/acre foot.

SHARE RENTS -- For the purpose of this study it is assumed that all crops are grown on leased ground. The following table represents the average share rent percentages for each crop.

CROP	% SHARE RENT
Canning Tomatoes	18
Wheat	33
Sugar Beets	20
Corn	25
Alfalfa	25
Safflower	25
Grain Sorghum	25
Pink Beans	20

INTEREST RATES -- Based on average rates charged by loan institutions as of August 1984. Included are variable rate loans that would change at pay-off time.

MANAGEMENT SALARY -- Owner/management income is calculated at $50,000/year plus $20,000 in benefits.

NOTE: This cost study was computed on a modification of the Crop Management System program supplied by PD, Inc., Fairfield, Ca.

1984 SAMPLE COST TO PRODUCE CANNING TOMATOES

SOILS -- Tomatoes are grown on a wide variety of soil types. Generally, soils must be free of salts, diseases, at least four or more feet of root zone, have a good moisture holding capacity. Tomatoes should not be grown where rhizoctonia, fusarium, verticillium, phytophtora have been a problem.

PLANTING DATES -- February through May. Schedule planting to assure about the same acreage available for harvest each week. Plant when the true leaf is about 1/2 inch long in the seedlings of the previous planting.

HARVEST DATES -- August, September, or until stopped by rain in the fall, usually mid-october.

VARIETIES -- Canners require that a percentage of the contracted acreage be planted to designated varieties. Growers are advised to consult their local UC Farm Advisor, seed company representative, and canner for varieties and cultural characteristics necessary for optimun production.

SEEDING RATES -- Open Pollinated varieties are usually planted at 0.75 to 1.0 lbs/ ac. Hybrid varieties are planted at 0.6 to 0.8 lbs/ ac. Growers are advised to maintain the same seeding rates on either single or double row plantings to insure uniform stand establishment.

FERTILIZER-- Preplant nitrogen applied at 100 to 150 lbs/ Ac. Starter fertilizer is applied 1 inch to the side and 1-2 inches below the seed. Research has shown that starter can be of benefit in stand establishment. Various products can be used either liquids or drys.

IRRIGATION -- Tomato plants must have adequate water al all times especially prior to and during bloom. Soil moisture should be depleted by harvest. Irrigation cut-off times are dependent upon soil type and environmental conditions. Normally tomatoes will use between 3 and 4 acrefeet of water. Over and/or excessive irrigation will cause root pruning and disease.

WEED CONTROL -- Tillam applied preplant incorporated will give good control of Y. nutsedge, and fair control of hairy nightshade. Devrinol and Trefmid will give good control of annual weeds when applied preplant incorporated in a band. Trefmid should not be used with early plants, as root pruning will occur under cool conditions. Treflan will give good control of annual weeds when applied layby after thinning. Tillam should be incorporated shallow (1.5 to 2 inches) for control of hairy nightshade; and deeper (3-4 inches) for control of yellow nutsedge. Fields with resistant weed problems should be planted last when temperatures are warmer. Tillam does not last long if used too early, and will not give control when weeds come later. Eptam (a short residual herbicide) may be used at layby; do not irrigate for 5 days after treatment. Several new materials are being investigated by UC Farm Advisors for selective control of problem weeds. When registered by the EPA and CDFA, consult your local UC Farm Advisor for details on proper usage.

INSECT CONTROL -- Many insect species are detrimental to tomatoes. These include fruit worms, mites, stink bugs, lygus and various leaf eating species. Root knot nematodes require rotation to non-host crops for adequate control. Fumigation is possible, but growers must consider the cost.

DISEASES-- Root diseases, especially damp-off and phytophtora root rot can be controlled with careful irrigation. Ridomil is currently registered for use. Irrigating every other row, shorter runs, etc., are good management practices. Powdery Mildew is a new disease that may have an economic impact on production. Currently, insufficient information is available to determine the extent of damage that can be expected.

RIPENING -- Ethrel can be applied at 5 to 20 percent pink to red fruit showing. Rates of 1.5 to 3.5 pints/acre are currently used to ripen fruit in 7 to 10 days. Ethrel can hasten maturity beyond expectations due to high temperatures and varietial sensitivity. Growers are advised to consult their PCA's or UC Farm Advisor for specific recommendations.

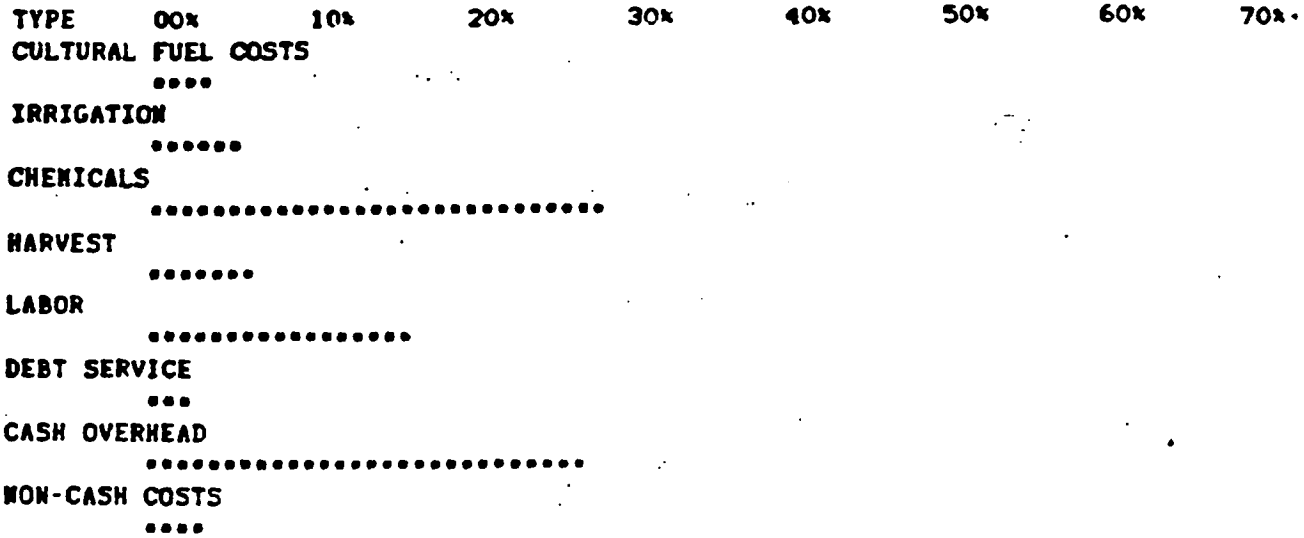
SAMPLE COST TO GROW CANNING TOMATOES

TYPE OF CROP.....=	TOMATO, CANNING	NUMBER OF ACRES.....=	500
YIELD PER ACRE....=	25 TONS	MARKET VALUE PER TONS..=	56.5
GROSS INCOME.....=	706,250.00	GROSS INCOME/ACRE.....=	1,412.50

EXPENSES

TYPE	PER ACRE	TOTAL	CHANGES
CULTURAL FUEL COSTS			
Chop Stubble	0.57	285.00	--------
Disc 2x	2.20	1,100.00	--------
Plow	2.75	1,375.00	--------
Level Plane 2x	2.72	1,360.00	--------
Chisel 2x	5.00	2,500.00	--------
Disc 2x (Spring)	2.20	1,100.00	--------
Level Plane 2x	2.72	1,360.00	--------
List Beds	1.50	750.00	--------
Roterra	1.42	710.00	--------
Pre-Herb inc/fltro	1.42	710.00	--------
Plant/Starter Fert	1.80	900.00	--------
OP Seed .75 lb/ac	15.00	7,500.00	--------
Cult 3x/Sidedr N	2.40	1,200.00	--------
Layby Herbicide	1.42	710.00	--------
Open/Close Ditches	0.60	300.00	--------
Mech. Thinning	1.00	500.00	--------
TOTAL •••	44.72	22,360.00	--------
IRRIGATION			
Sprinkler 4x	12.00	6,000.00	--------
Furrow 5x	30.00	15,000.00	--------
Pumping Costs	33.00	16,500.00	--------
TOTAL •••	75.00	37,500.00	--------
CHEMICALS			
Tillian/Devrinol/g	40.17	20,085.00	--------
Starter 8-24-6 30g	45.30	22,650.00	--------
Layby Treflan 1pt.	8.43	4,215.00	--------
Sidedr. 8-24-6 15g	22.65	11,325.00	--------
Preplant N 150 #/a	34.50	17,250.00	--------
Thioden/air/beetle	10.62	5,310.00	--------
Sevin/air/cutworm	26.00	13,000.00	--------
Lanate/air/2x/ftwo	45.26	22,630.00	--------
Sulfur/air/mites	55.00	27,500.00	--------
Difolitan/gr/mold	42.95	21,475.00	--------
Ethrel/gr/3 pts/ac	36.00	18,000.00	--------
Whitener/gr/150#/a	34.50	17,250.00	--------
TOTAL •••	401.38	200,690.00	--------

GRAPH OF CROP EXPENSES CANNING TOMATOES



1984 SAMPLE COSTS TO PRODUCE WHEAT ON MINERAL AND PEAT SOILS

PLANTING DATES - November 1 to January 1; Delta plantings as late as February.

HARVEST DATES - June 20 - August 1.

VARIETIES - Anza, Yolo, and other commercial varieties.

SEEDING RATES - 100 to 125 lbs/ac dryland; 125 to 150 lbs/ac irrigated; up to 180 lbs/ac on peat soils planted late.

FERTILIZER - 100 lbs/ac Nitrogen preplant; 100 to 130 lbs/ac 11-48-0 with seed as starter. Topdress 50 lbs/ac nitrogen in Jan-Feb followed by rain. Use urea early in season and ammonium nitrate later when conditions are warmer.

IRRIGATION - Plant on beds for drainage and irrigation. Irrigate when needed, before dough stage. Spud ditch if growing in delta.

ROTATIONS - Useful for drying out sub-irrigated soils. This helps in restoring row crop productivity especially tomatoes following wheat.

YIELDS - 2000 to 4000 lbs/ac dryland; 5000 to 7000 irrigated.

INSECTS - Aphids, spray when populations are high, 3-5 aphids in 30 to 50% of heads.

DISEASES - Stripe rust can be devastating on non-resistant varieties. Yellow dwarf, powdery mildew and root rots are occasional problems. Septoria can be a problem on stressed wheat from water or lack of nitrogen.

WEED CONTROL - Apply 2,4-D for broadleaf weed control when crop is well established and tillered, but before boot stage. Bromoxynil can also be used for broadleaf weeds when crop has reached the 2 leaf stage and before the boot stage, and weeds are in early seedling stage. Severe injury can occur if wheat is sprayed with 2,4-D too early; prior to tillering. For grassey weeds use Avenge for wild oats and Hoelon for Ryegrass and wild oats. Hoelon can be tank mixed with bromoxynil for single applications. Injury can occur when Hoelon is applied to stressed wheat.

SAMPLE COST TO PRODUCE WHEAT ON MINERAL SOIL

TYPE OF CROP.....•	WHEAT/MINERAL	NUMBER OF ACRES.....•	500
YIELD PER ACRE....•	2.7 TONS	MARKET VALUE PER TONS..•	125
GROSS INCOME.....•	168,750.00	GROSS INCOME/ACRE.....•	337.50

EXPENSES

TYPE	PER ACRE	TOTAL	CHANGES
CULTURAL FUEL COSTS			
Chop Stubble	0.57	285.00	--------
Disc 2x	2.20	1,100.00	--------
Plow	2.75	1,375.00	--------
Level Plane 2x	2.72	1,360.00	--------
Pre-N/Flt/Roll	0.75	375.00	--------
List Beds	1.50	750.00	--------
Plant/drill	1.00	500.00	--------
Seed (150 #/ac)	19.50	9,750.00	--------
Open/Close Ditches	0.20	100.00	--------
TOTAL •••	31.19	15,595.00	--------
IRRIGATION			
Irrigation 2x	8.00	4,000.00	--------
TOTAL •••	8.00	4,000.00	--------
CHEMICALS			
Aqua/Preplant-N	23.51	11,755.00	--------
Herb. (2,4-D)/air	8.36	4,180.00	--------
Herb. (Hoelon)/air	26.22	13,110.00	--------
Topdress-N/50#/air	14.50	7,250.00	--------
Start. 11-48-0 100	14.00	7,000.00	--------
Di-Syston/Air/Aphi	18.86	9,430.00	--------
TOTAL •••	105.45	52,725.00	--------
HARVEST			
Truck Fuel Costs	1.00	500.00	--------
Harvestor Fuel Cos	2.50	1,250.00	--------
Hauling ($5.50/ton	14.85	7,425.00	--------
TOTAL •••	18.35	9,175.00	--------

LABOR			
Irrigation ($4/hr)	8.00	4,000.00	--------
Cultoral ($5/hr)	10.05	5,025.00	--------
Harvest/2 men	3.99	1,995.00	--------
Shop Mechanic	10.00	5,000.00	--------
Irrig. Drain Maint	5.00	2,500.00	--------
Open/Close Ditches	0.40	200.00	--------
TOTAL ***	37.44	18,720.00	--------
DEBT SERVICE			
Interest on Loan	19.65	9,825.00	--------
Interest on Equip	9.00	4,500.00	--------
TOTAL ***	28.65	14,325.00	--------
CASH OVERHEAD			
Mgmt. Sal/Benifits	35.00	17,500.00	--------
Maint./Repairs	54.25	27,125.00	--------
Share Rent (33%)	106.92	53,460.00	--------
Emp. Benifits (30%	6.72	3,360.00	--------
Taxes on Equip.	2.57	1,285.00	--------
Office/Mgmt. Exp.	15.00	7,500.00	--------
TOTAL ***	220.46	110,230.00	--------
TOTAL CASH EXPENSES	$ 449.54	$ 224,770.00	
NET INCOME @ 2.7 TONS	$ -112.04	$ -56,020.00	
NON-CASH COSTS			
Interest on Bldgs.	10.67	5,335.00	--------
Bldg. Depreciation	4.44	2,220.00	--------
Equip. Depcrec.	37.50	18,750.00	--------
TOTAL NON-CASH COSTS	$ 52.61	$ 26,305.00	--------

GRAPH OF CROP EXPENSES

```
TYPE      00%        10%        20%        30%        40%        50%        60%        70%
CULTURAL FUEL COSTS
          **********
IRRIGATION
          ***
CHEMICALS
          **********************************
HARVEST
          ******
LABOR
          ************
DEBT SERVICE
          *********
CASH OVERHEAD
          ********************************************************
NON-CASH COSTS
          ***************
```

SAMPLE COST TO PRODUCE WHEAT ON PEAT TYPE SOIL

TYPE OF CROP.....*	WHEAT/PEAT	NUMBER OF ACRES.....*	500
YIELD PER ACRE....*	2.7 TONS	MARKET VALUE PER TONS..*	125
GROSS INCOME.....*	168,750.00	GROSS INCOME/ACRE.....*	337.50

EXPENSES

TYPE	PER ACRE	TOTAL	CHANGES
CULTURAL FUEL COSTS			
Stubble Chop	0.57	285.00	--------
Disc 2x	2.20	1,100.00	--------
Plow	2.75	1,375.00	--------
Disc 2x	2.20	1,100.00	--------
Plant/Fertlize	1.00	500.00	--------
Spud Ditches	2.50	1,250.00	--------
Seed (175 lbs/ac)	21.00	10,500.00	--------
TOTAL ***	32.22	16,110.00	--------
CHEMICALS			
Di-Syston/Air/Aphi	18.86	9,430.00	--------
Starter/11-48-0/10	14.00	7,000.00	--------
Hoelon/grass/air	26.22	13,110.00	--------
Am. Nit./Air/2x 15	31.50	15,750.00	--------
2.4-D/weeds/air	8.36	4,180.00	--------
TOTAL ***	98.94	49,470.00	--------
HARVEST			
Trucks (Fuel)	1.00	500.00	--------
Hauling ($5.50/ton	14.85	7,425.00	--------
Harvester (Fuel)	2.50	1,250.00	--------
TOTAL ***	18.35	9,175.00	--------
LABOR			
Load Truck	0.53	265.00	--------
Harvest (2 men)	3.99	1,995.00	--------
Drain Maintainance	5.50	2,750.00	--------
Shop Mechanic	10.00	5,000.00	--------
Cultural ($5/hr)	9.95	4,975.00	--------
TOTAL ***	29.97	14,985.00	--------

EXPENSES

TYPE	PER ACRE	TOTAL	CHANGES
DEBT SERVICE			
Interest on Loan	19.65	9,825.00	--------
Interest on Equip.	9.00	4,500.00	--------
TOTAL ***	28.65	14,325.00	--------
CASH OVERHEAD			
Repairs/Maintainan	30.00	15,000.00	--------
Office/Mgmt Exp.	15.00	7,500.00	--------
Mgmt. Sal/Benifits	35.00	17,500.00	--------
Taxes on Equipment	2.57	1,285.00	--------
Emp. Benifits (30%	7.48	3,740.00	--------
Share Rent (33%)	106.92	53,460.00	--------
TOTAL ***	196.97	98,485.00	--------
TOTAL CASH EXPENSES	$ 405.10	$ 202,550.00	
NET INCOME @ 2.7 TONS	$ -67.60	$ -33,800.00	
NON-CASH COSTS			
Interest on Bldgs	10.67	5,335.00	--------
Bldg. Depreciation	4.44	2,220.00	--------
Equip. Depreciatio	37.50	18,750.00	--------
TOTAL NON-CASH COSTS	$ 52.61	$ 26,305.00	--------

GRAPH OF CROP EXPENSES

```
TYPE      00%       10%       20%       30%       40%       50%       60%       70%
CULTURAL FUEL COSTS
          **********
CHEMICALS
          ******************************
HARVEST
          ******
LABOR
          *********
DEBT SERVICE
          *********
CASH OVERHEAD
          ************************************************************
NON-CASH COSTS
          ***************
```

1984 SAMPLE COSTS TO PRODUCE SUGAR BEETS

SOIL REQUIREMENTS - Deep, fertile, well-drained soil of organic or mineral type. Texture can range from sandy loam to clay. Avoid hardpan and claypan.

PLANTING DATES - February, March, April; during May in over-wintered areas.

VARIETIES - Plant disease-resistant hybrids furnished by contracting sugar company.

SEEDING RATES - For mechanical thinning, plant 2 inches apart. Thin mechanically 100 to 150 plants per 100 feet of row, not more than 20 % doubles of three or more plants. For syncronous thinner plant 2.75 inches apart. Final stand should equal 6 to 7 inches between plants.

WEED CONTROL - Ronset or Tillam are available for preplant weed control. Do not use prior to March 1. Poor control results under cool conditions. Betamex is available for control of broadleaf weed species.
Nortron has given good control when used in combination with betanal, post-emergence. Nortron can also be used pre-emergence. Good results have been obtained with the combination of Nortron and Pyramin pre-emergence under fall applications. Antor has given excellent results when applied pre-emergence in the spring. Poast can be used post-emergence for control of escape grasses. Herbicide 273 applied post-emergence will give good control of smartweed.

FERTILIZER - 100 to 200 lbs/ac nitrogen preplant, 25 to 30 gallons 6-24-6 under the seed at planting. Plants should run out of nitrogen 30 days prior to harvest.

IRRIGATION -2.5 to 3.5 acre feet needed. On peat, sprinkler or sub-irrigate or on mineral soils, sprinkle or furrow irrigation. Do not permit wilting.

ROTATION - Four years between beet crops for good soil management, and to control sugar beet nematode, and sclerotium root rot. Five years has been suggested for control of cyst nematode.

SPECIAL PROBLEMS AND CONTROL MEASURES

Mildew: 40 lbs/ac sulfur when mildew first appears.

Salts: Irrigate every other row or plant on slanted beds.

Yellows: Beet free periods plus elimination of carrier plants; control of green peach aphid; plant in May in over-wintered areas.

Nematodes: Rotation first choice: fumigation second choice

Insects: Armyworms, cutworms, and darkling ground beetles

Poor Stands: Maintain seedbed moisture, avoid severe wire worm and damping-off areas, use only treated seed.

Inadquqate Irrigation: Resulting in excessive wilting - better management.

Late-emerging Weeds: Can reduce yield and cause harvest problems. Also, infest soil with weed seed. hoe or use Betanal/Betamex.

Very Late Spring Harvest: Due to wet spring which ties up land, causes harvest problems, produces bolting and volunteer problems, and lower sugar yield.

SAMPLE COST TO PRODUCE SUGAR BEETS

TYPE OF CROP.....*	SUGAR BEETS	NUMBER OF ACRES.....*	500
YIELD PER ACRE....*	26 TONS	MARKET VALUE PER TONS..*	36.67
GROSS INCOME.....*	476,710.00	GROSS INCOME/ACRE.....*	953.42

EXPENSES

TYPE	PER ACRE	TOTAL	CHANGES
CULTURAL FUEL COSTS			
Chop Stubble	0.57	285.00	--------
Disc 2x	2.20	1,100.00	--------
Plow	2.75	1,375.00	--------
Level Plane 2x	2.72	1,360.00	--------
Chisel 2x	5.00	2,500.00	--------
Disc 1x	1.10	550.00	--------
Spring Tth/Roll	0.75	375.00	--------
Float/Ringroll	0.75	375.00	--------
List beds	1.50	750.00	--------
Plant/Herb Incorp	1.80	900.00	--------
Post-Herb Apply 2x	3.00	1,500.00	--------
Mech. Thinning	1.00	500.00	--------
Cult. 3x/ Side-N	2.40	1,200.00	--------
Open/Close Ditches	0.60	300.00	--------
Apply Layby Herb.	1.40	700.00	--------
Seed (2 lbs/ac)	66.50	33,250.00	--------
TOTAL ***	94.04	47,020.00	--------
IRRIGATION			
Irrig. 8x ($12/AF)	32.00	16,000.00	--------
TOTAL ***	32.00	16,000.00	--------
CHEMICALS			
Herb./Betamix/gr	5.77	2,885.00	--------
Metsystox/air	10.56	5,280.00	--------
Herb./Poast/gr	10.33	5,165.00	--------
Herb./Anton/gr	13.67	6,835.00	--------
Pre-N 200 lbs/ac	46.00	23,000.00	--------
Starter/8-24-6 20g	29.90	14,950.00	--------
Sidedress N 30 #/a	6.90	3,450.00	--------
Sulfur/air/40W	11.60	5,800.00	--------
Sevin Bait	20.00	10,000.00	--------
Herb./Layby/Trefla	8.43	4,215.00	--------
Lannate/air	14.00	7,000.00	--------
TOTAL ***	177.16	88,580.00	--------
HARVEST			
Top and Dig	58.50	29,250.00	--------
Hauling ($4/ton)	104.00	52,000.00	--------
TOTAL ***	162.50	81,250.00	--------

LABOR			
Cultural ($5/hr)	28.80	14,400.00	--------
Irrigation ($4/hr)	32.00	16,000.00	--------
Hand Hoeing	65.00	32,500.00	--------
Shop Mechanic	10.00	5,000.00	--------
TOTAL ***	135.80	67,900.00	--------
DEBT SERVICE			
Interest on Equip	9.00	4,500.00	--------
Interest on Loan	19.65	9,825.00	--------
TOTAL ***	28.65	14,325.00	--------
CASH OVERHEAD			
Share Rent (20%)	190.68	95,340.00	--------
Office/Mgmt. Exp.	15.00	7,500.00	--------
Taxes on Equip.	2.59	1,295.00	--------
Repairs/Maint.	54.24	27,120.00	--------
Emp. Benifits (30%	21.30	10,650.00	--------
Mgmt. Sal/Benifits	35.00	17,500.00	--------
TOTAL ***	318.81	159,405.00	--------
TOTAL CASH EXPENSES	$ 948.96	$ 474,480.00	
NET INCOME @ 26 TONS	$ 4.46	$ 2,230.00	
NON-CASH COSTS			
Equip. Depreciatic	37.50	18,750.00	--------
Bldg. Depreciation	4.44	2,220.00	--------
Interest on Bldgs.	10.67	5,335.00	--------
TOTAL NON-CASH COSTS	$ 52.61	$ 26,305.00	--------

GRAPH OF CROP EXPENSES

```
TYPE      00%        10%        20%        30%        40%        50%        60%        70%
CULTURAL FUEL COSTS
          **********
IRRIGATION
          ****
CHEMICALS
          ******************
HARVEST
          ******************
LABOR
          ***************
DEBT SERVICE
          ****
CASH OVERHEAD
          **********************************
NON-CASH COSTS
          ******
```

1984 SAMPLE COSTS TO PRODUCE CORN ON MINERAL AND PEAT SOILS

SOIL REQUIREMENTS - Fertile, well-drained soils of organic or mineral type.

PLANTING DATES - March 20 to June 20. Early plantings are dependent upon soil temperatures. Later or midseason plantings are dependent upon maturity groupings.

HARVEST DATES - September 15 to October 15.

VARIETIES - Superior performance of single cross hybrids the past few years has caused a rapid change from the 4-way crosses. Consult your local seed rep or your local UC Farm Advisor for current variety recommendations adapted to your location.

SEEDING RATES - 10 to 15 lbs/ac depending on seed size, seed drop is usually 6-7 inches in the row resulting in stands of 24,000 to 28,000 plants/acre. Populations greater than 30,000 plants/acre have resulted in lodging.

FERTILIZER - Organic soils, 200 lbs/acre 6-20-20, or 30 gallons 8-24-6 +Zn as starter. Cold wet soils increase the need for nitrogen. Mineral soils, same starter fertilizers plus 100 lbs nitrogen pre-plant plus sidedress or water-run 50 lbs/ac if needed. If potash levels are low, 400 lbs/ac should be applied broadcast and disced in. Potassium increases the stalk strength of corn.

IRRIGATION- 2.5 to 3.5 acre feet of water. On peat, sub-irrigate 3 times; on mineral soil 8 - 9 irrigations depending on variety and growing temperatures. Early irrigation is essential for high yields.

WEED CONTROL - Timely cultivation for watergrass and broadleaf weeds. 2,4-D directed for escaped broadleaf or atrazine + oil early post-emergence when weeds are less than 1.5 inches tall. Sutan, Surpass, Lasso, Dual and Bladex in combination (except on peat soils) have provided excellent preplant incorporated weed control.

INSECT CONTROL - Mites; Kelthane or Comite provides excellent control. Apply before plants are 3-4 feet tall. For cutworms apply seven bait, best to irrigate and then apply.

DISEASE CONTROL -

Sugar Cane Mosiac: control Johnsongrass in surrounding fields with Roundup.

Root and Stalk Rots: Avoid plant stresses, use adapted varieties.

Fusarium Ear Rot: avoid irrigation during calm, hot highly humid weather during milk and dough stage; use adapted varieties; do not allow fields to stress.

Head Smut: provide favorable seedbed conditions, use adapted varieties, rotations and good weed control. Use same control measures for Boil Smut.

SAMPLE COST TO PRODUCE CORN ON MINERAL SOIL

TYPE OF CROP.....=	CORN/MINERAL	NUMBER OF ACRES.....=	500
YIELD PER ACRE....=	4.5 TONS	MARKET VALUE PER TONS..=	140
GROSS INCOME.....=	315,000.00	GROSS INCOME/ACRE.....=	630.00

EXPENSES

TYPE	PER ACRE	TOTAL	CHANGES
CULTURAL FUEL COSTS			
Stubble Chop	1.00	500.00	--------
Disc 2x	2.20	1,100.00	--------
Plow	2.75	1,375.00	--------
Disc 1x	1.10	550.00	--------
Level Plane 2x	2.72	1,360.00	--------
Pre-M/float/roll	0.75	375.00	--------
Pre-Herb/Du-All	1.60	800.00	--------
Open/Close Ditches	0.40	200.00	--------
Float/Ringroll	0.75	375.00	--------
Plant	1.66	830.00	--------
Float/Harrow/Roll	0.75	375.00	--------
Cultivate 2x/Side-	2.20	1,100.00	--------
Seed Corn	24.00	12,000.00	--------
TOTAL ***	41.88	20,940.00	--------
IRRIGATION			
Irrig. 9x ($12/AF)	36.00	18,000.00	--------
TOTAL ***	36.00	18,000.00	--------
CHEMICALS			
Pre-M (150 lbs/ac)	34.50	17,250.00	--------
Lasso/Bladex	28.60	14,300.00	--------
Starter 8-24-6 20g	29.90	14,950.00	--------
Sevin 40 lbs/ac	20.00	10,000.00	--------
Dyfonate	12.90	6,450.00	--------
Kelthane or Comite	18.99	9,495.00	--------
Sidedress M 50 lb/	11.50	5,750.00	--------
TOTAL ***	156.39	78,195.00	--------
HARVEST			
Trucks	1.00	500.00	--------
Storage ($2/ton)	9.00	4,500.00	--------
Combine	3.00	1,500.00	--------
Hauling ($5.50/T)	24.75	12,375.00	--------
TOTAL ***	37.75	18,875.00	--------

LABOR			
Harvest (2 men)	4.40	2,200.00	--------
Cultural ($5/hr)	14.65	7,325.00	--------
Irrigation ($4/hr)	36.00	18,000.00	--------
Shop Mechanic	10.00	5,000.00	--------
Planting (1 man) 1.17	585.00	--------	
TOTAL ***	66.22	33,110.00	--------
DEBT SERVICE			
Interest on Loan	19.65	9,825.00	--------
Interest on Equip.	9.00	4,500.00	--------
TOTAL ***	28.65	14,325.00	--------
CASH OVERHEAD			
Taxes on Equip.	2.57	1,285.00	--------
Share Rent (25%)	157.50	78,750.00	--------
Office/Mgmt. Exp.	15.00	7,500.00	--------
Emp. Benifits (30%	19.95	9,975.00	--------
Repairs/Maintenan	54.25	27,125.00	--------
Mgmt. Sal/Benifits	35.00	17,500.00	--------
TOTAL ***	284.27	142,135.00	--------
TOTAL CASH EXPENSES	$ 651.16	$ 325,580.00	
NET INCOME @ 4.5 TONS	$ -21.16	$ -10,580.00	
NON-CASH COSTS			
Interest on Bldgs.	10.67	5,335.00	--------
Bldg. Depreciation	4.44	2,220.00	--------
Equip. Deprec.	37.50	18,750.00	--------
TOTAL NON-CASH COSTS	$ 52.61	$ 26,305.00	--------

GRAPH OF CROP EXPENSES

```
TYPE      00%        10%        20%        30%        40%        50%        60%        70%
CULTURAL FUEL COSTS
          *******
IRRIGATION
          ******
CHEMICALS
          ************************
HARVEST
          ******
LABOR
          ***********
DEBT SERVICE
          *****
CASH OVERHEAD
          ********************************************
NON-CASH COSTS
          *********
```

SAMPLE COSTS TO PRODUCE CORN ON PEAT TYPE SOILS

TYPE OF CROP.....=	CORN/PEAT	NUMBER OF ACRES.....=	500
YIELD PER ACRE....=	4.5 TONS	MARKET VALUE PER TONS..=	140
GROSS INCOME.....=	315,000.00	GROSS INCOME/ACRE.....=	630.00

EXPENSES

TYPE	PER ACRE	TOTAL	CHANGES
CULTURAL FUEL COSTS			
Stubble Chop	1.00	500.00	--------
Plow	2.75	1,375.00	--------
Level Plane 1x	1.36	680.00	--------
Winter Spud Ditch	2.50	1,250.00	--------
Pre-Herb./DuAlll.6	2.72	1,360.00	--------
Cultivate 2x	2.20	1,100.00	--------
Aqua application	1.11	555.00	--------
Seed Corn	24.00	12,000.00	--------
DuAll	1.66	830.00	--------
Plant/Starter-N	1.66	830.00	--------
Spring Spud Ditch	5.00	2,500.00	--------
TOTAL ***	45.96	22,980.00	--------
CHEMICALS			
Start. 8-24-6+Zn	44.70	22,350.00	--------
Poundup/1 pt/air	15.37	7,685.00	--------
Aqua 100 lbs/ac	23.00	11,500.00	--------
Lasso/Bladex	28.60	14,300.00	--------
Dyfonate	12.90	6,450.00	--------
Atrazine+Oil/air	12.79	6,395.00	--------
Kelthane/Comite/ai	18.99	9,495.00	--------
TOTAL ***	156.35	78,175.00	--------
HARVEST			
Trucks	1.00	500.00	--------
Harvester	3.00	1,500.00	--------
Storage ($2/T)	9.00	4,500.00	--------
Hauling ($5.5/T)	3.00	1,500.00	--------
TOTAL ***	16.00	8,000.00	--------
LABOR			
Load Truck	0.54	270.00	--------
Irrigate 3x	3.00	1,500.00	--------
Drain Maintainance	5.00	2,500.00	--------
Harvest (2 men)	4.40	2,200.00	--------
Cultural ($5/hr)	9.50	4,750.00	--------
Shop Mechanic	10.00	5,000.00	--------
TOTAL ***	32.44	16,220.00	--------

EXPENSES CONTINUED, CORN ON PEAT SOILS

DEBT SERVICE			
Interest on Loan	19.65	9,825.00	--------
Interest on Equip.	9.00	4,500.00	--------
TOTAL ***	28.65	14,325.00	--------
CASH OVERHEAD			
Share Rent (25%)	157.00	78,500.00	--------
Repair/Maintainanc	30.00	15,000.00	--------
Taxes on Equip.	2.57	1,285.00	--------
Emp. Benifits (30%	5.22	2,610.00	--------
Mgmt. Sal/Benifits	35.00	17,500.00	--------
Office/Mgmt. Exp.	15.00	7,500.00	--------
TOTAL ***	244.79	122,395.00	--------
TOTAL CASH EXPENSES @	524.19	@ 262,095.00	
NET INCOME @ 4.5 TONS			
@	105.81	@ 52,905.00	
NON-CASH COSTS			
Interest on Bldgs.	10.67	5,335.00	--------
Bldg. Depreciation	4.44	2,220.00	--------
Equip. Deprec.	37.50	18,750.00	--------
TOTAL NON-CASH COSTS @	52.61	@ 26,305.00	--------

GRAPH OF CROP EXPENSES

```
TYPE      00%       10%       20%       30%       40%       50%       60%       70%
CULTURAL FUEL COSTS
          ********
CHEMICALS
          ************************
HARVEST
          ***
LABOR
          ******
DEBT SERVICE
          *****
CASH OVERHEAD
          ****************************************
NON-CASH COSTS
          *********
```

1984 COST OF PRODUCTION STUDY FOR ALFALFA HAY

SOIL REQUIRMENTS - Deep, well-drained soils. Avoid hardpans and claypans or soils with a high or fluctuating water table. (Some success has been observed on marginal soils where alfalfa is planted on raised 60 inch beds).

PLANTING DATES - Fall planting in September to early October is preferred. Spring plantings between February and April will produce good stands; however, weed control can be more difficult and expensive.

HARVEST DATES - 6 - 7 cuttings per season. First cutting is usually in April. Cut at 1/10 bloom or when crown regrowth is 12 inches tall.

VARIETIES - Semi-dormant varieties have been the best producers in this region. Public and private varieties resistant to the spotted alralfa aphid and tolerance to the pea aphid, leaf spot, downy mildew and phytophthora root rot are suggested. On heavy, poorly drained soils phytophtora root rot becomes very important.

SEEDING RATES - On good seedbeds 20 to 25 lbs/ac broadcast and ringrolled, 15 to 20 lbs/ac drilled. Innoculate seed before planting, or plant pelleted, innoculated seeds.

FERTILIZER - Starter fertilizer at planting time providing 10 to 20 lbs N, 30 to 35 lbs. P and 30 to 35 lbs. K/acre. Soil and tissue analysis can be used to determine fertilizer needs of established stands and soil tests can be used to determine new land fertilizer needs.

IRRIGATION - One to two irrigations per cutting depending on soil type.

ROTATION - Usually in rotation with row crops. Three to four years alfalfa then 4 to 5 years of annual crops.

YIELDS - Six to nine tons per acre; average 7 tons/ac/yr for a four year stand life.

INSECT PROBLEMS - Alfalfa weevil (Feb.-Mar.), armyworm, alfalfa caterpillar, pea aphid, root knot nematodes. Spotted alfalfa aphid on none resistant varieties.

DISEASE PROBLEMS - Phytophthora root rot, mildew, and leaf spot.

WEED PROBLEMS - Grasses and some broadleaf weeds. Common groundsel and fiddleneck are poisonous to livestock and should be controlled. 2,4-DB, Dow selective for post-emergence broadleaf weeds. IPC, Kerb post-emergence for seedling stands and grassey weeds. IPC, CIPC, Kerb for established stands and grassey weeds. Sencor, Kermex, weed oil and Dow General for established stands. Both broadleaf and grassey weeds. Kermex and Sencor may not control mustard or fiddleneck. See your local PCA or UC Farm Advisor for current or other recommendations.

SAMPLE COST TO ESTABLISH ALFALFA (FIRST YEAR)

TYPE OF CROP.....=	ALFALFA, TO EST	NUMBER OF ACRES.....=	300
YIELD PER ACRE....=	7 TONS	MARKET VALUE PER TONS..=	110
GROSS INCOME.....=	231,000.00	GROSS INCOME/ACRE.....=	770.00

EXPENSES

TYPE	PER ACRE	TOTAL	CHARGES
CULTURAL FUEL COSTS			
Stubble Chop	0.57	171.00	--------
Disc 2x	2.20	660.00	--------
Plow	2.75	825.00	--------
Disc 1x	1.10	330.00	--------
Level Plane 2x	2.72	816.00	--------
Disc Herbicides 2x	2.20	660.00	--------
Shape Borders	2.20	660.00	--------
Harrow/Ringroll	0.75	225.00	--------
Float/Ringroll	0.75	225.00	--------
Plant/air	5.00	1,500.00	--------
Harrow/Ringroll	0.75	225.00	--------
Seed (25 lbs./ac)	59.00	17,700.00	--------
Fertilize/air	6.00	1,800.00	--------
TOTAL ***	85.99	25,797.00	--------
IRRIGATION			
Sprinkle-Up 3x	22.50	6,750.00	--------
TOTAL ***	22.50	6,750.00	--------
CHEMICALS			
Baien	14.00	4,200.00	--------
Fert. 11-48-0 100#	23.33	6,999.00	--------
TOTAL ***	37.33	11,199.00	--------
LABOR			
Cultural ($5/hr)	11.70	3,510.00	--------
Irrigation ($4/hr)	6.24	1,872.00	--------
Emp. Benifits (30%	5.38	1,614.00	--------

GRAPH OF CROP EXPENSES

```
TYPE      00%       10%       20%       30%       40%       50%       60%       70%+)
CULTURAL FUEL COSTS
          ********** ***
IRRIGATION
          ***
CHEMICALS
          *****
LABOR
          ****
```

SAMPLE COSTS TO PRODUCE ALFALFA (YEARS 2-5)

TYPE OF CROP.....*	ALFALFA PROD	NUMBER OF ACRES.....*	300
YIELD PER ACRE....*	7 TONS	MARKET VALUE PER TONS..*	110
GROSS INCOME.....*	231,000.00	GROSS INCOME/ACRE.....*	770.00

EXPENSES

TYPE	PER ACRE	TOTAL	CHANGES
CULTURAL FUEL COSTS			
Stand Estb/5yr amo	28.52	8,556.00	
TOTAL ***	28.52	8,556.00	
IRRIGATION			
Irrigation 5%	60.00	18,000.00	
Ditch Maintiensnce	4.00	1,200.00	
TOTAL ***	64.00	19,200.00	
CHEMICALS			
Furadan/2pts/air	20.84	6,252.00	
Treflan 10G/24/air	26.00	7,800.00	
Potash/ground	19.88	5,964.00	
Perequat/1 qt/air	16.00	4,800.00	
Poast/1 qt/air	40.75	12,225.00	
TOTAL ***	123.47	37,041.00	
HARVEST			
Custom ($24/T)	168.00	50,400.00	
TOTAL ***	168.00	50,400.00	
LABOR			
Irrigation ($8/hr)	20.00	6,000.00	
Shop Mechanic	10.00	3,000.00	
TOTAL ***	30.00	9,000.00	
DEBT SERVICE			
Interest on Loan	19.65	5,895.00	
Interest on Equip.	9.00	2,700.00	
TOTAL ***	28.65	8,595.00	

EXPENSES CONTINUED ALFALFA PRODUCTION

TYPE	PER ACRE	TOTAL	CHANGES
CASH OVERHEAD			
Share Rent (25%)	192.50	57,750.00	--------
Office/Mgmt. Exp.	15.00	4,500.00	--------
Repairs/Maint.	27.25	8,175.00	--------
Taxes on Equip.	2.57	771.00	--------
Emp. Benifits (30%	9.00	2,700.00	--------
Mgmt. Sal/Benifits	35.00	10,500.00	--------
TOTAL ***	281.32	84,396.00	--------
TOTAL CASH EXPENSES @	723.96	@ 217,188.00	
NET INCOME @ 7 TONS@	46.04	@ 13,812.00	
NON-CASH COSTS			
Interest on Bldgs.	10.67	3,201.00	--------
Bldg. Depreciation	4.44	1,332.00	--------
Equip Deprec.	18.75	5,625.00	--------
TOTAL NON-CASH COSTS @	33.86	@ 10,158.00	--------

GRAPH OF CROP EXPENSES

```
TYPE     00%       10%       20%       30%       40%       50%       60%       70%->
CULTURAL FUEL COSTS
         ****
IRRIGATION
         *********
CHEMICALS
         ****************
HARVEST
         ***********************
LABOR
         ****
DEBT SERVICE
         ****
CASH OVERHEAD
         ***************************************
NON-CASH COSTS
         *****
```

1984 COST TO PRODUCE DRY PINK BEANS

SOIL REQUIRMENTS -- Pink beans preform best on deep well drained soils. Being shallow rooted, beans can be grown on marginal soil types with careful water management.

PLANT DATES -- Usually frown as double crop following sugar beets (May) or wheat (June). Due to harvest delays from early fall rains planting after July 4 is not suggested.

HARVEST DATES -- September 15 to October 15.

VARIETIES -- Sutter or Gloria Pink. (Classed as 85-90 day beans.)

SEEDING RATE -- 60 to 70 lbs/acre. Higher rates increase plant competition and root disease problems.

FERTILIZER--- Phosphorous starter has shown some benifit on P deficient soils. Between 50 and 80 lbs/ac 11-48-0 is sufficient. Some growers report success with 50 to 75 lbs/ac nitrogen preplant, especially following wheat. On ground without a bean history, it is suggested to use innoculated seed. On zinc deficient soils, 30 lbs/ac zinc sulfate is suggested.

IRRIGATION -- Pre-irrigate and plant to moisture. Irrigating up beans reduces stand and increases root disease problems with seedlings. 5-8 irrigations are usually sufficient dependent upon soil type. An irrigation prior to crown bloom can help prevent blossom abortion due to heat stress.

WEED CONTROL -- Treflan and Dual are commonly applied preplant with good results. Growers also report success with Eptam.

INSECT PROBLES -- Mites and Lygus present most insect problems. Kelthane or Comite, and Lanate have given good control.

DISEASE PROBLEMS -- Early season problems with seedling rhizoctonia and phytophtora. Mid to late season problems with fusarium. Presently, no chemical control available or resistant varieties. Use seed treated with Captan/Demosan. Use accurate plant populations and good water management.

SAMPLE COSTS TO PRODUCE PINK BEANS

TYPE OF CROP..... DRY BEANS, PINK
YIELD PER ACRE..... 25 CWT
GROSS INCOME..... 157,500.00

NUMBER OF ACRES..... 300
MARKET VALUE PER CWT... 21
GROSS INCOME/ACRE..... 525.00

TYPE	PER ACRE EXPENSES	TOTAL	CHANGES
CULTURAL FUEL COSTS			
Disc 2x	2.20	660.00	
Plow	2.75	825.00	
Level Place 2x	2.72	816.00	
Chisel 2x	5.00	1,500.00	
Disc 1x/Herb. Appl	1.10	330.00	
Spring Tooth/Roll	0.75	225.00	
Float/Ringroll	0.75	225.00	
List Beds	1.50	450.00	
Plant	1.00	300.00	
Ringroll	0.75	225.00	
Cultivate 2x	1.60	480.00	
Seed (70 lbs./ac)	35.00	10,500.00	
Open/Close Ditches	0.60	180.00	
TOTAL ...	55.72	16,716.00	
IGN			
Sa(NH2/AS)	25.00	7,500.00	
...	25.00	7,500.00	
/ac)			
lwgua	21.00	6,300.00	
	14.00	4,200.00	
	35.00	10,500.00	
	31.50	9,450.00	
	8.25	2,475.00	
	1.60	480.00	
	1.75	525.00	
	22.50	6,750.00	
	65.60	19,680.00	

EXPENSES BEANS, CONTINUED

TYPE	PER ACRE	TOTAL	CHANGES
LABOR			
Irrigation ($4/hr)	18.75	5,625.00	--------
Cultural ($5/hr)	28.80	8,640.00	--------
Harvest	2.40	720.00	--------
TOTAL ***	49.95	14,985.00	--------
DEBT SERVICE			
Interest on Loan	19.65	5,895.00	--------
Interest on Equip.	9.00	2,700.00	--------
TOTAL ***	28.65	8,595.00	--------
CASH OVERHEAD			
Share Rent (20%)	190.68	57,204.00	--------
Office?Mgmt. Exp.	15.00	4,500.00	--------
Repairs/Maint.	30.00	9,000.00	--------
Taxes on Equip.	2.59	777.00	--------
Emp. Benifits (30%	7.75	2,325.00	--------
Mgmt. Sal/Benifits	35.00	10,500.00	--------
TOTAL ***	281.02	84,306.00	--------
TOTAL CASH EXPENSES @	540.94	@ 162,282.00	
NET INCOME @ 25 CWTS	-15.94	@ -4,782.00	
NON-CASH COSTS			
Interest on Bldgs.	10.67	3,201.00	--------
Bldg.Depreciation	4.44	1,332.00	--------
Equip. Deprec.	10.67	3,201.00	--------
	0.00	0.00	--------
TOTAL NON-CASH COSTS @	25.78	@ 7,734.00	--------

GRAPH OF CROP EXPENSES

TYPE 00% 10% 20% 30% 40% 50% 60% 70%+>

CULTURAL FUEL COSTS
****

IRRIGATION
*****

CHEMICALS
******

HARVEST
****

LABOR
****

DEBT SERVICE
******

CASH OVERHEAD
****

1984 SAMPLE COST TO PRODUCE SAFFLOWER

AREAS OF ADAPTATION - Most areas of Sacramento and Solano Counties. Reasonable yields produced on marginal soils, except where soils have hardpans.

PLANTING DATES - February 15 to April 15.

HARVEST DATES - August 1 to September 15, when moisture content of seed is about 8%.

SOIL REQUIRMENTS -Clays, flay loams, muck, non-hardpan soils.

VARIETIES - Check seed companies or local UC Farm Advisors office forcurrent recommendations.

SEEDING RATES - 35 to 50 lbs/acre, row planted on 7-20 inch rows. Increase seeding 10 lbs/ac for drilled plantings on sub-irrigated land.

FERTILIZER REQUIREMENTS - 120 lbs/ac nitrogen depending on previous crops and soil moisture conditions. Starter fertilizer can be beneficial especially on cold soils.

IRRIGATION - Usually none, except where rain machines are used. Planting should be to moisture.

ROTATION - Not recommended to plant prior to growing tomatoes. Dodder problems seam to be worse after safflower. Soil tends to dry out and take land out of level.

YIELDS - 2000 to 3000 lbs/acre.

SPECIAL INSECT PROBLEMS -Cutworms, aphids, lygus, and thrips. Early plantings preferred to decrease possibility of damage from latter two.

SAMPLE COST OF PRODUCTION

1985 WOODLAND AREA

U.C. COOPERATIVE EXTENSION
YOLO COUNTY
70 COTTONWOOD STREET
WOODLAND, CALIFORNIA 95695

TOMATOES (25 TONS PER ACRE)
700 ACRES IN ROTATION FOLLOWING WHEAT OR CORN (1/2 EACH)
TWO HARVESTER OPERATION (BOTH ELECTRONIC)

	HOURS/ ACRE	CASH COSTS PER ACRE				
		LABOR	TRACTOR	IMPLT.	MATERIAL	TOTAL
SEED BED PREPARATION:						
FALL WORK:						
PLOW 1/2 ACRES @ .4 HR/ACRE	.20	1.27	2.31	.81	-	4.40
LASERPLANE 10% ACRES @ $120/AC.	-	-	-	-	12.00	12.00
SUBSOIL 1/2 AC. 2X AFTER WHEAT	.40	2.55	8.22	1.89	-	12.65
SUBSOIL 1/2 AC. 1X AFTER CORN	.20	1.27	4.11	.94	-	6.33
TRIPLANE 2X	.34	2.17	5.14	1.23	-	8.54
DISC 1X	.13	.83	1.96	.90	-	3.69
LIST (ALL FALL BEDDED)						
WITHOUT NEMATICIDE (3/4 AC.)	.19	1.34	1.80	.25	-	3.40
W/NEMATICIDE (1/4 ACRES)	.09	.63	.85	.16	26.38	28.02
FLAT ROLL TO SHAPE	.12	.76	.92	.14	-	1.83
POWER INCORP.TO SHAPE (1/3 AC.)	.25	1.76	2.89	.83	-	5.48
FALL APPLIED HERBICIDE (3/4 AC.)	.09	.63	.69	.10	15.60	17.02
CONTACT HERB. BY AIR 1X	-	-	-	-	17.36	17.36
SPRING WORK:						
CULTIVATE (2/3 AC.) 1X	.09	.63	.85	.12	-	1.61
RE-CULTIVATE (1/3 AC.) 1X	.05	.35	.47	.07	-	.89
MOVE EQUIP. SET UP & SERVICE @ 10% OF LABOR COSTS	-	1.42	-	-	-	1.42
TOTAL LAND PREPARATION COSTS:		15.63	30.24	7.44	71.34	124.64

TOMATOES CONT.

	HOURS/ ACRE	CASH COSTS PER ACRE				
		LABOR	TRACTOR	IMPLT.	MATERIAL	TOTAL
PLANTING:						
PLANT 2 ROWS (2 PEOPLE)						
LIGHTWEIGHT TRACKLAYER 20%	.07	.84	.71	.36	-	1.92
WHEEL TRACTOR 80%	.26	3.14	2.07	1.34	-	6.55
SEED 2/3 HYBRID @ 1/2 LB.	-	-	-	-	60.00	60.00
1/3 O.P. @ 1 LB.	-	-	-	-	6.67	6.67
STARTER FERT. 18 GALS./AC.	-	-	-	-	24.61	24.61
HERB., SURFACE SPRAY 40% AREA	.12	.84	.92	.13	19.30	21.20
CRUST BREAKER FOR GERMINATION	.40	2.82	3.08	.54	-	6.43
REPLANT (SEED ONLY) 10% AC.	.03	.36	.24	.15	6.67	7.43
MOVE EQUIP.,SET UP & SERVICE 20% OF LABOR COSTS	-	1.60	-	-	-	1.60
TOTAL PLANTING COSTS:		9.61	7.02	2.52	117.25	136.40
GROWING:						
SPRINKLE IRRIG. STAND ESTAB.						
1/6 AC. NATURAL RAINFALL	-	-	-	-	-	
1/6 AC. EARLY, SPRINKLE 1X	.36	1.98	-	.94	.21	3.13
1/3 AC. MID-SEASON,SPRINK.2.5X	1.80	9.88	-	4.61	1.05	15.54
1/3 AC. LATE, SPRINKLE 3X	2.16	11.86	-	5.54	1.26	18.66
CULTIVATE	.25	1.76	2.37	.34	-	4.47
THIN (ELECTRONIC) 1/3 AC.	.11	.77	.85	.81	-	2.43
HOE (HAND WEED)	-	-	-	-	70.00	70.00
FERT. 125 LB. @ 24c	.33	2.32	3.13	.57	30.00	36.03
V DITCH, OPEN & CLOSE 3X	.15	1.06	2.27	.72	-	4.05
IRRIGATE 7X @ 1.25 HR./AC.	8.75	48.04	-	-	-	48.04
WATER 4 AC. FT.	-	-	-	-	60.60	60.60
MISC. EQUIP. (SHOVELS, DAMS)	-	-	-	-	2.00	2.00
LAYBY HERBICIDE	.40	2.82	4.63	1.49	5.65	14.59
CULTIVATE	.29	2.04	2.75	.39	-	5.18
CULTIVATE WITH HI-CROP	.33	2.32	2.63	.44	-	5.40
VINE TRAINER 1/2 AC.	.20	1.41	1.59	.23	-	3.24
MOVE EQUIP., SETUP & SERVICE @ 15% OF LABOR COSTS		2.18	-	-	-	2.18
TOTAL GROWING COSTS:		88.43	20.23	16.09	170.77	295.52

TOMATOES CONT.

	HOURS/ ACRE	CASH COSTS PER ACRE LABOR	TRACTOR	IMPLT.	MATERIAL	TOTAL
GROWING - INSECT CONTROL:						
AIRPLANE APPLICATION 3.5X @ $5.50	-	-	-	-	19.25	19.25
FLEA BEETLE 1/4 AC.	-	-	-	-	1.36	1.36
CUTWORMS, BAIT 1/4 AC.	-	-	-	-	5.65	5.65
WORM CONTROL 2X	-	-	-	-	27.46	27.46
SULFUR DUST 35 LBS.	-	-	-	-	4.14	4.14
MOLD CONTROL WITH INSECTICIDE 1/3 AC. 2X	-	-	-	-	9.92	9.92
ETHEPHON 1/5 AC.	.03	.21	.24	.03	7.25	7.73
WHITEWASH 1/5 AC. CUSTOM	-	-	-	-	6.40	6.40
MOVE EQUIP. SET UP & SERVICE 15% OF LABOR COSTS	-	.03	-	-	-	.03
TOTAL - INSECT CONTROL COSTS:		.24	.24	.03	81.43	81.94
MISCELLANEOUS:						
PICKUP & TRUCK USE	-	-	-	-	4.91	4.91
SUPERVISORS SALARIES, ACCOUNTING, OFFICE EXPENSE	-	-	-	-	47.07	47.07 .00
MISC. EQUIP. USE		1.02	1.50	.92	-	3.44
BUILDING (TAXES, INS.,REPAIRS)	-	-	-	-	.67	.67
PRODUCTION LOAN INTEREST COST	-	-	-	-	29.39	29.39
EQUIPMENT LOAN INTEREST COST	-	-	-	-	14.32	14.32
CROP INSURANCE, ALL ACRES	-	-	-	-	30.00	30.00
TOTAL - MISCELLANEOUS COSTS:		1.02	1.50	.92	126.35	129.79
TOTAL, PRE-HARVEST CASH COSTS:					$	768.29

TOMATOES CONT.

	HOURS/ ACRE	CASH COSTS PER ACRE				
		LABOR	TRACTOR	IMPLT.	MATERIAL	TOTAL
HARVEST EXPENSE:						
NEW MACHINE 3/4 AC. (7 AC./SHIFT) (TWO 10 HR. SHIFTS)	1.07	-	33.72	-	-	33.72
OLD MACHINE 1/4 AC. (7 AC./SHIFT) (ONE 10 HR. SHIFT, PART SEASON)	.36	-	18.84	-	-	18.84
DRIVER, HARVESTER	1.43	10.07	-	-	-	10.07
6 SORTERS	8.58	43.16	-	-	-	43.16
4 DOLLIES (5TH WHEELS)	2.50	-	-	.80	-	.80
(2)TRACTOR & DRIVER 3/4 AC.	2.14	13.63	20.31	-	-	33.95
(1)TRACTOR & DRIVER 1/4 AC.	.36	2.29	4.17	-	-	6.46
AVENUE OPENER 7% OF ACRES (TRACTOR & DRIVER)	.10	.70	1.16	.35	-	2.21
LIGHTING SYSTEM	.54	-	-	2.42	-	2.42
MISC.EQUIP.$40/DAY X 18 AC./DAY	-	-	-	-	2.22	2.22
MISC. SUPPLIES $25/DAY	-	-	-	-	1.39	1.39
TOILET FACILITIES	-	-	-	-	.37	.37
INSPECTION FEES	-	-	-	-	4.50	4.50
MISC.(ASSN.,CIRI,LF.HOP.,25c/TON)	-	-	-	-	6.25	6.25
REJECT LOADS 1% DIRECT HARV.COSTS	-	-	-	-	1.52	1.52
PICKUP & TRUCK USE	-	-	-	-	2.46	2.46
SUPERVISORS. SALARIES, ACCOUNTING, OFFICE EXPENSE	-	-	-	-	23.53	23.53
BUILDING (TAXES, INS., REPAIRS)	-	-	-	-	.33	.33
MISC. EQUIP. USE (LOW BED, ETC)	-	.51	.75	.46	-	1.72
EQUIP. LOAN INTEREST COST	-	-	-	-	14.32	14.32
MOVE EQUIP., SET UP, SERVICE & CLEAN @ 15% OF LABOR (-SORTERS)	-	4.08	-	-	-	4.08
TOTAL CASH HARVEST COSTS:		74.45	78.95	4.03	56.88	214.31

TOTAL HARVEST COSTS		
CASH HARVEST COSTS		214.31
EQUIP. (INT. & DEPREC.)		85.00
TOTAL:	$	299.31

TOMATOES CONT.		COSTS/ACRE
PRODUCTION AND HARVEST CASH COSTS:		982.60
LANDLORD SHARE (16% X $52 X 25 TONS)		208.00
TOTAL CASH COSTS:	$	1190.60
INVESTMENT:		
BUILDINGS (interest & depreciation)		5.69
TRACTORS & IMPLTS. (int. & depreciation)		144.85
TOTAL INVESTMENT COSTS:		150.54
GRAND TOTAL ALL COSTS PER ACRE:	$	1341.14
TOTAL COST/TON @ 25 TONS/AC.	$	53.65

SUMMARY

DOLLARS PER ACRE @ 25 TONS PER ACRE

		CASH	NON-CASH	TOTAL
GROWING	$	768.29	65.54	833.83
HARVEST		214.31	85.00	299.31
LANDLORD		208.00	-	208.00
TOTAL COST PER ACRE:	$	1190.60	150.54	1341.14

COST PER TON @ VARIOUS YIELDS:		20 T/AC.	25 T/AC.	30 T/AC.
CASH GROWING COSTS	$	38.41	30.73	25.61
NON-CASH GROWING COSTS		3.28	2.62	2.18
CASH HARVEST COSTS		10.72	8.57	7.14
NON-CASH HARVEST COSTS		4.25	3.40	2.83
LANDLORD - 16% @ $52/TON		8.32	8.32	8.32
TOTAL COST PER TON:	$	64.98	53.64	46.08

MANAGEMENT FEE @ 5% OF GROSS INCOME ---- ($65/ACRE)
(usual charge for management not included in this study)

provided by Perry Farms, farming tomatoes and rice in the "Boot" area has not been profitable for the last several years. It is apparent from this information, the the Draft EIR's analysis of farm economics is inadequate. (John V. Diephenbrock)

RESPONSE: The author of this comment asserts that the DEIR is inadequate because information derived from the Perry Farms analysis differs from the assumptions used in the farm unit models included in the DEIR. The following responses address the comparison of the two models.

(1) All cost and income assumptions for the the farm unit models documented in the DEIR were thoroughly reviewed in preparation of this comparison.

(2) In examining the DEIR Tomato Model a data error of $10 per acre was discovered regarding Aerial Application costs. At the farm unit level this amounts to $1,600 for the 160 acre operation. This total difference has no significant impact on net profitability.

(3) Perry Farms (RICE): The primary difference between the two models is price and yield assumptions. Their model asserts that our price (6.50 cwt) is above current market levels and our yields (80 cwt/acre) run counter to experience.

Regarding yields, yield data in the North Natomas area suggest a range of production per acre, depending on annual weather conditions, soil quality, and farming practices. The 80 cwt/acre figure was an an average figure based upon past history and interviews which suggested expected yields were between 75 and 85 cwt/acre.

Regarding prices, Perry Farms and the DEIR model's price assumptions are based differently. The DEIR model price assumption is based on a long-term average of rice prices and participation in the Department of Agriculture's rice program. Averaging the prices paid to farmers for the last five years of available data (1979 to 1983) [2], a price/cwt of $9.78 was received. The DEIR price of $9.20 was established through similar research of local California prices and later validated as a reasonable assumption through our interviews.

If the unsupported price of $6.50/cwt is used in the DEIR model, along with the lower production figures assumed in the Perry Model, farm unit returns will be negative.

SYNOPSIS

JOINT CITY/COUNTY PLANNING COMMISSION MEETING
AUGUST 30, 1984

REGARDING NORTH NATOMAS COMMUNITY PLAN
NOTICE OF PREPARATION
AND
ALTERNATIVE LAND USE SKETCH PLANS

GENERAL

Several Commissioners expressed serious concern about the North Natomas Planning Process and time schedule which was established by the City Council, as well as the lack of information which has been presented to date to justify an answer to the charge given the Consultant Team (i.e., to determine whether the North Natomas area should be urbanized at this time). Staff responded that the bulk of that analysis is still being prepared and will be presented at the October 4, 1984 meeting.

At this time, Commissioners took item C (alternative sketch plans) out of order on the agenda and heard the Consultant presentation.

ALTERNATIVE SKETCH PLANS

Kalvin Platt of The SWA Group gave a slide presentation of the three sketch plans and other projects which The SWA Group has implemented throughout the United States which relate to the features and issues of the North Natomas Planning Study.

Commissioner Simon commented that at the June 22, 1984 meeting, Commissioners reviewed the North Natomas Community Plan Background Report and agreed that the Assumptions contained in that Report were to guide the Consultant Team in preparing the sketch plans. Yet, in many instances, they haven't been. As an example:

1. A jobs/housing balance was to be assumed for the North Natomas area. The SWA Groups seven page explanation of the sketch plans indicates that each plan approximates a job/housing balance when considering adjacent communities. Commissioner Simon indicated that Plan No. 1 was based on an 80 percent ratio and that the other two Plans do less well.

2. It was to be assumed that Williamson Act lands were to be protected from proximate urban development yet Williamson Act lands are not strongly considered in any of the three Plans.

Kalvin Platt responded that agricultural uses would not generally be a viable land use within the Study Area during the 20 year planning horizon. Since Williamson Act contracts are for only a 10 year period, such lands were not protected except for specific designated sites on the sketch plans to be used for open space, greenbelts and to create a community identity for the area. His recommendation is that Williamson Act lands can't be protected for the 20

YOLO ENGINEERS & SURVEYORS, INC.

WOODLAND PH 662-4346 / DAVIS PH. 753-2515 / WEST SACTO PH. 371-7076
POST OFFICE BOX 1364 / 1216 FORTNA AVENUE
WOODLAND, CALIFORNIA 95695

July 5, 1985

Perry Farms
1831 Garden Highway
Sacramento, CA 95833

Attn: Mr. John Perry

Gentlemen:

As you requested, we have reviewed our work for you in that area of Sacramento County bounded on the south and west by the Sacramento River, on the north by Del Paso Road, and on the east by the main drainage channel of Reclamation District 1000. The area is bisected in a Northeast-Southwest direction by Interstate Highway 80, and the high level freeway bridge crossing the Sacramento River. The review is based upon our participation in agricultural development for you over the past fifteen years and reflects our conclusions as to the agricultural potential of the area for the future.

The area under consideration is an extremely flat basin of low relief separated by a system of irrigation ditches, drains and rural roads. Soils are clay and silt clays, with subsurface hardpan areas that results in perched water tables throughout the basin area. The area adjacent to the Sacramento River is in the form of a narrow elevated rim of silt deposits resulting from the historic flooding of the Sacramento River prior to the construction of flood control levees.

All of our agricultural development in the Basin area has been constrained by the factors noted above - minimum irrigation slopes, heavy clay soils, high water table and poor drainage. The narrow band of silt soils along the Sacramento River while excellent for some agricultural purposes are subject to an extreme ground water fluctation during the winter and spring high water stages of the river. At the junction of the silt deposit upon the basin soils, subsurface leaching and salt deposits are commonplace. The physical factors noted above have been a continuing problem since the earliest farming efforts.

Economic returns to the farmer in the past have been sustained through the artificial stimulus in agricultural values resulting from World Wars I & II, and the following years of the Viet Nam and Korean Conflicts. Future returns to the farmer appear to be minimal in the forseeable future, so much so that I would advocate a reduction or cessation of further ranch development or any part other than maintenance items.

Yours Very Truly,

YOLO ENGINEERS AND SURVEYORS, INC.

By _____
John H. Roberts

JHR:jg

Potential productivity in the Southwest Quadrant would not be reduced because no conversion would occur in this area.

Alternatives C, D and E

Alternatives C, D, and E would result in the loss of rice, corn, wheat, tomato, and sugar beet production in all quadrants of the Study Area. Alternatives C and D would have similar impacts upon potential productivity. The difference in production between Alternatives C and D and Alternative E results from the greater amount of land in the Northwest Quadrant to be converted to urban use under Alternative E.

CONFLICTS WITH SURROUNDING AGRICULTURE

Many aspects of agricultural production are incompatible with urban land use. Agricultural operations create hazards and nuisances for urban residences and businesses. Convèrsely, urban land uses and the associated population create operational difficulties for agriculture. Hazards and nuisances potentially created by agricultural operations in the Study Area include:

- Exposure to pesticide and herbicide applications.
- Exposure to smoke (from burning) and dust (from soil preparation).
- Exposure to noise (from machinery and trucks).
- Hazards to children (irrigation channels and ditches).
- Exposure to mosquitoes breeding in flooded fields.

These potential nuisances and other aspects of urban land uses, including rising land values, can affect agriculture negatively. Negative effects of urban uses on agriculture in the North Natomas area would include:

- Interference with agricultural operations (e.g. limitations on pecticide/herbicide applications, burning, operational hours, etc.).

- Tresspassing, vandalism, and theft due to the proximity of urban uses to agricultural areas.

- Land value impacts due to proximity to urban areas which tends to increase land value in anticipation of future urban development. This increase reduces the probability that farmers would make long-term investments to maintain the productive potential of the land.

Conflicts between agriculture and urban uses mainly would affect the agricultural areas which would remain in the Study Area and in the surrounding Analysis Area. These conflicts are discussed below.

Because of the large acreage of proposed urban areas under the alternatives, agriculture/urban conflicts likely would result in significant adverse impacts on remaining agriculture. Alternative A would not add many new residents to the Study Area. Alternatives B, C, D, and E would add substantial numbers of residents to the Study Area. The efforts of future urban residents to reduce potential hazards and nuisances emanating from surrounding agricultural areas could become a major constraint on agricultural operations. These constraints could result in increasing operational costs, phasing out of crops, moving operations which create nuisances for adjacent urban areas, and, ultimately, removing lands from production. For example, urban residents may be disturbed by smoke from rice stubble burning done annually as a necessary part of production operations.

Potential conflicts between agriculture and urban uses were measured through development of the impact model based upon the LESA system. (A description of the LESA system and the impact model is provided in Appendix L-6). The various conflicts between agricultural and urban land uses discussed above were reflected in the LESA site evaluation scoring process. The impact model was use to create LESA scores for lands remaining in agricultural use surrounding the proposed developed areas under each alternative.

Comparing the LESA scores with existing (base case) conditions indicates the level of conflict resulting from each alternative. Comparing the alternatives provides a relative measure of impacts.

A summary of the potential conflict issues affecting each quadrant of the Analysis Area under each of the alternatives also was completed by considering the results of the LESA Impact Model and other available data.

Exhibit L-58 summarizes the results of the LESA Impact Model. Each alternative is presented showing the number of quarter sections which would be converted and the number which would be in conflict, the lost SPI values due to conversion, and the reduction in the Site Evaluation Scores due to both conversion and conflicts.

Exhibit L-58 indicates that all alternatives (including Alternative A even though it would be considerably less than Alternatives B, C, D or E) would

EXHIBIT L-58

Summary of LESA Evaluation

	QUADRANT				TOTAL
	NW	NE	SE	SW	
BASECASE (Study Area)					
Total Number of Cells	32	26	18	15	91
Currently Developed	8	2	6	1	17
Cells Remaining	24	24	12	14	74
• Total Site Potential Index	2000	2076	991	1153	6220
• Total Site Evaluation Score	3905	4743	2009	2584	13241
ALTERNATIVE A					
Number of Cells Converted	24	0	1	0	25
Number of Cells in Conflict					
Study Area	0	1	9	4	14
Analysis Area	22	0	0	12	34
Lost Site Potential Index (1)	2000	0	60	0	2060
Lost Site Evaluation Score (Study Area) (2)					
Due to Conversion	3905	0	176	0	4081
Due to Conflicts	0	5	31	14	50
TOTAL	3905	5	207	14	4131
Lost Site Evaluation Score (Analysis Area)					
Due to Conversion	0	0	0	0	0
Due to Conflicts	373	0	0	103	476
TOTAL	373	0	0	103	476
ALTERNATIVE B					
Number of Cells Converted	14	18	12	0	44
Number of Cells in Conflict					
Study Area	7	6	0	14	27
Analysis Area	9	6	0	13	28
Lost Site Potential Index	1138	1571	991	0	3700
Lost Site Evaluation Score (Study Area)					
Due to Conversion	2252	3502	2009	0	7763
Due to Conflicts	17	221	0	259	497
TOTAL	2269	3723	2009	259	8260
Lost Site Evaluation Score (Analysis Area)					
Due to Conversion	0	0	0	0	0
Due to Conflicts		155	0	70	334
TOTAL		155	0	70	334

EXHIBIT L-5b — CONTINUED

Summary of LESA Evaluation

	QUADRANT				TOTAL
	NW	NE	SE	SW	
BASECASE (Study Area)					
Total Number of Cells	32	26	18	15	91
Currently Developed	8	2	6	1	17
Cells Remaining	24	24	12	14	74
• Total Site Potential Index	2000	2076	991	1153	6220
• Total Site Evaluation Score	3905	4743	2009	2584	13241
ALTERNATIVE C					
Number of Cells Converted	16	24	12	11	63
Number of Cells in Conflict					
Study Area	7	0	0	3	10
Analysis Area	11	12	0	22	45
Lost Site Potential Index	1314	2076	991	921	5302
Lost Site Evaluation Score (Study Area)					
Due to Conversion	2545	4743	2009	2003	11300
Due to Conflicts	38	0	0	71	109
TOTAL	2583	4743	2009	2074	11409
Lost Site Evaluation Score (Analysis Area)					
Due to Conversion	0	0	0	0	0
Due to Conflicts	217	439	0	325	981
TOTAL	217	439	0	325	981
ALTERNATIVE D					
Number of Cells Converted	16	24	12	11	63
Number of Cells in Conflict					
Planning Area	7	0	0	3	10
Study Area	11	12	0	17	40
Lost Site Potential Index	1314	2076	991	921	5302
Lost Site Evaluation Score (Study Area)					
Due to Conversion	2545	4743	2009	2003	11300
Due to Conflicts	68	0	0	67	135
TOTAL	2613	4743	2009	2070	12243
Lost Site Evaluation Score (Analysis Area)					
Due to Conversion	0	0	0	0	0
Due to Conflicts	253	439	0	251	943
TOTAL	253	439	0	251	943

EXHIBIT L-58 — CONTINUED

Summary of LESA Evaluation

	QUADRANT				TOTAL
	NW	NE	SE	SW	
BASECASE (Study Area)					
Total Number of Cells	32	26	18	15	91
Currently Developed	8	2	6	1	17
Cells Remaining	24	24	12	14	74
• Total Site Potential Index	2000	2076	991	1153	6220
• Total Site Evaluation Score	3905	4743	2009	2584	13241
ALTERNATIVE E					
Number of Cells Converted	24	24	12	13	73
Number of Cells in Conflict					
Study Area	0	0	0	1	1
Analysis Area	22	12	0	20	54
Lost Site Potential Index	2000	2076	991	1053	6120
Lost Site Evaluation Score (Study Area)					
Due to Conversion	3905	4743	2009	2387	13044
Due to Conflicts	0	0	0	16	16
TOTAL	3905	4743	2009	2403	13060
Lost Site Evaluation Score (Analysis Area)					
Due to Conversion	0	0	0	0	0
Due to Conflicts	567	439	0	313	1319
TOTAL	567	439	0	313	1319

(1) Lost Site Potential Index is the summed soil potential index from all quarter sections being converted.
(2) Lost Site Evaluation Score is the summed land evaluation scores of those quarter sections developed plus the changed score of quarter sections in conflict with the converted quarter sections.

Source: Economic and Planning Systems and Nichols-Berman

have a significant impact upon agriculture, both within the Study Area and in the surrounding Analysis Area.

Alternative A which would convert the least amount of agricultural land could create operational conflicts with 7,500 acres of agricultural land, although the level of these conflicts would be relatively low due to the predominately industrial uses proposed in Alternative A.

Alternative B could create operational conflicts for the 8,300 acres of remaining agricultural land. The fact that agricultural land conversion would not occur in the Southwest Quadrant (west of I-5) would reduce the significance of the potential conflicts in this area. The proposed buffer area on the northern boundary (Elkhorn Boulevard) of the proposed development area also could reduce potential conflicts although probably not to a less than significant impact.

Alternatives C, D, and E also could create operational conflicts with 8,800 acres of remaining agricultural land, although the relative impact on these lands likely would be higher due to the proposed land use configurations, the greater perimeter area, and the extension of development into the Southwest Quadrant.

A measure of the relative level of conflicts between the Alternatives is provided by the LESA evaluation (presented on Exhibit L-62). The LESA score represents lost "site evaluation score" due to conflicts with future urban uses defined under each Alternative. The higher the number the more significant the impact. Lost site evaluation scores for the alternatives in both the Study Area and the Analysis Area are as follows:

Alternative A	526
Alternative B	831
Alternative C	1,090
Alternative D	1,078
Alternative E	1,335

Exhibit L-62 through Exhibit L-70 summarize conflicts which could occur between agriculture and urban land uses under each alternative.

EXHIBIT L-62

Summary of Agricultural Conflicts upon Urban Land Use -- Alternative A

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Pesticide and Herbicide Application	Development of 2,000 acres of new industrial and airport-related uses will create a 5 mile border with agriculture, which could expose employees to pesticides and herbicides.	No change from existing conditions.	Development of 130 acres of new industrial uses within the area, could expose new employees to pesticides and herbicides.	40 acre buildout of a mobile home park could expose new residents to pesticides and herbicides applied on adjacent agricultural land.
2. Burning and Dust Resulting from Agricultural Operations	2,000 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	No change from existing conditions.	Industrial employees would be exposed to smoke and dust from surrounding agricultural uses.	40 acre buildout of a mobile home park could expose new residents to smoke and dust emanating from adjacent agricultural land.
3. Noise	Noise from agricultural operations will not signicantly affect industrial uses.	No change from existing conditions.	Noise from agricultural operations will not signicantly affect industrial uses.	40 acre buildout of a mobile home park could expose new residents to noise emanating from adjacent agricultural land.
4. Hazards	No change from existing conditions.	No change from existing conditions.	No change from existing conditions.	New residents, particularly children, may be attracted to ditches and canals.
5. Mosquitoes	Industrial business operating hours and indoor location of employee may limit exposure to mosquitoes.	No change from existing conditions.	Industrial business operating hours and indoor location of employees can limit exposure to mosquitoes.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.

EXHIBIT L-62 — CONTINUED

Summary of Urban Conflicts upon Agricultural Land Use -- Alternative A

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Trespassing Vandalism, and Theft.	Development of 2,000 acres of new industrial and airport-related uses will create a 5 mile border with agriculture, which could lead to some increase in trespassing, vandalism, and theft.	No change from existing conditions.	Development of 130 acres of currently vacant industrially zoned land could lead to a small increase in trespassing, vandalism, and theft.	A 40 acre buildout of a mobile home park could lead to a small increase in trespassing, vandalism, and theft on surrounding agricultural lands.
2. Interference with Agricultural Operations	Industrial uses, especially if properly located on the site, should not interfere greatly with surrounding agricultural operations.	No change from existing conditions.	Industrial uses, especially if properly located on the site, should not interfere greatly with surrounding agricultural operations.	A 40 acre buildout of a mobile home park could lead to a small increase in interference with surrounding agricultural operations
3. Land Value and Long-Term Agricultural Investment.	No change from existing conditions.	No change from existing conditions.	No change from existing conditions.	No change from existing conditions.

EXHIBIT L-64

Summary of Agricultural Conflicts upon Urban Land Use -- Alternative B

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Pesticide and Herbicide Application	Development of 250 acres of new industrial uses within the SPA, creating a 3/4 mile border with agriculture, could expose employees to pesticides and herbicides.	A 3 mile border between agriculture and urban uses would be created within the Planning Area. The proposed buffer would reduce exposure of residents to pesticides and herbicides.	Development in the Northeast Quadrant would buffer this area from pesticide/herbicide applications on surrounding agricultural lands.	40 acre buildout of a mobile home park could expose new residents to pesticides and herbicides applied on adjacent agricultural land.
2. Burning and Dust Resulting from Agricultural Operations	250 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	3,000 acres of new urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,600 acres of new urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	40 acre buildout of a mobile home park could expose new residents to smoke and dust emanating from adjacent agricultural land.
3. Noise	Noise from agricultural operations will not signicantly affect industrial uses.	Residents along the 3 mile border with agricultural use would be subjected to noise emanating from agricultural operations.	Development in the Northeast Quadrant would buffer this area from noise emanating from surrounding agricultural lands.	40 acre buildout of a mobile home park could expose new residents to noise emanating from adjacent agricultural land.
4. Hazards	No change from existing conditions.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals.
5. Mosquitoes	Industrial business operating hours and indoor location of employees could limit exposure to mosquitoes.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.

EXHIBIT L-66

Summary of Agricultural Conflicts upon Urban Land Use -- Alternative C

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Pesticide and Herbicide Application	Development of 500 acres of new industrial uses within the SPA, creating a 2 mile border with agriculture, could expose employees to pesticides and herbicides.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer would reduce exposure of residents to pesticides and herbicides.	Development in the Northeast Quadrant would buffer this area from pesticide/herbicide applications on surrounding agricultural lands.	1,900 acres of new development would create a 6 mile border with agricultural land. Length and complex shape of the interface will make mitigation difficult, resulting in potential exposure of residents to pesticides and herbicides.
2. Burning and Dust Resulting from Agricultural Operations	500 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	3,900 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,600 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,900 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.
3. Noise	Noise from agricultural operations will not signicantly effect industrial uses.	Residents along the 3 mile border would be subjected to noise emanating from agricultural operations.	Development in the Northeast Quadrant would buffer this area from noise emanating from surrounding agricultural lands.	Residents along the 6 mile interface would be subjected to noise emanating from agricultural operations.
4. Hazards	No change from existing conditions.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals.
5. Mosquitoes	Industrial business operating hours and indoor location of employees may limit exposure to mosquitoes.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.

EXHIBIT L-64 — CONTINUED

Summary of Urban Conflicts upon Agricultural Land Use -- Alternative B

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Trespassing Vandalism, and Theft.	Development of 250 acres of new industrial and airport-related uses would create a 3/4 mile border with agriculture, which could lead to some increase in trespassing, vandalism, and theft.	A 3 mile border between agriculture and urban uses would be created within the Planning Area. The proposed buffer could limit access to agricultural area, but trespassing, vandalism, and theft could increase..	No agriculture remains in this Quadrant.	A 40 acre buildout of a mobile home park could lead to a small increase in trespassing, vandalism, and theft on surrounding agricultural lands.
2. Interference with Agricultural Operations	Industrial uses, especially if properly located on the site, should not interfere greatly with surrounding agricultural operations.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	A 40 acre buildout of a mobile home park could lead to a small increase in interference with surrounding agricultural operations
3. Land Value and Long-Term Agricultural Investment.	No change from existing conditions.	Agricultural land, particularly the 1,000 acres remaining in the Planning Area, would be subject to intense pressure to convert unless enforceable restrictions on use are applied.	No agriculture remains in this Quadrant.	Agricultural land west of I-5 would be subject to more intense pressure to convert to urban uses unless enforceable restrictions preserving agriculture are applied.

EXHIBIT L-66 — CONTINUED

Summary of Urban Conflicts upon Agricultural Land Use -- Alternative C

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Trespassing Vandalism, and Theft.	Development of 500 acres of new industrial uses within the SPA, creating a 1 mile border with agriculture, could lead to a minor increase in trespassing, vandalism, and theft.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer could limit access to agricultural area, but trespassing, vandalism, and theft could increase.	No agriculture remains in this Quadrant.	1,900 acres of new development would create a 6 mile border with agricultural land. Access to agricultural land could lead to a significant increase in trespassing, vandalism, and theft on surrounding agricultural lands.
2. Interference with Agricultural Operations	Industrial uses, especially if properly located on the site, should not interfere greatly with surrounding agricultural operations.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.
3. Land Value and Long-Term Agricultural Investment.	No change from existing conditions.	Agricultural land north of the Planning Area Area would be subject to intense pressure to convert unless enforceable restrictions on use are applied.	No agriculture remains in this Quadrant.	Remaining agricultural land west of I-5 would be subject to intense pressure to convert unless enforceable restrictions on use are applied.

EXHIBIT L-68

Summary of Agricultural Conflicts upon Urban Land Use -- Alternative D

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Pesticide and Herbicide Application	Development of 500 acres of new industrial uses within the SPA, creating a 2 mile border with agriculture, could expose employees to pesticides and herbicides.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer would reduce exposure of residents to pesticides and herbicides.	Development in the Northeast Quadrant would buffer this area from pesticide/herbicide applications on surrounding agricultural lands.	1,800 acres of new development would create a 6 mile border with agricultural land. Length and complex shape of the interface will make mitigation difficult, resulting in potential exposure of residents to pesticides and herbicides.
2. Burning and Dust Resulting from Agricultural Operations	500 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	4,000 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,600 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,800 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.
3. Noise	Noise from agricultural operations will not signicantly affect industrial uses.	Residents along the 3 mile border would be subjected to noise emanating from agricultural operations.	Development in the Northeast Quadrant would buffer this area from noise emanating from surrounding agricultural lands.	Residents along the 6 mile border would be subjected to noise emanating from agricultural operations.
4. Hazards	No change from existing conditions.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals.
5. Mosquitoes	Industrial business operating hours and indoor location of employees may limit exposure to mosquitoes.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.

EXHIBIT L-70

Summary of Agricultural Conflicts upon Urban Land Use -- Alternative E

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Pesticide and Herbicide Application	Development of 2,000 acres of new industrial uses within the SPA, creating a 5 mile border with agriculture, could expose employees to pesticides and herbicides.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer would reduce exposure of residents to pesticides and herbicides.	Development in the Northeast Quadrant would buffer this area from pesticide/herbicide applications on surrounding agricultural lands.	1,800 acres of new development would create a 6 mile border with agricultural land. Length and complex shape of the interface will make mitigation difficult, resulting in potential exposure of residents to pesticides and herbicides.
2. Burning and Dust Resulting from Agricultural Operations	2,000 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	3,900 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,600 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,800 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.
3. Noise	Noise from agricultural operations will not signicantly effect industrial uses.	Residents along the 3 mile border would be subjected to noise emanating from agricultural operations.	Development in the Northeast Quadrant would buffer this area from noise emanating from surrounding agricultural lands.	Residents along the 6 mile border would be subjected to noise emanating from agricultural operations.
4. Hazards	No change from existing conditions.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals.
5. Mosquitoes	Industrial business operating hours and indoor location of employees may limit exposure to mosquitoes.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.

EXHIBIT L-68 — CONTINUED

Summary of Urban Conflicts upon Agricultural Land Use -- Alternative D

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Trespassing Vandalism, and Theft.	Development of 500 acres of new industrial uses within the SPA, creating a 2 mile border with agriculture, could lead to a minor increase in trespassing, vandalism, and theft.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer could limit access to agricultural area, but trespassing, vandalism, and theft could increase.	No agriculture remains in this Quadrant.	1,900 acres of new development would create a 6 mile border with agricultural land. Access to agricultural land could lead to a significant increase in trespassing, vandalism, and theft on surrounding agricultural lands.
2. Interference with Agricultural Operations	Industrial uses, especially if properly located on the site, should not interfere greatly with surrounding agricultural operations.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/ herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.
3. Land Value and Long-Term Agricultural Investment.	No change from existing conditions.	Agricultural land north of the Planning Area Area would be subject to intense pressure to convert unless enforceable restrictions on use are applied.	No agriculture remains in this Quadrant.	Remaining agricultural land west of the Planning Area would be subject to intense pressure to convert due to the adjacent development and the new roads planned between the Planning Area and the River.

EXHIBIT L-70 — CONTINUED

Summary of Urban Conflicts upon Agricultural Land Use -- Alternative E

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Trespassing Vandalism, and Theft.	Development of 2,000 acres of new industrial uses within the SPA, creating a 5 mile border with agriculture, could expose employees to pesticides and herbicides.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer could limit access to agricultural area, but trespassing, vandalism, and theft could increase.	No agriculture remains in this Quadrant.	1,800 acres of new development would create a 6 mile border with agricultural land. Access to agricultural land could lead to a significant increase in trespassing, vandalism, and theft on surrounding agriculutral lands.
2. Interference with Agricultural Operations	2,000 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/ herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.
3. Land Value and Long-Term Agricultural Investment.	Agricultural land between SPA and EL Centro Road would be subject to intense pressure to urbanize.	Agricultural land north of the Planning Area Area would be subject to intense pressure to convert unless enforceable restrictions on use are applied.	No agriculture remains in this Quadrant.	Remaining agricultural land west of the Planning Area would be subject to intense pressure to covert due to the adjacent development and the new roads planned between the Planning Area and the River.

ECONOMIC IMPACTS

Negative impacts may occur on the local agricultural economy due to the conversion of agricultural land to urban uses. Loss of direct income due to reduced agricultural production could have a variety of effects including:

- Loss of basic income and the "multiplier effect" of this income in the local economy.
- Loss of agricultural employment.
- Reduced demand for agricultural processing and service industries. If demand for these industries falls below an adequate level, businesses or facilities may go out of business or relocate, making access to processing and services more difficult for those lands remaining in production.

The significance of these economic impacts would depend on the size of the area removed from production relative to the overall agricultural economy of the immediate area, the county, and the surrounding region.

The economic impact analysis was based upon the estimates of reduced agricultural production previously computed (Exhibit L-54). Production values were applied in a series of calculations to estimate economic impacts. Economic impact calculations used data contained in the publication, Estimating Economic Impacts in California: The Sacramento Basin Input-Output Model, published by the Cooperative Extension, University of California.

Exhibit L-73 shows the estimated dollar value of annual crop production lost in the Study Area due to the alternatives.

Exhibit L-74 shows the estimated economic impact of the agricultural production lost under each of the alternatives on the regional economy, including both the direct income resulting from sale of agricultural commodities and the economic activity that these sales induce in the local economy -- "the multiplier effect".

COUNTY OF SACRAMENTO

W. LELAND BROWN
AGRICULTURAL COMMISSIONER
DIRECTOR OF WEIGHTS AND MEASURES

4137 BRANCH CENTER ROAD . SACRAMENTO, CALIFORNIA 95827
TELEPHONE (916) 366-2003

July 8, 1985

Perry Farms
Joe and Joaquin Perry
1831 Garden Highway
Sacramento, California 95833

Dear Mr Perry:

You asked how the regulations enforced by this office will affect your farming operations if development should occur adjacent to your property. With regards to your property, we are primarily concerned with the regulation of pesticide use and the control of agricultural burning.

Generally, the closer the farming operations are to people the more problems we can expect, and the more restrictive the regulatory controls. The application of pesticides by air becomes especially troublesome, because aerial applications are more subject to off-target drift. It is for this reason that your pesticide permit is conditioned to prohibit the aerial application of category 1 (highly toxic) pesticides within 500 feet of any dwelling or other areas where people may become exposed. The use of Parathion on rice for shrimp control would be an example of a material that might be prohibited if your rice was grown next to a populated area. In addition, the FAA rules require additional controls when pest control planes are flying over congested areas. Turn-arounds are completly prohibited below 500 feet over populated areas. This in itself could make the use of aircraft for pest control next to impossible unless the farming operation was quite large.

Additional restrictions may also be imposed for some ground pesticide applications. As an example, Paraquat cannot be applied to areas that may be contacted by children or pets. A permit for the use of Paraquat next to a subdivision, school or park would not be allowed unless some means could be found to keep the children and pets out of the field.

Every year new restrictions are placed on pesticide use, and the problems mentioned above will become more burdensome with time.

In some ways, the control of smoke from agricultural burning is even more difficult to deal with than pesticides. While the intent of pesticide regulations is to keep the pesticide on the property, with burning the aim is to get the smoke off the property, mixed with the air, and disbursed away from populated areas. We do this primarily by allowing burning only when wind will carry the smoke away from people, or to allow the smoke to rise and dissapate if there is sufficent distance between the burning and the people. The Sacramento Air Pollution Control District Regulations prohibit burning in Natomas when the wind is out of the north to protect the City of Sacramento. However, if development should occur to the north of your Natomas property, it will be very difficult to allow any burning because people will be impacted by either a north or south wind, unless several miles separate the burning from the people.

If I may be of further assistance, please give me a call.

Very truly yours,

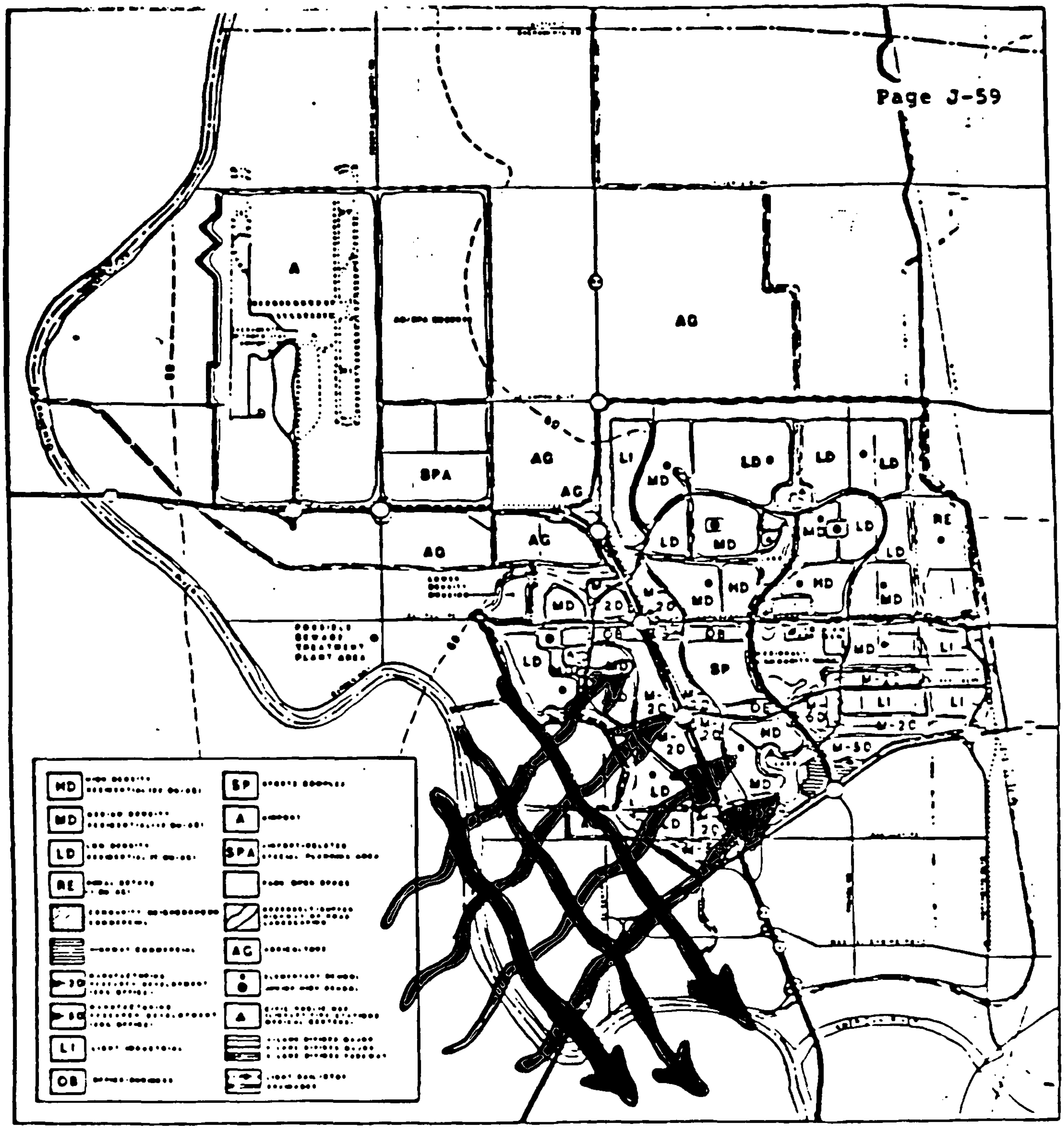
Leland Brown
Agricultural Commissioner

WIND FLOW PATTERNS

AREA: NORTH NATOMAS, EAST OF SACRAMENTO RIVER AND NORTH OF I-80

RESULTS: EFFECTS BURNING, APPLICATION OF PESTICIDES AND SPREADS DUST GENERATED BY FARMING

SOURCE OF DATA: CALIFORNIA AIR RESOURCES BOARD



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

NORTHWEST WINDS

SOUTHWEST WINDS

The SWA Group Community Planning
LSA Inc Environmental Analysis

ALTERNATIVE C
DRAFT COMMUNITY PLAN

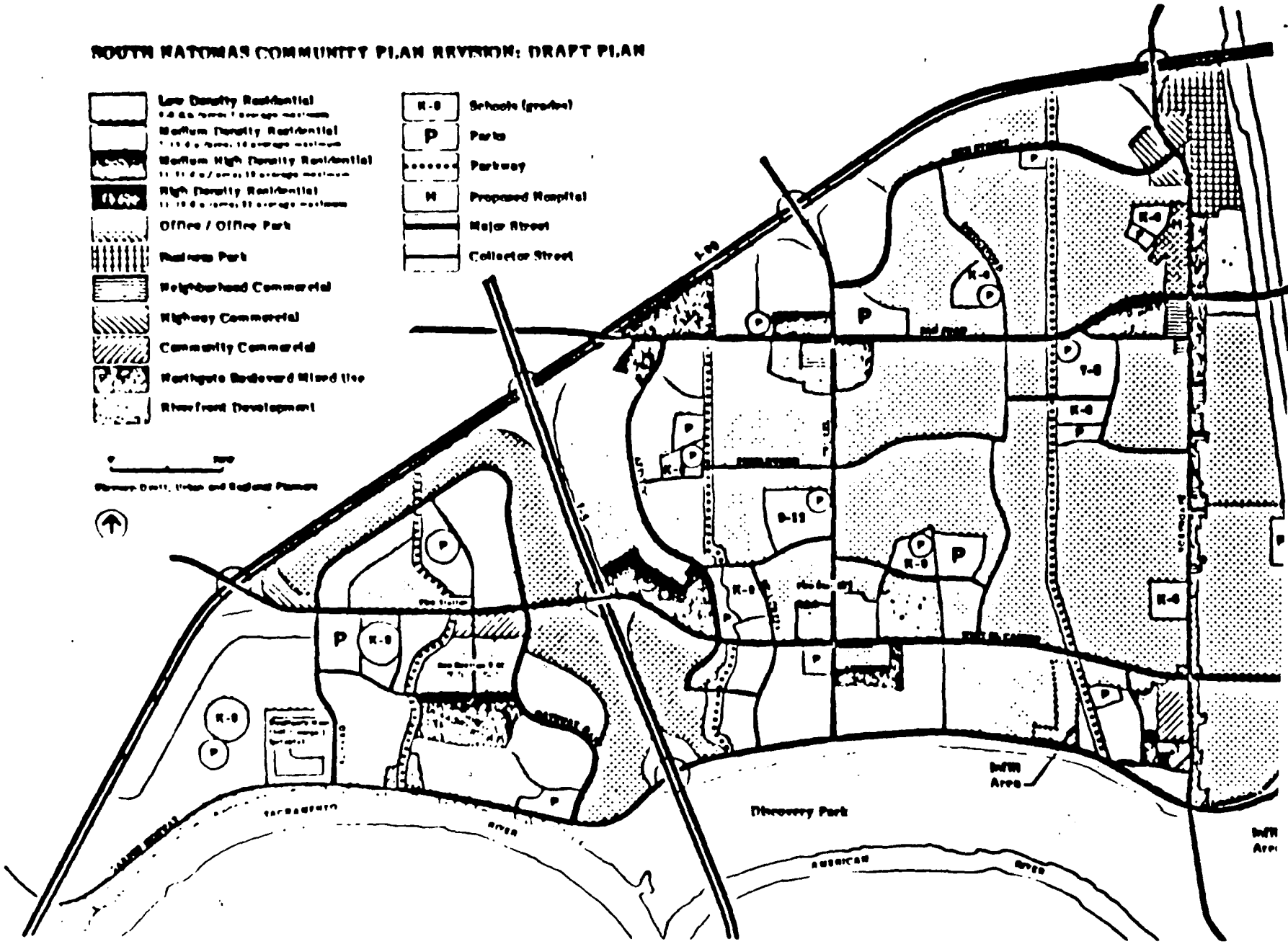
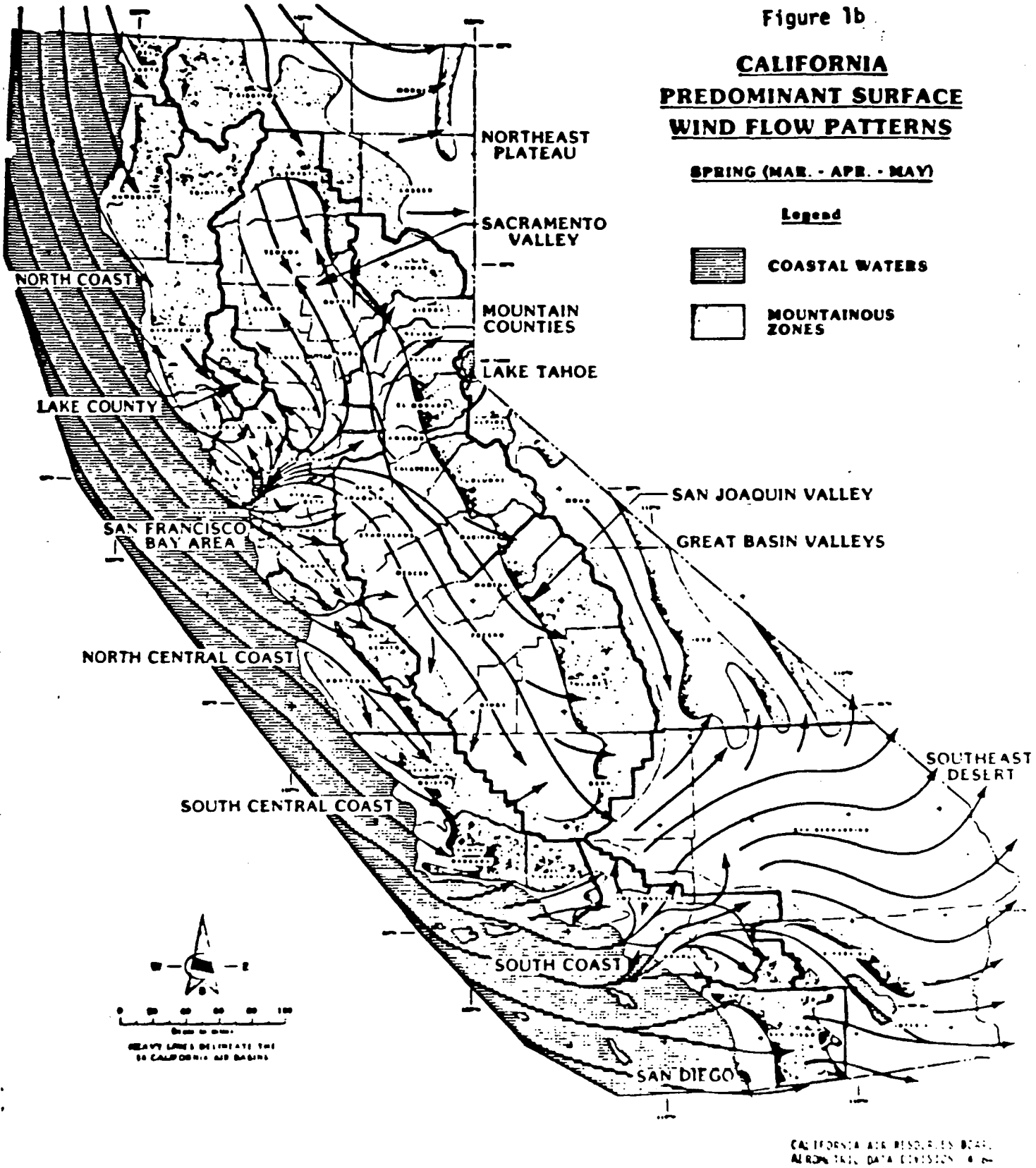

SOUTH NATOMAS COMMUNITY PLAN REVISION: DRAFT PLAN
Low Density Residential
Medium Density Residential
Medium High Density Residential
High Density Residential
Office / Office Park
Business Park
Neighborhood Commercial
Highway Commercial
Community Commercial
Northgate Boulevard Mixed Use
Riverfront Development
R-8 Schools (grades)
P Parks
Parkway
H Proposed Hospital
Major Street
Collector Street
Discovery Park
American River

Figure 1b

CALIFORNIA PREDOMINANT SURFACE WIND FLOW PATTERNS

SPRING (MAR. - APR. - MAY)



CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION

Figure 1d

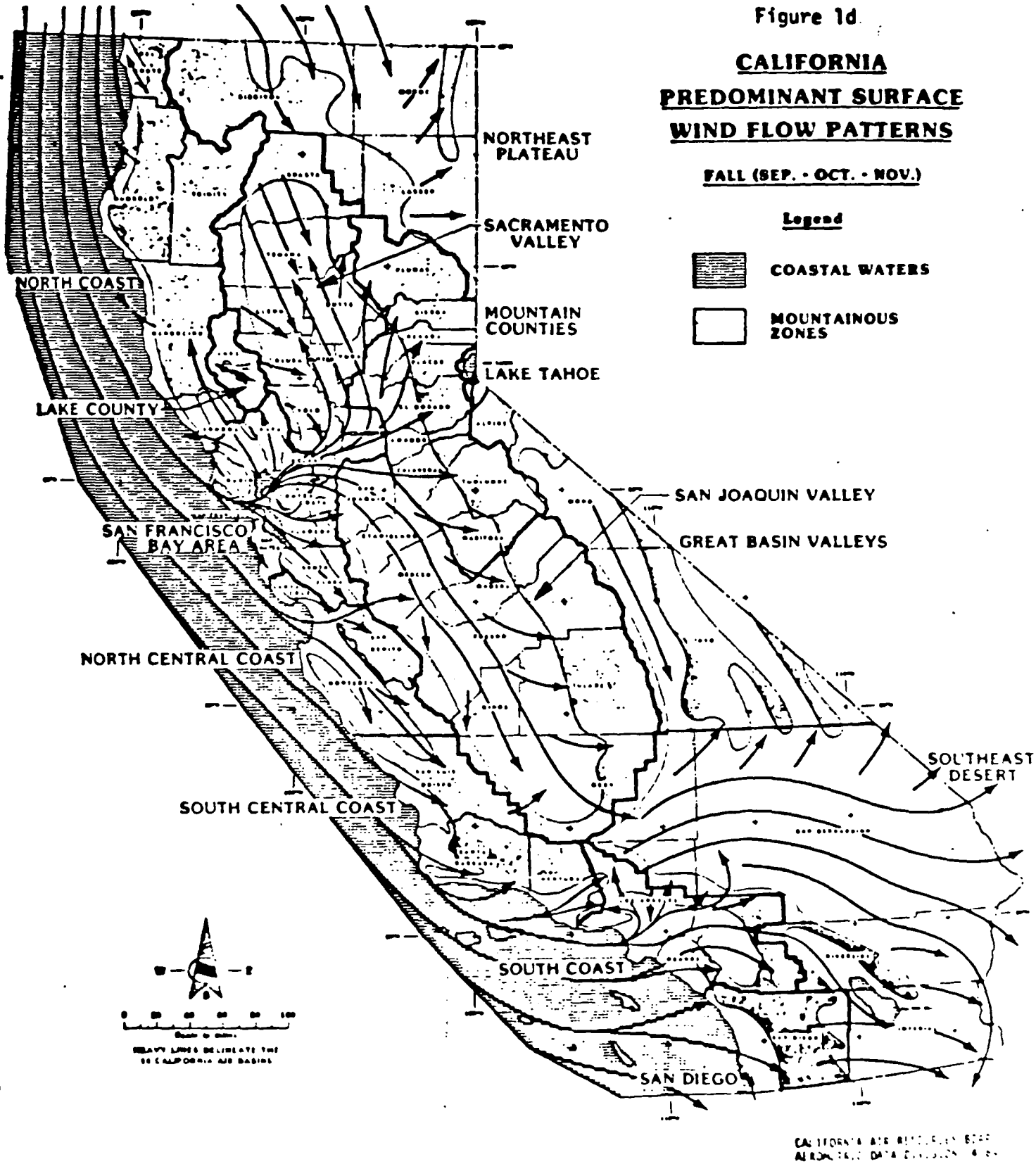

CALIFORNIA
PREDOMINANT SURFACE
WIND FLOW PATTERNS
FALL (SEP. - OCT. - NOV.)
Legend
COASTAL WATERS
MOUNTAINOUS ZONES
NORTHEAST PLATEAU
SACRAMENTO VALLEY
MOUNTAIN COUNTIES
LAKE TAHOE
NORTH COAST
LAKE COUNTY
SAN JOAQUIN VALLEY
GREAT BASIN VALLEYS
SAN FRANCISCO BAY AREA
NORTH CENTRAL COAST
SOUTHEAST DESERT
SOUTH CENTRAL COAST
SOUTH COAST
SAN DIEGO

Table 2d

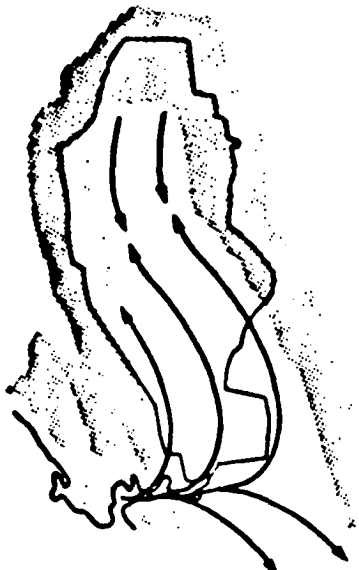
SACRAMENTO VALLEY AIR BASIN SURFACE AIRFLOW TYPES
SEASONAL AND DIURNAL PERCENTAGE OF OCCURRENCE
(1977-1981 Data)

Types / Time - PST	I Full Sea Breeze	II Upper Valley Convergence	III Lower Valley Convergence	IV Mid Valley Divergence	V Northerly (>5 Kts)	VI Southerly (No Marine Air)	VII Downslope (≤5 Kts)	VIII Upslope (≤5 Kts)	IX Calm
Winter									
4 a.m.	6	4	4	1	22	23	8	4	27
10 a.m.	7	6	5	3	31	22	9	2	15
4 p.m.	13	6	3	10	26	22	7	3	8
10 p.m.	8	5	8	2	19	22	8	4	23
All Times	9	5	5	4	25	22	8	3	18
Spring									
4 a.m.	19	17	14	0	21	8	9	4	10
10 a.m.	27	11	10	2	35	5	3	3	2
4 p.m.	43	8	4	7	28	6	1	1	2
10 p.m.	26	22	14	1	14	5	8	2	7
All Times	29	14	10	3	25	6	5	3	5
Summer									
4 a.m.	40	25	20	1	6	0	1	2	7
10 a.m.	48	14	16	3	17	0	1	1	*
4 p.m.	75	7	4	4	11	0	*	0	*
10 p.m.	57	20	14	0	4	0	1	1	3
All Times	55	16	13	2	9	0	1	1	3
Fall									
4 a.m.	13	13	16	1	17	6	13	2	21
10 a.m.	21	8	12	3	35	7	7	2	5
4 p.m.	33	8	4	11	26	7	5	3	3
10 p.m.	20	18	9	1	14	6	12	3	18
All Times	22	12	10	4	23	6	9	2	12
Yearly									
4 a.m.	20	15	14	1	17	9	8	3	16
10 a.m.	26	10	11	3	30	9	5	2	6
4 p.m.	41	7	4	8	23	9	3	2	3
10 p.m.	30	16	11	1	10	8	7	3	13
All Times	29	12	10	4	20	9	6	2	9

* < 0.5 percent

Figure 2d - SACRAMENTO VALLEY AIR FLOW PATTERN TYPES

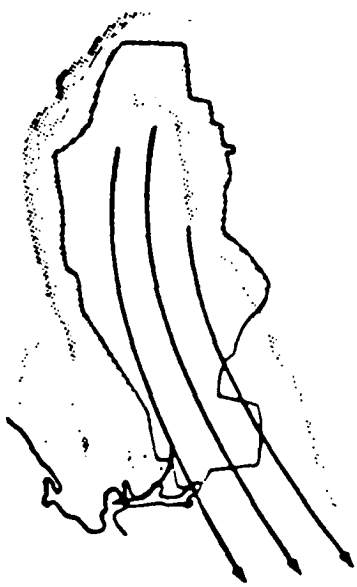
I Full Sea Breeze



II Upper Valley Convergence

III Lower Valley Convergence

IV - Mid Valley Divergence



V - Northerly (Winds > 5 k)

VI Southerly (No Marine Air)

VII Downslope (Winds ≤ 8 k)

VIII Upslope (Winds ≤ 5 k)

WIND

AVERAGE SPEED, PREVAILING DIRECTION AND FASTEST MILE BY MONTHS WITH DAY AND YEAR OF OCCURRENCE

July 1877 - December 1983*

Month	Average[1] Speed	Prevailing[2] Direction	Fastest[3] Mile	Direction	Day	Year
January	7.7	Southeast	60	Southeast	17	1954
February	7.8	South-southeast	58	Southeast	9	1938
March	9.0	Southwest	66	South	14	1952
April	9.0	Southwest	45	Southwest	25	1955
May	9.4	Southwest	40	Southeast	6	1912
June	10.0	Southwest	47	Southwest	23	1950
July	9.2	South-southwest	36	Southwest	12	1956
August	8.7	Southwest	38	Southwest	19	1954
September	7.8	Southwest	42	Northwest	16	1965
October	6.7	Southwest	68	Southeast	26	1950
November	6.3	North-northwest	70	Southeast	13	1953
December	7.0	South-southeast	70	Southeast	7	1952
Annual Average	8.2	Southwest				

* City Office data from July 1877 - January 1950. Sacramento Executive Airport data from then on.

(1) Wind movement in miles per hour.

(2) The prevailing direction for the majority of months during the period of record.

(3) Fastest mile is the fastest 1-minute observed wind speed taken from a multiple register with a time-record of the passing of each mile of wind.

NOTE: Stronger peak gusts have been observed but only as a sudden brief increase in the speed of the wind--usually less than 20 seconds. An official record of the measurement of peak wind gusts requires the use of an instantaneous Wind Speed Recorder. This type of instrument was not available for use in Sacramento during this period of record. A formula to derive the estimated peak gusts from the fastest mile, according to the American Standard Association, is as follows:

Estimated Peak Gust = (Fastest Mile) (1.3)

For example, Sacramento fastest mile = 70 mph

Estimated Peak Gust = (70) (1.3)

= 91 mph.

COOPERATIVE AGRICULTURAL EXTENSION
UNIVERSITY OF CALIFORNIA
COUNTY OF SACRAMENTO

FARM AND HOME ADVISORS
PHONE: (916) 366-2017
4-H YOUTH STAFF 366-2017

6145 BRANCH CENTER ROAD
SACRAMENTO, CALIFORNIA 95827

July 8, 1985

TO: Board of Supervisors

FROM: Jack P. Orr
County Director/Weed Science Farm Advisor

RE: Natomas Green Belt Initiative

It has come to my attention a green belt is planned for the Natomas area in the midst of commercial and residential development.

There are two important areas of consideration on this matter:

A. Fertilizer, seed and pesticide applications by aerial application need large areas in which to operate. It is especially important that no houses or commercial development be close to a pesticide application from a safety standpoint. This means you must have straight line boundaries for airplanes to fly with buffer zones to allow for drift and possible airplane failure.

B. From an economical standpoint there are areas in the proposed green belt that are poorly producing soils due to alkali (salts) and seepage when the river is high. The current economic position requires growers to maintain high productivity i.e. 5 tons/A corn, 30 tons/A sugarbeets and 30 tons/A tomatoes. Fields in this area with the above mentioned problems would only produce half the required tonnage resulting in large economic loss to the grower.

I hope you will give strong consideration to keeping development in uniform blocks and agriculture in uniform straight line blocks with no interference from residential or commercial development.

JPO/lm

cc: Mr. Perry

AGRIFORM FARM SUPPLY, INC.

POST OFFICE BOX 1818 • RD. 18C • WOODLAND, CALIFORNIA 95696 TELEPHONE 662-5442

July 8, 1985

Martinelli Brothers
Rt. 1, Box 81
Clarksburg, Ca.

Dear Sirs:

In regards to your 40 acre parcel located on El Centro in Sacramento County, please be advised that the following restrictions have been mandated by the Agricultural Commissioner of Sacramento County.

1. Category I Pesticides: Those containing the signal word Danger, shall not be discharged within 300 feet of an occupied dwelling without written permission from the occupant. Drift must be away from such dwellings during any such aerial application.

2. Category II Pesticides: Those containing the signal word Warning, shall not be discharged within 150 feet of an occupied dwelling without written permission from the occupant. Drift must be away from such dwellings during any such aerial applications.

3. Category I Materials: Those containing the signal work Danger, shall not be applied in close proximity to environmentally sensitive areas unless the minimum distance between the closest operating nozzel and the sensitive area is maintained as designated below. Sensitive areas shall be described as: residential areas, schools, playgrounds, buss stops (when in use), parks, hospitals, shopping centers, occupied labor camps, estuaries, reservoirs, lakes, waterways, livestock, state wildlife management areas, and critical habitats of rare, endangered or threatened species.

TYPE OF PESTICIDE APPLICATION EQUIPMENT	MINIMUM DISTANCE BETWEEN CLOSEST OPERATING NOZZLE AND THE NON-TARGET AREA
A. Aircraft	500 feet
B. Ground rig applying liquid formulations of pesticides no more than 12 inches above the crop.	100 feet
C. Ground rig appling liquid pesticide below the soil surface.	100 feet

Very truly yours,

Wayne Seefeldt P.C.A. 4124

WAYNE SEEFELDT
Salesman

WS/bg

SACRAMENTO COUNTY PERMIT CONDITIONS FOR RESTRICTED MATERIALS

The following restrictions or conditions shall be followed if applicable. Failure to comply is a violation of law and may result in criminal prosecution or revocation of the permit, or both.

2,4-D; 2,4,5-T; 2,4-DB; 2,4-DP; SILVEX AND MCPA

1. No ester formulation shall be used between March 16 and October 15.
2. Aerial Applications:
   a. Shall be supervised by Agricultural Commissioner personnel between March 16 and October 15 in the hazardous area, unless otherwise notified.
   b. The working boom length on fixed wing aircraft shall not exceed 3/4 of the wing span and the working boom length on helicopters shall not exceed 6/7 of the total rotor length or 3/4 of the total rotor length where the rotor length exceeds forty (40) feet.
   c. A Viscoelastic thickening agent or other drift control agent approved for such purpose shall be used between March 16 and October 15.
   d. Phenoxy herbicides shall not be applied by aircraft when the temperature five (5) feet above the ground exceeds 85 degrees fahrenheit.
3. That portion of Sacramento County lying south of the State Highway 12 (portions of Brannon Island and Andrus Island and all of Twitchell Island and Sherman Island) between March 15 and June 30th, shall be supervised by Agricultural Commissioner personnel.

FURADAN

1. Furadan shall not be used within one mile of nesting, grazing waterfowl or on areas where grazing waterfowl may be excepted to feed.
2. Do not irrigate for 5 days following treatment.

SULFOTEPP

1. Notify local fire department at least 24 hours prior to use.

METHYL BROMIDE AND CHLOROPICRIN

1. In structure fumigation, one or more fans shall be used to adequately disbuse the fumigant within the structure. The fumigant shall be released into the airstream of the fan.
2. Two full-face masks with black canisters suitable for organic vapors, as specified by NIOSH, or an approved self-contained breathing apparatus shall be available at the site.
3. Proper testing equipment capable of showing the presence of fumigant shall be at the site of application.

BEE PROTECTION

1. Any pesticide rated by the University of California as being either moderately or highly toxic to bees shall not be applied to blossoming crops after 8:00 a.m.

Licensed Pest Control Operators (PCO's) applying restricted pesticides shall:

1. Be named on permit.
2. Have a copy of permit.
3. Submit Notices of Intent (N.O.I's) for each application.

Negative Use Reports

1. When an N.O.I. is submitted and no application is made, a negative use report shall be submitted by the 10th of the following month by the person who submitted the N.O.I.

Permit No. 85-115

Safety Series

Safety Series No._____ issued.

CATEGORY I RESTRICTED MATERIALS

The following restrictions apply to applications of Category I restricted materials in proximity to occupied dwellings, shopping centers, schools, hospitals, recreation areas and unprotected persons:

1. Airflow during the application process shall be in a direction and of sufficient velocity to insure the material will not drift onto non-target areas.

2. The minimum distance between closest operating nozzle and the non-target area shall be as follows:

Application Equipment	Distance From Non-Target Area
a. Aircraft	500 feet
b. High velocity orchard sprayer	100 feet
c. Low velocity orchard sprayer	100 feet
d. High boom ground rig	100 feet
e. Ground rig applying liquid or dust formulations of pesticides no more than 12 inches above the soil	100 feet
f. Ground rig applying liquid or gas below the soil	100 feet
g. Ground rig applying dry pesticide pellets no more than 12 inches above the soil or below the soil	5 feet

3. Any deviation or exception to these restrictions must be approved by the Agricultural Commissioner or his staff.

Date: 4/5/85 Signed: _____

12/22/60-1c

GUIDELINES FOR RESTRICTED MATERIAL PERMIT ISSUANCE/PRIVATE APPLICATOR CERTIFICATION

PESTICIDE USE REQUIREMENTS

RECOGNIZE THE DAMAGE

KNOW THE PEST

USE PESTICIDE ACCORDING TO LABELING

USE ONLY WHEN:

- THE COMMODITY AND PEST ARE ON THE LABEL.
- TIMING AND METHOD OF APPLICATION AND RECOMMENDED RATE OF APPLICATION ARE FOLLOWED.
- KNOW SIGNAL WORDS AND SYMBOLS THAT IDENTIFY TOXICITY AND HAZARD.

"DANGER" — CATEGORY 1

"WARNING" — CATEGORY 2

"CAUTION" — CATEGORY 3

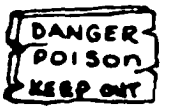
- USE PROTECTIVE CLOTHING AND SAFETY EQUIPMENT.

- KNOW POISONING SYMPTOMS AND EMERGENCY PROCEDURES.
- COMPLY WITH PREHARVEST AND SAFETY INTERVALS.

TRANSPORTATION, STORAGE AND DISPOSAL

- USE SIDEBOARDS OR TIE-DOWN LOAD.
- LOCK STORAGE AREA.

- POST WARNING SIGNS. (CATEGORY 1 & 2)



- RINSE EMPTIED CONTAINERS.
- DISPOSE OF CONTAINERS AT APPROVED DISPOSAL SITES.

APPLICATOR RESPONSIBILITIES

- KEEP PEST CONTROL EQUIPMENT IN GOOD REPAIR AND ACCURATELY CALIBRATED.
- USE ACCURATE WEIGHING AND MEASURING DEVICES.
- MAINTAIN UNIFORM MIXTURE.
- THOROUGHLY CLEAN ALL EQUIPMENT WHEN NECESSARY TO PREVENT CONTAMINATION.
- PERFORM ALL PEST CONTROL UNDER SUITABLE CLIMATIC CONDITIONS.

LOCAL ENVIRONMENTAL CONCERNS

- BE CAREFUL AROUND SCHOOLS, RESIDENTIAL AND RECREATIONAL AREAS, ROADS, WATER, LIVESTOCK, WILDLIFE, ETC.
- PREVENT DRIFT ONTO ADJACENT CROPS OR ANIMALS.
- PROTECT BEES.

PESTICIDE USE REPORTS

- SUBMIT WITHIN SEVEN DAYS AFTER EACH APPLICATION.

EMPLOYERS' RESPONSIBILITIES

CONCERNING MIXERS/LOADERS/APPLICATORS

- EMPLOYEES MUST BE TRAINED.
- ARRANGE IN ADVANCE FOR EMERGENCY MEDICAL CARE. (POST AT WORK SITE)
- PROVIDE MEDICAL SUPERVISION (CATEGORY 1 OR 2 ORGANOPHOSPHATE OR CARBAMATE 30 HR/30 DAYS).
- DO NOT ALLOW EMPLOYEES TO WORK ALONE WITH TOXICITY CATEGORY 1 PESTICIDES.
- PROVIDE A CHANGE AREA. (CATEGORY 1 OR 2)
- PROVIDE WASHING FACILITIES AT WORK SITE. (CATEGORY 1 OR 2)
- RESPONSIBLE TO SEE THAT PROTECTIVE CLOTHING AND SAFETY EQUIPMENT IS PROVIDED AND USED.
- PROVIDE CLOSED MIXING SYSTEM (CATEGORY 1 LIQUID).

CONCERNING FIELD WORKERS

- ARRANGE IN ADVANCE FOR EMERGENCY MEDICAL CARE.
- INFORM FIELD WORK SUPERVISORS OF THE USUAL SYMPTOMS OF ORGANOPHOSPHATE AND CARBAMATE POISONING.
- IMMEDIATELY TAKE ALL ILL PERSONS TO THE FACILITY PROVIDING MEDICAL CARE.
- PROVIDE PERSONAL WASHING FACILITIES.
- COMPLY WITH SAFETY INTERVALS.
- KEEP PESTICIDES USE RECORDS.
- COMPLY WITH WARNING AND POSTING REQUIREMENTS.

I UNDERSTAND THE REQUIREMENTS CONTAINED ON THIS GUIDELINE APPLICABLE TO POSSESSION AND USE OF A RESTRICTED MATERIAL FOR WHICH A PERMIT HAS BEEN REQUESTED.

[signature] _____ PERMIT APPLICANT

4/5/85 _____ DATE

☐ PERMIT ISSUED # 85-115

☐ PERMIT DENIED _____

[signature] (BASIS)

ORIGINAL — COUNTY
COPY — PERMIT APPLICANT

State of California
Department of Food and Agriculture
PESTICIDE ENFORCEMENT
33-116 (Est. 12-77)

COUNTY OF SACRAMENTO

HEALTH DEPARTMENT
RONALD L. USHER, DIRECTOR

ENVIRONMENTAL HEALTH BRANCH
3701 Branch Center Road
Sacramento, California 95827
(916) 366-2101

May 29, 1985

John Perry
2178 Garden Highway
Sacramento, CA 95833

Dear Mr. Perry:

As Mr. Alverson discussed with you by telephone on May 28, 1985, Section 6.68.090 (f) of the County Noise Code lists noise sources associated with agricultural operations as being exempt from the provisions of the code. The operations can only take place however, between the hours of 6:00 A.M. and 8:00 P.M. In addition, Section 6.68.090 (g) specifically exempts mobile noise sources necessary for pest control.

I further understand that it will not be necessary to continue the use of the noise generating device used to discourage birds from feeding in your cherry orchard beyond June 5, 1985.

Please contact me or Mr. Alverson at 366-2109 if you wish to discuss this matter further.

Very truly yours,

Robert A. Knight, Manager
Noise and Hazardous Materials Program

by: John Alverson, R.S.
Noise and Hazardous Material Disclosure

JA:dc

cc: Supervisor Sheedy

NATOMAS CENTRAL MUTUAL WATER COMPANY

2601 W. ELKHORN BLVD.
RIO LINDA, CALIFORNIA 95673
PHONE: 925-5936 — 925-5957

July 8, 1985

Perry Farms
1831 Garden Highway
Sacramento, Calif. 95833

Gentlemen:

The Natomas Central Mutual Water Company wishes to briefly note some of the continuing concerns regarding agricultural water deliveries to the areas under the rezoning study.

Servicing of water deliveries to areas adjacent to the development has become a problem to the company due to the loss of access and trespass liabilities.

Undoubtly added development will increase these problems.

In addition, servicing smaller isolated areas will increase the economic cost of service in a portion of our service areas that is already difficult to maintain and service.

Thank you for this opportunity to contribute to the overall information base.

Sincerely,

NATOMAS CENTRAL MUTUAL WATER CO.

Grant F. Chappell

Grant F. Chappell
President

December 12, 1985

City Planning Commission
Sacramento, California

Members in Session:

SUBJECT: Agricultural Impact Mitigation Strategy for the North Natomas Community Plan (M84-007)

SUMMARY

On January 31, 1984, the City Council adopted Resolution No. 84-075 which initiated the North Natomas Community Planning Program. The Resolution required that in formulating a Master Plan for the entire North Natomas area, the Plan was to include consideration of the preservation of agricultural lands and the establishment of permanent greenbelts. The attached Agricultural Impact Mitigation Strategy responds to the direction given to staff by the City Council, as well as to the results of the impact analysis contained in the North Natomas Community Plan Alternatives EIR.

Staff recommends that the Planning Commission endorse the attached market-based Agricultural Impact Mitigation Strategy, and recommend that the City Council and Board of Supervisors enter into the agreements necessary to implement the program.

BACKGROUND INFORMATION

City Council/Board of Supervisors Direction to Staff

On January 31, 1984, the City Council adopted Resolution No. 84-075 which initiated the North Natomas Community Planning Program. Key provisions of the Resolution required:

A. That the Board of Supervisors be requested to coordinate their planning with the City in the formulation of a Master Plan for the entire North Natomas area.

B. That the Master Plan include consideration of:

1. Protection of Sacramento Metropolitan Airport and its clear zones.

2. Preservation of agricultural lands.

3. Establishment of permanent greenbelts.

At the time, members of the City Council viewed the greenbelt concept as a way to "contain" urbanization of the Study Area so as to protect the surrounding agricultural areas from growth inducing pressures.

As indicated in a March 1984 communication from the Board of Supervisors, participation by the County of Sacramento in the North Natomas Planning Program was based on recognition of the following existing County policy objectives:

A. Protection of current and proposed Metropolitan Airport operations from any encroachment by incompatible uses within the defined ALUC Area of Influence (60 CNEL contour line).

B. Protection of Williamson Contract lands from proximate urban development (within one mile).

C. Urban service delivery only to those areas already designated for such use (i.e., Northgate and Airport SPA) or within the City of Sacramento's current boundaries.

Based on the above criteria, County staff defined the Study Area boundaries for the North Natomas Community Planning Program.

Provisions of 1974 City General Plan

The City's current General Plan, adopted by the City Council in 1974, designates that portion of the Study Area north of Del Paso Road for Permanent Agricultural land use, and the area south of Del Paso Road for Agriculture-Urban Reserve land use. However, the 1974 General Plan also determined that urbanization of the area north of Interstate 80 would not be necessary during the 20-year time frame (1974-1994) of the Plan (see pages 1-8).

Pages 6-19 of the Open Space element of the City's General Plan indicates that acquisition of "development rights" is an appropriate method for preserving agricultural open space lands.

Provisions of 1982 County General Plan

With the exception of Metro Airport, the adjacent 2,000 acre Airport SPA, the Northgate industrial area, and a truck stop complex at El Centro Road and I-80, the 1982 County General Plan designates the remainder of the North Natomas area for long-term agricultural land uses.

Federal Farmland Protection Policies

In 1981, the Federal Government adopted a Farmland Protection Policy Act as part of Public Law 97-98. The purpose of the Policy is to:

> "...minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses, and to assure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with State, unit of local government, and private programs and policies to protect farmland."

The Act requires that each federal agency use specific criteria to identify and take into account the adverse effects of federal programs on the protection of farmland. The criteria that is to be used is the same criteria

that was used to assess the impact of urban development in North Natomas on agricultural lands contained in the North Natomas Community Plan Alternatives EIR.

One specific area of federal involvement in North Natomas relates to conditions attached to the Clean Water Grant which was awarded to the Sacramento Regional County Sanitation District in 1979. Condition No. 2 prohibits new sewer connections within specified areas of North Natomas for a 20-year period. Violation of this condition would result in repayment of the grant funds plus interest which is currently estimated at some $6-7 million. According to a May 8, 1984 letter from the EPA:

> "The primary purpose of this grant condition is the preservation of prime agricultural land."

The letter goes on to address criteria which EPA would use in considering a change in the grant condition. A change in the grant condition would be considered if Sacramento can show that, with all environmental trade-offs taken into account, there would be a net positive impact on the environment by implementing such a change. Among other considerations, an environmental document must address the consistency of any proposal with the local air quality plan.

Draft North Natomas Community Plan (The SWA Plan)

In keeping with the direction provided by both the City Council and Board of Supervisors, a Draft North Natomas Community Plan was prepared for the City by The SWA Group on December 10, 1984. Page 56 of the Draft Plan indicates that:

> "...an important concern in urbanizing the North Natomas area is the establishement of limits or 'containment edges' to development within the Plan's 20-year timeframe. While a decrease in land use intensity toward the periphery is one step, an additional measure is the establishment of a 'greenbelt' open space surrounding the planning area."

The Draft Plan goes on to propose the following Goal and Objective on pages 57 and 58 of the text:

> "Goal: To create a strong edge between the Community and adjacent areas of permanent agriculture, develop a greenbelt along the northern and western boundaries of the incorporated portion of the planning area.
>
> Objective: Establish a low-maintenance greenbelt that is not easily accessible and does not encourage active recreational use."

Page 86 of the Implementation Section of the Draft Plan further defines the greenbelt as follows, and Figure 27 on page 90 provides a typical cross-section view of the features proposed to be included in the greenbelt:

> "The greenbelt varies in width from a minimum of 500 feet along the western edge (i.e., West Drainage Canal) to separate residential and agricultural uses, to a maximum of 800 feet along Elkhorn Boulevard.

> "It is intended to provide a low-maintenance, limited-access open space that defines and preserves the urban limits of North Natomas throughout the 20-year term of the Plan.
>
> "Suitable plant materials for the greenbelt are eucalyptus, acacias and similar fast growing evergreen species that will provide a wind/shelterbelt to protect residential areas from prevailing winds and agricultural spraying."

Finally, pages 98-111 of the Draft Plan contain a detailed discussion of legal methods which might be utilized by the City and County to create and maintain the greenbelt buffer zones and an agricultural preservation program.

North Natomas Community Plan Alternatives EIR

Section L of the Draft EIR (July 1985) contains an extensive analysis of the impacts of the Draft Plan on agriculture in the North Natomas area. The EIR lists several significant adverse environmental effects which would result from 1) the urbanization of the area, 2) the loss of a significant amount of productive agricultural land, and 3) creation of significant operational conflicts for surrounding agricultural lands.

The EIR makes additional findings regarding growth inducing and cumulative impacts resulting from urbanization, and recommends mitigation measures to substantially lessen (but not eliminate) the identified impacts. The primary recommendation of the EIR is the inclusion of a specific agricultural preservation strategy in the adopted North Natomas Community Plan.

Proposed North Natomas Community Plan (The Staff Plan)

On November 15, 1985, the City Planning Division released its recommended Community Plan for the North Natomas area. The Plan is based on Alternative "D" (see EIR) and, although it retains the concept of "greenbelts" which are to be dedicated to the City, it also proposes the extension of numerous major roadways through the "greenbelts" to the north and west of the Study Area. The Plan text also incorporates the agricultural policies and mitigation programs discussed in the North Natomas Community Plan Alternatives EIR which are the basis for the attached Strategy.

Greenbelt Buffers as Separation Rather than Containment

As the North Natomas Planning Program has evolved, it has become clear that the City Council's original idea of a 500-800 foot greenbelt will not serve to "contain" urbanization. This is especially true given the fact that the proposed agricultural areas and (related land use decisions) would be under County jurisdiction while the "urban" portions of the Study Area would be under City jurisdiction. This problem is discussed in detail in the Implementation Section of the Plan.

However, if the extent of urbanization is to be "contained" and agricultural uses protected within the North Natomas area (either by means of the attached or some other program) then the urban and agricultural areas must be "separated" so as to reduce operational conflicts and incompatible land uses.

As an example, the County Agricultural Commissioner requires a 500 foot separation between the aerial application of highly toxic pesticides and any dwelling or other areas where people may become exposed. This situation would support the retention of low-maintenance, limited access greenbelt buffers along the north and west boundaries of the Study Area.

Purpose of Proposed Agricultural Impact Mitigation Strategy

The purpose, then, of the attached program is to develop and implement an agricultural mitigation strategy for North Natomas that will:

A. Substantially lessen the significant adverse environmental impacts identified in the EIR for North Natomas related to growth inducement, cumulative impacts and agricultural lands.

B. Implement existing policies of the City and County of Sacramento.

C. Serve as a basis for subsequent federal approvals of items such as interstate freeway interchanges and mainline improvements, drainage improvements, revisions to existing EPA sewer grant conditions, etc. which must all conform with the provisions of the Federal Farmland Protection Policy Act.

RECOMMENDATION

Staff recommends that the City Planning Commission:

A. Endorse the concept of an Agricultural Impact Mitigation Strategy as outlined in the attached report and include the Strategy as part of the Implementation Section of the Proposed North Natomas Community Plan.

B. Direct staff to include the policies and goals contained in Section 4 of the attached report in the Land Use Section of the Proposed North Natomas Community Plan.

C. Recommend that the City Council authorize staff to proceed with Phase 2 of the proposal, and that the City Council and Board of Supervisors enter into agreements necessary to implement the proposed Strategy prior to issuance of land use entitlements for any uses other than a stadium or arena in North Natomas.

Respectfully submitted,

Marty Van Duyn
Planning Director

MVD:lr
Attachments

An Agricultural Impact Mitigation Strategy for the North Natomas Community Plan

Prepared by

City of Sacramento
Department of Planning
and Development
Planning Division

Technical Assistance from

Nichols-Berman
Economic and Planning Systems

December 1985

AN AGRICULTURAL IMPACT MITIGATION STRATEGY FOR THE NORTH NATOMAS COMMUNITY PLAN

TABLE OF CONTENTS

SECTION 1 -- INTRODUCTION

BACKGROUND

This Report elaborates and analyzes the Agricultural Impact Mitigation Strategy contained in the North Natomas Community Plan Alternatives EIR. It provides staff, the public, and decision-makers with a more complete basis to implement the proposed Strategy. This report is Phase One of a two phase study. Following a decision to implement the proposed Strategy, Phase Two of the study will involve preparing the required legal agreements and procedures necessary to implement an agricultural preservation program for the North Natomas area.

The North Natomas Community Plan Alternatives EIR contained a thorough analysis of agricultural resources and potential impacts of proposed urban development under the five Community Plan Alternatives. The EIR concluded that significant adverse impacts would occur on agriculture due to implementation of any of the Community Plan Alternatives.

Following publication of the Draft EIR, comments received from staff and the public indicated the need for a further evaluation of the proposed Agricultural Impact Mitigation Strategy, as a part of an overall effort to develop a preferred Community Plan. The City retained Nichols-Berman, in association with Economic and Planning Systems, to complete this evaluation. This report summarizes that effort.

PURPOSE

The purpose of this report is to develop and recommend an agricultural mitigation strategy that will:

- Substantially lessen the significant adverse environmental impacts identified in the EIR for North Natomas related to growth inducement, cumulative impacts and agricultural lands.

- Implement existing adopted City policy such as the 1974 General Plan and the 1982 Growth Policy.

- Serve as a basis for subsequent federal approvals for items such as Interstate highway interchanges and mainline improvements, drainage improvements, revisions to existing EPA sewer grant restrictions, etc. which must all conform with the provisions of the Federal Farmland Protection Policy Act.

CURRENT POLICIES AND ACTIVITIES

Existing Agricultural Policies

Both the City's and County's existing policies stress the importance of protecting agricultural lands. Both City and County policies, while supporting agricultural preservation, have not been implemented through effective land use regulation which assure long-term preservation or even rational conversion of agricultural land to urban uses. The large quantity of agricultural land which has been converted in both City and County areas over the past 20 years demonstrates this ineffectiveness.

The County General Plan states that agricultural will continue to play an important role in the County's economy, although it will employ a decreasing proportion of the total labor force. The County General Plan also establishes a goal to maintain the agricultural environment of the County, not only by protecting and enhancing the agricultural capability of all agricultural lands but also by promoting a healthy agricultural atmosphere and providing for positive incentives to promote long term agricultural land use.

The City General Plan which was adopted by the City Council in 1974 recognizes that agriculture plays a significant role in the County's economy, and that agricultural land is the largest source of open space, while also being most vulnerable to development pressures. One of the Plan's overriding goals is to protect and manage the diverse and valuable natural resources, including land, water, and air quality for the use and enjoyment of present and future generations.

A specific goal of the 1974 General Plan is to prevent the unnecessary or premature conversion of agricultural lands to urban uses and to discourage urban development patterns which are detrimental to the overall community. A policy of the General Plan is to protect open space lands by discouraging the premature or unnecessary extension of public services into them which would facilitate their urbanization.

In discussing methods for preserving agricultural and open space lands the General Plan discusses the acquisition of partial interest in property through the use of "development" rights.

In addition to the General Plan, the City Council adopted a City wide Growth Policy in 1982 (Resolution 82-251, see Appendix 1 for a copy of the adopted Growth Policy) which states that the preservation of productive agricultural land will continue as an important and viable City policy and conversion of such lands to urban uses will only occur based upon compelling and overriding community needs.

In 1984 the City Council adopted Resolution 84-075 (see Appendix 2) which initiated the North Natomas Planning Program. In the adoption of Resolution 84-075 the City Council stated that the Community Plan prepared for the North Natomas area should include the preservation of agricultural lands and the establishment of permanent greenbelts. The City Council also reaffirmed the adopted Growth Policy pending completion of the North Natomas Community Plan.

County Airport Land Acquisition Program

The Sacramento County Metropolitan Airport has initiated a land acquisition program to protect the Airport area from urban encroachment. Such encroachment creates conflicts and hazards both for the airport and urban uses. When completed, the Airport will have purchased approximately 5,500 acres of agricultural land in its clear zones and surrounding areas. Generally, the boundaries of the land acquisition program are Power Line Road on the east, the Sacramento River on the south, the Sutter County line on the north and a line approximately 1,000 feet west of the existing runway.

Draft North Natomas Community Plan

The Draft Community Plan discussed techniques available to the City and the County for preserving agricultural buffer zones designated on the land use plan alternatives. The Community Plan indicated a variety of purposes for the buffer areas including greenbelts, open space, agriculture, recreation, and avoidance of development in environmentally sensitive areas, as well as to buffer agriculture from urban uses.

Specific techniques discussed include acquisition, general plan and zoning, joint City/County Planning Commission, and compensatory regulation, such as transfer of development rights. The Community Plan concludes that, rather than using one technique, the City and County will need to use a careful blend of techniques to achieve politically, legally, and economically feasible preservation and protection of agriculture.

North Natomas Community Plan Alternatives EIR

The North Natomas Community Plan Alternatives EIR listed several significant adverse environmental effects resulting from the urbanization of North Natomas. The EIR makes the following findings regarding agricultural lands:

- Alternatives A, B, C, D, and E would result in the conversion of significant amount of productive agricultural land.
- Alternatives A, B, C, D, and E would result in the loss of significant amount of potential agricultural productivity.
- Alternatives A, B, C, D, and E would create significant operational conflicts for surrounding agricultural land.

The EIR makes additional findings regarding the growth inducing impacts and cumulatives impacts resulting from the urbanization of North Natomas. These impacts are as follows:

- Alternatives A, B, C, D, and E would produce significant growth inducing impacts due to the surplus of jobs in relation to housing in North Natomas.
- Alternatives B, C, D, and E would produce significant cumulative impacts due to the scale and magnitude of development which would replace environmental resources and contribute incrementally to environmental degradation.
- Alternatives A, B, C, D, and E would result in significant pressure to convert additional agricultural land, especially to the north and west of the Study Area.

The EIR recommends mitigation measures to substantially lessen the significant adverse impacts on agricultural lands plus impacts related to growth inducement and cumulative impacts. The EIR recommends the inclusion of a specific agricultural preservation strategy in the recommended North Natomas Community Plan. The preservation strategy would use a variety of planning and agricultural preservation techniques. Implementation of the strategy would result in a permanent, exclusive agricultural district in North Natomas.

Federal Policies

In 1981 as part of the Agricultural and Food Act the federal government adopted a Farmland Protection Policy. The purpose of the policy is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to assure that federal programs are administered in a manner that, to the extent practicable, will be compatible with State, local government and private programs and policies to protect farmland.

The Act requires that each federal agency shall use specific criteria to identify and take into account the adverse effects of federal programs on the protection of farmland. The criteria that is to be used is the same criteria that was used to assess the impact of urban development in North Natomas on agricultural lands contained in the North Natomas Community Plan Alternatives EIR. It is likely that several actions will require the approval of one or more federal agencies before development can proceed in North Natomas. For example, new or revised interchanges on Interstates 5 or 80 will require the approval of the Federal Highway Administration.

RECOMMENDED ELEMENTS OF THE PROPOSED AGRICULTURAL PRESERVATION STRATEGY

Because of the location and scale of proposed development in the North Natomas area, a comprehensive and integrated approach to agricultural impact mitigation is necessary. Virtually the entire area is productive farmland, much of it prime land. The full range of existing local government planning authority, cooperation between the City and the County, public support, and innovative techniques all will be needed to mitigate the impacts of urbanization on agricultural lands. The elements of the Agricultural Impact Mitigation Strategy are summarized below.

General Plan and Community Plan Policies

The underlying basis for the Strategy must be strong and consistent agricultural preservation policies in the City's General Plan and the County's General Plan. Current goals, policies, and implementation programs will have to be amended. Specific language for recommended goals, policies and programs will be prepared in Phase Two of this study. The most critical effort will be to assure consistent goals and policies between the City and County General Plans. This will require a cooperative planning effort toward a common goal: permanent preservation of agriculture in the North Natomas area.

Agricultural Zoning

The general plan policies must be implemented through consistent zoning regulation. The present zoning ordinances of the City and County will have to be amended, and land areas both in the City and the County will need to be rezoned for exclusive agricultural use. Specific zoning ordinance amendments will be prepared in Phase Two of this study.

Building Community Support

The permanence of land use designations and zoning are a necessary element of the Strategy. Certainty that the "zoning will hold" is essential. Since general plan designations and zoning are subject to amendment by the City Council or Board of Supervisors, there is the possibility that landowners unhappy with the zoning will proceed with development or will not participate in the Strategy because they expect a future Council or Board to change the designation or zoning to a higher intensity use. Every effort should be made to establish a permanent agriculture zone at the outset, including an effort to create and maintain broad community support for agricultural preservation in Sacramento County.

Creation of an "agricultural policy committee" which would review development proposals that potentially affect agricultural land is recommended as a means to raise community awareness of agriculture/urban conflicts and other agricultural preservation issues. The County's existing Natomas Community Planning Advisory Council may be able to take on this responsibility or a new committee containing elected as well as non-elected persons could be established.

Another means of increasing community awareness and polling community support, while also increasing certainty, would be to use a referendum which limits discretion of future decision-makers to change agricultural land use and zoning designations in the North Natomas area.

Transfer of Development Credits

The final element of the Agricultural Impact Mitigation Strategy is a mechanism for providing permanent, enforceable restrictions over the exclusive agricultural district. The Strategy recommends that a "transfer of development credits" (TDC) system be established to achieve this goal. The TDC system also will

offset inequities created when some lands are designated for urban use while others are designated for permanent agricultural use.

A feasibility model conducted as part of the present analysis indicates that a TDC system could be feasible if the more broad issue of urban development financial feasibility can be resolved. A TDC system would be, in essence, another capital item to be financed by development that would occur in North Natomas.

THE STRATEGY AS CEQA MITIGATION

California Environmental Quality Act Requirements

In enacting the California Environmental Quality Act (CEQA) the State legislature established as State policy that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant adverse environmental impacts of such projects.

CEQA, therefore, establishes a duty for public agencies to avoid or minimize environmental impacts where feasible. In discussing an agency's responsibility to minimize environmental damage, the State CEQA Guidelines state:

- In regulating public or private activities, agencies are required to give major consideration to preventing environmental damage.

- A public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures available which would substantially lessen any significant effects that the project would have on the environment.

- CEQA recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors and, in particular, the goal of providing a decent home and satisfying living environment for every Californian.

CEQA is very clear on the responsibility of an agency to eliminate or substantially lessen all significant effects on the environment prior to the approval of a project. Only under very narrow terms, where substantial evidence exists to show that mitigation measures are infeasible, can an agency approve a project which would result in adverse environmental effects.

Findings of the North Natomas Community Plan Alternatives EIR

As previously discussed in this report the EIR makes several findings regarding significant adverse environmental effects of urbanization on agricultural lands. In order to substantially lessen the significant adverse impacts on agricultural lands the North Natomas EIR recommends the adoption of the Agricultural Impact Mitigation Strategy.

SECTION 2 -- THE PROPOSED TRANSFER OF DEVELOPMENT CREDIT SYSTEM

The most innovative component of the proposed Agricultural Impact Mitigation Strategy is the Transfer of Development Credits (TDC) system. The section describes the TDC system and provides basic implementation steps. A feasibility analysis of the TDC system is provided in Section 3.

The TDC system can provide permanent, enforceable restrictions (easements) over the agricultural land to be preserved. "Purchase of Development Rights", "Transfer of Development Rights", and "Transfer of Development Credits" are different names for similar programs designed to to achieve this goal. The basic concept has been discussed in planning literature for nearly 15 years. At this point a number of state and local governments have established such programs to achieve a variety of planning goals including protection of environmentally sensitive habitat, preservation of historical structures, and preservation of agricultural land.

PURPOSE OF DEVELOPMENT RIGHTS TRANSFER PROGRAMS

Purchase or transfer of development rights is a land use management tool which addresses the problems created when urban development pressures threaten environmentally sensitive, historic, or agricultural lands. The balancing of "windfalls" and "wipeouts", efficient planning and growth, and a socially beneficial distribution of costs and benefits are the intended outcomes of these systems.

Purchase or transfer systems typically involve:

- The assignment of development potential ("rights" or "credits") to an area to be preserved or use-restricted (a "sender" area).
- The separation of this development potential from the underlying restricted land.
- The transfer of the development credit through sale to a public agency, land trust, or landowners in an area designated for development (a "receiver" area) who then may develop to the extent permitted by the credit.

Separating and marketing of a "development credit" is an alternative to public purchase where it is deemed desirable to compensate a landowner for the impacts of a public action to permanently restrict development potential but where public financial resources are limited.

Development right purchase or transfer systems have been created to respond to the unique combinations of economic, social, and political forces active within a given locality. The current demands for urban land, the public's perceptions and support of preservation measures, and existing land use policies, all affect the components of specific programs.

TYPES OF SYSTEMS

Existing systems that have been implemented in the United States represent a continuum from "Open Markets" with limited government involvement to "Public Purchase Programs".

Public Purchase Systems

A public purchase system is essentially a "land bank" system where a public agency is the sole buyer of development rights. The system typically employs a levy, an assessment, or an in lieu fee on all land where development is permitted. This revenue then is used by the government agency to purchase development rights directly or support debt (e.g. general obligation bonds) for purchase of development rights in the restricted areas. Development rights purchased by the public agency then are retired or sold to developers in "receiving areas".

Market System

A TDC market system includes little government involvement and depends entirely upon market mechanisms for establishing price and directing the flow of development rights. The public agency establishes the "sending" and "receiving" area boundaries, and defines zoning densities and locations. Development rights are then traded on the open market with price subject to the transactions between landowners and developers.

Negotiated System

A TDC negotiated system is a closed market system where landowners and developers participate together in the process. Rather than trading rights in an open market place, interested parties meet to negotiate price. Speculation is reduced since rights are not held but must be applied immediately toward a project.

Hence a negotiated system is a procedural component of the project approval process.

DESCRIPTION OF THE PROPOSED TDC SYSTEM

The proposed North Natomas TDC system is based upon the "negotiated system" as defined above. North Natomas is well suited to this approach since only a limited amount of urban land use designations presently exist. The system would be implemented mainly through the zoning and subdivision map process. Essentially, a developer wishing to proceed with development in the "receiving area" would be required to purchase development credits from the "sender area" as a condition of final subdivision map approval.

The City (and County) would establish the specific requirements as part of the applicable zoning regulations and subdivision ordinances. These requirements will be prepared as part of Phase Two of this study. The requirement to participate in the agricultural impact mitigation program would be similar to other public improvement or benefit requirements such as providing land for schools, financing off-site public improvements, or financing ongoing services which benefit the property.

The following paragraphs provide an example of how the TDC system would operate in North Natomas.

A developer interested in developing a project in North Natomas would know that as a condition of Master Plan approval it would be required to purchase a quantity of development credits. This requirement in so far as it would create an additional development cost may be reflected in the price the developer would be willing to pay for unimproved land.

The quantity of development credits required for a specific project would be based upon the proposed land use type and intensity. More intense uses, (such as offices which produce higher land values and economic returns) would be required to purchase more credits than would be required for low intensity uses for an equivalent unit of land. Credits required for each land use type would be established by the TDC system based upon pro forma analysis of development values.

Sellers of development credits would be landowners in the preservation areas who have been allocated a fixed number of credits based upon the size and location of their land. The total number of development credits required in the development area would equal those allocated in the preservation area.

The developer would enter the market for development credits. A variety of market mechanisms would be established as part of the TDC system to efficiently match buyers and sellers. The developer would negotiate directly with owners of development credits. The developer would be willing to pay a price for the development credit that would allow a profitable project. Sellers would be motivated to sell because of the immediate opportunity to receive a cash payment (which may exceed the current market value of their land) in lieu of waiting many years for the possibility of development.

Dedication of a conservation easement to a third party (such as a land trust) would be a condition of the transfer of development credits. The developer would be required to demonstrate that conservation easements were in place prior to the start of development.

IMPLEMENTATION OF THE PROPOSED TDC SYSTEM

Implementation of the TDC system will require participation from landowners, prospective developers, and city and county agencies. The following action steps describe how the TDC system could be implemented.

Step 1 - Geographic Definition and Policy Framework

The first step in the implementation of the TDC System will be to establish boundaries of the preservation ("sender") area and the development ("receiver") area, and to establish necessary policy language in the Community Plan, the City General Plan and the County General Plan. Section 4 of this report contains agricultural preservation policies for the Community Plan.

The balance of acreage in the preservation area versus the development area should be determined by a careful planning effort that takes a variety of factors into account including agricultural values, demand for urban land, efficient and compatible densities and patterns, and efficient provision of public services.

Delineation of preservation and development areas in the North Natomas area is most strongly influenced by proximity to existing urban development and infrastructure. Existing development and infrastructure patterns suggest that the Southeast Quadrant, adjacent to existing urban development and bounded to the west by I-5, is the logical core of the "receiver" area. Locating the "receiver" area in the Southeast Quadrant is also supported by other criteria, including the

distribution of prime soils, existing agriculture/urban conflicts, and ability to minimize future conflicts between urban and agricultural uses.

The following paragraphs address design criteria that should be considered when establishing boundaries.

Agricultural Values

Although most of the area is productive agricultural land, the land tends to be better in the northern and western portions. Exhibit 1 shows the location of quarter sections with a site potential index in excess of 85, indicating the predominance of prime soils. More precise delineation is available by utilizing the US Soil Conservation Service Soil Maps.

Other agricultural values that should be considered include proximity to irrigation and drainage improvements, parcel size, and participation in the Williamson Act contracts.

Urban Factors

Existing urban factors, including the location of existing development, utilities, and the airport all affect surrounding agriculture, as well as subsequent urban development potential. The level of existing urban conflicts was indicated by the "Site Assessment" created with the LESA process conducted for the EIR. Exhibit 2 indicates the quarter sections that currently are experiencing some level of conflict with urban factors.

The Metro airport creates a limitation upon future urban development within the 60 db CNEL contour. This contour is shown on Exhibit 3.

Other urban factors that may affect the location of development include the City's water rights area (see Exhibit 4), the Sacramento Regional County Sanitation District's service area, existing drainage facilities (see Exhibit 5) and the highway network (see Exhibit 6).

Environmental Factors

Environmentally sensitive areas which may affect the location of urban development include flood prone areas (see Exhibit 5), high groundwater, riparian/wetland areas (see Exhibit 7) and archaeological resource sites.

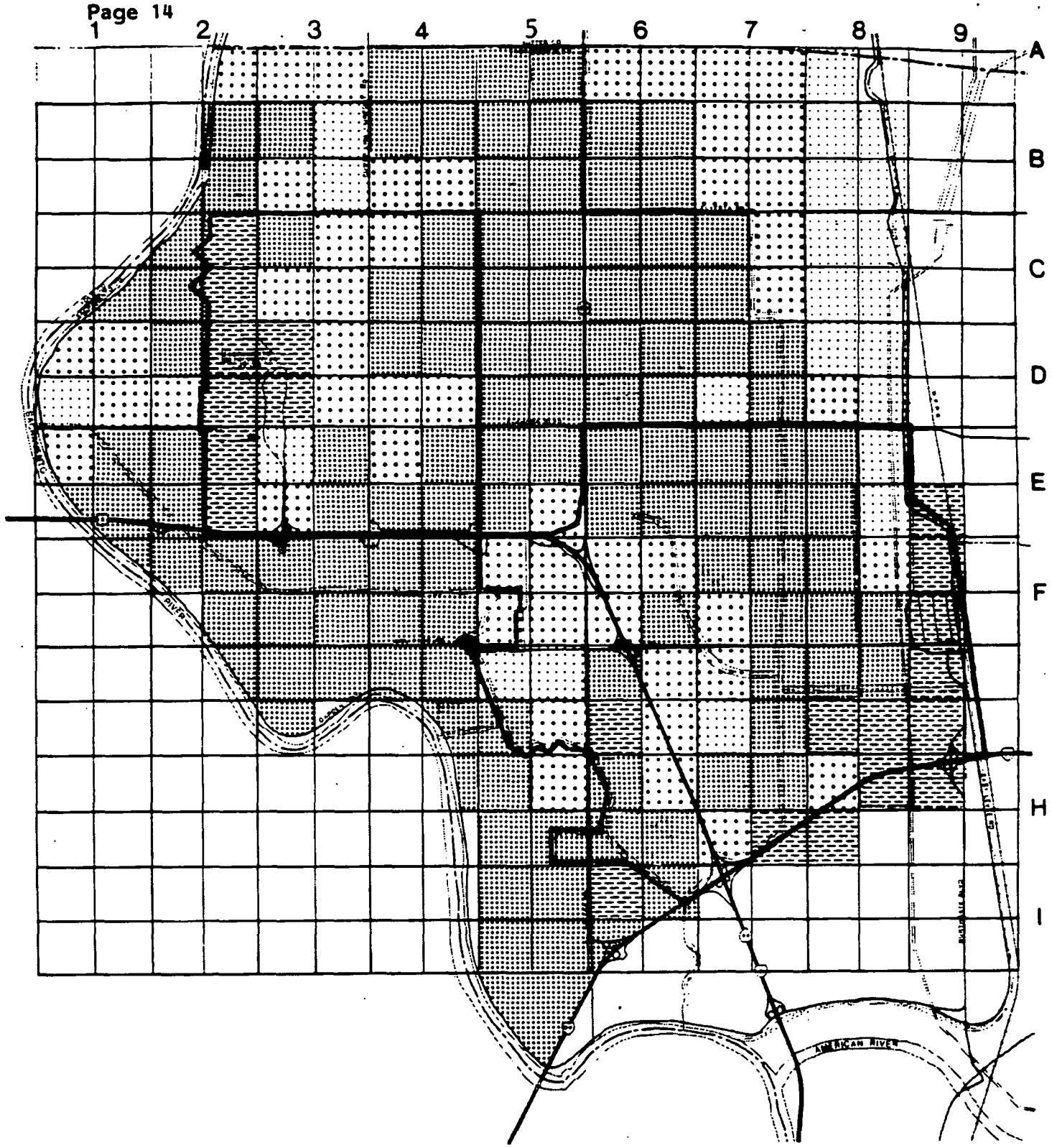


Exhibit 1: SOIL PRODUCTIVITY

Highest

Least

Soil Productivity

Developed

0 3200 6400 Ft.

Source: Nichols-Berman and Economic and Planning Systems

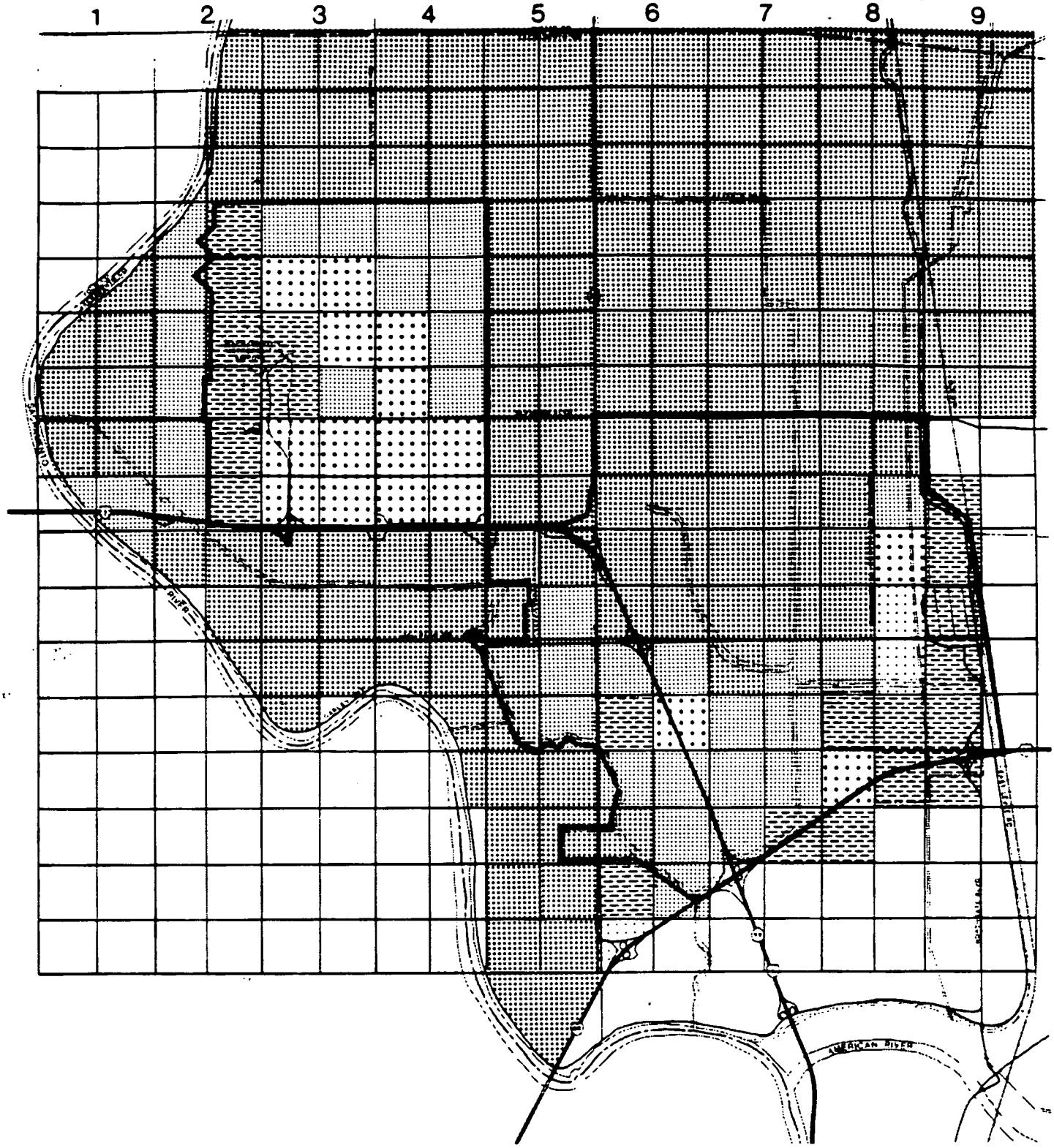


Exhibit 2: LESA SITE ASSESSMENT

Lowest

Highest

Agriculture Conflict Areas

Developed

0 3200 6400 Ft.

Source: Nichols-Berman and Economic and Planning Systems

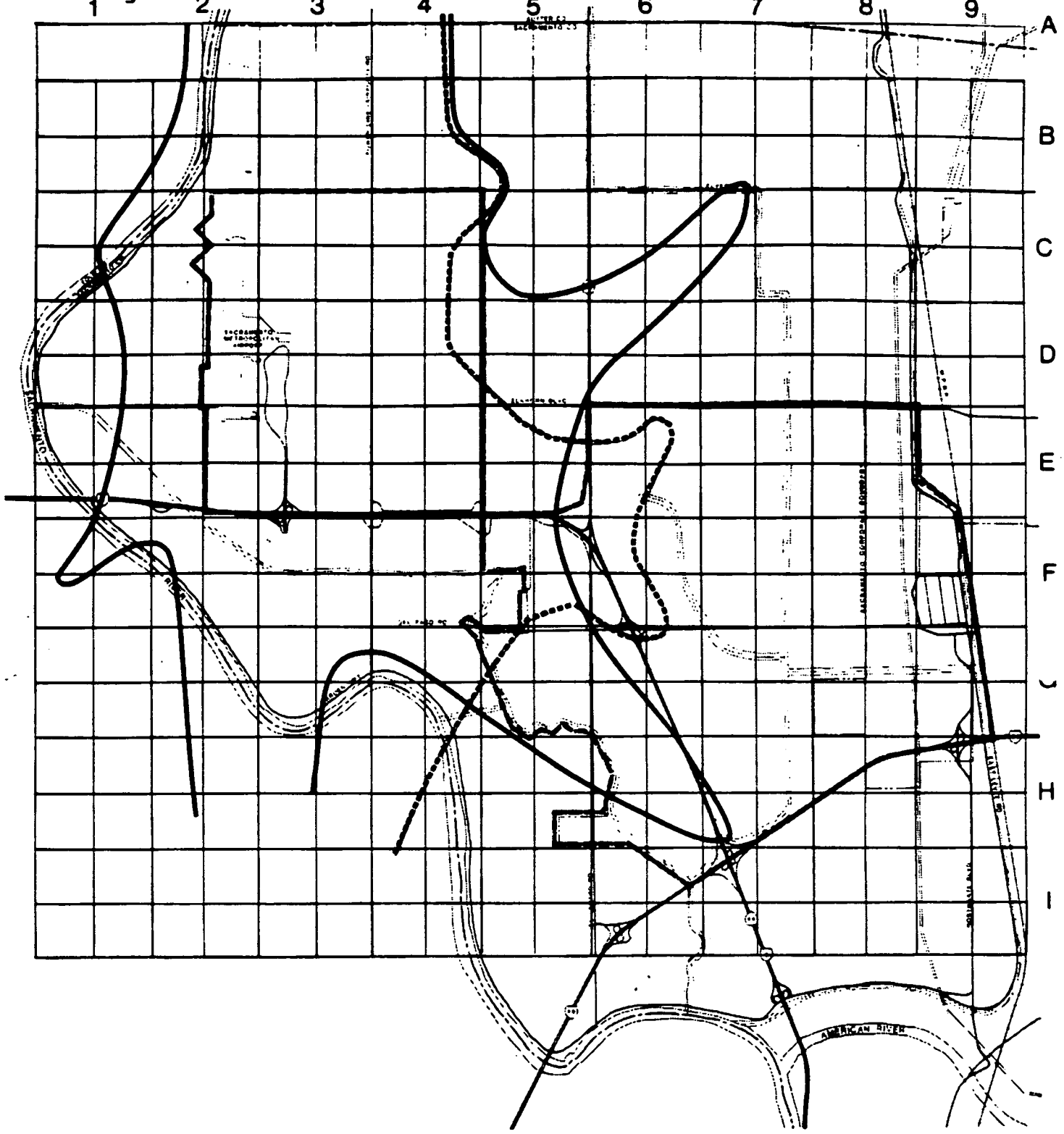


Exhibit 3: AIRPORT NOISE EXPOSURE CONTOURS

1985 60-dB CNEL Noise Contour

1995 60-dB CNEL Noise Contour

0 3200 6400 Ft.

Source: Sacramento Metropolitan Airport Initial Study, October 1983.

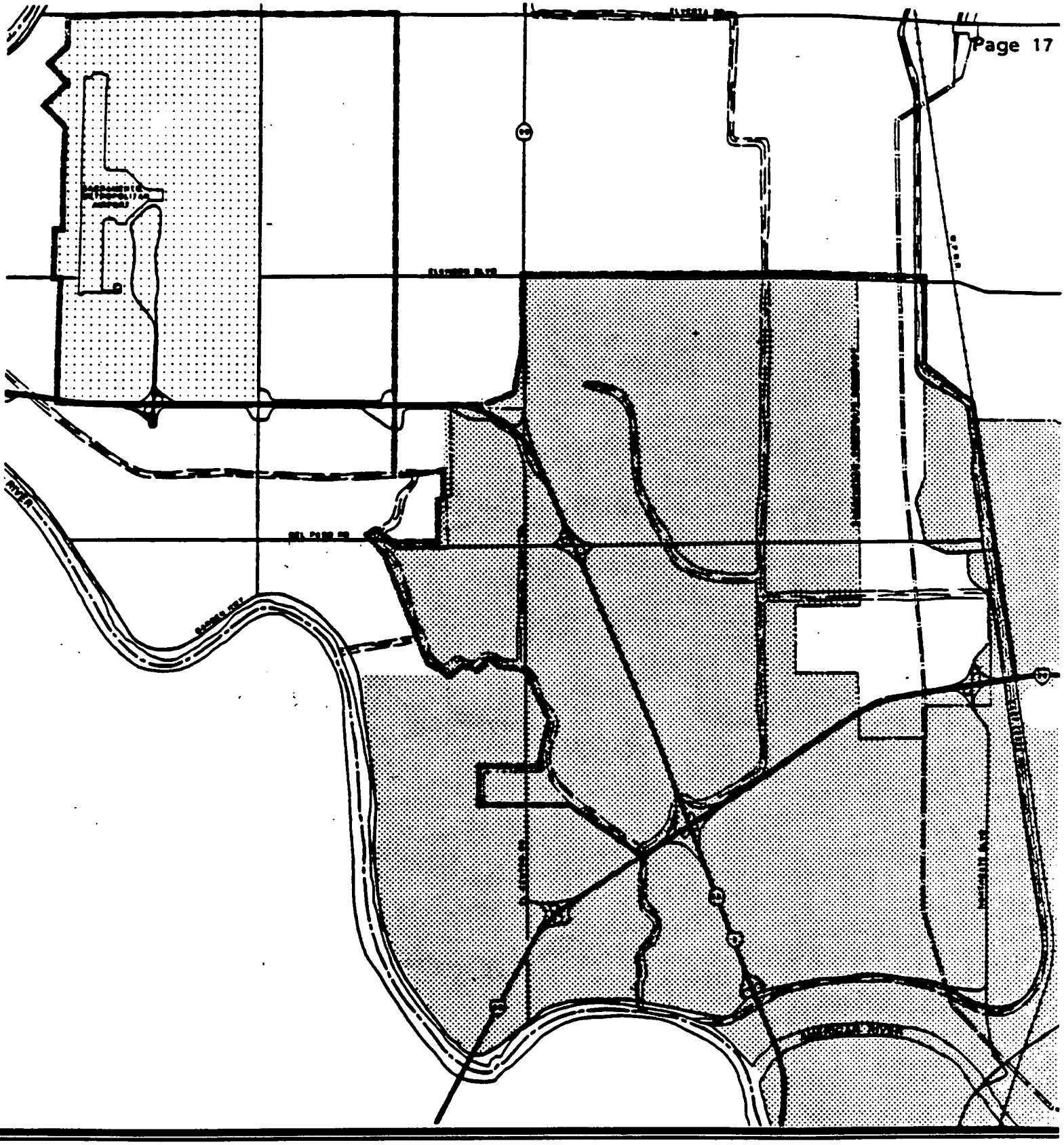


Exhibit 4: CITY OF SACRAMENTO WATER RIGHTS AREA

Airport

Properties within City of Sacramento Water Rights Boundaries

0 3200 6400 Ft.

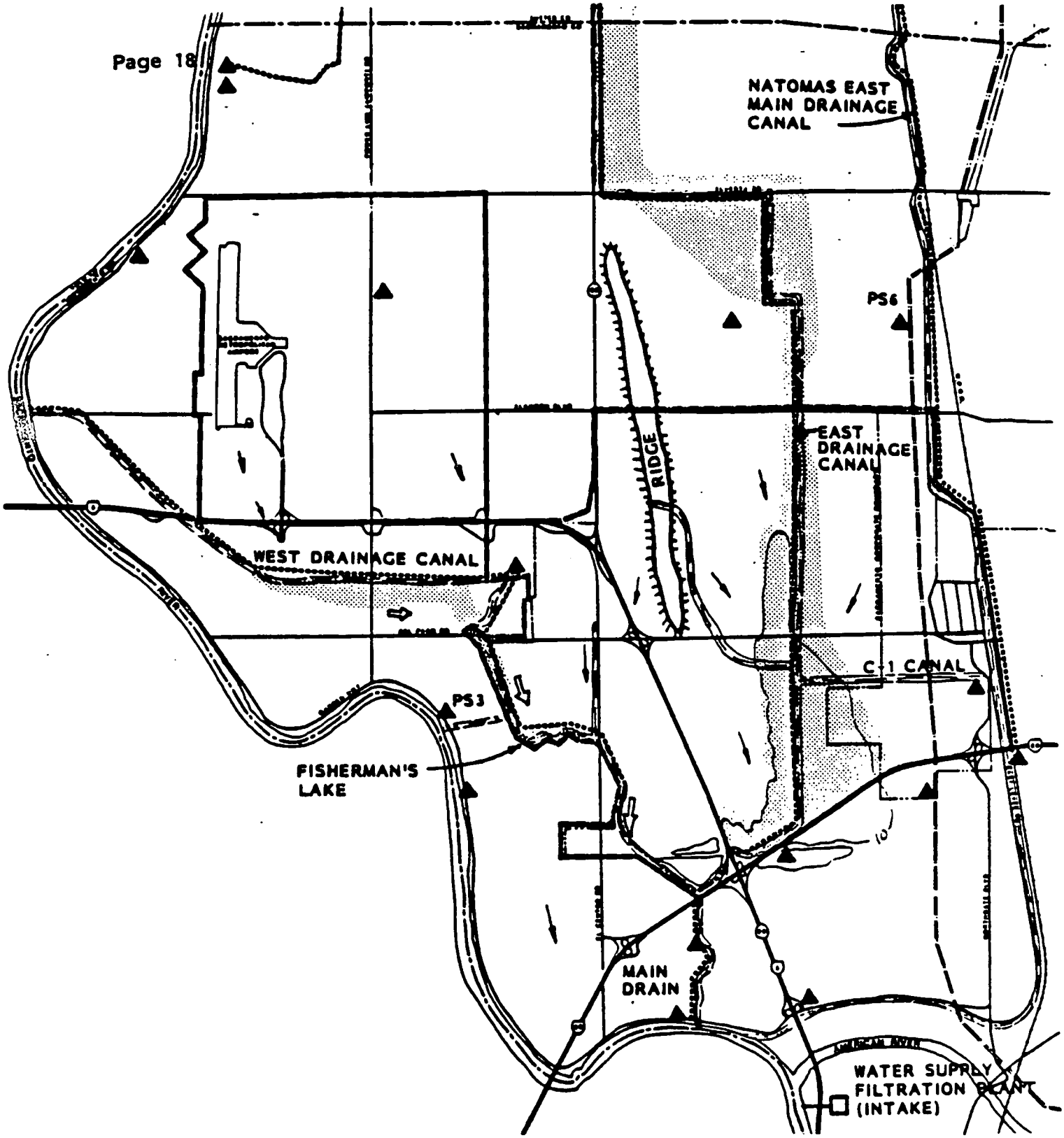


Exhibit 5: EXISTING DRAINAGE FACILITIES

RD 1000 District
Pump Station
100-Year Floodplain
Direction of Overland Flow
Direction of Drainage
10' Contour Line

0 3200 6400 Ft.

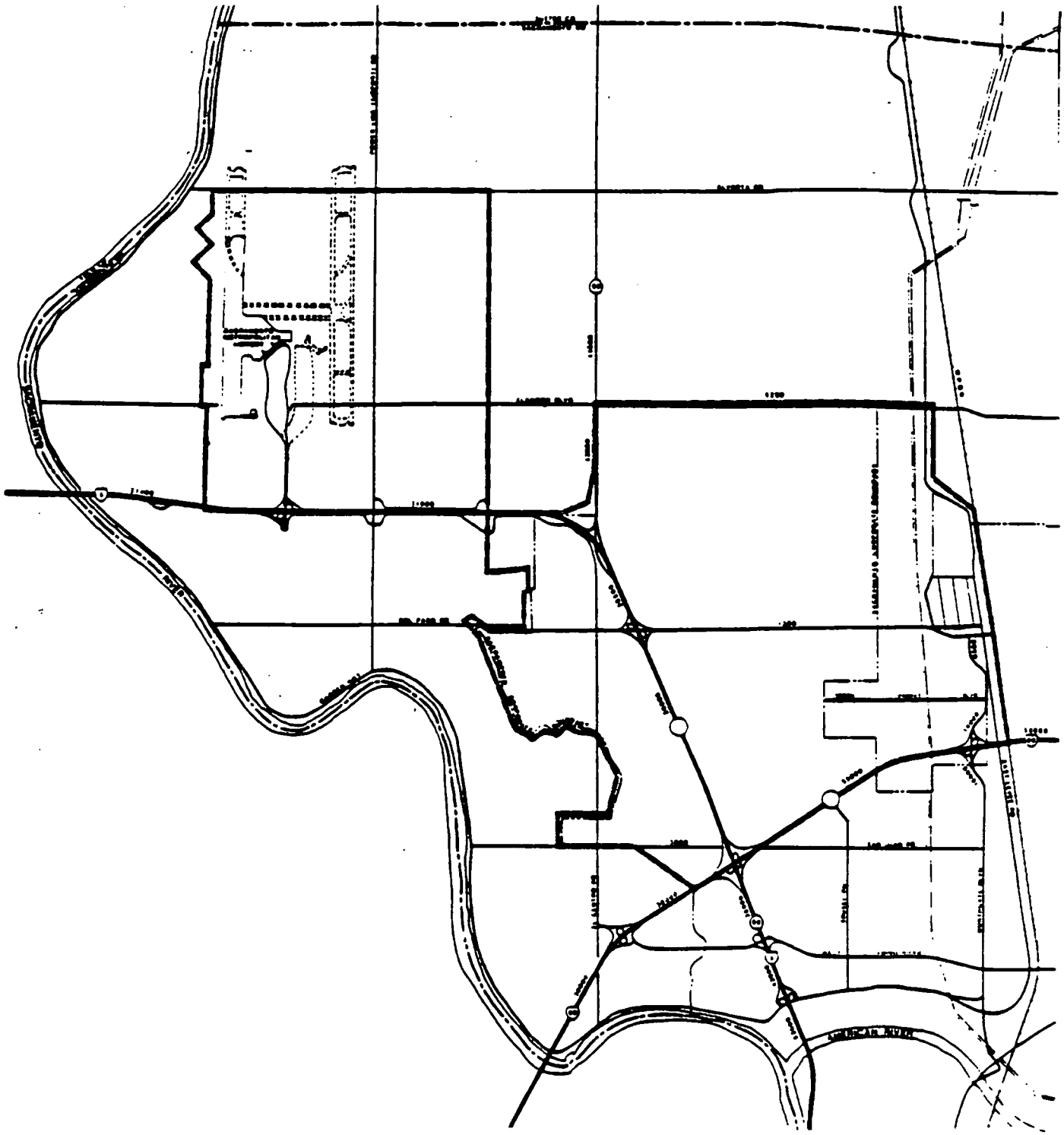


Exhibit 6: EXISTING CIRCULATION SYSTEM AND EXISTING TRAFFIC VOLUMES

2000 Average Daily Traffic (1984)

0 3200 6400 Ft.

Source: Omni-Means, Ltd.

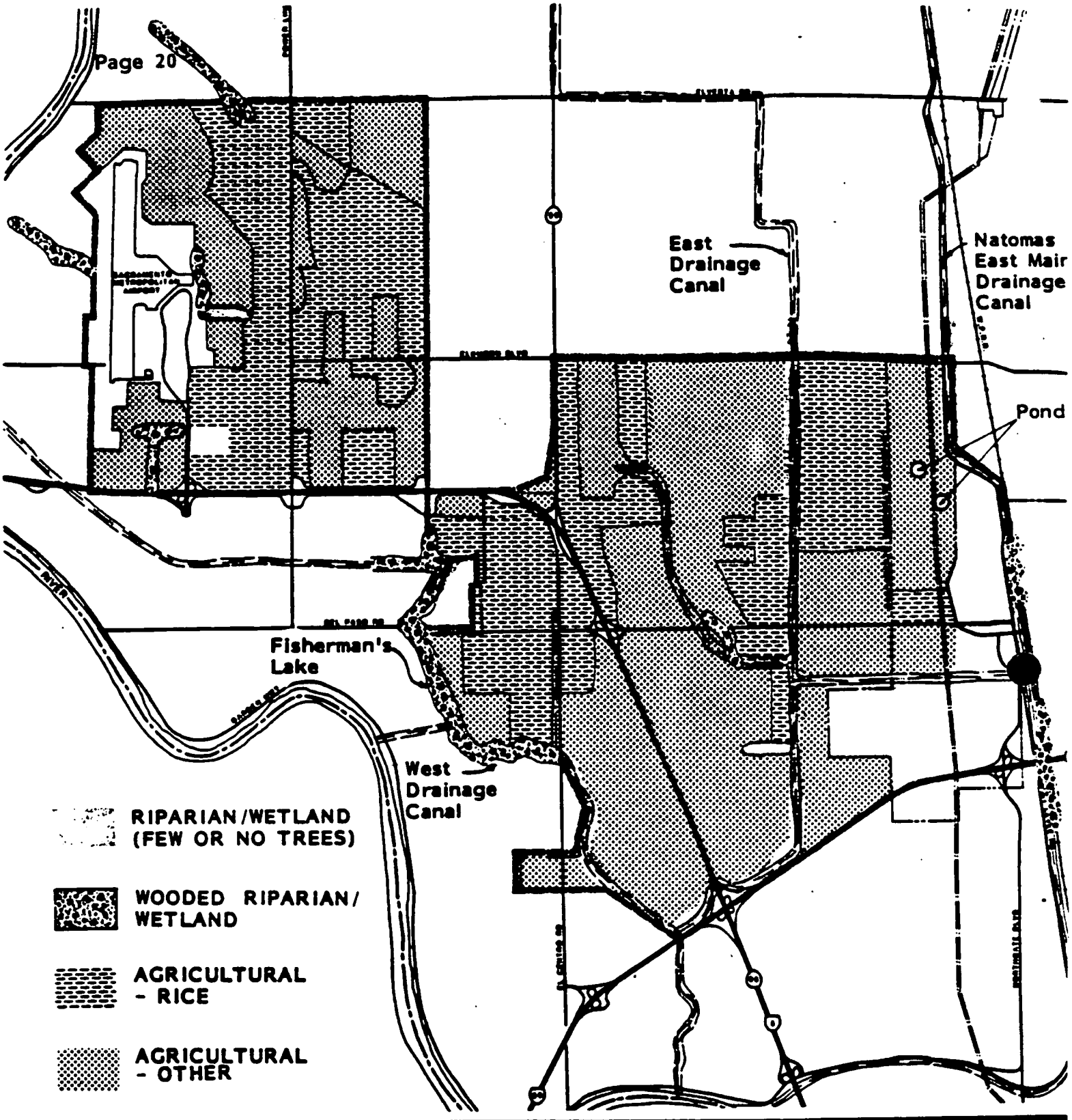


Exhibit 7: VEGETATION TYPES

Sources: The Present Field Studies and North Natomas Community Plan: Background Report.
Holton Associates. February 1985

0 3200 6400 Ft.

Step 2 - Establish Administrative Structure

A key advantage of the proposed TDC system is its utilization of existing agencies and administrative processes (principally zoning and subdivision regulation). In addition to land use regulation requirements, it will be necessary for a public or quasi-public agency to hold conservation easements on the land from which development credits have been purchased, and further, it may be necessary for their to be a facilitator in the transfer of development credit process. For this reason a land trust is recommended as part of TDC system implementation. The land trust would have the responsibility to develop and receive the conservation easements and, when appropriate, purchase development credits and exercise other powers of land trusts.

A land trust can also facilitate the proposed TDC program by assisting the developers and landowners who wish to participate in the system, and serving as a public information forum and a marketplace.

Step 3 - Create and Distribute Development Credits

After analysis of the Community Plan, the number of credits for each type of zoning designation and density can be determined. The approach recommended would be based upon a "Dwelling Unit Equivalent" (DUE) approach similar to that used for allocation of public facility costs. The basis of the development credit value would be the residual margin created when agricultural land is zoned for urban uses. Residual margin is defined as the dollar value generated in excess of the sum of raw land costs, building construction costs, site (and off-site) public improvement costs, financing costs, and adequate profits to developers and builders.

Each land use designation (e.g. M-20, Low Density Residential, Highway Commercial, etc.) will generate a land value based upon the intensity of use and the costs associated with developing the use. The opportunity to capture these values provides an incentive to developers and builders to participate in the TDC system. The higher the potential profits, the higher the unit value of the land.

The proposed TDC system would establish, through a pro forma estimating process, the relative residual margins generated by the various land use categories. A DUE is defined as the margin created by a single, low density residential unit.

Values of other land use designations are expressed as multiples of the DUE. This effort will be conducted in Phase 2 of this study.

Step 4 - Allocate Development Credits

Once the number of Development Credits are determined (Step 3), they must be allocated to the preservation area. Development Credits distributed to the preservation area must equal the sum of the credits required to fully develop the development area.

Several criteria should be used to determine the benefits landowners forego when their land is designated permanent agriculture. Current market value of the property, the size of the parcel, the probability and phasing of development prior to the permanent land use restriction, and the distance from the development area should all be evaluated in determining the precise quantity of credits that landowners in the preservation area should receive.

The proposed TDC system would create three "Credit Zones" reflecting variations in these variables. Exhibit 8 indicates an initial delineation of these Credit Zones. Since the value of land for development (and future land use conflicts) are deemed greater in Zone 1 than Zone 3, more development credits should be required to retire an equivalent amount of land.

The Greenbelt (Zone 1) is shown as participating in the TDC system, even though the Community Plan recommends that the Greenbelt shall be dedicated to the City. Even with dedication of the Greenbelt there will be a cost to the development area. The TDC system offers a method to equitablely distribute the burden from dedication of the Greenbelt, as well as minimizing land costs.

Step 5 - TDC System Timing and Initiation.

The TDC system would be initiated by the approval of the required zoning ordinance amendments and the development review procedures (master plan, etc.) in the Community Plan.

Implementation of a successful Agricultural Preservation Strategy has direct consequences for the form and content of the Community Plan. Basic goals and objectives of the strategy especially determination of quantity of development credits and delineation of the preservation area must be accomplished prior to development of the final Community Plan Land Use Map. The required implementation

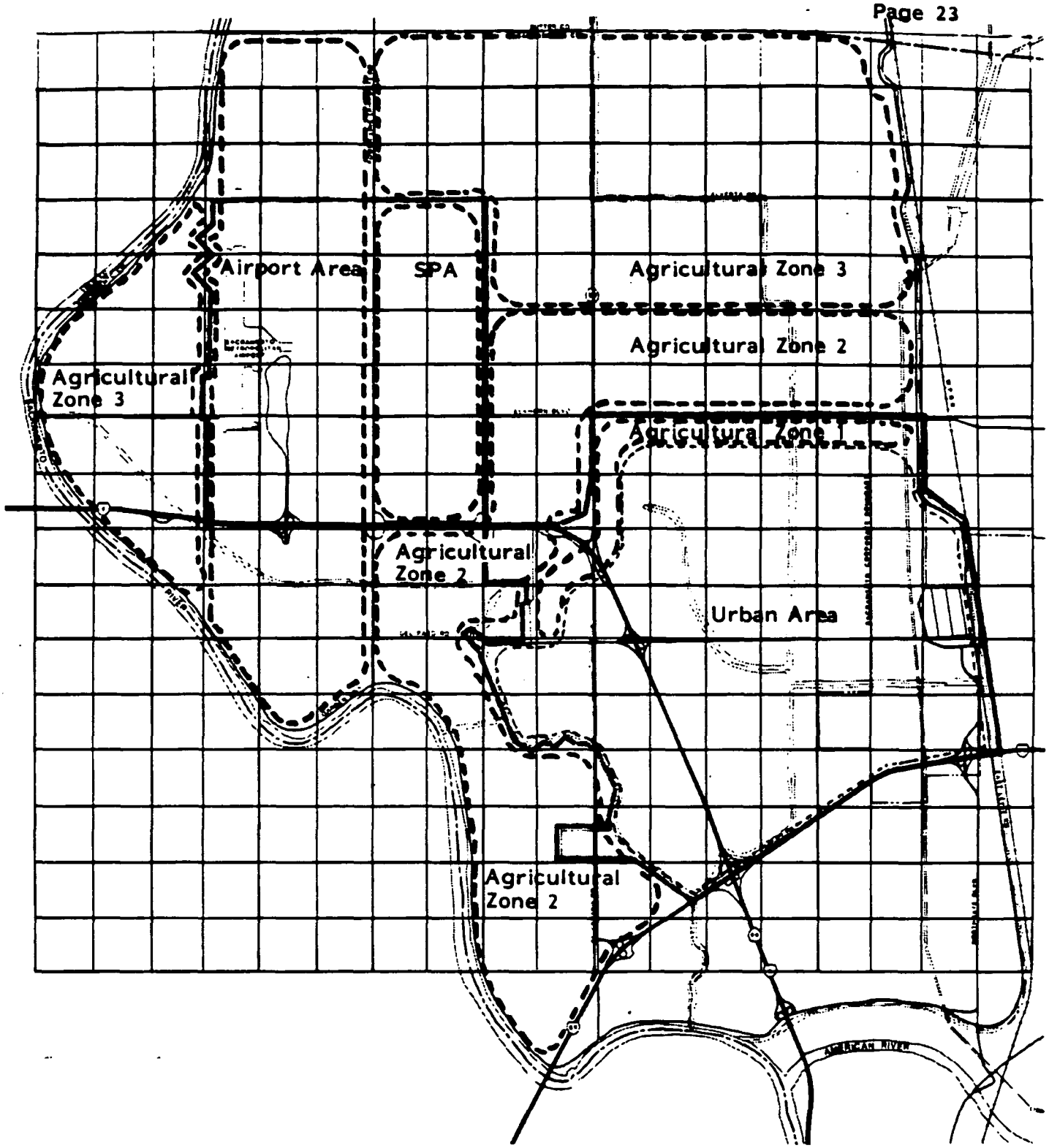


Exhibit 8: AGRICULTURAL PRESERVATION AREAS

0 3200 6400 Ft

Source: Nichols • Berman and Economic and Planning Systems

steps, outlined above, developed in Phase 2 of this study, must be in place before the first urban development application is processed and approved.

The land trust should be created during the Phase 2 effort. Creation of the marketplace is necessary to facilitate negotiations between landowners and developers. Common access to current price information, parties interested, and general program information would be available as well as a recommended format for negotiations.

SECTION 3 -- FEASIBILITY OF THE PROPOSED TDC SYSTEM

The scope and complexity of the proposed TDC system indicate feasibility problems in three areas:

- Political
- Economic
- Fiscal/Financial

FEASIBILITY ANALYSIS

Political

No agricultural impact mitigation strategy can be created without the strong support of the decision-makers. Both the Sacramento City Council and the Board of Supervisors must be willing to take the necessary actions that lead to successful impact mitigation. The key political issues will be creation of consistent land use designations within the City and in County areas and willingness of the City and the County to jointly implement the program. Since the majority of the agricultural preservation area is located in the County, it is the County that will be responsible to create certainty that the land use regulations will be permanent. The County must also be willing to retire development rights to agricultural land in the airport clear zones.

Without a strong commitment from both the City and County no TDC system will be possible.

Economic

The economic feasibility of the proposed TDC system depends primarily on well conceived design (which addresses financial and economic feasibility issues) prior to the program's implementation. Economic feasibility issues fall primarily into three categories: those related to the definition of rights and values; those concerning the marketplace and its regulation; and those concerning the supply and demand for rights and land.

Definition of Credits.

Definition of what development credits are and how they can be utilized are both essential factors for marketplace acceptance. Participants in the system must be confident that the credits will be applied consistently and that they accurately reflect land market dynamics.

The proposed TDC system would define the number of credits required for a given urban use and the allocation of credits in the preservation area. The value of these Development Credits would be set by the marketplace.

The Marketplace.

Landowners and developers must perceive the development credit market to be a safe, consistent, and efficient institution. Information must flow quickly and freely, players must be able to easily locate one another, and a common format for negotiations must be enforced to protect both parties. The level of participation and success of the program will hinge mainly on the faith the players hold in the overall Strategy, which in turn must be established by the public support of the program by City and County elected officials.

The proposed TDC system includes a recommendation for a land trust that would facilitate market interactions.

Development Credit Supply and Demand.

A TDC system could become inequitable and capricious if modifications to the supply (through government issuance or retirement of rights) or demand (changing zoning designations or densities) are made by the government or agency after the program's inception.

Demand for the Development Credits is assured since all development will require them to achieve zoned urban densities indicated in the Community Plan. Supply is assured since holders of the credits, the landowners in the preservation area, will be given a marketable asset that in many cases that is at least as valuable as their current land value.

The TDC system possesses an advantage: The method by which the transfers occur assures that demand and supply of development credits will equal at the system's inception, with estimates of growth and phasing known and accepted by the landowners and developers.

Fiscal/Financial

The underlying financial basis of the TDC system is the ability of the land in the "receiver" area to create an adequate revenue base for purchase of development credits from "sender" areas. In a sense, the need to mitigate agricultural impacts (purchase development credits) can be viewed as a financial burden upon the land similar to public improvements such as drainage improvement, streets and highways, sewer and water conveyance and treatment capacity.

The question of fiscal impacts and financial capacity was addressed in Volume 2 of the North Natomas Community Plan Alternatives EIR, (Fiscal and Financial Analysis). The Fiscal and Financial Analysis concluded that it may not be possible to finance all the required public improvements at North Natomas with assessment-type financing (i.e., financing secured by a public lien on private land). The analysis tested the feasibility of financing all improvements (except sewer collection and treatment) with a series of bond issues that would ultimately be secured by the market value of land at North Natomas. The analysis summarized in Exhibit J-50 of the EIR indicates that the market value of the land may not, by itself, be sufficient to support the required lien to value ratio.

Financial studies conducted since the EIR was completed have indicated that alternative financing schemes may be available that enable planned development in North Natomas to support necessary public facilities. This critical issue will need to be resolved prior to approval of the Community Plan. If it is concluded that required public improvements cannot be locally financed, it is likely that no develop will occur, obviating the immediate need for the Agricultural Impact Mitigation Strategy.

The need and the feasibility of the TDC system is entirely dependent upon the financial feasibility of development. Prior to completion of the implementation effort, the issue of overall financial feasibility must be resolved. The final feasibility analysis for the TDC system can be based upon the final estimates of public improvement costs and the adopted financing plan.

Because of the issue of financial feasibility of urban development in North Natomas, a financial feasibility model was created which allowed analysis of the proposed TDC system. The model is a computer-based application which integrates data from the EIR (both the agricultural impact section and the fiscal/financial impact section). For the present analysis, the Proposed North Natomas Community Plan (December 9, 1985) was used as a basis of the land use distribution and type and intensity of development.

The purpose of the analysis is to determine, given the extent, type, and intensity of development indicated in the Proposed Community Plan, what the value of a development credit might be and how development credits can be distributed in the preservation area to reflect future conflicts and variations in speculative value. The model is not an attempt to set a market price. The proposed TDC system will let the market determine prices. The model attempts to evaluate, given reasonable assumptions about the cost of development and potential economic margins created, what development credits may be worth.

Ultimately, the value of a development credit is set by the amount an investor in the development area is willing to pay for the right to build the land use designated in the Proposed Community Plan. This amount will be determined by the cost of raw land, the cost of improvements, construction costs, and sales prices of finished units or buildings.

The approach to land valuation utilized by the financial feasibility model (Transfer of Development Credits) should be distinguished from a public purchase program (Purchase of Development Rights). Under a public purchase program, the land in the preservation area would be purchased by a public agency with funds derived from an assessment upon the development area. Purchase of land in the sending area would be voluntary, however, it is possible that eminent domain proceedings would be required in many cases. In such cases, the price for land would be established by the court rather than the marketplace. An assessment process would also worsen an already questionable ability for the land in the development area to carry the lien burden for necessary public improvements.

The model involves five basic analytical steps:

- Definition of development and preservation areas.
- Estimation of the value added when agricultural land is is designated for specific urban uses.
- Calculation of the total value added by the given land use alternative.
- Determination of the unit value of development credit.
- Distribution of development credits to the agricultural preservation areas.

A copy of the assumptions and the output of this model is contained in Appendix 3.

The following paragraphs describe the financial feasibility model in more detail:

Step 1 - Define the development and permanent preservation areas.

The model permits any land use configuration to be tested. The Proposed Community Plan was used for the present analysis. The area shown as urban in the Community Plan was considered the development area. The remaining agricultural areas were considered the permanent preservation areas. The permanent preservation area was subdivided into three "credit zones" reflecting the variation in conflict and development potential: 1) The Greenbelt, where both urban and agricultural uses would be limited; 2) high conflict area (near designated urban areas or road access); and 3) low conflict areas.

It should be noted that the development and preservation areas exclude the Metro airport, the County's Special Planning Area and previously approved development in the Northgate area (approximately seven acres of M-20 and 172 acres of light industry).

Step 2 - Estimate the value added when agricultural land is is designated for specific urban uses.

The value of a development credit is a direct function of the economic margin created by development of urban uses. A rational investor will exhaust all of the economic margin except a minimum acceptable return on investment. If the economic margin is high, the development can support a wide range of improvements, mitigation measures, etc. If the economic margin is small, lesser amounts will be available for such items. The other outcome of a low economic margin is lower prices for the raw land.

In the present analysis the economic margins resulting from urban development were estimated by using a variety of sources, including the EIR's Fiscal/Financial analysis, subsequent financial analyses, and standard development industry ratios. The estimates of economic margin available for the TDC program predicted by the model range from two percent of sales price (for low density residential land use) to eight percent (for some commercial land uses).

Step 3 - Calculate the total value added by the given land use alternative.

The total value added by the land use alternative being considered is calculated by applying the quantity and quality of urban land uses contained in the Proposed Community Plan to the estimation of the economic margins created by each land use.

Exhibit 9 presents the value created under the Proposed Community Plan. Exhibit 9 indicates that approximately $238 million of residual economic margin could be created by the Community Plan. In the present analysis this amount was reduced by a 20 percent contingency factor to estimate the amount that may be available for purchase of development credits.

Step 4 - Determine the unit value of development credit.

The value of an individual credit is determined by setting a standard value, similar to the "dwelling unit equivalent" (DUE) used in the EIR's Fiscal/Financial Analysis. The margin created by a single low density residential unit was used as a basis for the present analysis.

Exhibit 10 presents the estimated value of a development credit, the total number that would be created, and the implied value of credits required for the land use categories contained in the Community Plan. It should be noted that the Sports Complex is not included in this analysis. The reason for this exclusion is due to the assumption that the residual value of the Sports Complex would be minimal. The Sports Complex would, however, create value on the surrounding land designated for urban development and this added value is captured by the model.

Step 5 - Distribute development credits to the preservation area.

The final step in the model is to estimate the distribution of development credits to the agricultural preservation area. The key assumption for this effort is the "weighting" of the three zones within the agricultural area. In the present analysis, the Greenbelt arbitrarily received a weighting of 4, the high conflict area received a weighting of 2, and the low conflict area received a weighting of 1. Exhibit 11 summarizes the distribution of development credits to the agricultural areas under the Proposed Community Plan. The weighting was set to approximate land value for development in the preservation area.

The model indicates that, given the land use distributions proposed in the Proposed Community Plan and the presence of an economic margin, that developers would pay for development credits and that the potential price would be

Exhibit 9
Value Created in
Development District

Land Use Designation	Total Acreage	Total DU or SQFT	Total Value Created	Developer Returns Created	Residual Margin Created	Development Credit Value Created
Residential						
Low Density	1,360	9,520	904,400,000	45,181,920	15,822,240	12,657,792
Medium Density	843	10,116	758,700,000	35,962,380	51,439,860	41,151,888
High Density	648	14,256	855,360,000	39,175,488	84,908,736	67,926,989
Commercial						
Community	114	1,026,000	82,080,000	3,841,344	6,533,568	5,226,854
Highway	46	310,500	21,735,000	1,091,718	264,546	211,637
Office/Industrial						
Light Industry	458	5,038,000	251,900,000	11,788,920	20,051,240	16,040,992
M-20	1,306	16,651,500	1,248,862,500	60,944,490	50,287,530	40,230,024
M-50	117	1,842,750	156,633,750	7,606,872	7,031,934	5,625,547
Office Business	46	759,000	75,900,000	3,779,820	1,563,540	1,250,832
Sports Complex	200	0	0	0	0	0
TOTALS			4,355,571,250	209,372,952	237,903,194	190,322,555

Exhibit 10
Development Credit Ratios
by Land-use Designations
(1 Credit = 1 Unit built Low Density)
Value of 1 Credit = $1,330

Land Use Designation	Development Credit Requirements			Development Credit Value		
	Per Unit	Per Acre	Community Plan	Per Unit	Per Acre	Community Plan
Residential						
Low Density	1.00	7.00	9,520	$1,330	$9,307	$12,657,792
Medium Density	3.06	36.71	30,951	$4,068	$48,816	$41,151,888
High Density	3.58	78.84	51,088	$4,765	$104,826	$67,926,989
Commercial						
Community	0.0038	34.48	3,931	$5.1	$45,850	$5,226,854
Highway	0.0005	3.46	159	$0.7	$4,601	$211,637
Office/Industrial						
Light Industry	0.0024	26.34	12,065	$3.2	$35,024	$16,040,992
M-20	0.0018	23.17	30,257	$2.4	$30,804	$40,230,024
M-50	0.0023	36.16	4,231	$3.1	$48,082	$5,625,547
Office Business	0.0012	20.45	941	$1.6	$27,192	$1,250,832
Sports Complex	0	0	0	$0.0	$0	$0
NN Community Plan			143,143			$190,322,555

Exhibit 11
Development Credit Distribution (Quantity and Value)
by Credit Zone Classification

Credit Zone	Description	Weighting	Acreage Distribution	Credit Distribution (Per Acre)	Credit Distribution (Per QS)	Credit Distribution (Per Zone)	Estimated Value (Per Acre)	Estimated Value (Per QS)	Estimated Value (Per Zone)
Zone I	Greenbelt	4	950	22.5	3,607	21,415	29,972	4,795,529	28,473,453
Zone II	High Conflict	2	6,400	11.3	1,803	72,135	14,986	2,397,764	95,910,579
Zone III	Low Conflict	1	8,800	5.6	902	49,593	7,493	1,198,882	65,938,523
TOTALS			16,150			143,143			190,322,555

sufficient to induce landowners in the preservation area to sell credits. The model does not predict the market equilibrium price, rather it predicts a maximum price that a developer could pay for the acquisition of development credits.

SECTION 4. -- IMPLICATIONS FOR THE COMMUNITY PLAN

Implementation of the Agricultural Strategy will require specific steps to be taken during development of the Community Plan. The Land Use Element of the Proposed Community Plan should be expanded to include a section on agricultural land use. This section should describe existing agricultural uses within the Study Area and the surrounding Analysis Area and also should include specific goals, policies, and implementation steps for preserving agriculture and reducing potential operational conflicts.

The following goals and policies should be included in the Community Plan:

Maintain permanent agricultural use on lands within the North Natomas Study Area and surrounding County areas which are not required for urban uses.

This goal should be implemented by developing appropriate land use restrictions (general plan designations and exclusive agricultural zoning) in the areas designated for permanent agricultural use.

A forum for cooperation between the City and the County also should be established. An "agricultural land use committee", containing elected representatives of both the City and County as well as technical experts, could be established to resolve differences and to devise mutually acceptable agricultural preservation techniques.

Protect agricultural areas from complaints or legal actions resulting from agricultural conflicts with adjacent urban land uses.

This goal can be implemented through good land use planning and also a "right to farm" law established in Sacramento County.

Design the location, mix, and intensity of urban land uses to minimize conflicts with adjacent uses and to maximize the long-term productivity surrounding agricultural land.

The objective of this goal is to distribute land uses in a manner which minimizes potential conflicts (e.g. place light industrial uses on the perimeter of the development area) and also maximizes the value added in the development area so that the development is more capable of mitigating impacts upon agriculture.

In addition to distributing urban land uses, this goal should be implemented by establishing stable boundaries between the development and agricultural areas. A

buffer area should be established where potential for conflicts between agricultural uses exists.

The buffer area should be wide enough to effectively separate the conflicting land uses and only should contain compatible non-agricultural uses. A buffer with a minimum width of 500 feet will meet this objective. Inclusion of drainage canals, freeways, arterial streets, utility corridors etc. could lower the net acreage which would be needed in the buffer areas.

Establish a mechanism whereby the impermanence of zoning can be replaced with enforceable restrictions which assure permanent agricultural use in the exclusive agricultural district.

This goal could be implemented through a transfer of development credits program. Specific implementation steps for the North Natomas TDC system include:

- Select a land use alternative which includes both urban development and agricultural preservation areas.
- Establish administrative structure.
- Create and distribute Development Credits for each type of zoning designation and density.
- Allocate Development Credits to the agricultural preservation area.
- Establish the land trust to receive easements.

APPENDICES

APPENDIX 1
RESOLUTION NO. 82-251

ADOPTED BY THE SACRAMENTO CITY COUNCIL ON DATE OF

April 13, 1982

APPROVING GROWTH POLICY RECOMMENDATIONS
FOR THE CITY OF SACRAMENTO (M-500)

WHEREAS, the City of Sacramento is currently in the process of updating its General Plan; and

WHEREAS, the City Council has given priority to early resolution of growth matters affecting the City's future development; and

WHEREAS, the City Planning Commission and City Council recognize that timely decisions on the nature and extent of growth serves as the foundation for definitive studies and General Plan recommendations; and

WHEREAS, the City has the ability to accommodate projected growth trends within the existing urban area, and that ability can be substantially increased by implementing an infill policy emphasizing such land use strategies as reuse and increased densities in selected communities; and

WHEREAS, the Sacramento Metropolitan Statistical Area (SMSA) has the potential to capture up to one-third of the high technology industrial growth in California over the next 20 years if measures are taken to actively encourage such growth; and

WHEREAS, the North Natomas is, for the most part, high quality, economically productive agricultural land and there is no suitable land in the Sacramento area which can be substituted which is not already under production; and there are no remaining physical barriers within either the City or County which will limit the extent of urbanization if North Natomas is opened for urban development; and

WHEREAS, agricultural production is a viable economic use of land in North Natomas that should be viewed as long term rather than simply in a holding zone for urban development; and

WHEREAS, the City can still capture a fair share of high technology industrial growth while adhering to its agricultural land preservation policies and preferred land use strategies by permitting industrial development in the southerly portion of the Meadowview area; and

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Sacramento approves the recommendations contained in the document entitled "Growth Policy - Conclusions and Recommendations" amended by the Planning Commission on April 1, 1982, including redesignation of the entire North Natomas area as "agriculture" in the General Plan;

BE IT FURTHER RESOLVED that the City Planning Department is directed to designate the Delta Shores area as a primary high technology development area for the City of Sacramento, and to accelerate the planning process for that area, including resolution of the Interstate 5 freeway interchange and former Route 148 relocation problems; and

BE IT FURTHER RESOLVED that the City Planning Department is directed to prepare the updated General Plan using the growth policy recommendations referenced above.

MAYOR

ATTEST:

CITY CLERK

CERTIFIED AS TRUE COPY of Resolution No. 84-075
FEB 6 1984
DATE CERTIFIED
[illegible] CITY OF SACRAMENTO

APPENDIX 2

RESOLUTION NO. 84-075

Adopted by The Sacramento City Council on date of

JAN 31 1984

RESOLUTION RELATING TO GROWTH POLICY

WHEREAS, the City Council of the City of Sacramento on April 13, 1982, approved the report entitled "Growth Policy--Conclusions and Recommendations" dated March 18, 1982, and as subsequently amended; and

WHEREAS, an application called Gateway Point has been submitted to the Sacramento Planning Commission to amend the City's General Plan covering 1,550 acres in the North Natomas Area; and

WHEREAS, legal counsel has advised that the merits of the Gateway Point application for a General Plan Amendment cannot be prejudiced; and

WHEREAS, there may be other applications forthcoming for amendments to the General Plan or rezoning in the area north of Del Paso Road and west of Interstate 5 freeway; and

WHEREAS, there is an urgent need to develop a Comprehensive Plan for the North Natomas area covering both the land within the City of Sacramento and the unincorporated area;

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The City Planning Commission and Planning staff are hereby directed to continue the expeditious processing of the Gateway Point application in order to make an independent recommendation back to the City Council on the merits of that request;

2. The Sacramento County Board of Supervisors be requested to coordinate their planning with the City in the formulation of a Master Plan for the entire North Natomas area to include consideration of the protection of the Sacramento Metropolitan Airport and its clear zones, the preservation of agricultural lands, the establishment of permanent greenbelts and urban development in appropriate locations;

3. The City of Sacramento will discourage receipt of all other applications at this time for General Plan Amendments or rezoning in the area north of Del Paso Road and west of I-5 until the North Natomas Community Master Plan is completed; and,

4. The City Planning Commission and Planning staff are hereby directed to work with County of Sacramento staff, Sacramento County Regional Sanitation District staff, Reclamation District 1000 staff, and the proposed developers on a complete infrastructure plan including water, sewer, drainage, and transportation for the entire North Natomas area and the Gateway Point application. This plan should be completed at no cost to any of the public agencies, and shall be completed prior to any action on the Gateway Point application.

5. The City Planning Commission and Planning staff are hereby directed to work with the Sacramento Employment and Training Agency, and the Sacramento Housing and Redevelopment Agency to work with the proposed developers to complete an Employment and Economic Development Opportunity Plan. The Plan should be completed at no cost to any of the public agencies, and shall be completed prior to any action on the Gateway Point application.

6. In the interim, the Sacramento City Council reaffirms its adopted growth policy pending completion of the processing of the Gateway Point application, its environmental impact report and the North Natomas Community Plan.

ATTEST:

MAYOR

Anne J. Mason

Assistant CITY CLERK

APPENDIX 3

FEASIBILITY ANALYSIS

Table 1
Agricultural District Database

Grid	Sub-Area Description	Land Use Designation	Agricultural Viability				Credit Zone Criteria		CREDIT ZONE CLASS	CREDIT QUANTITY	CREDIT VALUE
			Raw SPI	Raw LESA Score	Ordinalized SPI	Ordinalized LESA Score	Road Access	Distance to Development			
A4SW	Ag. District I	Agricultural	100	222	1	1		0	3	902	1,198,882
A4SE	Ag. District I	Agricultural	98	202	1	1		0	3	902	1,198,882
A5SW	Ag. District I	Agricultural	96	222	1	1		0	3	902	1,198,882
A5SE	Ag. District I	Agricultural	85	190	1	1		0	3	902	1,198,882
A6SW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
A6SE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
A7SW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
A7SE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
A8SW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B4NW	Ag. District I	Agricultural	93	222	1	1		0	3	902	1,198,882
B4NE	Ag. District I	Agricultural	95	222	1	1		0	3	902	1,198,882
B5NW	Ag. District I	Agricultural	100	222	1	1		0	3	902	1,198,882
B5NE	Ag. District I	Agricultural	100	222	1	1		0	3	902	1,198,882
B6NW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B6NE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B7NW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B7NE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B8NW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B8NE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B4SW	Ag. District I	Agricultural	72	215	2	1		0	3	902	1,198,882
B4SE	Ag. District I	Agricultural	84	219	2	1		0	3	902	1,198,882
B5SW	Ag. District I	Agricultural	88	222	1	1		0	3	902	1,198,882
B5SE	Ag. District I	Agricultural	100	222	1	1		0	3	902	1,198,882
B6SW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B6SE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B7SW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B7SE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B8SW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
B8SE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
C5NW	Ag. District I	Agricultural	100	222	1	1		0	3	902	1,198,882
C5NE	Ag. District I	Agricultural	100	222	1	1		0	3	902	1,198,882
C6NW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
C6NE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
C7NW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
C7NE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
C8NW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
C8NE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
C5SW	Ag. District I	Agricultural	92	222	1	1		0	3	902	1,198,882
C5SE	Ag. District I	Agricultural	94	222	1	1		0	3	902	1,198,882
C6SW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
C6SE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
C7SW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
C7SE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
C8SW	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882

Table A-1
General Assumptions

Density & Coverage Assumptions

		Density/Coverage	Total Acres at Buildout
Residential			
Low Density	7 DU per acre	0.14	1,360
Medium Density	12 DU per acre	0.08	843
High Density	22 DU per acre	0.05	648
Commercial			
Community	9,000 SqFt per acre	0.21	114
Highway	6,750 SqFt per acre	0.15	46
Office/Industrial			
Light Industry	11,000 SqFt per acre	0.25	458
M-20	12,750 SqFt per acre	0.29	1,306
M-50	15,750 SqFt per acre	0.36	117
Office Business	16,500 SqFt per acre	0.38	46
Sports Complex			200
Buffer Area			950

Acre in SqFt	43,560
Development Credit as a Percentage of Residual Margin	80%

	Developer	Finance
Investment	20%	80%
Cash on Cash Return	30%	15%

Soil Potential Index (SPI) &
LESA (Land Evaluation and Site Assessment) Scales

SPI		LESA	
100 to 85	= 1	Greater than 190	= 1
84 to 60	= 2	189 to 160	= 2
59 to 30	= 3	159 to 130	= 3
		Less than 130	= 4

Credit Zones

	Description	Factor
Credit Zone I	Buffer	4
Credit Zone II	High Conflict Area	2
Credit Zone III	Low Conflict Area	1

Table 1
Agricultural District Database

Grid	Sub-Area Description	Land Use Designation	Agricultural Viability				Credit Zone Criteria		CREDIT ZONE CLASS	CREDIT QUANTITY	CREDIT VALUE
			Raw SPI	Raw LESA Score	Ordinalized SPI	Ordinalized LESA Score	Road Access	Distance to Development			
H5SE	Ag. District III								2	1,803	2,397,764
I5NW	Ag. District III	Agricultural	0	0	0	0		1	2	1,803	2,397,764
I5NE	Ag. District III	Agricultural	100	202	1	1		1	2	1,803	2,397,764
I6NW	Ag. District III								2	1,803	2,397,764
I6SW	Ag. District III	Agricultural	0	0	0	0		1	2	1,803	2,397,764
I5SE	Ag. District III	Agricultural	0	0	0	0		1	2	1,803	2,397,764
I6SW	Ag. District III	Agricultural	0	0	0	0		1	2	1,803	2,397,764
A2SE	Airport	Agricultural	0	0	0	0		0	0	0	0
A3SW	Airport	Agricultural	78	194	2	1		0	0	0	0
A3SE	Airport	Agricultural	0	0	0	0		0	0	0	0
B2NE	Airport	Agricultural	91	203	1	1		0	0	0	0
B3NW	Airport	Agricultural	89	199	1	1		0	0	0	0
B3NE	Airport	Agricultural	40	203	3	1		0	0	0	0
B2SE	Airport	Agricultural	98	198	1	1		0	0	0	0
B3SW	Airport	Agricultural	60	198	2	1		0	0	0	0
B3SE	Airport	Agricultural	42	206	3	1		0	0	0	0
C2NW	Airport	Agricultural	0	0	0	0		0	0	0	0
C2NE	Airport	Agricultural	0	0	0	0		0	0	0	0
C3NW	Airport	Agricultural	100	166	1	2		0	0	0	0
C3NE	Airport	Agricultural	69	175	2	2		0	0	0	0
D2NW	Airport	Agricultural	0	0	0	0		0	0	0	0
D2NE	Airport	Agricultural	0	0	0	0		0	0	0	0
D3NW	Airport	Agricultural	0	0	0	0		0	0	0	0
D3NE	Airport	Agricultural	70	154	2	3		0	0	0	0
E2NW	Airport	Agricultural	0	0	0	0		0	0	0	0
E2NE	Airport	Agricultural	0	0	0	0		0	0	0	0
E3NW	Airport	Agricultural	50	134	3	3		0	0	0	0
E3NE	Airport	Agricultural	100	147	1	3		0	0	0	0
E2SW	Airport	Agricultural	0	0	0	0		0	0	0	0
E2SE	Airport	Agricultural	0	0	0	0		0	0	0	0
E3SW	Airport	Agricultural	80	145	2	3		0	0	0	0
E3SE	Airport	Agricultural	100	146	1	3		0	0	0	0
F2NW	Airport	Agricultural	100	199	1	1		0	0	0	0
F2NE	Airport	Agricultural	100	202	1	1		0	0	0	0
F3NW	Airport	Agricultural	92	202	1	1		0	0	0	0
F3NE	Airport	Agricultural	100	202	1	1		0	0	0	0
F2SW	Airport	Agricultural	0	0	0	0		0	0	0	0
F2SE	Airport	Agricultural	100	202	1	1		0	0	0	0
F3SW	Airport	Agricultural	100	202	1	1		0	0	0	0
F3SE	Airport	Agricultural	100	205	1	1		0	0	0	0
G2NE	Airport	Agricultural	100	219	1	1		0	0	0	0
G3NW	Airport	Agricultural	100	199	1	1		0	0	0	0
G3NE	Airport	Agricultural	100	222	1	1		0	0	0	0
G3SW	Airport	Agricultural	100	219	1	1		0	0	0	0

Table 1
Agricultural District Database

Grid	Sub-Area Description	Land Use Designation	Agricultural Viability				Credit Zone Criteria		CREDIT ZONE CLASS	CREDIT QUANTITY	CREDIT VALUE
			Raw SPI	Raw LESA Score	Ordinalized SPI	Ordinalized LESA Score	Road Access	Distance to Development			
C8SE	Ag. District I	Agricultural	0	0	0	0		0	3	902	1,198,882
D5NW	Ag. District I	Agricultural	93	213	1	1		1	2	1,803	2,397,764
D5NE	Ag. District I	Agricultural	87	213	1	1		1	2	1,803	2,397,764
D6NW	Ag. District I	Agricultural	95	213	1	1		1	2	1,803	2,397,764
D6NE	Ag. District I	Agricultural	95	222	1	1		1	2	1,803	2,397,764
D7NW	Ag. District I	Agricultural	100	222	1	1		1	2	1,803	2,397,764
D7NE	Ag. District I	Agricultural	100	222	1	1		1	2	1,803	2,397,764
D8NW	Ag. District I	Agricultural	48	214	3	1		1	2	1,803	2,397,764
D8NE	Ag. District I	Agricultural	38	189	3	2		1	2	1,803	2,397,764
D5SW	Ag. District I	Agricultural	100	208	1	1		1	2	1,803	2,397,764
D5SE	Ag. District I	Agricultural	100	208	1	1		1	2	1,803	2,397,764
D6SW	Ag. District I	Agricultural	92	213	1	1		1	2	1,803	2,397,764
D6SE	Ag. District I	Agricultural	23	222	3	1		1	2	1,803	2,397,764
D7SW	Ag. District I	Agricultural	20	219	3	1		1	2	1,803	2,397,764
D7SE	Ag. District I	Agricultural	100	219	1	1		1	2	1,803	2,397,764
D8SW	Ag. District I	Agricultural	81	207	2	1		1	2	1,803	2,397,764
D8SE	Ag. District I	Agricultural	48	171	3	2		1	2	1,803	2,397,764
E5NW	Ag. District I	Agricultural	0	0	0	0		1	2	1,803	2,397,764
E5NE	Ag. District I	Agricultural	95	197	1	1		1	2	1,803	2,397,764
E5SW	Ag. District I	Agricultural	88	196	1	1		1	2	1,803	2,397,764
E5SE	Ag. District I	Agricultural	83	196	2	1		1	2	1,803	2,397,764
D1NW	Ag. District II	Agricultural	0	0	0	0		0	3	902	1,198,882
D1SW	Ag. District II	Agricultural	0	0	0	0		0	3	902	1,198,882
E1NW	Ag. District II	Agricultural	0	0	0	0		0	3	902	1,198,882
E1SW	Ag. District II	Agricultural	0	0	0	0		0	3	902	1,198,882
C1SE	Ag. District II / Airport	Agricultural	0	0	0	0		0	3	902	1,198,882
D1NE	Ag. District II / Airport	Agricultural	0	0	0	0		0	3	902	1,198,882
D1SE	Ag. District II / Airport	Agricultural	0	0	0	0		0	3	902	1,198,882
E1NE	Ag. District II / Airport	Agricultural	0	0	0	0		0	3	902	1,198,882
E1SE	Ag. District II / Airport	Agricultural	0	0	0	0		0	3	902	1,198,882
F1NE	Ag. District II / Airport	Agricultural	0	0	0	0		0	3	902	1,198,882
F4NW	Ag. District III	Agricultural	100	198	1	1		1	2	1,803	2,397,764
F4NE	Ag. District III	Agricultural	100	193	1	1		1	2	1,803	2,397,764
F5NW	Ag. District III	Agricultural	0	0	0	0		1	2	1,803	2,397,764
F5NE	Ag. District III	Agricultural	0	0	0	0		1	2	1,803	2,397,764
F4SW	Ag. District III	Agricultural	96	202	1	1		1	2	1,803	2,397,764
F4SE	Ag. District III	Agricultural	100	203	1	1		1	2	1,803	2,397,764
F5SW	Ag. District III	Agricultural	64	197	2	1		1	2	1,803	2,397,764
G4NW	Ag. District III	Agricultural	100	222	1	1		1	2	1,803	2,397,764
G4NE	Ag. District III	Agricultural	100	206	1	1		1	2	1,803	2,397,764
G4SE	Ag. District III	Agricultural	100	203	1	1		1	2	1,803	2,397,764
H5NW	Ag. District III	Agricultural	100	194	1	1		1	2	1,803	2,397,764
H5NE	Ag. District III	Agricultural	80	194	2	1		1	2	1,803	2,397,764
H5SW	Ag. District III	Agricultural	93	211	1	1		1	2	1,803	2,397,764

Table 2
Development District Database

Grid District	LAND USE DESIGNATIONS												
	RESIDENTIAL				COMMERCIAL		OFFICE / INDUSTRIAL				SPECIAL		
	Rural Estates	Low Density	Medium Density	High Density	Com-unity	Highway	Light Industry	M-20	M-50	Office Business	Airport SPA	Sports Complex	Buffer
TOTALS	0	1,360	843	648	114	46	458	1,306	117	46	0	200	950

Table 1
Agricultural District Database

Grid	Sub-Area Description	Land Use Designation	Agricultural Viability				Credit Zone Criteria		CREDIT ZONE CLASS	CREDIT QUANTITY	CREDIT VALUE
			Raw SPI	Raw LESA Score	Ordinalized SPI	Ordinalized LESA Score	Road Access	Distance to Development			
G3SE	Airport	Agricultural	0	0	0	0		0	0	0	0
								TOTAL		121,728	161,849,102

Table 3
Residual Value Assumptions
and Determination

ITEM	RESIDENTIAL			COMMERCIAL		OFFICE / INDUSTRIAL			
	Low Density	Medium Density	High Density	Com-unity	Highway	Light Industry	M-20	M-50	Office Business
RESIDUAL VALUE									
+ Unit Sales Price	95,000	75,000	60,000	80.0	70.0	50.0	75.0	85.0	100.0
- Unit Construction Costs	52,500	42,000	32,000	32.0	32.0	25.0	40.0	45.0	60.0
- Unit Land Improvement Cost	19,000	11,250	9,000	24.0	21.0	10.0	15.0	17.0	15.0
- Unit Raw Land Value	7,600	6,000	4,800	6.4	5.6	4.0	6.0	6.8	8.0
- Unit Financing Costs	9,492	7,110	5,496	7.5	7.0	4.7	7.3	8.3	10.0
- Developer Returns	4,746	3,555	2,748	3.7	3.5	2.3	3.7	4.1	5.0
SUBTOTAL ALL COSTS	93,338	69,915	54,044	73.6	69.1	46.0	72.0	81.2	97.9
RESIDUAL VALUE PER UNIT	1,662	5,085	5,956	6.4	0.9	4.0	3.0	3.8	2.1
RESIDUAL VALUE PER ACRE	11,634	61,020	131,032	57,312	5,751	43,780	38,505	60,102	33,990
RESIDUAL VALUE AS A PERCENTAGE OF SALES PRICE	1.7%	6.8%	9.9%	8.0%	1.2%	8.0%	4.0%	4.5%	2.1%

Table 3
Residual Value Assumptions
and Determination

ITEM	RESIDENTIAL			COMMERCIAL		OFFICE / INDUSTRIAL			
	Low Density	Medium Density	High Density	Com-unity	Highway	Light Industry	M-20	M-50	Office Business
Characteristics									
Unit Type	DU	DU	DU	Sq.Ft.	Sq.Ft.	Sq.Ft.	Sq.Ft.	Sq.Ft.	Sq.Ft.
Density	7	12	22	9,000	6,750	11,000	12,750	15,750	16,500
Sales Price	95,000	75,000	60,000	80	70	50	75	85	100
Unit Size	1,500	1,200	1,000	1	1	1	1	1	1
Building Construction Costs									
Cost / SqFt	35	35	32	32.0	32.0	25.0	40.0	45.0	60.0
Total Cost per Unit	52,500	42,000	32,000	32.0	32.0	25.0	40.0	45.0	60.0
Total Cost per Acre	367,500	504,000	704,000	288,000	216,000	275,000	510,000	708,750	990,000
% of Sales Price	55%	56%	53%	40%	46%	50%	53%	53%	60%
Land Improvement Costs									
Total Cost per Unit	19,000	11,250	9,000	24.0	21.0	10.0	15.0	17.0	15.0
Total Cost per Acre	133,000	135,000	198,000	216,000	141,750	110,000	191,250	267,750	247,500
% of Sales Price	20%	15%	15%	30%	30%	20%	20%	20%	15%
Value of Raw Land									
Land Value per Unit	7,600	6,000	4,800	6.4	5.6	4.0	6.0	6.8	8.0
Land Value per Acre	53,200	72,000	105,600	57,600	37,800	44,000	76,500	107,100	132,000
% of Sales Price	8%	8%	8%	8%	8%	8%	8%	8%	8%
Financing Costs									
Amount Financed	80%	80%	80%	80%	80%	80%	80%	80%	80%
Loan Rate	15%	15%	15%	15%	15%	15%	15%	15%	15%
Total Cost per Unit	9,492	7,110	5,496	7.5	7.0	4.7	7.3	8.3	10.0
Total Cost per Acre	66,444	85,320	120,912	67,392	47,466	51,480	93,330	130,032	164,340
% of Sales Price	10.0%	9.5%	9.2%	9.4%	10.0%	9.4%	9.8%	9.7%	10.0%
Developer Cash on Cash Return									
Initial Investment of Costs	20%	20%	20%	20%	20%	20%	20%	20%	20%
Return Expected	30%	30%	30%	30%	30%	30%	30%	30%	30%
Total Return per Unit	4,746	3,555	2,748	3.7	3.5	2.3	3.7	4.1	5.0
Total Returns per Acre	33,222	42,660	60,456	33,696	23,733	25,740	46,665	65,016	82,170
% of Sales Price	5.0%	4.7%	4.6%	4.7%	5.0%	4.7%	4.9%	4.9%	5.0%

Table 5
Development Credit Ratios
by Land-use Designations
(1 Credit = 1 Unit built Low Density)
Value of 1 Credit = $1,330

Land Use Designation	Development Credit Requirements			Development Credit Value		
	Per Unit	Per Acre	Community Plan	Per Unit	Per Acre	Community Plan
Residential						
Low Density	1.00	7.00	9,520	$1,330	$9,307	$12,657,792
Medium Density	3.06	36.71	30,951	$4,068	$48,816	$41,151,888
High Density	3.58	78.84	51,088	$4,765	$104,826	$67,926,989
Commercial						
Community	0.0038	34.48	3,931	$5.1	$45,850	$5,226,854
Highway	0.0005	3.46	159	$0.7	$4,601	$211,637
Office/Industrial						
Light Industry	0.0024	26.34	12,065	$3.2	$35,024	$16,040,992
M-20	0.0018	23.17	30,257	$2.4	$30,804	$40,230,024
M-50	0.0023	36.16	4,231	$3.1	$48,082	$5,625,547
Office Business	0.0012	20.45	941	$1.6	$27,192	$1,250,832
Sports Complex	0	0	0	$0.0	$0	$0
NN Community Plan			143,143			$190,322,555

Table 4
Value Created in
Development District

Land Use Designation	Total Acreage	Total DU or SQFT	Total Value Created	Developer Returns Created	Residual Margin Created	Development Credit Value Created
Residential						
Low Density	1,360	9,520	904,400,000	45,181,920	15,822,240	12,657,792
Medium Density	843	10,116	758,700,000	35,962,380	51,439,860	41,151,888
High Density	648	14,256	855,360,000	39,175,488	84,908,736	67,926,989
Commercial						
Community	114	1,026,000	82,080,000	3,841,344	6,533,568	5,226,854
Highway	46	310,500	21,735,000	1,091,718	264,546	211,637
Office/Industrial						
Light Industry	458	5,038,000	251,900,000	11,788,920	20,051,240	16,040,992
M-20	1,306	16,651,500	1,248,862,500	60,944,490	50,287,530	40,230,024
M-50	117	1,842,750	156,633,750	7,606,872	7,031,934	5,625,547
Office Business	46	759,000	75,900,000	3,779,820	1,563,540	1,250,832
Sports Complex	200	0	0	0	0	0
TOTALS			4,355,571,250	209,372,952	237,903,194	190,322,555

Table 7
Development Credit Distribution (Quantity and Value)
by District

Area	Quarter Section Approximation	Quantity of Development Credits	Estimated Value of Development Credits
Greenbelt	6	21,415	28,473,453
Agricultural District I	65	76,643	101,904,990
Agricultural District II	10	9,017	11,988,822
Agricultural District III	20	36,067	47,955,289
		143,143	190,322,555

Table 6
Development Credit Distribution (Quantity and Value)
by Credit Zone Classification

Credit Zone	Description	Weighting	Acreage Distribution	Credit Distribution (Per Acre)	Credit Distribution (Per QS)	Credit Distribution (Per Zone)	Estimated Value (Per Acre)	Estimated Value (Per QS)	Estimated Value (Per Zone)
Zone I	Greenbelt	4	950	22.5	3,607	21,415	29,972	4,795,529	28,473,453
Zone II	High Conflict	2	6,400	11.3	1,803	72,135	14,986	2,397,764	95,910,579
Zone III	Low Conflict	1	8,800	5.6	902	49,593	7,493	1,198,882	65,938,523
TOTALS			16,150			143,143			190,322,555

COUNTY OF SACRAMENTO
DEPARTMENT OF AIRPORTS
6900 AIRPORT BOULEVARD
SACRAMENTO, CALIFORNIA 95837
(916) 929-5411

CITY PLANNING DEPARTMENT

JAN 30 1986

RECEIVED

DIRECTOR OF AIRPORTS
George W. McLaughlin

January 28, 1986

Mr. Gary Stonehouse
City of Sacramento
Department of Planning & Development
1231 I Street, Room 2000
Sacramento, CA 95814

Dear Mr. Stonehouse:

Enclosed per City Council request, please find copy of our standard Airport Avigation and Noise Easement. This easement has been reviewed and approved by the FAA, Caltrans Division of Aeronautics, and our County Counsel. The easement has been assigned to properties within the Metro Airport environs outside of the 65-CNEL contour. Its primary purpose is to secure property owner acknowledgement that subject properties will be influenced by aircraft overflight. As recommended to the City Council, the Department of Airports requests such easement to be assigned to all future residentially zoned lands in North Natomas.

The City Council also requested an opinion from the Department of Airports with respect to the feasibility of relocating the Natomas Airpark. The Department of Airports is in a position to provide comments and technical assistance to the applicant if the airport is actually relocated, however we would rely heavily upon the determinations submitted by the FAA (airspace evaluation), Caltrans (Airport Safety) and the Airport Land Use Commission (land use) regarding the siting of any future airport.

Although we do not want to prejudge or prejudice the feasibility of Natomas Airpark relocation, our preliminary analysis would suggest that alternative siting within the northwest region of the county does not appear favorable. This initial opinion is based upon standard "airspace block" guidelines. That is, it is considered inappropriate to locate an airport within the bounds of the maneuvering airspace or traffic pattern requirements of an existing airport. Using this criteria as a guide, nearly 100% of available airspace in the northwestern part of the county is already allocated. The three attached drawings taken from the Reliever Airport Study - Phase I Report (January 1982) illustrate this point. It should be noted, however, that presently both Natomas Airpark and Rio Linda Airport operate within the controlled airspace for Metro and McClellan A.F.B.

Again, this is a preliminary opinion only. A more detailed and formal FAA Airspace Evaluation Study should be conducted before a final verdict can be issued regarding relocation feasibility.

Sincerely,

Larry E. Kozub
Sr. Airport Planner

LEK:sam

GRANT OF AVIGATION AND NOISE EASEMENT

_____ hereinafter called GRANTOR, for themselves, their heirs, administrators, executors, successors and assigns, does hereby grant to the County of Sacramento, a political subdivision of the State of California, its successors and assigns hereinafter called GRANTEE, in consideration of _____ approved on _____ the receipt and sufficiency of which is hereby acknowledged, a perpetual avigation and noise easement as follows:

1. Description. The easement shall be an easement on, over, and upon that certain real property commonly known as _____ - _____ situated within the County of Sacramento described in Exhibit A and outlined on property map Exhibit B attached hereto and by this reference incorporated herein.

2. Benefit. The easement shall be appurtenant to and for the benefit of all the real property comprising the _____ hereinafter called AIRPORT, and such other additional property or interest therein as shall be subsequently acquired or designated from time to time by GRANTEE or its successors as constituting a part of the AIRPORT. The easement shall be for the benefit of GRANTEE and all other persons and entities who directly or indirectly use the easement as a result of any type of use of the property and facilities constituting the AIRPORT, including aviation ground and flight operations.

3. Use and Purpose. The easement shall be used for the unobstructed passage of all aircraft now known or hereafter invented, used or designed for navigation of or flight in the air by whomsoever owned and operated in the airspace above GRANTOR'S property together with the right to cause in all airspace above GRANTOR'S property such noise, vibration, fumes, dust, fuel particles, and all other effects that may be caused by the operation of aircraft landing or taking off from or operating at or on AIRPORT. GRANTOR does hereby confirm that all such uses of the airspace shall be without any liability of GRANTEE or of any other person or entity entitled to the benefits of this easement, to GRANTOR, GRANTOR'S heirs, assigns or

successors in interest for damage to property or physical or emotional injury to persons, animals or any other living thing, the diminution in value of any personal or real property, discomfort or inconveniences of any type or kind to any person or things, or interference with television, radio or other types or kinds of electrical reception, transmissions or activities in the easement.

4. Right of Ingress/Egress. The easement herein granted includes the continuing right of the GRANTEE to prevent the erection or growth upon GRANTORS' property of any building, structure, tree, or other object extending into the airspace above _____ and to remove from said airspace, or at the sole option of GRANTEE, as an alternative, to mark and light as obstructions to air navigation any such building, structure, tree or other object now upon or which in the future may be upon GRANTORS' property, together with the right of ingress to, egress from, and passage over GRANTORS' property for such purpose.

5. Presumption. There is hereby created a presumption that this grant of easement is over-burdened if the noise which impinges on the GRANTOR'S property exceeds an amount equal to or greater than 3.0dB Community Noise Equivalent Level above that level described in subsection (a) of this paragraph.

   a. The annual Community Noise Equivalent Level reflected on the latest map for the AIRPORT validated by County of Sacramento and filed with the California Department of Transportation, Division of Aeronautics and United States Department of Transportation, Federal Aviation Administration.

   b. The provisions of this section shall not apply to the use or operation of aircraft owned by the United States or in times of National emergency or National defense as may be declared by the President of the United States.

6. Negligent Operation of Aircraft. This grant of easement shall not deprive the GRANTOR, his successors or assigns, of any rights that it may from time to time have against any individual or private operator of an aircraft for negligent or unlawful operation of aircraft.

7. Term of Enforcement. This grant of easement shall continue in effect until AIRPORT shall be abandoned and shall cease to be used for public purposes.

DATED_____ BY_____

_____

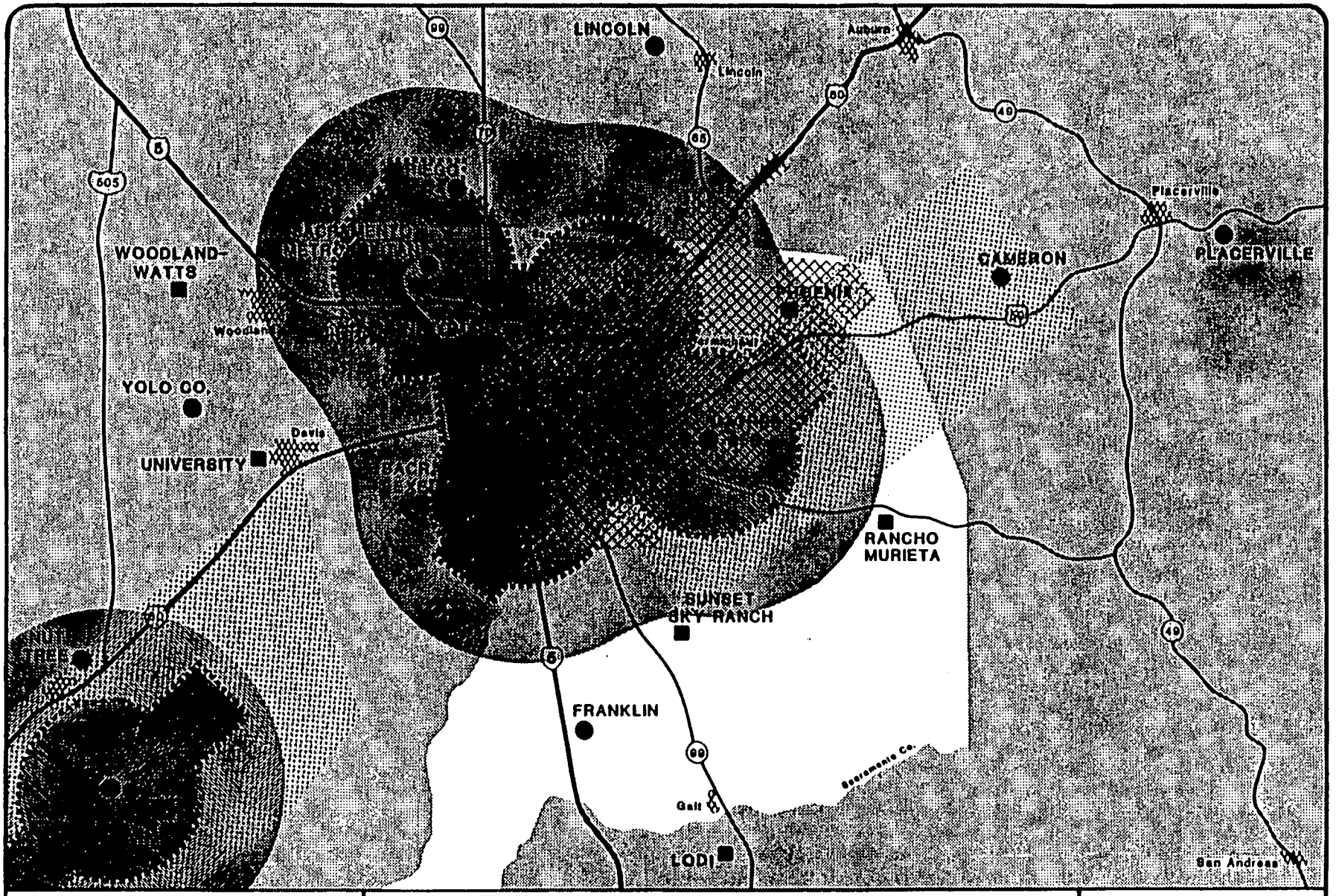
_____

_____

_____ _____

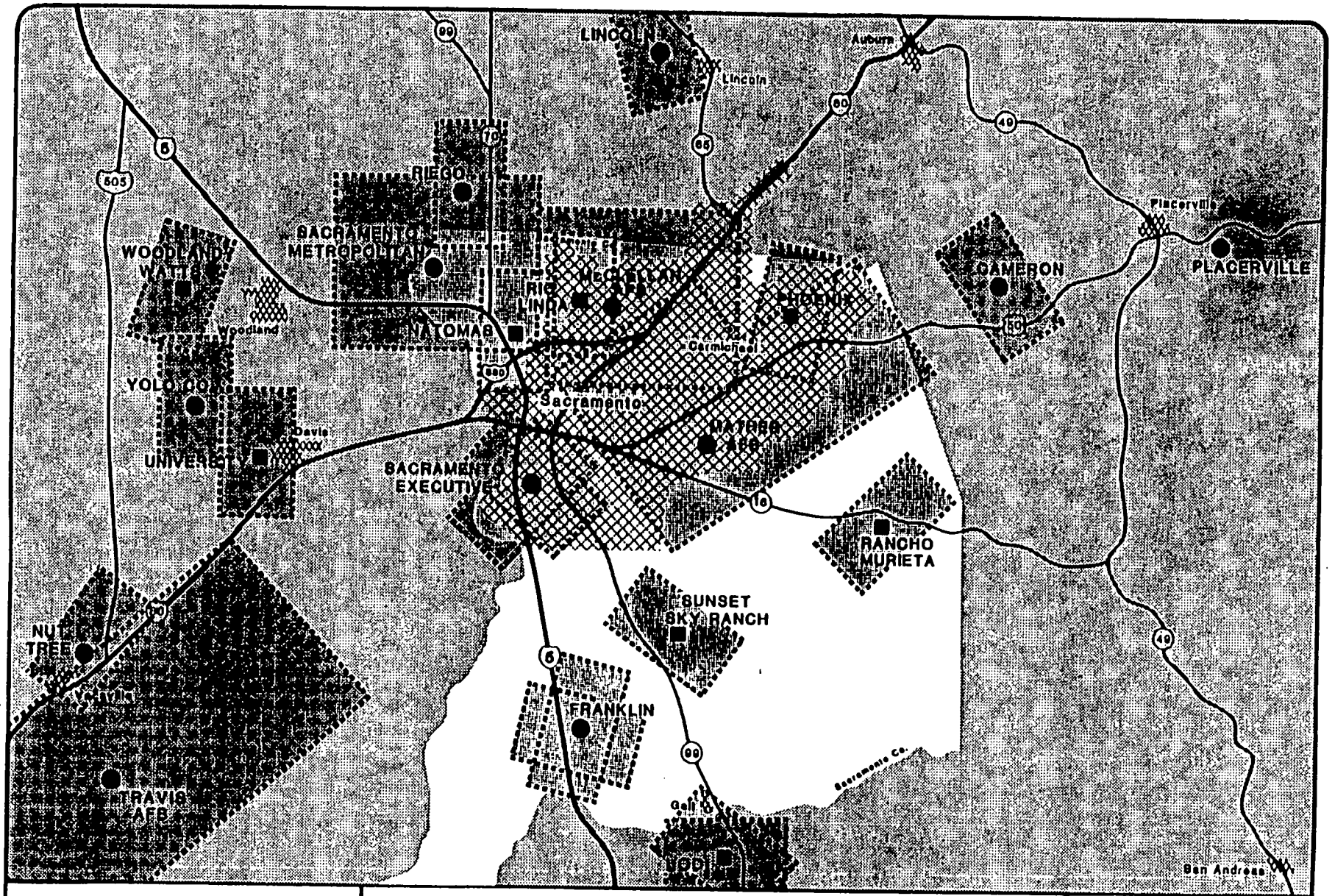
(NOTARIAL ACKNOWLEDGEMENT) (GRANTOR)

(SEAL)



AIRSPACE
BUFFER AREAS

Figure V-2



TRAFFIC PATTERN AIRSPACE

Figure V-3

● Public use airports

■ Public use private airports

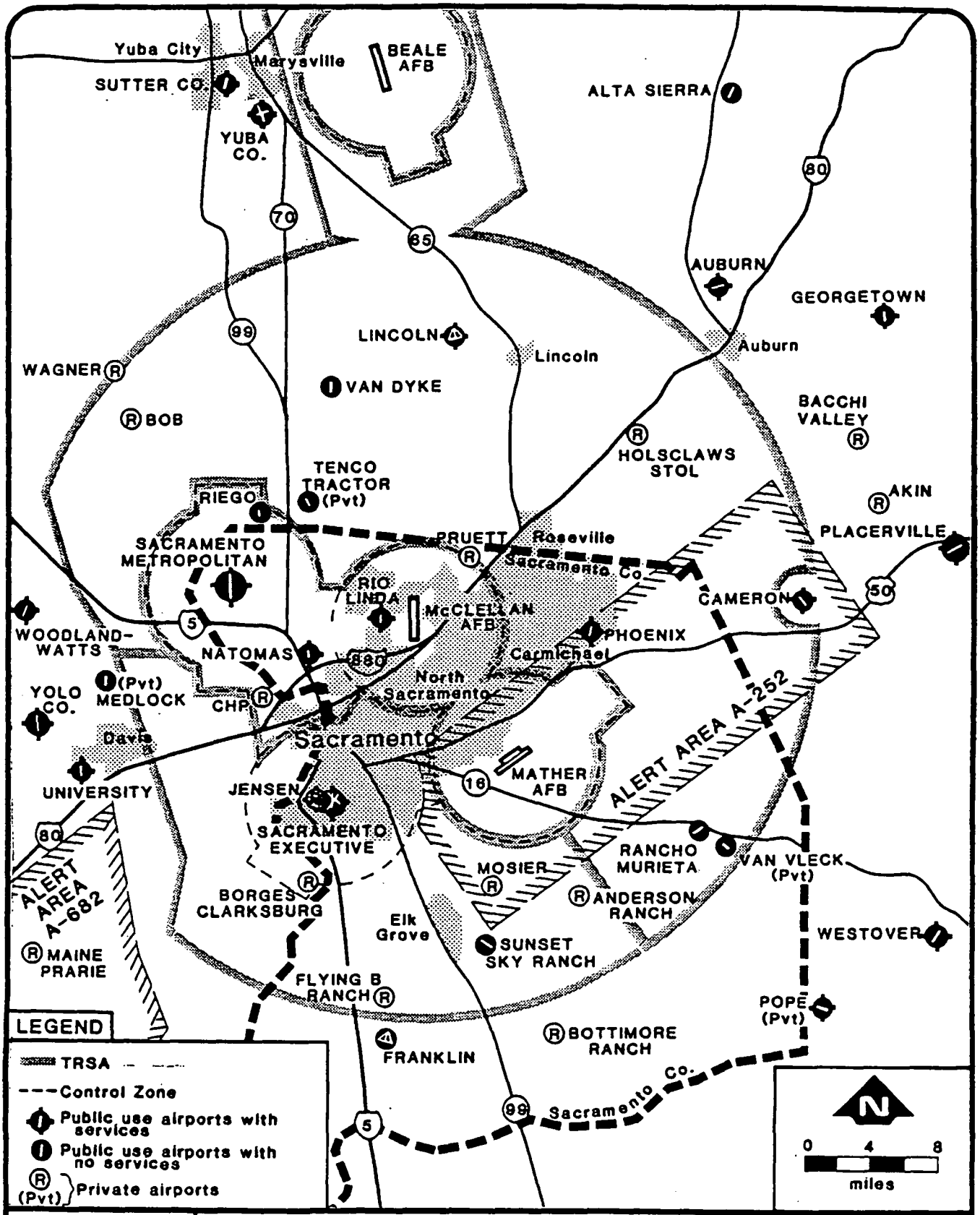
N

0 8

miles

AVIATION PLANNING SERVICES

HODGES & SHUTT



AVIATION PLANNING SERVICES
HODGES & SHUTT

SACRAMENTO AREA AIRPORTS

Figure II-1

COUNTY OF SACRAMENTO
DEPARTMENT OF AIRPORTS
6900 AIRPORT BOULEVARD
SACRAMENTO, CALIFORNIA 95837
(916) 929-5411

DIRECTOR OF AIRPORTS
George W. McLaughlin

January 29, 1986

Mr. Marty Steiner
Hefner, Stark and Marois
555 Capital Mall
Sacramento, CA 95814

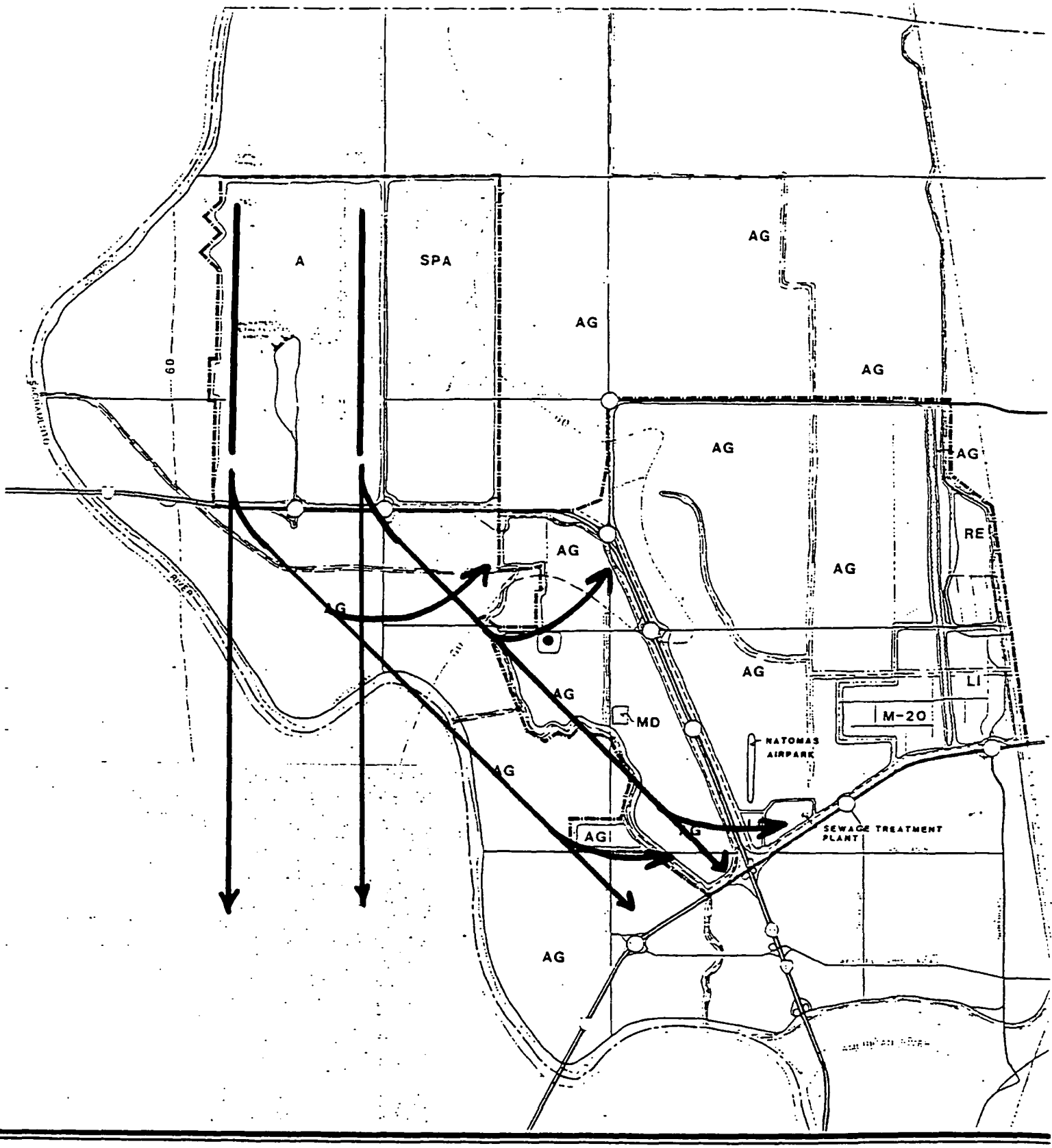
Dear Mr. Steiner

Enclosed per your request, please find Metro Airport Vicinity Sketch showing typical departure profiles as they relate to the North Natomas area. It should be noted that there is some standard deviation or fanning effect associated with these departure paths. In other words, all aircraft do not fly exactly on the same track over the ground. Also, the initial southeastern turn after departure is a function of altitude (generally 500-700 ft.) rather than landmark. For example, the sketch indicates the initial departure turn beginning at I-5. If an aircraft reaches 500-700 feet altitude before crossing I-5, then the turn would commence sooner.

Sincerely,

Larry E. Kozub
Sr. Airport Planner

LEK:sam



0 3200 6400 Ft.

K

URBAN PLANNING
FOR
CHILDREN PROJECT

DATE: February 3, 1986

TO: Mayor Anne Rudin and Honorable Members of the Sacramento City Council

FROM: Jacquie Swaback, Coordinator
Urban Planning for Children Project

RE: North Natomas Community Plan

Enclosed you will find Attachments A through E of my testimony to be given at tonight's City Council hearing.

At last week's hearing, you received the text of my proposed testimony, including Attachments A through D. Since last Monday's hearing, I have spoken with several of you, which has resulted in tonight's refined testimony. I have enclosed all attachments, including the new Attachment E **"Phasing and Emphasis of Sacramento Development for National and International Markets,"** for your reference.

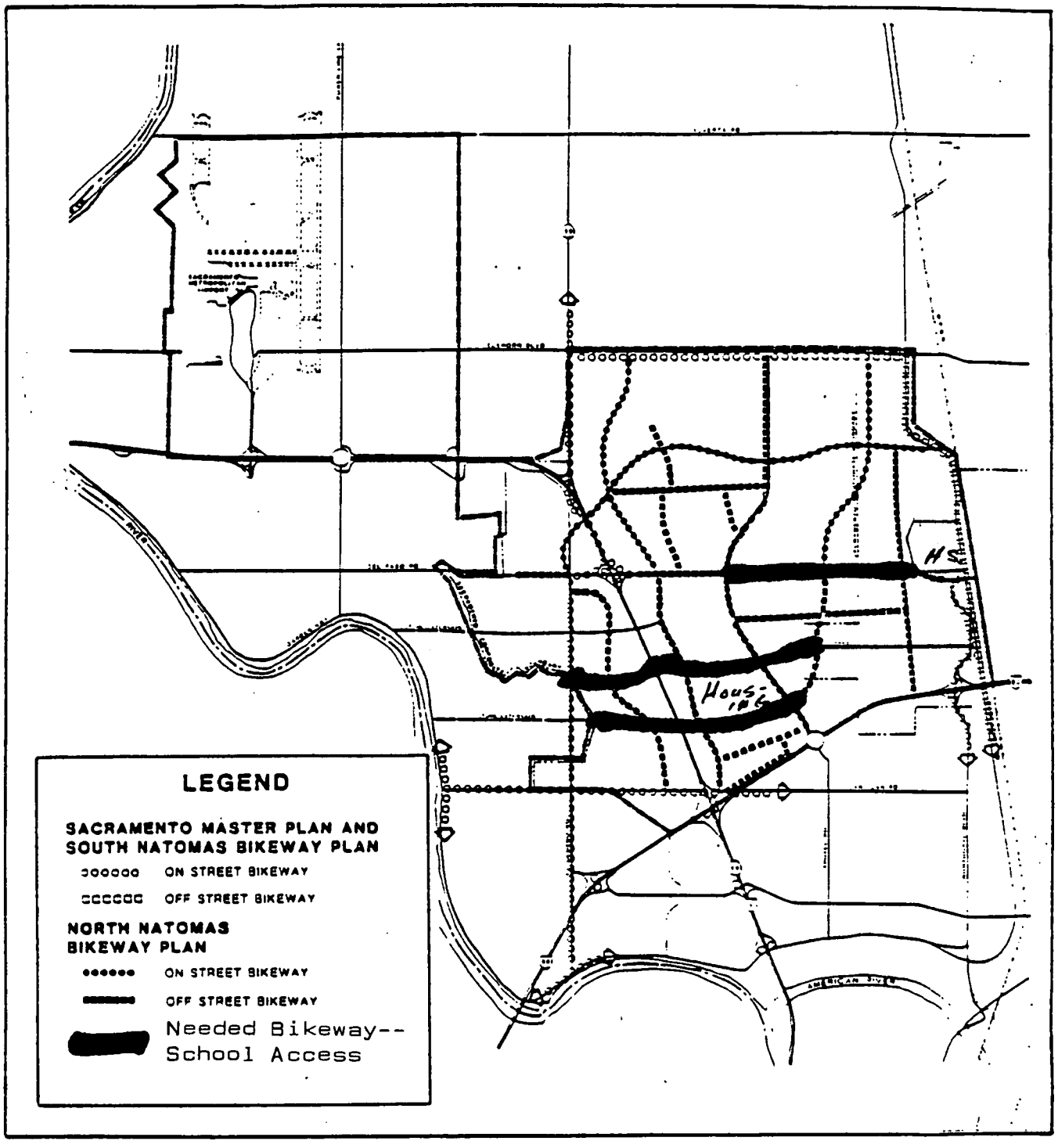
Thank you for your consideration and refinement.

Sponsored By
Child Care Coalition
Child Action, Inc.
Urban Interdependencies

Jacquie Swaback
(916) 972-1369

Box 60273
Sacramento,
CA 95860

ATTACHMENT A: Proposed Additional Bikeways for School Access



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

Figure 12:
BIKEWAYS

NOV. 1985

ATTACHMENT B: Proposed Alternatives for Additional Phase I Housing and School Construction

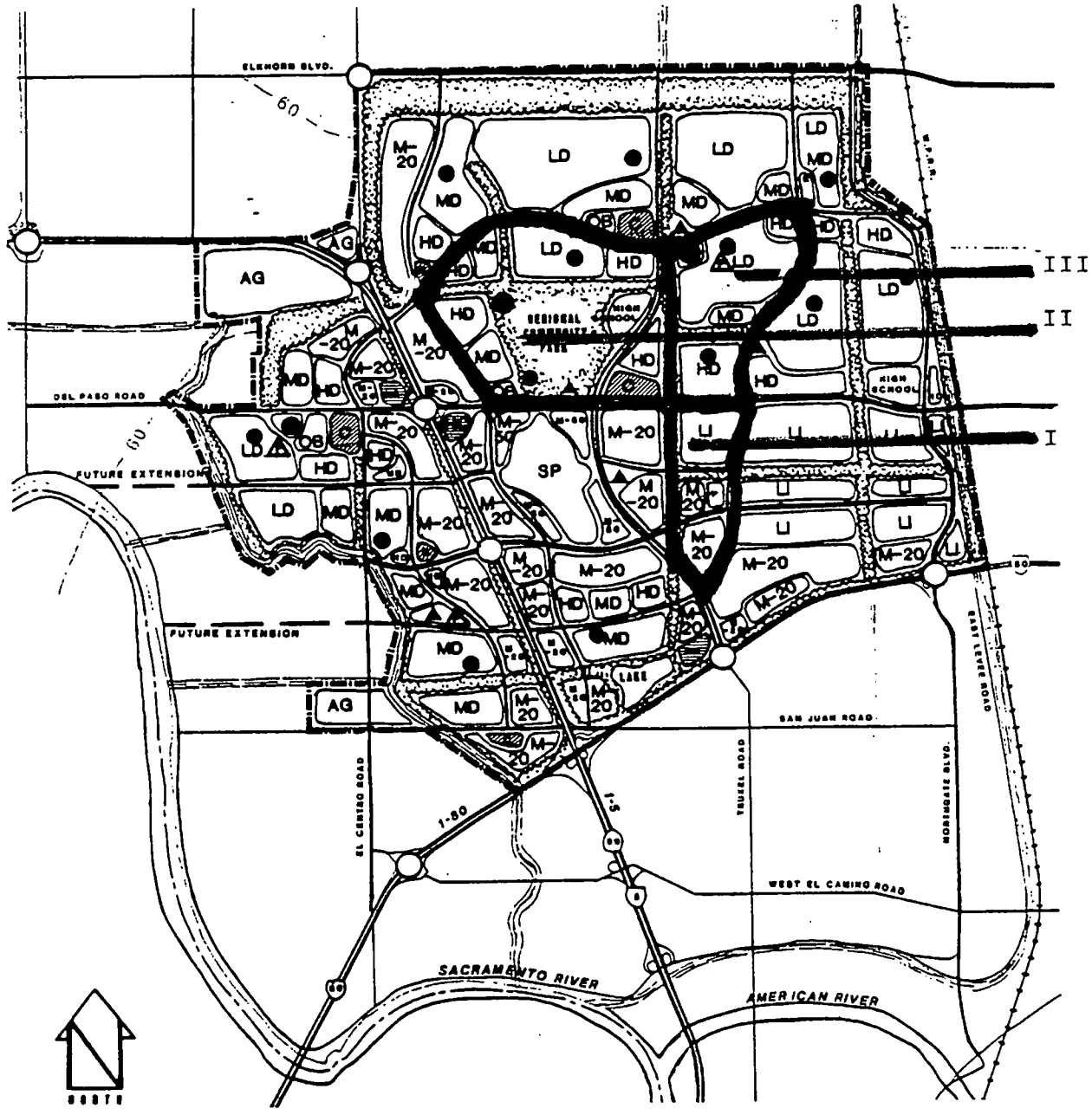


Figure 3:

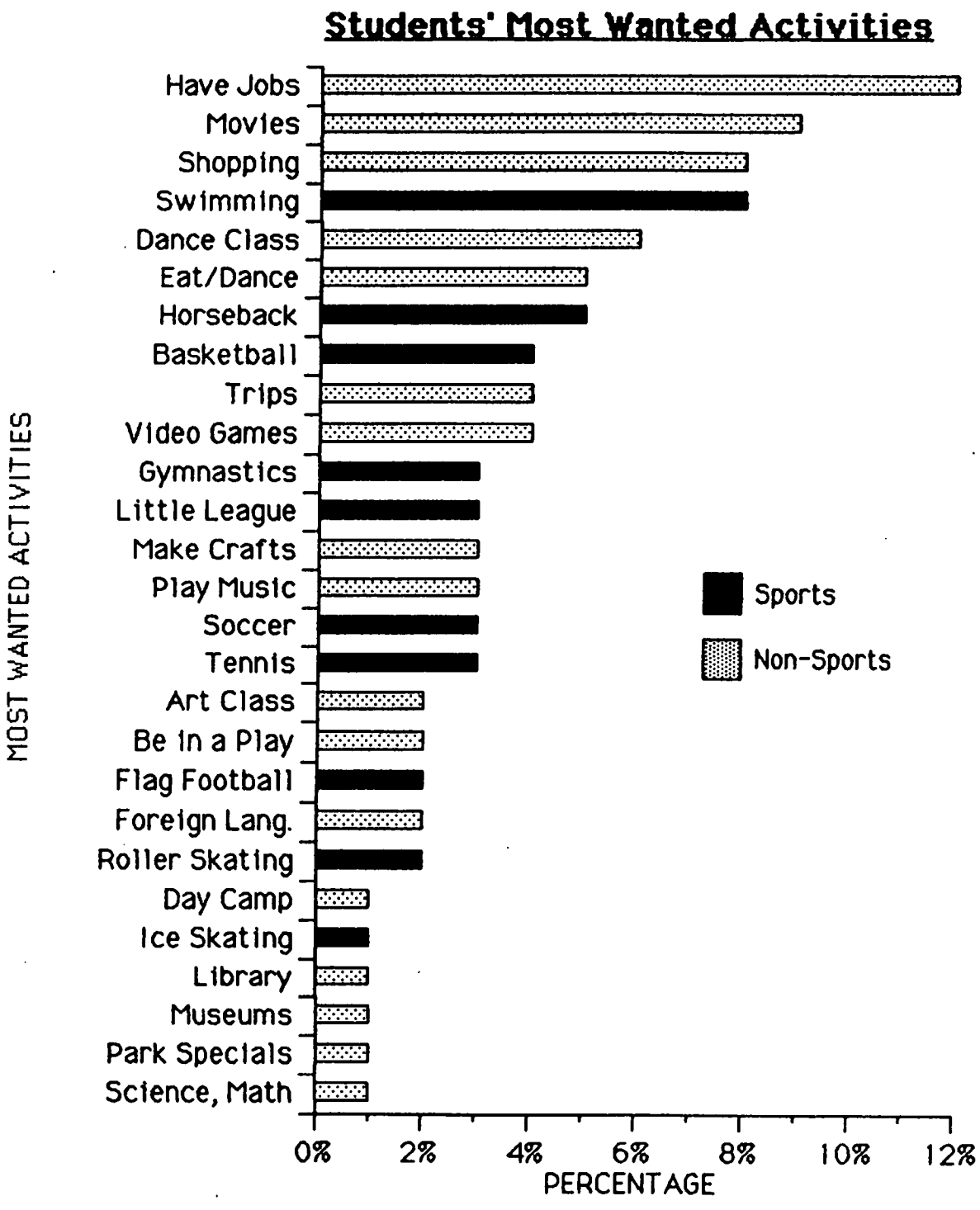
PROPOSED COMMUNITY PLAN

NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

HD — HIGH DENSITY RESIDENTIAL (22.0 DU/AC)	HIGHWAY COMMERCIAL	OB — OFFICE/BUSINESS	AG — AGRICULTURE
MD — MEDIUM DENSITY RESIDENTIAL (11.2 DU/AC)	M-20 — MANUFACTURING/ RESEARCH/DEVELOPMENT (20% OFFICE)	SP — SPORTS COMPLEX	ELEMENTARY SCHOOL JUNIOR HIGH SCHOOL
LD — LOW DENSITY RESIDENTIAL (7 DU/AC)	M-50 — MANUFACTURING/ RESEARCH/DEVELOPMENT (50% OFFICE)	PARK/OPEN SPACE	CIVIC/PUBLIC USE (LIBRARY, FIRE STATIONS, MEDICAL CENTERS)
COMMUNITY/NEIGHBORHOOD COMMERCIAL	LI — LIGHT INDUSTRIAL	GREENBELT/GREEN/ BIKEWAY OR ROAD LANDSCAPING	4-LANE DIVIDED MAJOR 6-LANE DIVIDED MAJOR 8-LANE DIVIDED PARKWAY

Attachment C



From Planning Sacramento: Views of Students and Parents, Urban Planning for Children Project, 1986.

Attachment D
Possible Amendments to the North Natomas Community Plan
January 27, 1986

Page	Amendment with **Proposed Changes (in bold type)**
17	Residential neighborhoods shall have easy access to parks, schools, shopping and places of work, **with an emphasis on providing attractive sidewalks, permanent bike lanes, and public transportation for the pedestrian, especially children.**
55	4. Designate the placement of school sites, especially elementary schools, next to parks, to maximize the potential for joint use, agreements and efficient land use, **including childcare and youth activities and facilities.**
	6. Provide pedestrian access to school sites from residential areas. **Cross out "whenever possible."**
71	A. Employment Agreements with Future Employers: Require employers of ten or more employees to: . . . Employers should be required to interview job candidates referred by PIC-SETA, **including minorities, women, and youth.**
	B. Construction Employment Agreements for Minority, Women's, **and Youth** Employment and Minority Business Enterprise. . . .
73	A. TSM Measures: (Insert a second item after the paragraph on the Business Transportation Coordinator.)
	• **A Transportation Coordinator should also be part of the public school administration and work with the Transportation Coordinator of the North Natomas Business Association. The School Transportation Coordinator would emphasize the provision of sidewalks, bike lanes, public transportation, and carpool programs for bringing students to and from public school. Therefore, education money could be used for curriculum, rather than be spent on transportation costs.**
	• Park-and-ride facilities should be located at major freeway interchanges **and light-rail stops** to encourage car and van pooling for intercommunity commuters. **Bike-lock facilities should also be available for the same reason.**

77 C. Stadium and Arena Phasing

- No special permits or building permits. . . . Permits may be granted for remaining 50% of the acreage after both the stadium and arena are 50% complete, **and after _____% of the housing in Phase I has been built, as well as the needed elementary, junior high, and high schools.**

79 A. Jobs-Housing Monitoring

"The City and County should develop a program which requires periodic surveys of the jobs-housing balance in North Natomas in order to monitor the effectiveness of Community Plan programs and their respective policies. Housing affordability should be considered as part of these reviews. **Facilities for childcare and youth activities should also be monitored as the population increases, and as the children outgrow their need for childcare and then need youth facilities and jobs.** Policies should be revised or new programs should be developed and implemented which would ensure the required availability and affordability of dwelling units **and childcare and youth facilities,** as jobs are created within the study area."

The South Placer area currently has in place....and would include factors such as:

Number of Employees
Job Type
Job Income
Location of Employee Residence
Commute Distance and Time
Commute Mode
Household Size
Households' Ages of Children
Adequacy of Housing Type, Size , Quality, Mobility
Adequacy of Childcare and Youth Facilities.

The Monitoring Program would establish. . . . The Monitoring Program would be able to establish whether the private market is providing affordable housing to meet the needs of the employees generated by North Natomas development, at prices and rents affordable by these employees, **and if their childcare needs are adequately addressed.** If the private market fails to provide these units, then the EIR recommends that actions be taken to have the North Natomas non-residential developers provide additonal assistance to meet this need.

80 B. Employment and Economic Development Monitoring

The Employment and Economic Development Opportunity Plan (EEDOP). . . . The EEDOP features. . . 2) construction employment agreements for minority, women's, **and youth** employment and contractor retention requirements, . . .

82 D. Transportation Systems Management Monitoring

In order to ensure that this goal is met and that the transportation network functions efficiently, the Plan contains the following actions:

- All non-residential, non-commercial projects... implement additional programs if necessary.

- **School districts are also advised to have a Transportation Coordinator to work with the developers and the Business Transportation Coordinator, to ensure that students will be able to walk, bike, ride public transportation, and/or participate in a carpool to their desired public school. The goal of the School District Transportation Coordinator would be to keep the transportation budget of the school district at a minimum, so that school district money could be spent for teaching rather than for transportation.**

E. Monitoring Program Implementation.

3. Identification of factors to be monitored, to include the Employment Opportunity Plan, job creation, housing construction, **childcare, and youth facilities.**

113 Bus

- Study and report on the feasibility of utilizing light rail . . . into the community.

- **Study and report on the feasibility of having additional bus service which would link to the light rail line and/or the buses travelling on that right-of-way.**

Attachment E: Urban Planning for Children Project

Phasing and Emphasis of Sacramento Development for National and International Markets

February 3, 1986

Phase	North Natomas	North Sacramento	Downtown	Other Developments
I-A	all infrastructure assured arena 50% built	housing development job development commercial rehab neighborhood rehab	office development Redevelopment Plan implemented	continue build-out as the market demands
	Clarify Sacramento's "Image".....			
	Clarify marketing to national and international firms.....			
	Continue to market Sacramento to tourists.....			
	Begin marketing North Natomas nationally and internationally	Continue to market Sacramento to small/medium/large potential tenants....		
I-B	building/special permits for 50% of Phase I acreage (office/ industrial and housing/schools)	same as above	same as above	same as above
	Expand current national and international marketing	Expand current marketing to small/medium/large potential tenants		
	Expand current marketing of Sacramento to tourists.....			
I-C	arena 50% built stadium 50% built building/special permits for remaining 50% of Phase I acreage	same as above	same as above	same as above
	Expand market of Sacramento to tourists.....			
II	build-out of Phase II acreage	same as above	same as above	same as above

Special Meeting
1-27-86

CITY OF SACRAMENTO

DEPARTMENT OF PUBLIC WORKS

OFFICE OF THE DIRECTOR

Melvin H. Johnson
Director
Leslie M. Frink
Deputy Director
Reginald Young
Deputy Director

January 22, 1986

CITY MANAGER'S OFFICE
RECEIVED
JAN 23 1986

City Council
Sacramento, California

Honorable Members in Session:

SUBJECT: North Natomas Community Plan

SUMMARY:

At the January 7, 1986 City Council hearing on the subject matter the Council posed questions regarding the effect of North Natomas development on solid waste management and water supply. This report responds to those questions.

DISCUSSION:

At the City Council hearing on January 7, 1986 the following questions were asked by Councilmembers:

1. What are the impacts of the development of North Natomas on the City's solid waste management capabilities?

   The impact of development in North Natomas on the City's solid waste collection system is two-fold, i.e., there are projected increases in both the commercial and residential waste streams.

   It is anticipated that 50% of the commercial waste will be "office paper" which will be collected by private haulers and only 50% of this waste "light industrial" will be collected by the City. The City's commercial collection will be supported by fees and the capital cost of equipment will be financed by waste container rental charges.

   It is assumed that the residential waste will be collected from 90-gallon supercans. A dramatic increase in request that would necessitate a large increase in purchase of these containers could adversely impact the waste collection fees. Since the implementation of this waste collection system is capital intensive, a funding mechanism is required to provide for the initial purchase of large numbers of 90-gallon containers. However, if one assumes a growth rate of 5%

per year with 25% of "build out" occurring between 1986-1991 the system could accommodate the added growth with no adverse collection impacts.

It is unlikely that the development in North Natomas would affect the City's existing landfill significantly because the landfill is likely to reach capacity before any substantial amount of development in North Natomas.

2. What are the impacts of the development of North Natomas on groundwater quality?

   The primary impact on groundwater quality could be industrial spills or disposal of toxic chemicals on site. These impacts should be kept to a minimum by current regulations. There could be a beneficial impact from reduced use of agricultural chemicals.

3. Is there a need for additional water treatment plant capacity to serve North Natomas?

   There will be a need for expansion of water treatment plant capacity to meet demand in North Natomas as well as other areas of growth. At the City's current rate of growth even without North Natomas plant expansion will be needed by about 1990.

4. How does City staff plan to supply water to North Natomas?

   City staff intends to supply water to the urbanized areas of North Natomas by expansion of the surface water system. As mentioned above, treatment plant capacity must be increased and additonal transmission lines must be extended to the area.

5. If expansion of the City's water treatment plant is required, how will it be funded?

   There are at least two possiblities for funding expansion of the water treatment plant.

   A. Sale of additional revenue bonds, or some similar borrowing method by the City. This could be in conjunction with the Metropolitan Water Plan.

   B. Up front funding of a major portion of the required facilities by initial developers. This arrangement could include an agreement for reimbursement to the developers by owners of property later receiving benefit from the facilities.

Debt incurred by the City would be paid for from water system development charges and/or user fees.

Respectfully submitted,

Melvin H. Johnson
Director of Public Works

For Council Information:

For: Walter J. Slipe
City Manager

MHJ/hma

January 22, 1986
All Districts

CITY OF SACRAMENTO

DEPARTMENT OF PLANNING AND DEVELOPMENT
1231 "I" Street Sacramento, Ca. 95814

Administration
Room 300 449-5571
Building Inspections
Room 200 449-5716
Planning
Room 200 449-5604

MEMORANDUM FEBRUARY 3, 1986

TO: Doug Pope, Councilperson, District 3

FROM: Marty Van Duyn, Planning Director

SUBJECT: Status of the 1982 Air Quality Plan (Response to the January 21, 1986 Lung Association Letter)

In response to the January 21, 1986 letter from the Lung Association, you requested a brief report on status of the City's adopted 1982 Air Quality measures.

Attached is a status report which was prepared in August 1983*. The status report explains that, of the fifteen adopted transportation control measures, the major decifiency was delayed implementation of the educational outreach programs. The delay was due to unrealized State funding.

Trip reduction estimates for the implemented measures were identified in the 1983 report. A potential trip reduction of 233,825 trips per day was estimated. This is compared to the City's 1982 Air Quality Plan trip reduction estimate of 270,000 trips per day. The difference between the two was reported to be insignificant.

Since the 1983 status report, the City has implemented additional measures that promote air quality. For example, the City has expanded the Major Roadway and Intersection Improvement Program. More streets will be widened than identified in the 1982 Plan. A traffic signal timing program has also been initiated. These measures are intended to increase traffic flow efficiency and reduce emissions.

In addition, a transportation systems management element has been adopted with the South Natomas Community Plan. The element requires greater implementation of trip reduction measures from new development. A similar element is being prepared for the North Natomas Community Planning area which may also be adopted Citywide.

---

* Appendices B, C and D indicated on page A of the report are not attached.

Other steps have been taken to achieve better air quality in Sacramento. The Mayor has assembled a task force to review and improve infill and re-use policies; the balance of jobs and housing is considered in General and Community Plan preparation and, the City has strongly supported light rail transit. The City has also received credit toward the 1982 Air Quality Plan for a public information program that encourages ridesharing.

With these measures, the City is putting forth a good faith effort toward improving air quality.

MVD:DS:lr
Attachment
cc: Mayor Rudin and City Council Members
Ken Dodge and Jane Hagedorn, Lung Association

CITY OF SACRAMENTO

1982 AIR QUALITY PLAN

IMPLEMENTATION STATUS REPORT

PREPARED BY

CITY OF SACRAMENTO PLANNING DEPARTMENT

AUGUST, 1983

The following report describes the implementation status of each of the fifteen transportation control measures included within the adopted City of Sacramento's 1982 Air Quality Plan. In general, all of the transportation measures requiring preparation of ordinances have been implemented. The land use measures are the subject of ongoing studies and implementation of specific strategies will occur over the next few years. The major deficiency is the delayed implementation of the educational outreach measures due to state funding cutbacks, City funding limitations, and the high cost of implementation. Some local interest groups such as the Chamber of Commerce and the Board of Realtors have indicated they would be willing to become more active in educating their members about the benefits of encouraging and participating in alternative transportation methods such as transit, ridesharing and bicycling. Future reliance on these and other private groups to assist in implementing the resident and employee educational measures will be needed given present funding constraints.

The revised trip reduction estimates provided for the measures based upon more recent data indicates a total potential trip reduction level of 233,825 trips per day. The City's 1982 Air Quality Plan trip reduction estimate was 270,100 trips per day. Given the uncertainty as to the actual benefit of a given transportation control measure due to the lack of studies on this subject, the difference between these two trip reduction estimates is not significant. Given the level of progress that has been made, as well as implementation efforts that are ongoing or planned for the near future, it is not anticipated that enactment of the contingency measures identified within the Air Quality Plan will be necessary over the short term. However, the City is open to suggestions for inclusion of new transportation control measures within the plan which have been successful within other jurisdictions. The City is committed towards implementation of the adopted 1982 Air Quality Plan and improving air quality conditions of the region for the 1987 target date and beyond.

Attached to this report are the following documents which further detail the methodology used to estimate emission reductions and expand upon the description of implementation efforts.

Appendix A: Average Emission Reductions Per Trip in 1987

Appendix B: Transportation Management Plan Handbook (includes copies of the Trip Reduction Ordinance and Parking Reduction Ordinance)

Appendix C: Bicycle Parking Ordinance

Appendix D: Infill Incentive Program Report

SP:lao
8.8.83 wp 1j

Measure: Trip Reduction (Ridesharing) Ordinance Applicable to Major New Developments

Implementation Status: Ordinance adopted April 5, 1983. A copy of the ordinance is included within the attached Transportation Management Plan Handbook. All new developments projected to accommodate 100 or more employees must post information on alternative transportation services and benefits and to conduct transportation and rideshare matching surveys in conjunction with the CalTrans Sacramento Rideshare Agency. New developments that would include 200 or more employees must also prepare a Transportation Management Plan designed to achieve a minimum 15% reduction in vehicle trips.

Trip/Emission Reduction Estimate: Based on a 1982 employment projection study, by 1987 the City is projected to support a total employment level of 168,150 or an increase of 32,083 workers between 1981 and 1987. Based on available SATS data, about 15% of all commuters will naturally utilize transit, ridesharing or bicycling as their primary commute method without any special facilities or incentives provided. Therefore, of these new employees, about 9,625 trips per day will be reduced initially.

About 20% of all of the new non-residential development projects in the City in the future will accommodate between 100 and 199 employees. The educational outreach program that will be provided should result in a 5% level of increased participation in ridesharing. This estimate is based on SATS model projections of an existing 12% ridesharing participation rate and Sacramento Rideshare Agency's findings that a 17% ridesharing usage rate occurs with outreach efforts. Therefore, applying a 20% factor to the number of new employees expected and a 5% trip reduction level equals 640 trips per day (i.e., overall home-work trips per employee).

The Transportation Management Plan requirement for all developments with 200 or more employees would affect about 30% of all of the new future non-residential employment sites. With the 5% trip reduction level gained from the educational outreach program and the additional 15% level required as part of the Transportation Management Plan, a 20% overall trip reduction level should be achieved. By applying these factors to the level of new employment growth projected, about 3,850 trips per day would be reduced. Therefore, out of all of the new employees added within the City of Sacramento, an overall home-work trip reduction level of about 14,115 should be achieved as a result of both existing trip-making behavior and due to the requirements of the Trip Reduction Ordinance. This results in a daily emission reduction of 177,990 grams of hydrocarbon.

Measure: Trip Reduction Educational Program for Existing Employers

Implementation Status: As a means of implementing the Trip Reduction Ordinance, a handbook has been developed which describes the costs and benefits of each of the alternative transportation methods, in addition to the processing requirements of the ordinance. A copy of the handbook is attached. This handbook could be distributed to large employers within the City as a means of educating them about transportation and air quality programs. However, since it is very lengthy and targeted towards developers, a shorter version of this handbook, similar to the flyer prepared and distributed within the South Placer County area, will be prepared and distributed through the local Chambers of Commerce. In addition, development of a small poster which describes the local service providers and benefits of transit, ridesharing and bicycling is proposed for development. This poster would be distributed as part of the business license process for all employers who would be willing to post it in a conspicuous place for their employees and possibly their customer's information.

At the time the City's 1982 Air Quality Plan was developed, state funding (SB 320) was available to cover the design and printing costs of the flyer and poster. However, this funding source was deleted for fiscal years 1982-83 and 1983-84. It is possible that the $200,000 designated for Sacramento County will be available for the 1984-85 and 1985-86 fiscal years. Therefore, given the limited availability of local funding sources for this project, the City intends to delay implementation of this measure until 1984-85 when state funding should become available.

Based on the 1975 special census data, there are about 15,714 separate employers within Sacramento County. Assuming that the annual employee growth rate of 4% can be applied to employers, there will be about 25,163 businesses within the County of Sacramento by 1987.

Based on an assumed business capture rate of 50%, there will be about 12,582 employers within the City of Sacramento by 1987. The goal of this program will be to distribute a poster to each of these businesses.

Trip/Emission Reduction Estimate: By 1987 there will be about 168,150 employees within the City of Sacramento. Of this total, 136,967 are existing employees. By applying the base level of trip reduction based on SATS data of 15%, about 40,820 home-work trips would naturally be reduced. Assuming that each employer will be given a poster and that its information could stimulate 5% of all of their employees to utilize an alternative transportation method based on the analysis provided in the previous measure, then a trip reduction level of 13,607 could be achieved. This translates into a daily trip reduction of 54,427 and a hydrocarbon emissions reduction of 686,362 grams.

Measure: Trip Reduction Educational Program for City Residents

Implementation Status: The concept of this measure was to develop a brochure regarding the benefits of alternative transportation methods, the available service providers and to send it to City residents with their utility bills to avoid mailing costs. Funding for the design and printing of this brochure was to come from the state SB 320 funds that were to have been made available in 1982-83. These funds have been deleted until the 1984-85 fiscal year. Depending upon the amount of money available, this brochure could also be sent to residents who do not receive utility bills. Therefore, implementation of this measure should occur next year once funding becomes available.

Trip/Emission Reduction Estimate: Although there are 112,859 occupied dwelling units within the City, only about 98,000 utility bills are sent to property owners. Given that some utility customers own more than one parcel and that utility bills are not sent to renters, only owner occupied dwelling units should be used to estimate the effectiveness of this measure if only utility billings were included in the program. Given that there are 49,198 occupied rental units within the City, the balance of 63,661 occupied dwelling units represents the actual number of households that would benefit from receipt of the informational brochure. Since other measures focus on home-work trips, only non-home-work trips will be credited under this measure. Given that each household generates about 6.5 trips per day and two of those could be considered home-work trips, there are 4.5 non-home-work trips generated by each household. Using the owner occupied housing unit figure of 63,661 times 4.5 trips per day equals 286,475 existing non-home-work trips. Since there is not any available data which demonstrates the effectiveness of this program, a conservative trip reduction goal has been used. If 20% of these trips were reduced or were transferred into alternative transportation methods, then a daily trip reduction level of 57,296 would be achieved. This 20% goal translates into about one trip reduced per household per day which is a reasonable assumption given that other factors such as auto operating costs will contribute toward instigating reduced single occupant trip making behavior.

If this educational program is continued in the future as the City accommodates new residents, then future trip reduction should also be achieved. Studies indicate that the City's existing population level of 283,037 (1982) will expand to 301,277 by 1987 for an increase of 18,240 residents. Given a dwelling unit factor of 2.3 and assuming the same 57% ratio of owner occupied units, there will be about 4,520 new owner occupied dwelling units within the City over the next five years. Assuming the same trip generation rate of 4.5 and the same trip reduction goal of 20%, then 4,068 trips per day would be reduced. Therefore, the combined total number of daily trips that would be reduced under this measure is 61,364 which would result in a daily hydrocarbon emission reduction of 733,800 grams. This estimate does not include the potential benefit if this educational program was expanded to include renters as well as property owners since it is uncertain at this point in time whether the program will be so enlarged.

Measure: Central Business District In-Lieu Parking Ordinance

Implementation Status: The ordinance was originally adopted in July of 1981 and revised in April of 1983. The ordinance allows all new office developments to reduce their parking requirement by 60% and all conversions of existing structures to an office use can reduce their parking requirement by 100%. The in-lieu measures allowed include facilities, monetary incentives and educational programs to encourage transit, ridesharing and bicycle usage.

Trip/Emission Reduction Estimate: Over the last two years, there were seven office developments within the Central Business District that could have taken advantage of this ordinance. Of these, four projects requested parking reductions in return for subsidizing transit passes and encouraging carpooling and bicycling. Therefore, there has been a 58% participation rate with this program. The total number of parking spaces eliminated were 106 spaces or 212 home-work trips would probably be forced into an alternative transportation mode.

A recent economic consultant report indicates that the demand for new office space in the Central Business District could reach 4.5 million square feet by 1990. Since some of the projects are already under construction, only 1.5 million square feet of new undeveloped projects would be affected by this measure. Recent development projects in the Central Business District have measured about 150,000 square feet. Therefore, there should be about 10 new office projects proposed in the future. Based on past trends, about six of these projects will utilize the in-lieu ordinance and will on the average reduce their parking requirement by about 20%. By applying the City's parking requirement for new offices and this 20% parking reduction trend, about 260 parking spaces will have been reduced.

The combined effect of the parking reductions requested by recently approved projects and reductions estimated for new projects, equals a total reduction of 366 in the number of parking spaces provided. Since the ordinance requires the developer to provide substitute facilities or incentives such as transit passes to the building tenants, it can be assumed that the displaced parkers will participate in alternative transportation methods. Therefore, a total of 732 trips would be reduced or 9,231 grams of hydrocarbon emissions would be eliminated.

Measure: Citywide In-Lieu Parking Facilities Ordinance

Implementation Status: This ordinance was adopted on April 5, 1983. A copy of the ordinance is included within the attached Transportation Management Plan Handbook. The ordinance allows all non-residential developments that are required to provide at least 25 parking spaces to reduce their parking requirement by the following percentages: 5% for retail commercial, 8% for medical offices and hospitals, and 10% for office and industrial uses. Each of these percentages can be increased by another 10% if the project is located within two blocks of a light rail transit station. The ordinance allows implementation of one or more transportation management measures out of the ten measures listed in the ordinance. These measures would encourage transit, ridesharing and bicycling usage.

Trip/Emission Reduction Estimate: Since the ordinance has only been effective for a couple of months, it is difficult to project how many projects will utilize its provisions. However, given the experience of the Central Business District in-lieu oridnance, a reasonable estimate would be that about 50% of all of the new development projects would take advantage of the ordinance provisions and an average parking reduction of 10% would be requested. By applying these figures to the level of new employees projected for the City, about 1,604 employees would be affected by the removal of parking and the provision of alternative transportation incentives by 1987. Therefore, the trip reduction benefit of 3,208 or 40,457 grams of hydrocarbon emissions per day could be expected.

Measure: Residential Preferential Parking Permit Program

Implementation Status: Since 1981, the City has implemented the Alkali Flat and the Southside Residential Preferential Parking Permit programs. There are three other neighborhoods within the Central City which have been identified as potential parking permit areas; they include southeast, northeast and the Saint Lukes area. Implementation of parking permit programs in these areas will depend upon whether the residents gather enough signatures to petition the City to institute the program. Therefore, the implementation timing is uncertain but should occur within the next three to five years.

Trip/Emission Reduction Estimate: Based on studies conducted within four of the existing residential preferential parking permit areas (i.e., Mercy Hospital, UCD Medical Center, DMV, and Capitol Area), about 80% of the cars parked on the street prior to implementation of the programs were non residents. Assuming that there are 12 parking spaces per block face, a 60% occupancy rate of which 80% are commuters; about 1,730 commuters will have been displaced once implementation of all four of the new areas is completed. Assuming that 50% of these commuters will switch from single-occupant commuting to an alternative transportation mode, since parking adjacent to their destination will not be available or will be expensive, a trip reduction of about 1,800 is expected for a hydrocarbon emission reduction of 22,698 grams per day.

Measure: Parking Management Program

Implementation Status: The City presently provides carpools priority in obtaining monthly parking permits at City public parking lots within downtown Sacramento. In addition, they receive a 25% discount in the monthly parking permit fee. The City has also recently increased their hourly parking fee, after the first three hours, from 40¢ to 50¢ . The City also provides secure bicycle lockers and racks within all public parking lots.

Trip/Emission Reduction Estimate: Based on the recent projection of 4.5 million square feet of new and presently unoccupied office space within the Central Business District by 1990 and an occupancy rate of .0035 persons per square feet, there will be about 15,750 new employees working within the downtown area. Since only about 505 of these employees will be provided with a parking space at their employment site, use of the City's public parking lots will be required. Given the City's policies to encourage carpools and to discourage single-occupant commuters by their parking supply and pricing programs, at least 25% of these remaining employees will switch to an alternative transportation method. Therefore, the City's parking management program should result in a future trip reduction of about 4,000 trips per day or 50,440 grams of hydrocarbon emissions.

Measure: City Employee Transit Pass Subsidy Program

Implementation Status: The city presently provides a 50% monthly transit pass subsidy to all full-time employees and a 100% subsidy for management personnel. This subsidy program has been continually renewed each year since 1981.

Trip/Emission Reduction Estimate: Based on a survey of one employee group, there was a 26% increase in transit usage as a result of providing a 50% subsidy. Given that about 14% of the city's 2,800 employees previously commuted to work by bus before the subsidy program, this subsidy should result in about a 40% transit participation rate. This 26% increase in transit usage would result in a home-work reduction level of 700 or a hydrocarbon emission reduction of 8,827 grams.

Measure: Minimum Bicycle Parking Facilities Ordinance

Implementation Status: The City's Bicycle Parking Facilities ordinance was adopted on April 5, 1983. A copy of this ordinance is attached to this report. The ordinance requires all new developoments to provide a minimum level of bicycle parking facilities. The ordinance also specifies the type of facilities that must be provided in order to ensure that very secure facilities are provided for employee use.

Trip/Emission Reduction Estimate: Based on a U.S. Department of Transportation study, the potential level of bicycle usage for a given area is 5% of all trips. Computer modelling studies indicate that the existing level of bicycle usage is .5% to 1%. Providing bicycle parking facilities in conjunction with striped bicycle routes and shower and locker facilities are needed to achieve this potential level of bicycle usage. Since bicycle parking facilities will be provided at multiple family developments and commercial areas in addition to office and industrial sites, both home-work and non-home work trips would be benefited by this measure. The City's 1982 Air Quality Plan estimates (using SATS data) that the total amount of trips generated within the City based on the number of residents and non residents who work within the City will be 1,059,153 trips per day. If as a result of this measure the level of bicycle usage increases to 2%, then 21,183 trips per day would be reduced for a hydrocarbon emission reduction of 267,118 grams per day.

Measure: Bicycle Parking Facilities Improvement Program

Implementation Status: The City has installed additional bicycle parking facilities in their public parking lots and spends $50,000 per year for on-street bicycle routes and $100,000 per year for off-street routes. The City has an adopted Bikeway Master Plan that guides the locations where bicycle routes will be developed. In addition, developers are required to dedicate land and improve bicycle routes within new employment and residential developments.

Trip/Emission Reduction Estimate: Using the same methodology discussed under the previous measure, the maximum potential for bicycle usage in this area is 5%. The provision of bicycle routes will assist in achieving this target. Therefore, it is estimated that as a result of working towards completion of an integrated bicycle route system, bicycle usage should increase above existing levels by at least .5%. By applying this percentage to the total number of trips generated by 1987, the level of trip reduction would be 5,296 trips per day. This would result in a daily reductin in hydrocarbon emissions of 66,783 grams.

Measure: Major Roadway and Intersection Improvement Program

Implementation Status: The purpose of this measure is to reduce localized carbon monoxide emissions by reducing traffic congestion. Implementation of the street improvements identified in the city's 1982 Air Quality Plan is progressing, but will take at least until 1987 to complete. These improvements were included within the roadway network of the SATS model. The results of this computer analysis is that the carbon monoxide standard should be reached by 1987.

Trip/Emission Reduction Estimate: This measure is designed to reduce carbon monoxide emissions rather than vehicle trips; however, it is beyond the scope of this report to estimate the emission reduction level associated with individual street improvements.

Measure: Reuse or Redevelopment of Existing Urban Areas

Implementation Status: Private rehabilitation of existing structures within the urbanized areas of the City is ongoing. However, specific studies detailing such activities have not been prepared. The City Housing and Redevelopment agency also conducts rehabilitation incentive programs within depressed areas to encourage reuse and preservation of businesses within older developments which reduces the demand for new suburban development. The benefits of their efforts though are realized over the long term and data relating to the level of redevelopment that has occurred over the last two years is not readily available. The City is in the process of preparing their General Plan Update which will include reliance upon reuse and redevelopment strategies to reduce the need for urban expansion. This report will not be completed until 1985.

Trip/Emission Reduction Estimate: Development within the existing urbanized area allows for greater transit, ridesharing and bicycle usage due to the facilities and services located there. In addition, trip lengths are reduced when development occurs within an urbanized area rather than within outerlying areas. It is difficult at this point in time to determine the trip and emission reduction benefits of this measure. Therefore, within the City's 1982 Air Quality Plan, trip reduction goals were established for all four land use measures based upon a reasonable expectation. The Air Quality Plan estimates that this overall program could result in a trip reduction level of between a 5% and 10% or 45,000 to 90,000 trips per day by 1987. This level of trip reduction would result in a reduction in hydrocarbon emissions of 567,450 to 1,134,900 grams per day.

Measure: Infill Incentives

Implementation Status: The city has prepared a study identifying the types of infill incentives available to encourage development of vacant parcels within the urbanized area. A copy of this study is attached. The city is currently drafting implementing ordinances and development guidelines to formally establish an infill incentive program. The benefits of this program will occur over the long term as existing vacant parcels are developed.

Trip/Emission Reduction Estimate: Refer to the estimate provided under the previous measure for a description of the benefits of the overall land use program.

Measure: Increased Residential Densities

Implementation Status: As part of the recently completed North Sacramento and Meadowview Community Plans, the density of residential land use designations were increased and minimum density levels were established. The minimum average density within these draft plans is seven units per acre. Densities for residential land within other areas of the city will be increased in conjunction with development of the General Plan Update.

Trip/Emission Reduction Estimate: Refer to the estimate provided under the reuse and redevelopment measure for a description of the benefits of the overall land use program.

SP:lao
8.8.83 wp 1j

APPENDIX A

SACRAMENTO AREA COUNCIL OF GOVERNMENTS
800 H Street, Suite 300, Sacramento, CA 95814

MEMORANDUM

JULY 13, 1983

TO: SHERYL PATTERSON, Sacramento City Planning Department

FROM: WAYNE SHIJO, SACOG

RE: AVERAGE EMISSIONS PER TRIP

As you requested, I have calculated the amount of emissions resulting from an average 1987 work trip and an average 1987 non-work trip. This memorandum describes the methods and results of the calculations.

The emissions per trip were calculated using the following formula:

$$E_p = (M_p + C) \times L + H \times W + S_p$$

Where:

E_p = Total emissions per trip for pollutant p.

M_p = 100% hot stabilized moving emission rate for pollutant p.

C = Crankcase emission rate for total hydrocarbons only.

L = Length of trip.

H = Hot soak emissions per trip for hydrocarbons only.

W = Hot soak weighting factor.

S_p = Vehicle start emissions per trip (weighted hot start/cold start emissions per trip) for pollutant p.

The Air Resources Board's emission rates program, EMFAC6D, was used as the principal information source. The following factors and assumptions were used in the calculations:

- Study Year: 1987
- Ambient Temperature: 75°F.
- Average Speed: 36 miles per hour was used for work trips. 38 miles per hour was used for non-work trips. Table 1 shows how these speeds were derived.
- Vehicle Type Mix: Various vehicle mixes were used in the calculations. A weighted average of home-work and other-work trips was used for work trips. A weighted average of home-other, other-other, and home-shop trips was used for non-work trips. Tables 2 and 3 show the vehicle mixes that were used.
- Hot Start/Cold Start Percentages: Work trip start percentages were 80.08% cold start per catalyst trip end, 19.92% hot start per catalyst trip end, 65.04% cold start per non-catalyst trip end, and 34.96% hot start per non-catalyst trip end.

Non-work trip start percentages were 44.73% cold start per catalyst trip end, 55.27% hot start per catalyst trip end, 24.30% cold start per non-catalyst trip end and 75.70% hot start per non-catalyst trip end.

Work trip start percentages were calculated from home-work and other-work start percentages.

Non-work start percentages were calculated from home-other, other-other, and home-shop start percentages.

Table 4 shows how the start percentages were calculated.

- Trip Length: 8.23 miles was used as the work trip length. 6.33 miles was used as the non-work trip length. Table 5 shows how these lengths were calculated.

- Hot Soak Factors: 102% of emissions from a one-hour soak was used for work trips. 87% of emissions from a one-hour soak was used for non-work trips. Table 6 shows how these percentages were calculated.

Applying the methods and factors shown above results in the following estimates of emissions per trip.

AVERAGE 1987 WORK TRIP EMISSIONS

Emission Type	Emissions in Grams per Trip
Carbon Monoxide	141.50
Total Hydrocarbons	12.61
Reactive Organic Gas*	11.98
Nitrogen Oxides	13.71

*Calculated as 95% of total hydrocarbons.

AVERAGE 1987 NON-WORK TRIP EMISSIONS

Emission Type	Emissions in Grams per Trip
Carbon Monoxide	90.12
Total Hydrocarbons	9.79
Reactive Organic Gas*	9.30
Nitrogen Oxides	10.24

*Calculated as 95% of total hydrocarbons.

If you would like estimates of emissions per trip using different assumptions (e.g., trip length, average speed), please tell me. The additional calculations would not be difficult since the necessary information has already been gathered and a large part of the calculations will have already been completed. Also, if you have any questions, please feel free to call me at 441-5930.

WS:pal
Attachments

TABLE 1

1987 BASELINE SATS AREA
AUTO TRIP AVERAGE SPEED DATA

Trip Type	Vehicle Miles	Vehicle Minutes	Average Speed In MPH
Home-Work	5,503,803	8,957,723	36.87
Other-Work	1,639,563	2,855,089	34.46
TOTAL Work Trips:	7,143,366	11,812,812	36.28
Home-Other	8,341,610	12,995,771	38.51
Other-Other	4,271,726	6,933,467	36.97
Home-Shop	2,863,272	4,442,918	38.67
TOTAL Non-Work Trips:	15,476,608	24,372,156	38.10
TOTAL All Internal Trips:	22,619,974	36,184,968	37.51

TABLE 2

1987 WORK TRIP VEHICLE MIX DATA
FROM AIR QUALITY PLAN 1987 BASELINE DTIM

TRIP TYPE	PERCENT VEHICLE MIXES LDA	LDT	MDT	HDG	HDD	MC	NUMBER OF VEHICLE TRIPS
Home-Work	85.05	13.84	0.24	0.64	0.23	1.00	609,288
Other-Work	78.01	12.52	2.07	5.46	1.94	0.00	258,326
Weighted Average Using Number of Vehicle Trips:	82.95	13.45	0.78	2.08	0.74	0.70	
Divide by 1.0070 Use for Hot Stabilized:	82.37	13.36	0.77	2.07	0.73	0.70	
Divide by .9927 Use for Hot Soak and Crankcase:	82.98	13.46	0.78	2.08	N/A	0.70	
Divide by .9792 Use for Hot/Cold Start:	84.74	13.75	0.80	N/A	N/A	0.71	

TABLE 3

1987 NON-WORK TRIP VEHICLE MIX DATA
FROM AIR QUALITY PLAN 1987 BASELINE DTIM

TRIP TYPE	PERCENT VEHICLE MIXES						NUMBER OF VEHICLE TRIPS
	LDA	LDT	MDT	HDG	HDD	MC	
Home-Other	85.79	13.97	0.05	0.14	0.05	1.00	1,232,214
Other-Other	80.21	12.86	1.52	4.01	1.40	0.00	780,802
Home-Shop	85.79	13.97	0.05	0.14	0.05	1.00	432,010
Weighted Average Using Number of Vehicle Trips:	84.01	13.62	0.52	1.38	0.48	0.68	
Divide by 1.0069 Use for Hot Stabilized:	83.43	13.53	0.52	1.37	0.48	0.67	
Divide by .9952 Use for Hot Soak and Crankcase:	83.83	13.60	0.52	1.38	N/A	0.67	
Divide by .9862 Use for Hot/Cold Start:	85.00	13.79	0.53	N/A	N/A	0.68	

TABLE 4

SACRAMENTO AREA VEHICLE START CHARACTERISTICS

TRIP TYPE	CAT.		NON-CAT.		NUMBER OF VEHICLE TRIPS BASELINE 1987
	% Cold Start	% Hot Start	% Cold Start	% Hot Start	
Home-Work	90.46	9.54	77.46	22.54	609,288
Other-Work	55.59	44.40	35.75	64.24	258,326
Weighted Average of Work Trips Using Number of Vehicle Trips:	80.08	19.92	65.04	34.96	
Home-Other	59.98	40.02	35.44	64.56	1,232,214
Other-Other	21.71	78.29	5.91	94.09	780,802
Home-Shop	42.86	57.15	25.77	74.24	432,010
Weighted Average of Non-Work Trips Using Number of Vehicle Trips:	44.73	55.27	24.30	75.70	

TABLE 5

1987 BASELINE SATS AREA
AUTO TRIP LENGTH DATA

Trip Type	Vehicle Miles	Number of Trips	Average Trip Length (Miles)
Home-Work	5,503,803	609,288	9.03
Other-Work	1,639,563	258,326	6.35
TOTAL Work Trips:	7,143,366	867,614	8.23
Home-Other	8,341,610	1,232,214	6.77
Other-Other	4,271,726	780,802	5.47
Home-Shop	2,863,272	432,010	6.63
TOTAL Non-Work Trips:	15,476,608	2,445,026	6.33
TOTAL All Internal Trips:	22,619,974	3,312,640	6.83

TABLE 6

HOT SOAK HOURS
PER PARK

TRIP TYPE	PRODUC-TION	ATTRAC-TION	WEIGHTED AVG. USING % PARKS PER TRIP END	NUMBER OF VEHICLE TRIPS
Home-Work	1.14	1.24	1.19	609,288
Other-Work	0.68	1.09	0.81	258,326
Weighted Average of Work Trips Using Number of Vehicle Trips:			1.08	
Home-Other	1.15	0.69	0.89	1,232,214
Other-Other	0.00	0.53	0.53	780,802
Home-Shop	1.18	0.59	0.92	432,010
Weighted Average of Non-Work Trips Using Number of Vehicle Trips:			0.78	

1.08 Soak Hours results in 102 percent of emissions from one-hour soak.

0.78 Soak Hours results in 87 percent of emissions from one-hour soak.

909-12th Street, Sacramento, CA 95814-2931 • (916) 444-5864
LUNG

AMERICAN LUNG ASSOCIATION
of SACRAMENTO-EMIGRANT TRAILS
The Christmas Seal People ®

TESTIMONY FOR RALPH PROPPER
AIR CONSERVATION COMMITTEE CHAIRPERSON
AMERICAN LUNG ASSOCIATION OF SACRAMENTO-EMIGRANT TRAILS
MONDAY JANUARY 27, 1986

Good evening members of the Sacramento City Council. I am Ralph Propper, Air Conservation Committee Chair for the American Lung Association of Sacramento-Emigrant Trails.

Did you know that we all breath approximately one ton of air pollution every year? The Air Conservation is extremely concerned about the increasing trend of air pollution in our area and the resulting health impacts. We are all affected by air pollution, although some people are more sensitive than others. Air pollution from automobiles contains the following pollutants - hydrocarbons, nitrogen oxides, carbon monoxide, sulfur oxides, and particulates.

- Hydrocarbons and nitrogen oxide emissions react with sunlight to produce ozone. In addition to temporary eye and throat irritation, Scientific evidence indicates that ozone increases susceptibility to respiratory infections and may induce chronic respiratory disease.

- Carbon monoxide cuts down the body's vital supply of oxygen. As a result, it can affect behavior in normal people and aggravate cardiovascular disease. The greatest carbon monoxide levels occur at congested intersections.

- Particulates are a special danger because they can be inhaled deeply into the vulnerable parts of the lungs and carry noxious gases with them.

- Toxic air pollutants are a serious problem in Sacramento. A 1982 Air Pollution Control District study of seven toxic air contaminants in Sacramento found that automobiles and other on-road vehicles are the largest single type of source of the toxic pollutants studied. A recent EPA study noted the high health risk of individuals downwind of busy traffic intersections as a result of exposure to benzene from cars, buses and trucks.

All these pollutants affect most severely those who suffer from

chronic respiratory diseases including asthmatic children. Other more sensitive individuals include cigarette smokers, heart disease patients, the old and the young.

It is no wonder that the American Lung Association is concerned.

With these health concerns in mind, I will follow up board member Ken Dodge's testimony on the North Natomas Community Plan with some specific recommendations for reducing traffic and air quality impacts of development.

The Transportation System (TSM) Management plan in the Implementation Plan is a step in the right direction, however it does not even meet the Sacramento City Air Quality Plan's goal of a 30% reduction in trips. Moreover, the proposed plan for a 20% reduction in trips is not directly linked to the achievement of air quality and service level goals for the City.

The TSM plan for any new development is a vital air quality control strategy, if designed correctly. We join the Transportation Coalition in recommending that the TSM program be a phased program with trip reduction requirements based progress toward quality standards and the achievement of level of service "C". The City of Pleasanton has initiated this type of TSM program with tremendous success -- up to 45% peak hour trip reduction for some employers and widespread developer support.

We also recommend that the language in the transportation element be strengthened. The City TSM program must be expanded to existing employers to make progress toward air quality goals and this should be directed in the EIR.

We support the Air Resources Board's comments on the draft EIR recommending inclusion of a project specific implementation plan for transportation control measures to be enacted by the developer and subsequent tenants. A consistent implementation schedule and timeline based on completed development should be required in the Community Plan.

In order to preserve our air quality, meet Reasonable Efforts Program requirements, and continue the economic viability and attractiveness of our region to industry, we need a strong and consistent transportation systems management plan backed up by parking disincentives and development focused along transit corridors.

Environmental Council of Sacramento, Inc.

COMMENTS ON THE FINANCING, TRANSPORTATION,

AND AIR QUALITY ASPECTS OF THE

NORTH NATOMAS COMMUNITY PLAN

PRESENTED TO THE SACRAMENTO CITY COUNCIL

JANUARY 27, 1986

Mayor Rudin and Council Members:

The Environmental Council of Sacramento has participated actively throughout the hearing process before the Planning Commission and the City Council. We would like to use this opportunity to summarize our serious concerns about some of the specific transportation, financing, and air quality aspects of the proposed Community Plan.

Transportation

The North Natomas Community Plan includes provisions for major new roadways or roadway improvements.

Within the plan area, these include:

o the sizing of most major roadways within North Natomas at eight lanes to serve this level of development. These roads include Truxel, Northgate, Del Paso, and North Market. (Apart from the freeways, there are no existing eight-lane roadways within the City.)

The North Natomas developers will pay for these roadways.

o the widening of Truxel Road through South Natomas to accomodate North Natomas traffic, and its extension to downtown, crossing through the American River Parkway. The South Natomas community will therefore bear much of the burden of North Natomas traffic.

There is no financing plan for this improvement.

909 12th Street, Sacramento, California 95814

o four new or improved freeway interchanges, as well as new traffic lanes on I-5 and I-80.

No funds have been indentified for these improvements, although CalTrans has testified that no state funds will be available.

Even with these infrastructure improvements, ECOS is concerned about the traffic impacts that would result from approval of the Community Plan before you. This level of development would increase traffic within the City by approximately one-third. These traffic impacts will be severe for all of the freeways surrounding North and South Natomas, North Sacramento, and the downtown area. This level of congestion will seriously affect air quality (discussed below) and impede efforts to revitalize North Sacramento and downtown.

Moreover, the North Natomas Community Plan does not include measures sufficient to significantly mitigate its traffic impacts, nor does it outline how such mitigation measures will be funded.

ECOS is also concerned about the effect of approval of the proposed Community Plan on Light Rail. The City's investment in a Light Rail system was premised on focussing continued growth in the 80 and 50 corridors and the downtown area. North Natomas will draw jobs and development out of those corridors, reducing light rail ridership and putting this investment at serious risk.

The integration of North Natomas into a Light Rail network would help mitigate this problem, but the North Natomas Plan contains no provision for the financing of a Light Rail line into North Natomas. More importantly, the land use configurations proposed in the draft Plan are not designed to make transit (bus or LRT) feasible and successful. Given the importance of transit to meeting air quality standards and reducing road infrastructure requirements and costs, the proposed Plan represents a striking divergence in City policy.

Financing

While some North Natomas developers have committed to pay for on-site capital improvements, other developers have not made similar assurances. Other financing questions include:

o Who will pay for providing City services (fire, police, water, and solid waste) during the initial period before development has reached a sufficient scale to generate property tax revenues to cover these costs? How long will this "short term" situation exist

and how much subsidy from City taxpayers will this represent?

o How will off-site improvements (schools and transit) be financed?

Air Pollution

The traffic and industry in North Natomas will add significantly to levels of pollution in Sacramento which already exceed the federal legal standards for healthy air. Although this is a problem which transcends North Natomas, it is critical that any development approved for this area be accompanied by parallel measures capable of fully mitigating the increases in emissions - and that this be done in a straightforward manner which avoids some of the double-counting which has been apparent. The proposed Community Plan is inadequate in this respect.

Before the Planning Commission and the Council, ECOS has supported elements of a comprehensive phasing program which we believe would mitigate some of the serious negative transportation and air quality impacts associated with development in North Natomas at this time. Our two specific recommendations are:

o development within the area south of Del Paso and east of Interstate 5 should be phased to allow no more than 50% buildout until either 1) the area is served by LRT, or 2) the Sacramento region has made substantial progress toward compliance with the federal ambient air quality standard.

o any additional development to the north and west should be contingent on: 1) the development and occupation of 75% of Phase One properties; 2) LRT service to the Plan area; and 3) attainment of the federal ambient air quality standard.

Thank you for this opportunity to testify.

SACRAMENTO COUNTY AIR POLLUTION CONTROL DISTRICT

TESTIMONY BEFORE THE
SACRAMENTO CITY COUNCIL
JANUARY 27, 1986

NORTH NATOMAS COMMUNITY PLAN

Mayor Rudin and Members of the Council, my name is Norm Covell, I am the Air Pollution Control Officer for the Sacramento Air Pollution Control District. I appreciate the opportunity to come before you again to provide you with information concerning air quality, and some of the steps that must be taken at all levels within the community to mitigate the air quality impacts of our regional growth.

I previously provided you with a brief overview of the "California Reasonable Extra Efforts Program." This program now being developed by EPA Region 9, and the California Air Resources Board is a direct result of a law suit, "Abramowitz vs EPA", for failure of certain California Air Pollution Control Programs to adopt and implement air quality plans that demonstrated attainment of the air quality standards by the end of 1987.

EPA proposes to meet with local agencies, and elected officials, within the next several months. The purpose of this meeting and subsequent meetings will be to begin actual negotiations on how and when local governments will begin to implement new and improved Transportation Control Measures, which are determined to be technologically feasible.

There should be no doubt that EPA is serious about this matter, and that greater efforts will be required at the local level to; (1) further mitigate the impact of growth on air quality; and (2) to implement additional programs that clearly demonstrate that Sacramento is continuing to make progress toward attainment of the National Clean Air Standards.

Sacramento's plan does not demonstrate attainment for ozone by the statutory deadline of December 31, 1987. The plan does demonstrate attainment for carbon monoxide by that date. However, Environmental Documents prepared for recent development clearly predict increasing violations of the carbon monoxide standard as buildout occurs. In fact these documents considered collectively indicate that the carbon monoxide non-attainment area may have to be expanded.

The inadequacy of the Air Quality Plan to control ozone and carbon monoxide is of serious concern to our community since the plan was based on growth indicators that were revised upward in 1984 by 4%.

At this time you are considering a revision of the North Natomas Community Plan which by every estimate will increase peak regional ozone concentrations by 3-4%, and contribute to an increasing number of carbon monoxide violations.

The consultants who prepared DEIR did a good job in assessing the regional air quality impacts that would result from development of North Natomas. However, key assumptions used in the analysis are now in doubt. For example, the analysis assumed that the current biennial motor vehicle inspection program would reduce hydrocarbon emissions by 15% and carbon monoxide emissions by 20%. Early information from studies now being conducted indicates that actual emissions are only being reduced by 11% for hydrocarbons and 14% for carbon monoxide. This difference in projected versus actual emission reductions is extremely important, since, in Sacramento, 57% of hydrocarbon emissions and 84% of carbon monoxide emissions are emitted directly from vehicle use.

The consultants also utilized information contained in the 1983 Air Quality Report. This report indicated that Sacramento was 25% short of emission reductions needed to attain the air quality standard for ozone. The 1984 Air Quality Report tells us a different story. The short fall for ozone did not decline, as expected, but increased from 25% in 1983 to 33% in 1984, an 8% increase.

In addition, the concern exists that the 8% increase in the hydrocarbon emissions between 1983 and 1984, may indicate that the gradual increase in emissions predicted in the plan after 1987 may not be as gradual as we once thought. This may be true especially in light of the unpredicted growth that is now occurring in the Sacramento area.

Your staff has developed a transportation element for the North Natomas Community Plan which contains many Transportation Control Measures that have been effective in other cities. However, in view of the information that I have just discussed the element should be targeted to insure greater trip reduction growth since existing community plans for the City of Sacramento indicate growth from 275,741 residents (1980) to 403,182 by the year 1995. This represents a 46% increase in population. Automobile use is estimated to increase by 48% from 744,200 to 1.1 million trips per day.

You, as members of the City Council, are not expected to solve the overwhelming problem of increasing traffic and deteriorating air quality as a single entity. This problem must be attacked on a regional basis and include actions by three separate County governments, and incorporated cities within the counties. In each case these actions must be mutually supportive and geared toward achieving a common goal, which is improved air quality.

Since the solo occupant car is the major contributor to poor air quality, these actions must include more vigorous implementation of control measures that are designed to reduce commute trips.

As a result of an EPA grant passed through the district in 1983, both the County of Sacramento and the City of Sacramento developed and adopted trip reduction ordinances (Ridesharing). The County ordinance applies to both new and existing employers with 100 or more employees. The city ordinance applies to new development containing 200 or more employees.

From what has been done accomplished in other cities toward commute trip reduction, it is apparent that both of these ordinances can be amended to increase their overall effectiveness in one or more of the following ways:

1. They should be uniformly written. This would reduce the impact of the ordinances in siting decisions of new employers.

2. They should be amended to apply to both new and existing employers with a specified cut point of employees at one location.

3. They should be amended to include strict trip reduction targets of 40% or more and/or performance based goals with appropriate incentives.

4. They should be amended to include permit requirements that contain strict enforcement and monitoring provisions to measure compliance and appropriate penalties for non-compliance.

If trip reduction ordinances are to be successful they must be packaged and marketed in a manner which identifies all benefits to the motorist and not just the air quality improvements.

This concludes my statement and I will now try to answer any of your questions related to this testimony.

GG4/1:lk

URBAN PLANNING
FOR
CHILDREN PROJECT

Sponsored By
Child Care Coalition
Child Action, Inc.
Urban Interdependencies

Jacquie Swaback
(916) 972-1369

Box 60273
Sacramento,
CA 95860

DATE: January 27, 1986

TO: Mayor Anne Rudin and Honorable Members of the Sacramento City Council

FROM: Urban Planning for Children Project

RE: **North Natomas Community Plan**

Introduction:

The North Natomas Community Plan is a way of bringing professional sports and economic development to Sacramento; most importantly, it is a way of adding to our community. The Urban Planning for Children Project surveyed students and some parents in Sacramento, asking them how they would plan our area. These survey results are the basis for my testimony tonight.

An overall summary of the survey results is that we have a lot of good kids in Sacramento; they want Sacramento to have a high quality of life. Secondly, for Sacramento to be a leading city in the next decade, we must be supportive of working families and their children. Therefore, these survey results may play an important part in planning our future.

Transportation:

Basically, because most parents are now in the paid workforce, students need non-automobile transportation available to them. Parents whom we surveyed indicated that they wanted their students to be independent, and especially suburban parents indicated that the bus system was very inadequate (only 26% said bus transportation was adequate).

In the area of transportation, I would suggest three additions:

1) If we want students to be able to ride a bike to school, we will need to add bike lanes on three different roads (see Attachment A). These bike lanes should be safe and permanent (not just at the side of the road, where they might later be taken for automobile use, when automobile traffic increases).

2) Add bike-lock facilities to commercial, recreational, employment, and transportation centers, so that students (and adults) are not dependent upon an automobile within the North Natomas area.

3) Recommend that a Transportation Coordinator for Public Schools work closely with those planning the transportation corridors, so that students from throughout the community can get to all schools via sidewalks, bike lanes, public transportation routes, and/or carpool programs. This should be emphasized in our planning, so that school districts can avoid spending their limited resources on the transportation of students. The goal should be that we plan so that school money is used for teaching, not for transportation. An added benefit of this would be that these non-auto transportation corridors can also be used by adults, therefore avoiding transit and employer parking fees, as well as air pollution.

Students need to be able to walk, bike, or use public transportation from their homes to schools, parks, shopping, and jobs.

Community:

In our community, we want a balance of jobs, housing, commercial, and recreational areas. We want this for adults, as well as for children. Basically, we want to plan so that younger and older children will be safe and have positive learning experiences, while their parents are in the paid workforce.

Kids' Main Job is School:

The main job of young people is to go to school. However, to do a good job, we may need to change the North Natomas Community Plan in the following three ways.

1) In our planning, we must provide schools for students to attend. Unfortunately, in Phase I, there is only one elementary school and no junior high or high schools--it's "be under 12, or be bussed!" Under the Housing Section, I will be giving alternatives on how this problem may be solved.

2) As mentioned above, we need pedestrian access to all schools--not "whenever possible," as mentioned on Page 55.

> A school without pedestrian access is like an industrial park built on an abandoned off-shore oil rig. Neither set of workers have the means to get to their jobs, and it's expensive for the company to provide the needed transportation.

Schools must always have pedestrian access.

3) Year-round schools may be the best way to meet the needs of parents, students, and public and private developers. Parents do not need kids to work in the fields in the summer; instead, kids need summer supervision. Secondly, especially junior high and high school students need more time for electives. For example, the activity students wanted to do most of all was to have a paid or volunteer job. If schools were year-round, thus allowing students more time to take electives, then the Regional Occupation Program (ROP) could be expanded so that non-college-bound students could learn job skills, which would enable them to be employed. Also, college-bound students would then have more time to take an ROP class and work in an office of their area of interest. Another example is that on several of the questions, students said that they wanted to take more music, art, dance, and theatre, but those programs were not available to them; if they were offered as electives in schools, students would be able to explore these areas of interest as well. Finally, developers may wish for school buildings to be used all quarters of the year, and school boards may decide that having year-round schools are more economical than building additional schools. However, in implementing year-round school for year-round attendance and curriculum development for electives, we would need to work with those currently involved in year-round school, to best refine the program.

To do a good job at school, students need schools, need pedestrian access to them, and might find it advantageous to attend them all year long.

Paid and Volunteer Jobs:

It is wise for adults to support the positive desire of our young people to work. This can be done through expanding the ROP program in schools, and by expanding the City Parks Programs to include a volunteer jobs program for 14-16 year olds. Thirdly, the business community could establish permanent, part-time jobs for young people, and work with SETA for the interviewing and job-training of youth for full-time work. We are recommending that "youth" be included with women and minorities in the employment agreements, in which businesses agree to interview job applicants (see Attachment D).

It is wise for adults to support both the paid and volunteer work of older students.

Kids' Housing:

Housing in North Natomas, and all areas of our city, needs to be available, and perhaps especially designed for, working families. Many have expressed their concern for the small amount of housing in Phase I of the North Natomas Community Plan. We are also concerned because some housing must be available to families with children. Children need schools, including junior high and high schools, which are not included in Phase I of the Plan. However, we realize that junior high and high schools must be supported by more houses than elementary schools. Therefore, where can we put more housing in the North Natomas Phase I so that a junior high and high school can be available for students who live in North Natomas? (See Attachment B)

Alternative I would give us more housing (and the developers less money), and would also help make the proposed housing more of a part of a North Natomas Community, by linking it to Del Paso Road. This would involve a change in traffic patterns and land on either side of Truxel would need to be heavily landscaped to minimize the traffic noise from the sports complex. However, this would also improve the access to junior high and high schools, which are north of Del Paso Road.

Alternative II might be included in Phase I to help create a more balanced community in Phase I. However, we would suggest that this housing development north of Del Paso Road begin after development in North Sacramento is well under way, and be consistent with the jobs-housing monitoring results. Also, the junior high and high school could perhaps have phased development, so that they would be available as soon as possible for students in the North Natomas area.

Alternative III might be added at the end of Phase I, when additional housing is needed, and for a housing balance which makes more low-density housing available.

Students need junior high and high schools; additional housing in Phase I will help make that possible.

Housing Design:

It is against California law to discriminate against renting to families with children. Rather than force apartment owners to rent to families with children, it may be a better alternative to specifically design and build housing to meet the needs of working families. Our survey results suggest that perhaps large housing developments might consider including childcare centers, tot lots and recreational centers (especially for teens), and definitely include swimming pools (both students and parents ranked swimming as their top sports activity).

If our housing stock is especially supportive of working families, businesses who hire working parents might find our area attractive for their business expansion.

Kids in Commercial Areas:

All commercial areas should be accessible to the pedestrian. Secondly, it would be best if they would also accommodate the needs of children to buy things (clothes, food, books, records, etc.), and to "window-shop." If the commercial area is large enough, it might consider putting in a drop-in childcare center (kids requested that shopping areas have an area where they could play so that they wouldn't have to go shopping with their parents). Thirdly, teenagers need safe, non-alcoholic gathering places (mainly to eat and dance), in addition to shopping centers and parks. Perhaps we need something like the old-fashioned drug store or soda fountain.

Childcare:

We would suggest adding two items to the Childcare Recommendations:

1) Add Childcare and Youth Facilities to the Monitoring Program (Page 79--see Attachment D). The population will grow in size; at the same time, the children living in North Natomas will grow in maturity. Therefore, it is wise for us to monitor the age of children needing care, for we may find that eventually, we will need fewer child care centers and more youth facilities and programs.

2) We would recommend that you evaluate including a child care center and a library in the community park. Our surveys indicated that parents wanted kids to go to the library, and kids indicated that they wanted the libraries to have more computers. In addition, a community park may be a good place to coordinate after-school activities for all ages of kids (see Attachment C). Finally, parents will find it quite convenient to be able to pick up many ages of children from one place after work.

Activities:

Attachment C gives the responses to one of the questions, in which we asked students to check their top four choices from a list of 27 activities. Please note that 1/3 wanted sports, and 2/3 wanted non-sports activities. (We also have these survey responses broken down by age--sixth, ninth, and eleventh grade, and also parent responses, for more specific planning of particular activities.) Please note that "jobs" was their first choice, and "movies" and

"shopping" were also top choices. Swimming was the most wanted sport by both students and parents--which means that we are well-advised to put swimming pools in parks, schools, and in residential developments. Also note that if "dancing/going to dance class" were combined with "eating/dancing," then "dance" becomes the second choice of activities after "jobs."

On a similar question, we asked students to write down what five activities they would most like to do, and to check if it were available for them to do. When these responses were grouped together, sports became the first choice, with 89% of the respondents indicating those sports were available to them. When dance, music, and art were grouped together, they were the second choice, but with only 70% of the respondents indicating that music, art, and dance were available to them.

In planning activities for young people, we may want to plan land use and spend money so as to provide a variety of activities, especially those activities which are less available in the rest of the community. The Sacramento Sports Association is already working toward this goal.

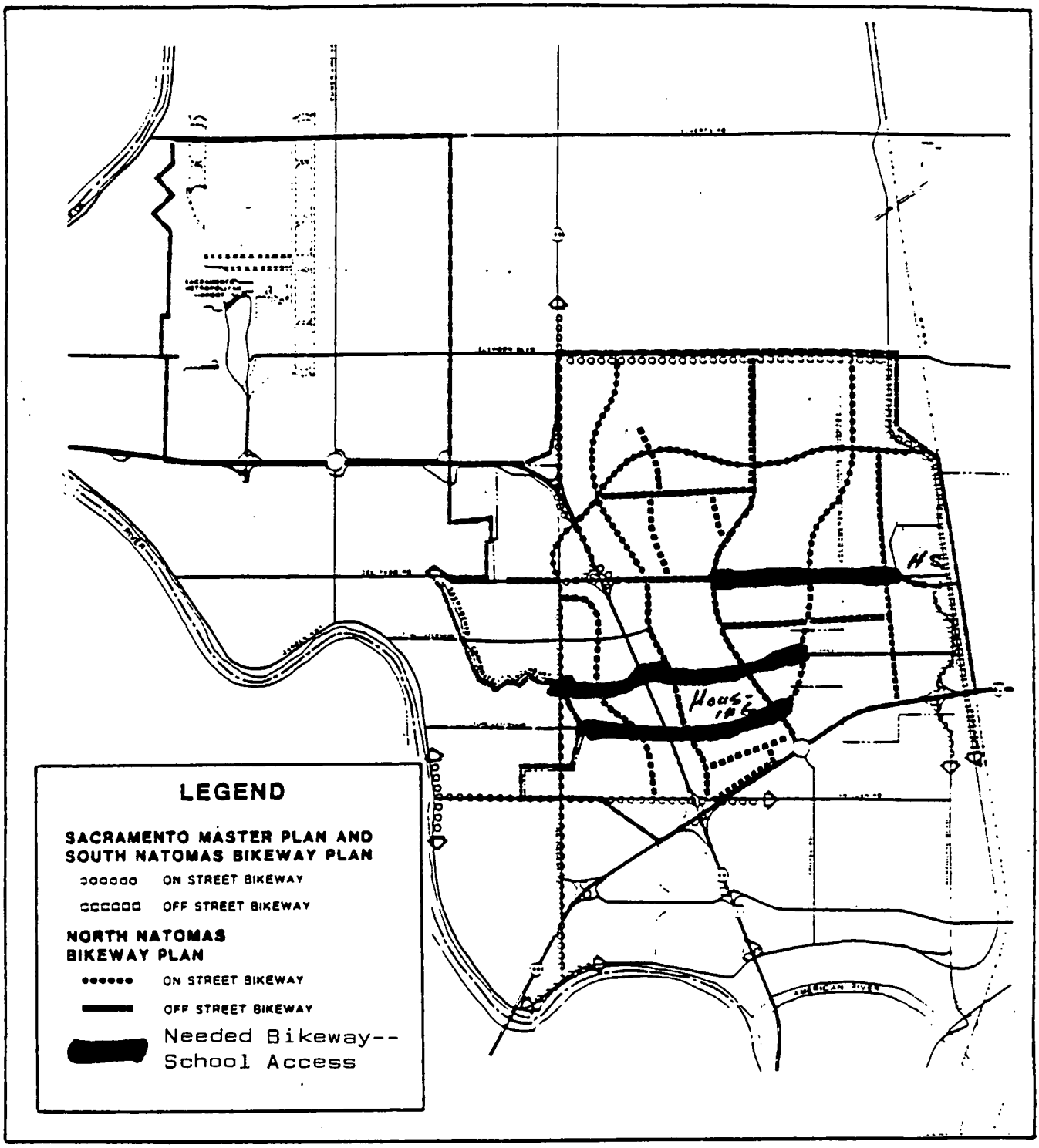
Conclusion:

These surveys of students and some parents give us some indication about how working families would like to plan Sacramento. Although they do not tell us everything we would like to know, they are among the most comprehensive surveys of kids and urban planning in the nation; because of that, we are beginning to receive national attention. (I spoke at state and national conferences last year, and have been asked to speak about the Project at the American Planning Association National Conference this April.) Now, we can begin to consider implementing these results in the North Natomas Community Plan.

If we specifically seek to make Sacramento the best place for working families and their children--then Sacramento may also become one of the most attractive cities in the nation for working families and their employers.

Thank you for your consideration in incorporating the results of the Urban Planning for Children Project's student and parent surveys into the North Natomas Community Plan.

ATTACHMENT A: Proposed Additional Bikeways for School Access



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

Figure 12:
BIKEWAYS

NOV. 1985

ATTACHMENT B: Proposed Alternatives for Additional Phase I Housing and School Construction

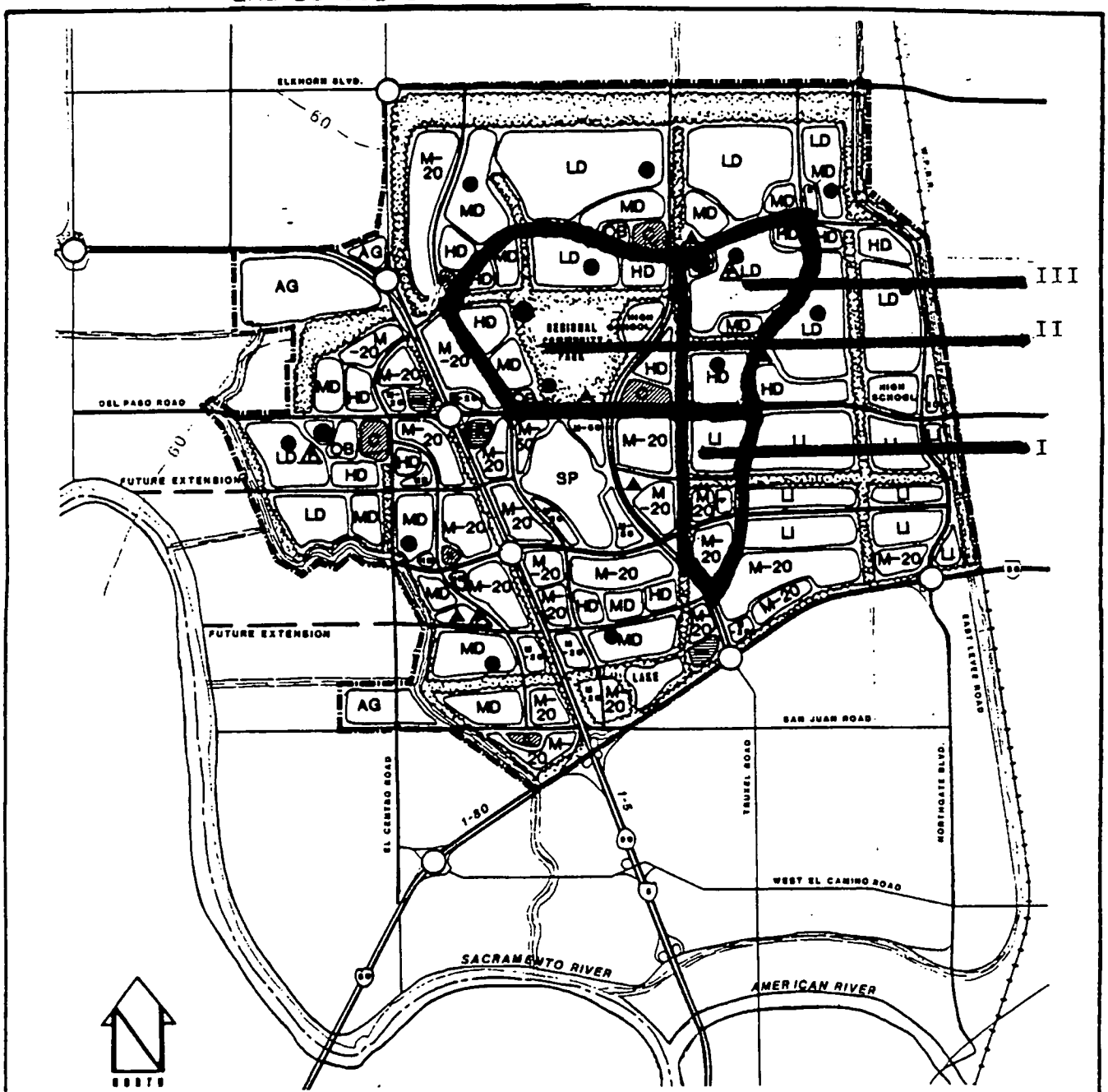


Figure 3:

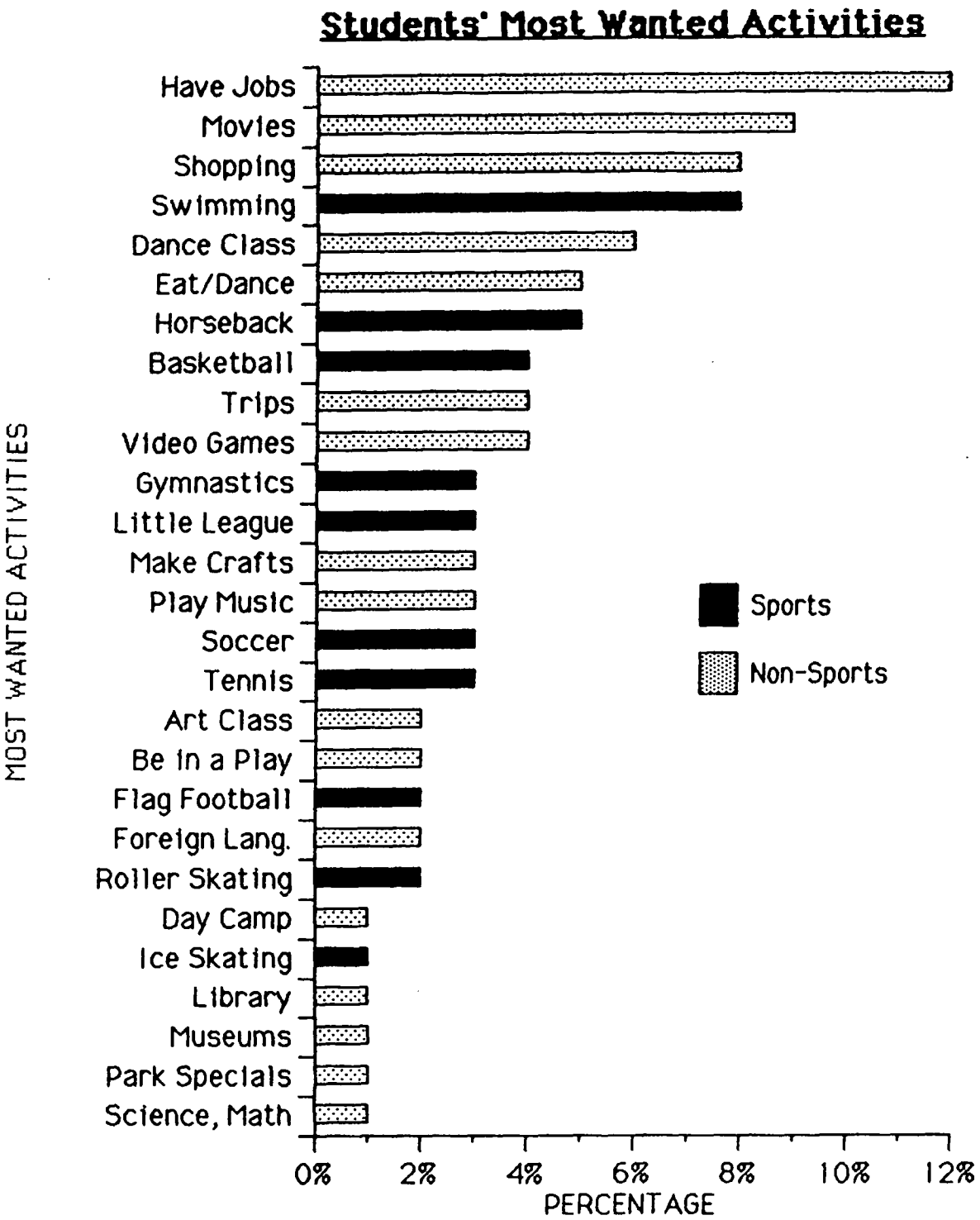
PROPOSED COMMUNITY PLAN

NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

HD — HIGH DENSITY RESIDENTIAL (22.0 DU/AC)	HIGHWAY COMMERCIAL	OB — OFFICE/BUSINESS	AG — AGRICULTURE
MD — MEDIUM DENSITY RESIDENTIAL (11.2 DU/AC)	M-20 — MANUFACTURING/ RESEARCH/DEVELOPMENT (20% OFFICE)	SP — SPORTS COMPLEX	ELEMENTARY SCHOOL, JUNIOR HIGH SCHOOL
LD — LOW DENSITY RESIDENTIAL (7 DU/AC)	M-50 — MANUFACTURING/ RESEARCH/DEVELOPMENT (50% OFFICE)	PARK/OPEN SPACE	CIVIC/PUBLIC USE (LIBRARY, FIRE STATIONS, MEDICAL CENTERS)
COMMUNITY/NEIGHBORHOOD COMMERCIAL	LI — LIGHT INDUSTRIAL	GREENBELT/BUFFER/ HIGHWAY OR ROAD LANDSCAPING	4-LANE DIVIDED MAJOR 6-LANE DIVIDED MAJOR 6-LANE DIVIDED PARKWAY

Attachment C



From Planning Sacramento: Views of Students and Parents, Urban Planning for Children Project, 1986.

Attachment D
Possible Amendments to the North Natomas Community Plan
January 27, 1986

Page	Amendment with **Proposed Changes (in bold type)**
17	Residential neighborhoods shall have easy access to parks, schools, shopping and places of work, **with an emphasis on providing attractive sidewalks, permanent bike lanes, and public transportation for the pedestrian, especially children.**
55	4. Designate the placement of school sites, especially elementary schools, next to parks, to maximize the potential for joint use, agreements and efficient land use, **including childcare and youth activities and facilities.**
	6. Provide pedestrian access to school sites from residential areas. **Cross out "whenever possible."**
71	A. Employment Agreements with Future Employers: Require employers of ten or more employees to: . . . Employers should be required to interview job candidates referred by PIC-SETA, **including minorities, women, and youth.**
	B. Construction Employment Agreements for Minority, Women's, **and Youth** Employment and Minority Business Enterprise. . . .
73	A. TSM Measures: (Insert a second item after the paragraph on the Business Transportation Coordinator.)
	• **A Transportation Coordinator should also be part of the public school administration and work with the Transportation Coordinator of the North Natomas Business Association. The School Transportation Coordinator would emphasize the provision of sidewalks, bike lanes, public transportation, and carpool programs for bringing students to and from public school. Therefore, education money could be used for curriculum, rather than be spent on transportation costs.**
	• Park-and-ride facilities should be located at major freeway interchanges **and light-rail stops** to encourage car and van pooling for intercommunity commuters. **Bike-lock facilities should also be available for the same reason.**

77 C. Stadium and Arena Phasing

- No special permits or building permits. . . . Permits may be granted for remaining 50% of the acreage after both the stadium and arena are 50% complete, **and after _____% of the housing in Phase I has been built, as well as the needed elementary, junior high, and high schools.**

79 A. Jobs-Housing Monitoring

"The City and County should develop a program which requires periodic surveys of the jobs-housing balance in North Natomas in order to monitor the effectiveness of Community Plan programs and their respective policies. Housing affordability should be considered as part of these reviews. **Facilities for childcare and youth activities should also be monitored as the population increases, and as the children outgrow their need for childcare and then need youth facilities and jobs.** Policies should be revised or new programs should be developed and implemented which would ensure the required availability and affordability of dwelling units **and childcare and youth facilities,** as jobs are created within the study area."

The South Placer area currently has in place....and would include factors such as:

Number of Employees
Job Type
Job Income
Location of Employee Residence
Commute Distance and Time
Commute Mode
Household Size
Households' Ages of Children
Adequacy of Housing Type, Size , Quality, Mobility
Adequacy of Childcare and Youth Facilities.

The Monitoring Program would establish. . . . The Monitoring Program would be able to establish whether the private market is providing affordable housing to meet the needs of the employees generated by North Natomas development, at prices and rents affordable by these employees, **and if their childcare needs are adequately addressed.** If the private market fails to provide these units, then the EIR recommends that actions be taken to have the North Natomas non-residential developers provide additonal assistance to meet this need.

80 B. Employment and Economic Development Monitoring

The Employment and Economic Development Opportunity Plan (EEDOP). . . . The EEDOP features. . . 2) construction employment agreements for minority, women's, **and youth** employment and contractor retention requirements, . . .

82 D. Transportation Systems Management Monitoring

In order to ensure that this goal is met and that the transportation network functions efficiently, the Plan contains the following actions:

- All non-residential, non-commercial projects . . . implement additional programs if necessary.

- **School districts are also advised to have a Transportation Coordinator to work with the developers and the Business Transportation Coordinator, to ensure that students will be able to walk, bike, ride public transportation, and/or participate in a carpool to their desired public school. The goal of the School District Transportation Coordinator would be to keep the transportation budget of the school district at a minimum, so that school district money could be spent for teaching rather than for transportation.**

E. Monitoring Program Implementation.

3. Identification of factors to be monitored, to include the Employment Opportunity Plan, job creation, housing construction, **childcare, and youth facilities.**

113 Bus

- Study and report on the feasibility of utilizing light rail . . . into the community.

- **Study and report on the feasibility of having additional bus service which would link to the light rail line and/or the buses travelling on that right-of-way.**

• Suttertown News

Nov. 21 - 28, 1985

Kids As City Planners

What is it that makes the K St. Mall, locally referred to as the "cruise," so popular among so many young people?

"It's a place," says Sean McNiff, 17, where "you don't have to worry about trouble." Other kids on K Street, like high school sophomore Robert Brogan also see the cruise as "some place to hang out." "There really isn't anyplace to go," he says.

Article by Marcus Kelly

TEAMING UP FOR KIDS

Mayor Anne Rudin and local business entrepreneur Gregg Lukenbill are teaming up for kids. The two community leaders, who have often disagreed in the past on planning issues, recently agreed to co-chair the fund-raising drive to publish *Plan-Sacramento: Views of Stu-Parents.*

Developer Lukenbill say of the project: "In the pas most developers haven' thought about includin child care centers in thei projects, but in some devel opments it makes a lot o sense. Businesses who hire parents of young children might find it to their advantage to provide child care."

Youths speak out on their future city

BY TRINDA PASQUET
SACRAMENTO UNION STAFF WRITER

Cities used to be designed with working men in mind. Suburbia was where women and children lived and seldom strayed. Times have changed

CAPITOL BUSINESS JOURNA

NOVEMBER 19, 1984

Coalition urges child-care center development

By MIKE McCARTHY

A coalition that expects explosive growth in demand for child-care centers is urging Sacramento's real estate developers to plan their projects with children in mind.

During the decade of the 1980s, the number of Sacramento-area children between the ages of birth and nine years is expected to increase by 40,000. By next year, however, the area's child-care facilities only will be able to serve 60 percent of the children in that age group, figures compiled by the Urban Planning for Children Proje

Neighb

A Community Publication of The Sacramento Bee

Decon

Kids forgotten, consultant says

By Sue Boylan
Neighbors staff writer

Sacramento needs more child care cent
regional transit and more jobs for teen

The Sacramento Union

THE OLDEST DAILY IN THE WEST
FOUNDED • MARCH 19, 1851

Editorials

Youth look into future

It's good citizenship to look to the future, particularly when we live in a vibrant, growing community such as Sacramento. And it's also wise to enlist the viewpoints of not just today's community leaders, but of tomorrow's leaders, our children and teenagers.

This has been done by Sacramentans participating in the Urban Planning for

where older children can be safely ind
pendent.

Since many mothers are no lon
available to transport their children
daytime activities, a well-organized tr
system that provides detailed directio
libraries, museums, beaches and
places where children go is a must.

As for jobs for teenagers, certainly

* The Sacramento Union, Friday, April 12, 1985—A3

—RICK KUSHMAN

Metro Today

Children, teens want responsibility, survey say

Sacramento businesses would do well to provide flexible schedules for parents with young children and might find an eager army of workers among teens.

And Regional Transit directors might find willing riders among area children if the kids knew which buses to take where.

children and teen-agers want to be given responsibili
said Jacquie Swaback, project coordinator. They w
to take care of themselves and, most specifically,
older ones want jobs.

The Sacramento Union, Monday, December 16, 1985—

Teens welcome at non-alcoholic clubs

Jan. 8, 1985

How a city strives to help its families

By JACQUIE SWABACK

Seattle wants to be known as the best place in America to raise a family.

What will it take to achieve this ranking?

Right now, Seattle has six action agenda task forces developing five-year goals to make Seattle the best city for a family, plus doing closer look studies

SACRAMENTO BUSINESS

Local Businesses Sought for Resource Directory

The Urban Planning for Children Project will be publishing their survey results in Planning Sacramento: Views of Students and Parents," a tourist's guide for today and a developer's guide for tomorrow." The book will include tures of Sacramento develop- h are already imple-

Our surveys will provide information fr based urban planning, to more fami a v wc al

EXECUTIVE PLACE, MARCH 1985

Neighbors

Districts poll residents on family needs

SACRAMENT BUSINES SCEN

SURVEY TO ASSE CHILD CARE NEE

In an effort to assess the child c needs of working parents a employers in the Sacramento a and to communicate those ne to private developers and pub planners, the second phase of Urban Planning for Children P ject is currently underway.

Designed and administered

EDITOR'S LETTER

Sacramento's decision-makers are showing signs of recognizing the value of working together — and with children. Noted adversaries Gregg Lukenbill and Mayor Anne Rudin are co-chairing publication of the guidebook. They term their unlikely cooperation as "teaming up for kids."

Now, if Lukenbill, Rudin and the rest of Sacramento's parents and kings listen to the wisdom of youth, this city will have one united team — and a winner. SS

Darrell Dunn

STORIES

Sacramento Women's Network

Recognitions

Jacquie Swaback, Urban Interdependencies, recently served as a panel member on urban planning for working families at the "Childcare: Legal and Social Issues" conference at Santa Clara Law School, the "City Assets" conference in Indianapolis, Indiana, and the "Managing Our Cities" conference in Norfolk, Virginia. She also led the "Planning for Young People" course at Portland State University last summer.

CITY OF SACRAMENTO

DEPARTMENT OF PLANNING AND DEVELOPMENT
1231 "I" Street Sacramento, Ca. 95814

Administration
Room 300 449-5571
Building Inspections
Room 200 449-5716
Planning
Room 200 449-5604

February 3, 1986

City Council
Sacramento, California

Honorable Members in Session:

SUBJECT: Resolution of Issues and Motion of Intention to Adopt the North Natomas Community Plan (M84-007)

SUMMARY

This report recommends a motion of intention to adopt the North Natomas Community Plan subject to the resolution of a number of important issues that have been identified during the hearing process. Council action on the motion and on the specific recommendations will allow staff to proceed with the development of the final plan and findings of fact.

BACKGROUND INFORMATION

During the Planning Commission's and the Council's review of the Draft North Natomas Community Plan, staff has identified twenty-five issues that need to be resolved by the Council as part of plan adoption. The twenty-five issues are summarized on the attached table. The table also contains options or comments on the issue and presents the staff recommendation. Several of the issues for which the Council requested additional information are described below.

Land Use Issues

1. Reduce Residential Densities

The North Natomas Community Plan provides for higher density residential development than does the South Natomas Community Plan for example (31,019 units on 2,751 acres or 11.3 units per residential acre versus 9.2 units per acre in South Natomas). But the North Natomas Community Plan also provides for more employment generating land uses than other communities (2,466 acres in North Natomas versus 592 in South Natomas). The density of units and the 56.7 percent jobs/housing ratio is necessary to keep the number of "imported" work trips into North Natomas at an acceptable level. The reduction of dwelling units in the community without a commensurate reduction in jobs would result in increased traffic impacts on the regional freeway network and the interchanges.

2. Housing West of I-5

The County Board of Supervisors and Department of Airports have asked that there be no residential land uses west of I-5 in order to protect Metropolitan Airport from complaints about noise. The Plan shows 7,920 dwellings on 635 acres of land west of I-5. This constitutes 24 percent of the total housing stock in the Community Plan. A reduction or loss of these units would destroy the jobs/housing ratio and cause regional freeway impacts as noted above. A total deletion of development west of I-5 would increase the job/housing ratio in the communtiy to 63 percent. Staff believes, however, that without a strong commitment from the Council and the Board, the deletion of land uses west of I-5 would only be temporary and therefore should be considered in this Plan.

3. Phasing

The phasing program for North Natomas is based on the timing of specific events. Areas beyond Phase 1 will be allowed to develop when specific triggering events are reached. The triggering events include the provisions of infrastructure, results of the jobs/housing monitoring program, and participation in appropriate financing mechanisms. Between the Council's intent motion on the plan and the formal adoption, staff will develop specific triggering criteria. We suggest that all North Natomas property owners be asked to enter into development agreements with the City that will insure that the phasing mechanisms are in fact implemented. In the agreements, the City will agree to process rezonings as shown in the Plan once all of the triggering events have been satisfied.

4. Agricultural Preservation

We recommend the following language be included in the Community Plan regarding agricultural preservation strategies:

> "Initiate studies of the mechanisms and procedures to encourage permanent agricultural uses in the exclusive agriculture districts within and abutting the Community Plan area. Mechanisms studied may include a transfer of development credits program as recommended by the City's consultants, and a joint City-County program to acquire development rights in areas where airport noise may be a nuisance factor. The study should assess the feasibility of those methods which are identified and should propose specific financing mechanisms for implementation of recommended agricultural preservation programs adopted in the General Plan as a result of said study."

5. Natomas Airpark

The Plan encourages retaining the airpark until competing land uses require its closure. The Plan also encourages the relocation of the airpark into the unincorporated area north of this community. The County Department of Airports indicates that there may be difficulties in relocating the airport to this area based on the operating patterns of Metro and McClellan.

The Airport Land Use Commission staff has indicated that the Airpark and the Plan land uses are inconsistent. ALUC staff has indicated, however, that by controlling operations at the airpark in coordination with activities in the community, a phasing out of the airpark might be acceptable. City staff will work with ALUC to work toward this accommodation.

Implementation

1. Proposals from the Sacramento Housing and Redevelopment Agency

SHRA presented a written proposal for three additional housing and employment programs for North Natomas. The three programs concerned: providing housing for low and moderate income families, MBE and WBE Employment Programs, and an Office Impact Mitigation Program. While these programs have merit and address important issues, we do not recommend them for inclusion in the North Natomas Community Plan. We do recommend that the Council give the programs consideration for Citywide application.

2. School Finance

The Plan currently requires agreement between residential developers and school districts on financing mechanisms for schools prior to granting development entitlements. We would amend this policy by adding the requirement that the districts and developers make good faith efforts to develop cooperative agreements to secure financing. City staff will assist in developing acceptable school financing arrangements.

3. Planning Cost Recovery

The City should require, as a condition of development agreements, reimbursement to the City of the costs of the North Natomas Community Plan STudies. These costs (approximately $1.5 million) should be apportioned according to acreage planned for urban development. The reimbursement fee would be about $300 per acre.

4. Financing Mechanisms

The City Treasurer and the Finance Department recommend the Plan be amended to substitute "Fee Based Assessment Districts" in all places where the Plan mentions assessment districts as financing mechanisms. The concern is that the City does not have the bonding capacity to back an uncontrolled amount of assessment bonds. The Fee District is similar to the South Natomas Facilities Benefit Assessment District.

Air Quality

Testimony was presented and letters have been received concerning air quality issues associated with the development of North Natomas. The EIR acknowledges that the development of North Natomas will add to already unacceptable pollution levels that exist now and are expected to worsen in the future. We believe, however, that the plan with its Jobs/Housing ratio, TSM program, transit commitments, and reference to the EPA Reasonable Extra Efforts Program does all it can to mitigate air pollution.

Much of the air quality testimony correctly relates to concerns about the status of the entire region in combating air pollution. We concur that a new air quality plan is needed to document the comprehensive impacts of development decisions that have been made by many jurisdictions since the 1982 Air Quality Plan was adopted. We are encouraged that SACOG is now beginning the effort to develop such an updated plan.

RECOMMENDATIONS

I recommend that the City Council approve a motion expressing its intent to adopt the North Natomas Community as modified and amended by the recommendations contained in this report and on Attachment A. The Council should direct staff to prepare the necessary findings and other materials to allow formal adoption of this plan.

Respectfully submitted,

Marty Van Duyn
Planning Director

RECOMMENDATION APPROVED:

Walter J. Slipe, City Manager

MVD:GLS:lr
Attachments
M84-007

ATTACHMENT A

RESOLUTION OF NORTH NATOMAS COMMUNITY PLAN ISSUES

	ISSUE	OPTIONS/COMMENTS	RECOMMENDATION
1.	Stadium and Arena Guarantee	None	- Zone Phase 1. - ½ Permits when arena is ½ complete. - ½ permits when stadium is ½ complete.
2.	Decrease Residential Densities	- Decreasing residential densities will increase traffic on regional freeway system and interchanges. - Would decrease Job/Housing Ratio.	- Maintain residential densities in Plan. Require mix of types and densities.
3.	Residential Land West of I-5	- Allowing industrial but no residential uses causes a housing imbalance and increases traffic into the community. - No development west of I-5 improves the Jobs/Housing ratio in the community but is a temporary measure.	- Approve the residential and non-residential uses west of I-5 as shown in the Draft Plan and CPC recommendation.
4.	Valley View Acres	- Various residential land uses and a high school. - Extend Northgate to Elkhorn. - Retain rural estate designation.	- Retain rural estate designation. - Extend Northgate to Elkhorn.
5.	Natomas Airpark	- Close airport now as an inconsistent use. - Phase out airport by 1990. - Revise Plan to accommodate airport.	- Phase out airport by 1990. - Encourage relocation into County.
6.	Greenbelt-Size	- Maintain 800' greenbelt. - Reduce 800' greenbelt to 500'. - Abandone greenbelt for additional park acreage.	- Reduce 800' greenbelt to 500'
7.	Greenbelt-Use	- Establish active recreational use for greenbelt. - Use buffer to separate active agricultural and urban uses.	- Use buffer to separate active agricultural and and urban uses.
8.	Regional Park	- 250 acre park, gifted to City. - 200 acre park, gifted to City with no Quimby Act credit, installation of off-site infrastructure.	- 200 acre park, gifted to City without Quimby credit, base infrastructure.
9.	Freeway Landscaping	- Require 150' landscaped freeway strip. - Require landscaped freeway strip that meets the standards of the strip installed by the Gateway Point applicants.	- Require landscaping at standards set by Gateway Point project.
10.	Phasing	- Need phasing to allow City to adjust Plan as condition change and performance is monitored. - Phasing tied to known conditions and events provides security to both the City and property owners.	- Development agreements that contain phasing triggers and conditions.
11.	Agricultural Preservation Program	- Transfer of development credit program requiring participation by County. - City needs a new agricultural preservation policy.	- Initiate a study as part of the General Plan Update and resulting in an agricultural preservation policy and program for the City.

ISSUE	OPTIONS/COMMENT	RECOMMENDATION
12. Infrastructure Financing Plan	- Financing all capital costs is the responsibility of the developers. - All infrastructure must be sized for the full planned development of the community.	- Require all infrastructure financing arrangements to be included in Development Agreements including reimbursement for planning costs and for upgront or oversizing costs.
13. Truxel Bridge and Other Regional Facility Requirements	- Alternative methods of providing highway capacity across the American River need to be studied. - A financing method involving all beneficiaries needs to be developed.	- City should immediately initiate feasibility and alternatives study. Entitlements conditioned on equitable participation in financing.
14. Non-Profit Construction Trust Fund	- This is the Gateway Point Applicants proposal for a $100,000/year non-profit construction program.	- The City should encourage and support this program.
15. North Sacramento Housing Trust Fund	- This is the Planning Department's proposal to stimulate housing in North Sacramento. The program requires contribution of $3,500/unit for 4,340 units. Unit construction in lieu of fees are allowed. Program begins with building permits for industrial development projects.	- Approve program as outlined.
16. SETA/PIC Job Referral Program and Construction Hiring Program (Gateway Point)	- Employment opportunity programs proposed by applicant.	- Amend Plan to include the applicants proposal in place of earlier proposals.
17. Low Income Housing Program (SHRA)	- $46 million program to provide affordable housing for people employed in North Natomas.	- This program should be considered on a Citywide basis.
18. Downtown Office Impact Mitigation Program (SHRA)	- $1,000/phasing space surcharge in North Natomas to help finance parking in the downtown.	- This program should be considered on a Citywide basis.
19. MBE/WBE Contractor Retention Program	- Program to link development in North Natomas with existing MBE/WBE businesses that could participate in development.	- The City Attorney has determined that this program cannot be legally required.
20. School Finance	- The Plan requires agreement between residential developers and the school districts prior to entitlements. - The BIA has recommended the folllowing language: "The appropriate school district(s) and the building community will cooperate in drafting a financing plan which will address the provision of adequate school facilities to serve the planned residential areas when needed."	- The BIA language is preferrable because it requires a cooperative effort.

ISSUE	OPTIONS/COMMENT	RECOMMENDATION
21. Planning Cost Recovery	- The City should be reimbursed for the approximately $1.5 million it spent in the development of the North Natomas Community Plan. Options include: a) First entitlement pays in full and is reimbursed by later development. b) Per acre share for urban uses at zoning. c) Per acre share as condition in development agreement.	- Equal cost per acre of urban land use to be a condition of the development agreement.
22. EPA Sewer Hook-Up Penalty	- Estimated $6.2 million fee.	- Regional Sanitation District responsibility. No cost to City.
23. Linkage to Downtown Revitalization	None	- Councilman Serna to prepare resolution.
24. Transit Financing	- Bus and Light Rail services planned. - System wide financing mechanism needed.	- Dedicate LRT alignment. - Participate in capitol and operation financing in an equitable manner when a system wide financing mechanism is developed.
25. Air Quality	- City is encouraged to adopt effective emissions control programs and to participate in Air Quality Plan Update. - Plan contains transit, TSM and Reasonable Extra Efforts Program.	- Approve recommendations of the Plan.
26. Sports Support Strategy	- Actively encourage professional sports in Sacramento. - Organize Council Task Force on sports.	- Refer to Transportation and Community Development Committee.

GLS:lr

REGIONAL TRANSIT
P.O. BOX 2110 • 1400 29TH STREET • SACRAMENTO, CA 95810-2110 • (916) 321-2800

A

February 3, 1986

Mayor Anne Rudin
City Council Members
City Hall
915 I Street, Room 205
Sacramento, CA 95814

Members in Session:

It has come to the RT Board's attention that on January 28, 1986, the City Council voted to exclude transit from the Facilities Benefit Assessment (FBA) proposed to finance public infrastructure in South Natomas. It is the purpose of this letter to register this Board's concern with this decision and to urge reconsideration. The concerns relate not only to South Natomas, but to its implications for the North Natomas planning presently underway as well.

Procedurally, the action was taken, unfortunately, without notice to RT's staff and Board. As you know, Wendy Hoyt, RT's Assistant General Manager in charge of Planning, has been working with your staff to insure inclusion of transit in the FBA. The City's action came without any notice to the District.

The RT Board is of the understanding that South Natomas is designated by the City as a "transit community". If transit is excluded from the FBA, we believe an alternative financing source needs to be identified by the City and RT. Many traffic inducing projects have been justified on the basis of this "transit community" aspect of the area. Without a source of funding, transit is an illusory mitigation.

Finally, the RT Board supports the City Planning Commission's recommendation that transit be included in the mechanism developed for funding infrastructure in North Natomas. Transit has been included as a critical element in both the EIR and the Community Plan for North Natomas. In order for RT to provide this proposed service to the North Natomas area, it is essential that funding be provided through an FBA type mechanism for the capital costs associated with the provision of transit service. If the City's action in South Natomas is to be a precedent as to how North Natomas planning is to be implemented, the premise upon which transportation service facilities are being planned should be reconsidered.

The RT Board urges the City Council to reconsider its decision of January 28th and to include transit in the FBA in South Natomas. It strongly urges the Council to include transit in any funding decision made concerning North Natomas as well. I understand the North Natomas issue is to be discussed on February 3 and 6, 1986.

Sincerely,

Arthur Bauer

Arthur Bauer
Chairman, RT Board of Directors

27 January 1986

To: The City Council of Sacramento

From: Richard B. Kelly

Subject: The North Natomas Community Plan Hearings

I am Chairperson of the North Natomas Community Planning Advisory Council. The Council is appointed by the Board of Supervisors to review plans and developments and provide advice to the County Planning Staff and Board of Supervisors.

My personal interest in planning stems from; 1. my personal observation of the deterioration of San Diego, Denver, and Santa Clara Valley, and 2. my belief that Sacramento has enormous promise if we learn from the mistakes of developed cities and we get citizen involvement. The coalition of commercial and political interests that control the development of most cities has produced an inadequate quality of life for its citizens. I do not accept that this poor history of American cities be the fate of Sacramento. The "North Natomas decision" will shape this cities future.

I have carefully gathered and analyzed every scrap of information on North Natomas. Since my forte' is financial planning and analysis, I have gravitated toward the fiscal and economic aspects of the plan.

I have analyzed the data in the EIR, City Planning Reports, the Sports Complex study, the Spinks Corporation sponsored Anderson Report, press releases, etc. The data on the subject of North Natomas is massive. As we approach the end of these public hearings I believe a big picture look is most appropriate. So I will concentrate on a few major issues. I have addressed my comments and material to the following issues:

1. What EIR findings does the draft N.N.C.P. best fit? I feel this identification is needed so as to utilize the EIR, and to assess the significantly adverse impacts of the draft Community Plan. I will compare the land use tables of Alternate C, D and the N.N.C.P. to achieve this identification.

2. The EIR finds 8 categories of significantly adverse impacts. I will focus on the economic/financial aspects of the first 2; which the EIR Consulting Team asserts cannot be mitigated, i.e., growth inducing impacts and cumulative affects.

3. To characterize and quantify my findings and analysis I have prepared certain tables to portray for you the enormous re-distribution of economic base and population the N.N.C.P. will cause.

4. To assess the cost of infrastructure and who should pay, I conducted an affordability analysis of the development, i.e., can developers afford to pay for the infrastructure? Since the City doesn't intend to pay for it, Cal Trans says no, and deficit ridden Federal Government can't be relied upon--can the developers afford these very large costs? I have assessed the cost versus capital gains and operating profits of the development.

5. Will the city likely benefit financially from the North Natomas development--as claimed? I have scrutinized the Anderson Report and the City Consultant's Report in the EIR. I will itemize the results of my findings.

To get into the material, I will now hand out to you certain tables which I ask you follow with me, table by table. In the process I will point out what I believe should be of major interest to you.

I will wrap up my presentation with a "big picture" summary of the economic/fiscal and related political issues, with my recommendations.

With your indulgence please turn to Attachment A, Table A-1: This Table A-1 compares the three plans, Alternate C and D versus the proposed N.N.C.P. land use tables. The North Natomas Consulting Team obviously was opposed to development prior to 1995 and would only recommend development no more intense than Alternate C, if the Council chooses to develop. I wanted to know how much more intense is the proposed N.N.C.P. over Alternate C....therefore, I prepared the % differences column on the far right. Since the Anderson Report based its assessment on Alternate D, I included it.

The results of my analysis are as follows:

1. The industrial/commercial development acreage and employees exceed Alternate C by 28%, and the total acreage of industrial/commercial in the N.N.C.P. is within 14 acres of Alternate D.

   The principal changes involve increases in M-20 and light industrial and decreases in M-50 and official business use.

2. Residential acreage was actually reduced despite strong EIR concerns with the lack of affordable housing in the project. To achieve the 60% jobs/housing balance the use of high density housing increased by 114% and single family rural estates were eliminated entirely.

3. Civic/Public/open space is almost no change.

Please turn to Table A-2: This Table A-2 summarizes the EIR findings by Alternative. I have classified the findings as either "Sig. Adv.", "Pot. Adv.", "Not Sig.", or "Benefit" - meaning significantly adverse affects, potentially adverse, not significantly adverse and beneficial.

My Table A-1 comparison persuaded me that the proposed N.N.C.P. best fits Alternate D. I "X"ed the Sig. Adv. findings to focus on the top 5, i.e., growth inducing impacts, cumulative impacts, housing, land use, and traffic; and the only beneficial findings is employment. However, as I will portray, the City's North Natomas Consulting Team found that 50% of the jobs in North Natomas would come at the expense of jobs in other City communities, i.e., North Sacramento, South Sacramento, the Highway 50 corridor, and downtown.

Attachment B, Table B-1 outlines the growth inducing impacts of North Natomas development in terms of net population jobs increases induced by North Natomas development.

Note that without North Natomas development the City will grow along the lines of the present growth plans--within the several City areas. However, the N.N.C.P. development would increase net City growth by 60,800 people but only 17,000 jobs. The EIR strongly warns that; 1. North Natomas development will compete with, and permanently delay, re-vitalization of other City districts, outside the Northern sector; and, 2. Will encourage "leap frogging" to the North by outlying areas of the counties, resulting in the City not being able to control growth of North Natomas to the N.N.C.P. The EIR asserts that strong joint powers action by the City and County Governments and LAFCO is essential to establish regional planning and control. The City's Consulting Team strongly recommends a delay of North Natomas development to 1995 to permit infill in other City districts first as well as downtown redevelopment.

The EIR, page B-78 contains the following paragraph which should be of great interest to this Council:

> "The major affect of opening North Natomas to development would be to reduce employment opportunities in other communities from the number of jobs which would be created without significant development in the study area (Alternative A). The most substantial differences between employment potential and the diversion of jobs would occur in North Sacramento, downtown Sacramento, South Sacramento, and the Vineyards areas. In other communities, employment creation potential would be affected, but less dramatically. As an example, under Alternative A (without opening North Natomas to urbanization), North Sacramento would receive 16,630 new jobs by 2005. Assuming North Natomas is available for urbanization under Alternative D, the projected increase in jobs is decreased from 16,630 to 6,633 jobs by 2005---a decrease of 9,992 jobs or approximately 60% fewer jobs than under Alternative A."

Table B-2 attempts to portray the re-distribution and change impacts of population growth that results from the N.N.C.P. development. This chart was assembled by taking the EIR Exhibit C-17 data and substituting the proposed N.N.C.P.

Note that whereas the three Northern communities of North Sacramento, South Natomas, and North Natomas contained 16% of the 1983 population of the City, at North Natomas buildout it would grow to 32%--1/3 the entire City. Whereas those three Northern communities will grow at a composite, cumulative 244%, or a simple annual rate of 12%, the balance of the City would absorb only 36%, or less than 2% per annum. This rate of change implies an "Oklahoma Land Rush" to the three Northern communities at the expense of the other districts of the City. This picture portends a Northern sector under a constant state of heavy expansion and growth, that will continue to extend to the North and Northeast. The EIR portrays critical housing problems, since the majority of the growth will be in low to moderate income families. Temporary/seasonal construction work and turnover will further compound housing needs and affordability.

Table B-3 reflects the distribution of economic base factors by City communities. Note that the three Northern communities dominate the chart with 80% of industrial, 60% of commercial, 27% of office/business, 58% of housing units, 56% of the population and 56% of the jobs.

This chart depicts enormous shifts in economic and political base to the three Northern communities. The City's Consultant Team warns that 50% of this shift, or growth, will be at the expense of the economies of other City districts; completely alter regional traffic and growth patterns; and spawn inter-city rivalry against a highly competitive North Natomas. The suggestions of "linkages" between North Natomas and other districts economies is totally understandable under these circumstances. It is difficult for me to imagine how any Councilpersons, other than District No. 1, can explain voting for Natomas development beyond a sports complex. The EIR says North Sacramento, South Sacramento, Highway 50 corridor, downtown are all far better off without North Natomas development prior to their development being completed.

So far, I have portrayed the growth implications on a broad, City-wide basis. Now I would like to turn to the cost of infrastructure and revenue to the City.

The City's Consulting Team found no compelling need to develop North Natomas and that significantly adverse impacts were not mitigatible. A "want" for a sports complex seems to have been demonstrated. Developers want to develop North Natomas for its $2 billion appreciation and $40 million+ per year in operating profits, tax sheltered by $1.5 billion in depreciable capital assets. The City wants the $5 to $8 million in net annual revenue at buildout that developers and the City Consultant Team assert will accrue to the City under Alternate D.

Setting aside the unmitigatible adverse affects of the development, the basis infrastructure of the project is estimated at $500 million, including $110 million for a bridge over the American.

These project costs exclude regional impact costs for widening I-5/I-80, regional transit (bus and light rail), regional sewerage treatment expansion, extensions of city water lines into the area, cost of "linkages", or cost associated with economic dislocations within the City.

Page C-1 recaps the project cost versus market value at buildout of the N.N.C.P. The Anderson Report and agriculture mitigation estimates reflect Alternate D market values of $4.3 billion. Even if my estimates of cost were low by $1/2 billion it is clear the appreciated capital value of the development is in excess of $1.0 billion. The projected sales at buildout exceeds $360 million per year per the Anderson Report. At 10% profit rate the annual net profits on operations exceeds $36 million per year. It is conceivable then that developers and commercial/industrial landowners/business owners can afford to capitalize basic projects infrastructure.

Since these rough cost estimates do not include time cost of money for financing, and do not include contingencies for vacancies, economic cycling or inflation, it is questionable developers/owners can afford to pay for regional costs or "linkages".

The Table C-1 square footage and number of dwellings comes from the same factors to establish square feet or dwellings/acre as used in the EIR and the Anderson Report. The cost per square foot or per dwelling are "guesstimates"--but even if you add 50%, the results would reflect a large margin for developer profits. The $5000/acre for land cost is an average for land cost to the members of the Sacramento Sports Association. The $5000/acre land cost is based on research at the Recorders Office indicating most of the land held by principal developer/owners was acquired at prices ranging between $3500 to $7500 per acre. The $50,000/acre cost of basic/private infrastructure internal to each project is the same as quoted most recently by Mr. Lukenbill in press releases. Earlier press releases quoted Mr. Lukenbill as saying the Arco Arena private infrastructure costs were actually $20,000 per acre. The market values are taken direct from the Spink Corporation sponsored Anderson Report. The square footages or dwelling/employee per acre calculations uses the same conversion factors as the EIR and Anderson Reports. Only developed acreage are included. Agriculture and airport are omitted.

My estimate of net operating profits on annual business operations of $36 million plus per year is based on Andersons projections of $360 million/year in sales. Assuming a profit of 10% on sales yields $36 million/year profit dollar levels.

It appears developers/landowners can afford to pay for basic infrastructure. Therefore, I recommend they pay for it and they finance it through private capitalization. Special assessment districts such as Mello-Roos should not be used, as it is presently structured.

In Attachment D of my report, I priced out Alternate C, the plan the City's Consulting Team would recommend, if development was decided. If developers pay basic infrastructure their net margins on appreciation are about the same in either plan. However, the EIR Consultants estimate of the City's net revenue drops to near zero.

Finally, I would like to give you my assessment of the feasibility of the $5 to $8 million net revenue to the City, and why I believe it is illusory, for the following several reasons:

1. 50% of North Natomas growth comes from other City districts. Therefore, any net gain to North Natomas is not net to the City, i.e., net to the City would be approximately 50% of net North Natomas revenue.

2. The net revenue is at buildout some 20 or 30 years out. The phasing assumes a linear relationship between cost versus revenue will be maintained at each phase from 1985 through the year 2005; no vacancies; no lag between initial investment and break even; average sales/profitability is instantaneous; cost of City overhead will be almost instantly offset by revenues; no economic downturns; no failures of markets to materialize; no underestimates; no overruns; no regional transit deficits, etc. Now folks! If you believe that, I have a bridge over the American River I would like to sell to you!

3. The Anderson Associates assume the police department will operate for $2.0 million less per year than the police department estimates; and without any police stations or rolling stock in the area.

4. "Linkages" such as trust funds to North Sacramento housing and employment training, and any regional costs would be separately funded by special assessment districts.

5. 60% of residents will be owner/residents entitling Sacramento to $490,000 per year in Homeowner Exemption Funds. Sacramentans are predominantly single family home owners, housing will not be affordable to typical residents. It is highly doubtful residents will buy a unit in the midst of 12 dwellings/acre.

6. 10.54% of property taxes will accrue to the City by annexation of North Natomas Fire District--with no net cost to the City for extended services to the annexed area. The City policy has been to stop annexing because it costs too much.

7. No expenses are in the plan for such costs, as major changes, or renovation of, public capital improvements after turn key to the City through completion of buildout--over 20 years.

8. Property tax base turnover of 10% per year will continue indefinitely, based on property sales and transfers; and no discounting for inflation is required. The EIR Consultant discounted property tax revenues by 6% per annum. I would go with the EIR Consultants more conservative approach.

9. The City will pay for Library Capital Costs and Fire Prevention equipment and buildings at each stage of development. This is a $6.0 million dollar expense that the Anderson study assumes will be paid by Residential Construction Taxes.

10. No Admission Tax on sporting events is assumed.

11. The plan assumes 100% success at all stages of development. Therefore, no contingency funds are provided for.

12. The Anderson Report is based on Alternate D for which they assessed a market value of $4.3 billion. Using the same factors on the N.N.C.P., I calculated $3.9 billion market value. That is a loss in value of $400 million which would imply property and sales tax will be lower in the proposed N.N.C.P. than in Alternate D.

Therefore, for the twelve reasons stated, I believe net gain on revenues is illusory, and should not be a major consideration in a decision for development. Conversely, it is a major reason for delay.

The big void is regional cost responsibility which is a big number. I do not believe it is irresponsible to guess at the $1/2 billion level. A solution to this regional cost must be available before development is approved or the City will be diving off of a financial cliff.

A financial or economic evaluation of Phase I the sports complex and Gateway Point project is not very feasible given the absence of land use tables and zoning data, or cost estimates, for Phase I. I sense we are so entranced with the long range big picture of North Natomas that we may have lost sight of the near term reality of Phase I. We need Phase I land use tables and cost data. The N.N.C.P. has very little on Phase I plans or cost.

Phase I is a negotiation, within which framework the applicant has raised the ante from 200 acres to build a sports complex to 1400 acres as the reward or subsidy for providing a privately built and operated sports complex. The SWA Group report on the sports complex finds no reason to subsidize the arena, i.e., as in the Arco Arena it will be a self sufficient investment. The local press reports the stadium design of the applicant, i.e, use of interior space for offices/business rentals and event scheduling will lead to a self sufficient stadium once teams are operating in it. I would recommend that the applicant be given approval to build a permanent arena without related development subsidy; and treat this business as any other business.

To avoid sports complex development subsidies from competing with other City communities for jobs, the stadium should be delayed pending buildout of other City districts. The jobs of citizens in other City districts should not be sacrificed to subsidize a stadium which is not economically viable. To do otherwise is to discriminate against other forms of business development and create a monstrous competitor with other City districts.

The 1995 date should be cast into concrete until regional joint powers control among the City, Counties and LAFCO can establish a regional planning and control mechanism. The local free press is duty bound to keep the pressure on local governments to establish disciplined controls of regional development, in everyone's best interest! No development beyond an arena should proceed until; 1. we have found mitigations for the significantly adverse environmental impacts; 2. regional planning and control are established; 3. a means to finance mitigations and regional infrastructure are secured; and, 4. the downtown and other city districts revitalization programs and infill development must be essential complete. Funding of regional mitigation measures and infrastructure must be borne by new developments via a regional commercial construction and/or sales taxes collected by the city and counties of the region.

Sacramento has survived a long time without North Natomas development; it will grow in all districts without it. No compelling need has been shown for development of North Natomas at this time. Significant reasons exist not to develop it. Only a "want" for an arena and stadium are shown. Approve the arena and delay the stadium. Alternate A with an arena should be Phase I. As other City districts fill out then the stadium and Gateway Point development can be implemented. Ultimate development of Natomas should not be initiated until the adverse affects can be mitigated and financing secured. Under no circumstances should Alternate C be exceeded.

A decision to develop beyond Alternative A and a sports arena at this time will reshape the entire city and adversely impact most other districts of the city. The EIR clearly portrays a city much better off with no North Natomas development at this time. Given a choice between taking the advise of independent consultants paid by the City and that of developers with a $2.0 billion dollar margin at stake, I choose the City's Consultant Team. By this North Natomas decision this Council will largely determine what kind of city Sacramento will be. I hope you will not make the same mistakes that so many other more widely developed cities have made. In the last November elections Mayors and Councilpersons in many major California cities were voted out of office and land use decision powers were curtailed.

However, the damage was already done and too late the citizens acted. You were wise to plan South and North Natomas in their entirety. I pray you are wise to learn from the mistakes of other cities. Let us all work together, commercial and non-commercial interests alike, to build a City that will realize it's great promise!

R. Kelly Report F.

ATTACHMENT A

EIR IMPACTS SUMMARY

Comparison of Draft North Natomas Community Plan to Alternate C and D of EIR

Land Use	Alt. C Net Acres	Alt. C Emps.	Current Plan Net Acres	Current Plan Emps.	Alt. D Net Acres	Alt. D Emps.	% Change Over C Acres	% Change Over C Emps.
Major Employers								
M-50 (45 Emp/Acre)	208	9,360	117	5,265	455	20,475	-44%	-44%
M-20 (30 Emp/Acre)	733	21,990	1,306	39,180	850	25,500	+78%	+78%
Light Industrial	500	10,000	630	12,600	545	10,900	+26%	+26%
Office/Bus (55 Emp/Acre)	122	6,710	53	2,915	170	9,350	-57%	-57%
Comm. Comm. (30 Emp/Acre)	100	3,000	114	3,420	140	4,200	+14%	+14%
Hwy. Comm. (30 Emp/Acre)	63	1,890	46	1,380	120	3,600	-27%	-27%
Sports Complex (5 Emp/Acre)	200	1,000	200	1,000	200	1,000	0	0
SPA (5 Emp/Acre)	(500)	(2,500)	(500)	(2,500)	(500)	(2,500)	0	0
Total	1926	53,950	2,466	65,760	2480	75,025	+28%	+22%
Residential								
Rural Estates (1/Acre)	374	374	0	0	0	0	-100%	-100%
Low Density (7/Acre)	1518	10,626	1,285	8,995	1400	9,800	-15%	-15%
Med Density (12/Acre)	1121	13,452	823	9,876	843	10,116	-27%	-27%
High Density (22/Acre)	300	6,600	643	14,146	634	13,948	+114%	+114%
Total	3313	31,052	2,751	33,017	2877	33,864	-17%	+ 6%
Civic/Public			Gross Acres					
Elem. School (6 Acres ea.)	72		78	(13 ea.)	78			
Jr. High (20 Acres ea.)	60		60	(3 ea.)	60			
Sr. High (40 Acres ea.)	40		80	(2 ea.)	40			
Other Civic Uses	158		115		115			
Airport	(2900)		(2900)		(2900)			
Total	330		333		293		+1%	
Open Space								
Parks	600		370		350			
Greenbelt	700		950		950			
Buffers and Drainages	600		560		560			
Agricultural	386		190		190			
Roads	1545		1700		1700			
Ag/SPA Reserve	(1500)		(1500)		(1500)			
Total	3831		3770		3750		-2%	
Total Acreage	9400		9320		8900		-1%	
Total Population	63907		63353		65792			
Jobs/Housing Balance	60%		60%		52%			

Conclusions: Community Plan land use is essentially Alternate D except:

1. More intense industrial development.
2. Less, but more dense residential development to get jobs/housing balance.

Sources: North Natomas Community Plan
North Natomas EIR

(Non-Add)

Table A-2

North Natomas EIR Summary Results

		Alternatives				
		A	B	C	D	E
1.	Growth Inducing Impacts	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.
2.	Cumulative Impacts	N/A	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.
3.	Housing	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.
	3.1 Mitigation	None	None	None	None	None
4.	Employment	Benefit	Benefit	Benefit	Benefit	Benefit
	4.1 Note: 1/2 of benefit @ expense of other City/Co. districts.					
5.	Land Use	Benefit	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.
6.	Traffic	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.
	6.1 Mitigations					
7.	Air Quality	Not Sig.	Pot. Adv.	Pot. Adv.	Pot. Adv.	Pot. Adv.
8.	Noise	Not. Sig.	Not. Sig.	Not. Sig.	Not. Sig.	Not. Sig.
9.	Water	Not. Sig.	Not. Sig.	Not. Sig.	Not. Sig.	Not. Sig.
10.	Sewerage and Sanitation	Not. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.
11.	Police/Public Safety	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.
12.	Fire	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.
13.	Solid Waste Disposal	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.
14.	Schools	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.
15.	Parks and Recreation	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.
16.	Library	Not. Sig.	Not. Sig.	Not. Sig.	Not. Sig.	Not. Sig.
17.	Public Health					
	17.1 Soil Contamination	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.
	17.2 Mosquitoes	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.
18.	Soils and Geology	Not. Sig.	Not. Sig.	Not. Sig.	Not. Sig.	Not. Sig.
19.	Ag. Lands	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.
20.	Hydrology/Water Quality	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.
21.	Vegetation/Wild Life	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.	Sig. Adv.
22.	Archeo./Historic	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.
23.	Visual/Aesthetics	Not. Sig.	Not. Sig.	Not. Sig.	Not. Sig.	Not. Sig.
24.	Electrical Facil.	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.	Pot. Sig.

Sig. Adv. = Significantly Adverse

Pot. Adv. = Potentially Adverse

Source: North Natomas EIR Summary

ATTACHMENT B

CUMULATIVE AFFECTS

B-1 Growth Inducing Impacts

B-2 Population Re-Distribution of City

B-3 Economic Re-Distribution of City

Table B-1

Sac. SMSA
Net Population/Job Increases
With or Without North Natomas

1. Population

Year	With Natomas	Without Natomas	Induced Growth/ Net Change
1983	1,086,600	1,086,600	0
1985	1,109,300	1,107,200	2,100
1990	1,220,300	1,207,800	12,500
1995	1,396,100	1,367,200	28,900
2000	1,559,800	1,515,600	44,200
2005	1,737,400	1,676,600	60,800

2. Jobs

Year	With Natomas	Without Natomas	Induced Growth/ Net Change
1983	423,100	423,100	0
1985	444,500	442,700	1,800
1990	502,900	496,400	6,500
1995	569,000	557,100	11,900
2000	693,800	671,600	22,200
2005	720,400	703,400	17,000

Source of Data: EIR Exhibit C-9

Population Re-Distribution

North Natomas Community Plan

Planning Area City of Sacramento	Current (*) Plan (%)	1983 Existing (%)	Increase Over 1983 Existing
1. North Natomas	63,353 (11%)	1,613 (1%)	383%
2. South Natomas (1)	57,837 (10%)	15,329 (5%)	278%
3. Subtotal	**121,290 (21%)**	**16,942 (6%)**	**616%**
4. North Sacramento	67,057 (12%)	37,840 (22%)	77%
5. Subtotal	**188,347 (32%)**	**54,782 (16%)**	**244%**
6. Balance of City	392,886 (68%)	288,437 (84%)	36%
7. Total City	**581,233 (100%)**	**343,219 (100%)**	**69%**
8. Sacramento County	695,725	498,756	39%
9. Other Counties	454,116	249,600	82%
10. Total	**1,731,074**	**1,091,575**	**58.6%**

(*) Assumed Alt. C projections for all but North Natomas since no EIR update made on new Community Plan.

Prepared By: R. Kelly

(1) Note: South Natomas update needed.

Data from EIR Exh. C-17 and NNCP

Table B-2

Economic Re-Distribution

North Natomas Community Plan + EIR Alternate D

Planning Area	Industrial Acres	%	Commercial Sq. Ft.	%	Office Sq. Ft.	%	Dwelling Units	%	Populations People	%	Jobs	%
North Natomas	2053	(70%)	1,336,500	(33%)	874,500	(4%)	33,017	(31%)	65,552	(27%)	65,760	(39%)
South Natomas	142	(5%)	800,000	(20%)	4,400,000	(20%)	17,000	(16%)	41,390	(17%)	22,207	(13%)
Subtotal	**2195**	**(75%)**	**2,136,500**	**(53%)**	**5,274,500**	**(24%)**	**50,017**	**(47%)**	**106,942**	**(44%)**	**87,967**	**(52%)**
North Sacramento	140	(5%)	300,000	(7%)	700,000	(3%)	11,500	(11%)	27,999	(12%)	6,633	(4%)
Subtotal	**2335**	**(80%)**	**2,436,500**	**(60%)**	**5,974,500**	**(27%)**	**61,517**	**(58%)**	**134,941**	**(56%)**	**94,600**	**(56%)**
Arden/Arcade (City/Co.)	0	0	100,000		1,400,000		2,000		4,869		5,167	
East Sacramento	20	(1%)	22,000		1,000,000		500		1,217		3,843	
Central City	80	(3%)	300,000		10,500,000	(48%)	3,400		8,278		38,100	
East Broadway	220	(8%)	61,000		600,000		1,400		3,409		6,705	
South Sacramento (City/Co.)	150	(5%)	400,000		200,000		17,500		42,608		5,667	
Airport Meadow View	130	(3%)	375,000		1,500,000		8,800		21,426		11,875	
Land Park	0	0	31,000		10,000		700		1,704		186	
Pocket	0	0	300,000		700,000		9,800		23,860		3,833	
Total City	**2935**	**(100%)**	**4,025,500**	**(100%)**	**21,885,500**	**(100%)**	**105,617**	**(100%)**	**242,312**	**(100%)**	**169,978**	**(100%)**

Data Sources: North Natomas Community Plan
North Natomas EIR.

Needs update on South Natomas.

Table B-3

ATTACHMENT C

FISCAL ANALYSIS - COMMUNITY PLAN

North Natomas Community Plan - Fiscal Analysis

		Ref Table
o Cost of Development (Less Regional)	$1.977 Billion	C-1
o Market Value (Anderson Report)	3.919 Billion	C-1
Gross Margin	1.942 Billion	
o Public Improvements (Less Regional)	-.506 Billion	
- Basic .396 Billion (Table C-2)		
- Bridge over American .110 Billion		
Net Margin	$1.436 Billion	
o Value of Depreciable Assets	$1.465 Billion	

Conclusions/Valid Generalizations:

1. Developers/owners can afford to pay for all public improvements/infrastructure except possibly regional.

2. However, affordability of regional cost impacts for freeways expansion, sewer plant expansion, etc., may be questionable.

3. A more precise affordability study is needed for City and developer/owners to negotiate in fairness. A phased cash flow study, with phased development steps by major elements, is needed to comprehend financing and rates of return on capital employed after tax.

4. Long range regional infrastructure/cost needs for City wide growth versus market value of growth is needed to assure affordability (private versus public). Periodic regional planning is needed.

Table C-1

North Natomas Community Plan Fiscal Analysis

	Net Acres		Sq. Ft. Acre		Sq. Ft. Total		Cost/ Sq. Ft.		Building Costs
1. Commercial									
M-50	117	X	15,750	=	1,842,750	X	$20/Sq. Ft.	=	$36,855,000
M-20	1306	X	12,750	=	16,651,500	X	$20/Sq. Ft.	=	333,030,000
Light Industrial	630	X	11,000	=	6,930,000	X	$20/Sq. Ft.	=	138,600,000
Office/Business	53	X	16,500	=	874,500	X	$30/Sq. Ft.	=	26,235,000
Community Comm.	114	X	9,000	=	1,026,000	X	$30/Sq. Ft.	=	30,780,000
Highway Comm.	46	X	6,750	=	310,500	X	$30/Sq. Ft.	=	9,315,000
SPA	(500)				(-)				(-)
Subtotal	2266				27,635,250				$574,815,000
2. Residential									
Low Density	1285	X	7 Du/Acre	=	8,995	X	$30,000	=	$269,850,000
Med. Density	823	X	12 Du/Acre	=	9,876	X	$25,000	=	246,900,000
High Density	643	X	22 Du/Acre	=	14,146	X	$20,000	=	282,920,000
Subtotal	2751				33,017				$799,670,000
3. Sports Complex									
Arena	200								30,000,000
Stadium									60,000,000
Subtotal									$90,000,000
4. Land	9320 Acres @ $5000/Acre								$46,600,000
5. Infrastructure	9320 Acres @ $50,000/Acre								$466,000,000
Total Cost									$1,977,085,000

6. Market Value:	Sq. Ft.		Value/Sq. Ft.		
M-50	1,842,750	X	$80/Sq. Ft.	=	$147,420,000
M-20	16,651,500	X	$65/Sq. Ft.	=	$1,082,347,500
Light Industrial	6,930,300	X	$50/Sq. Ft.	=	$346,515,000
Office/Business	874,500	X	$100/Sq. Ft.	=	$87,450,000
Comm. Commerce	1,026,000	X	$80/Sq. Ft.	=	$82,080,000
Highway Commerce	310,500	X	$70/Sq. Ft.	=	$21,735,000
Subtotal					$1,767,547,500
	Units		**Value/Units**		
Low Density	8,995 Ea.	X	$75,000	=	$674,625,000
Medium Density	9,876 Ea.	X	$60,000	=	$592,560,000
High Density	14,146 Ea.	X	$62,500	=	$884,125,000
Subtotal					$2,151,310,000
Total Market Value					$3,918,857,500

Table C-2

Infrastructure Cost

(1.) Ralph Anderson & Associates:

Refuse Collection	1,050,000	
Library	2,098,300	
Fire	3,887,000	
Police Station	2,000,000	(Added)
Police Cars (30 @ $20K Ea.)	600,000	(Added)
Sheriff	119,600	
Parks	26,190,000	
Schools (Elem/Jr/Hi)	81,974,700	
Transit (Buses)	22,338,000	
Water Lines	63,600,000	
Sewer Trunks	33,818,000	
Drainage (Storms)	158,400,000	
	$396,075,600	
Roads/Streets	0	
Light Rail	0	
	$396,075,600	

(1.) All numbers exclude land.

(2.) Angus McDonald (EIR/Vol. II)

Solid Waste	980,000
Library	2,045,000
Fire	4,097,000
Police	1,640,000
Sheriff	0
Parks	126,661,000
Schools (Elem/Jr/Hi)	79,073,000
Transit (Buses)	17,680,000
Water Lines	56,571,000
Sewer Trunks	58,750,000
Drainage ((Storms)	136,200,000
	$483,697,000
	90,965,000
	1,979,000
	$576,641,000

(2.) All numbers include land. At market value approx. 3775 acres @ $50K = approx. $190 mil.

Comments:

1. Anderson and McDonald's estimates do not vary widely when a. the cost of land, road, and light rail costs are deleted from McDonald's numbers which are not in the Anderson figures. Note, I added police costs by a "guesstimate" since Anderson had none.

2. No community centers in plan.

3. Note that the plans do not include a local community technical school which will be essential to a high tech industrial center. No cost in plan!

4. Traffic mitigations should be bridging east canal and use easterly circulation on San Juan, Main, Elkhorn, Elverta, Riego Road, Arden/Garden Connector, as well as bridge the American. No cost in plans!

5. Heavy industry will need railroad and air freight. No cost in plans!

6. No regional cost of freeway expansion included.

ATTACHMENT D

FISCAL ANALYSIS - ALTERNATE C

Alternate C Fiscal Analysis

		Ref. Table
o Cost of Development (Less Regional)	$1.91 Billion	D-1
o Market Value (Anderson Report)	3.648 Billion	D-1
Gross Margin	1.736 Billion	C-2
o Public Improvements (Less Regional)	-.396 Billion	
Net Margin	$1.340 Billion	
o Value of Depreciable Capital Assets	$1.395 Billion	

Conclusions:

1. Developers can afford to pay for all infrastructure and still have high margins and tax sheltered gains.

2. Regional costs of freeway lane expansions, light rail, sewerage plants, may not be immediately affordable to initial land owners/developers.

   However, the collateral values may be sufficient by year 2000 to finance regional infrastructure impacts of development.

3. EIR Exhibit J-52 indicates net cash flow to City general fund at $124,500/annum.

Table D-1

Alternate C Cost Versus Market Value

Commercial	Net Acres		Sq. Ft./ Acre		Sq. Ft. Total		Cost/ Sq. Ft.		Building Cost
M-50	208	X	15,750	=	3,276,000	X	$20/Sq. Ft.	=	$65,520,000
M-20	733	X	12,750	=	9,345,750	X	20/Sq. Ft.	=	186,915,000
Light Industrial	500	X	11,000	=	5,500,000	X	20/Sq. Ft.	=	110,000,000
Office/Business	122	X	16,500	=	2,013,000	X	30/Sq. Ft.	=	60,390,000
Community Comm.	100	X	9,000	=	900,000	X	30/Sq. Ft.	=	27,000,000
Hwy. Comm.	63	X	6,750	=	425,250	X	$30/Sq. Ft.	=	12,757,000
SPA	(500)								$ (-)
Subtotal	**1726**				**21,460,000**		**($21.56/Sq. Ft.)**		**$462,582,000**

Residential									
Rural estate	374	X	1 Du/Acre	=	374 Ea.	@	$150,000	=	$56,100,000
Low Density	1518	X	7 Du/Acre	=	10,626 Ea.	@	$30,000	=	318,780,000
Med. Density	1121	X	12 Du/Acre	=	13,452 Ea.	@	$25,000	=	336,300,000
High Density	300	X	22 Du/Acre	=	6,600 Ea.	@	$20,000	=	132,000,000
Subtotal	**3313**				**31,052 Ea.**				**$843,180,000**

Sports Complex			
Arena	200		30,000,000
Stadium			60,000,000
Subtotal			**$90,000,000**

Land	9,400 @ $5000 Average/Acre		$47,000,000
Infrastructure	9400 Gross Acres @ $50,000 Ea. =		$470,000,000
		Total Cost	$1,912,762,000

Market Value			
M-50	3,276,000 Sq. Ft. X $80/Sq. Ft. =		$262,080,000
M-20	9,345,750 Sq. Ft. X $65/Sq. Ft. =		607,473,750
Light Industrial	5,500,000 Sq. Ft. X $50/Sq. Ft. =		275,000,000
Office/Business	2,013,000 Sq. Ft. X $100/Sq. Ft. =		201,300,000
Community Commercial	900,000 Sq. Ft. X $80/Sq. Ft. =		72,000,000
Highway Commercial	425,250 Sq. Ft. X $70/Sq. Ft. =		29,767,500
Subtotal			**$1,447,621,250**
Rural Estates	374 Units @ $250,000 Ea. =		$93,500,000
Low Density	10,626 Units @ $75,000 Ea. =		$796,950,000
Medium Density	13,452 Units @ $60,000 Ea. =		$807,120,000
High Density	6,600 Units @ $62,500 Ea. =		$412,500,000
Subtotal			**$2,110,070,000**
Sports Complex			90,000,000
Total Market Value			**$3,647,691,250**

City Clerk
2-6-86

February 3, 1986

Sacramento Area Council of Governments

106 "K" Street, Suite 200
Sacramento, California 95814
(916) 441-5930

Mailing Address:
P.O. Box 808
Sacramento, California 95804

The Honorable Ann Rudin, Mayor
and Members of the City Council
City of Sacramento
915 I Street
Sacramento, CA 95814

Members in Session:

At your last hearing on the North Natomas Community Plan, much testimony focused on the need for a thorough review of the city's efforts to mitigate air pollution attributable to the potential growth now anticipated. Mr. Norm Covell, Air Pollution control Officer for the Sacramento Air Pollution Control District, pointed out that monitoring data indicates that the adopted Air Quality Plan measures which the region has implemented have resulted in a smaller reduction in emissions than was projected in the 1982 plan. Mr. Covell also noted that environmental documents for many recent development proposals predict increased emissions of carbon monoxide. Another concern with the validity of the current Air Quality Plan which Mr. Covell pointed out was revised (upward) population projections.

In addition to the concerns raised by those testifying on January 27, it is true that much of the proposed development activity now before the city and the county of Sacramento was not foreseen at the time that analyses were undertaken in support of the Air Quality Plan. That plan did not envision the development of the North Natomas Community Plan area prior to its 1987 horizon year. As a consequence of this, and the potential for development of a number of other areas in years following 1987, many possible highway system improvements and other emission-related activities were not analyzed in the Air Quality Plan. However, for highway projects to eligible for federal financing programs in areas not attaining the National Ambient Air Quality Standards, it must be shown that they are in conformity with the required Air Quality Plan. This presents a dilemma at the present time in Sacramento.

For these reasons, SACOG is presently considering a review of the region's adopted Air Quality Plan. Such a review could take into account a variety of possible paths for future development and could evaluate additional approaches to mitigating the air quality impacts of such future conditions.

But the source of financing for an air quality plan review is not yet clear. Although there is no agreed upon work program for this effort as yet, we know that it could be costly based upon our past experience. The 1982 planning effort, financed by EPA and other sources, required staffing that would cost over $300,000 at the present time. We estimate that such an effort would require two years or more to complete. In addition, a projection of air quality into the future would most likely require the cooperation of the Air Resources Board staff. Since the State Air Resources Board is involved in many projects, our planning would have to be placed on their priority list.

Considering the fact that we could not project meeting the National Ambient Air Quality Standards in all categories, even with the adopted plan's implementation, the Environmental Protection Agency has expressed concern that Sacramento implement all aspects of the adopted Air Quality Plan and, beyond the plan, undertake those additional reasonable extra efforts which can be shown to be effective in controlling air pollution. Without an air quality plan that shows how improved air quality can be achieved, we are faced with the need to demonstrate every possible reasonable effort with every development approval.

Therefore, we urge you to take all appropriate air quality mitigation measures into account in considering the North Natomas Community Plan. Subsequently, as specific developments are considered, we will again urge consideration of all reasonable efforts to mitigate emission impacts. Failure to do so could place Sacramento in an unfavorable position with respect to potential EPA actions.

Sincerely,

MICHAEL HOFFACKER
Director of Planning

MH:bb

cc: Gary Stonehouse

2-6-86

SACRAMENTO HOUSING AND REDEVELOPMENT AGENCY

February 4, 1986

TO: Members, Sacramento City Council

FROM: William H. Edgar, Executive Director

SUBEJCT: Sacramento Housing and Redevelopment Commission Response to the Proposed Mitigation Measures for the North Natomas Development

For your information, the Sacramento Housing and Redevelopment Commission has reviewed the Agency's staff recommendations on proposed mitigation measures for the North Natomas development and has endorsed them.

The attached Resolution, expressing that endorsement, is hereby transmitted for your review.

Respectfully submitted,

for WILLIAM H. EDGAR
Executive Director

WHE:JEM:mlf
Attachment

MAILING ADDRESS: P.O. BOX 1834, Sacramento, CA 95809
OFFICE LOCATION: 630 I Street, Sacramento, CA 95814 (916) 444-9210

RESOLUTION NO. SHRC- 86-006

ADOPTED BY THE SACRAMENTO HOUSING AND REDEVELOPMENT COMMISSION UNDER THE AUTHORITY DELEGATED TO THE COMMISSION PURSUANT TO CALIFORNIA HEALTH AND SAFETY CODE, SECTION 33202 BY RESOLUTION NO. RA 81-083 ADOPTED BY THE REDEVELOPMENT AGENCY OF THE CITY OF SACRAMENTO ON OCTOBER 20, 1981, AND BY RESOLUTION NO. RA-83 ADOPTED BY THE REDEVELOPMENT AGENCY OF THE COUNTY OF SACRAMENTO ON OCTOBER 27, 1981, AND PURSUANT TO CALIFORNIA HEALTH AND SAFETY CODE SECTION 34292 BY RESOLUTION NO. HA 81-098 ADOPTED BY THE HOUSING AUTHORITY OF THE CITY OF SACRAMENTO ON OCTOBER 20, 1981, AND BY RESOLUTION NO. HA-1497 ADOPTED BY THE HOUSING AUTHORITY OF THE COUNTY OF SACRAMENTO ON OCTOBER 27, 1981,

ON DATE OF

February 3, 1986

APPROVING THE AGENCY POSITION ON ISSUES
RELATING TO THE DEVELOPMENT OF THE
NORTH NATOMAS AREA

WHEREAS, the Sacramento Housing and Redevelopment Commission is concerned about the impact which the proposed development in the North Natomas area will have on the supply of housing affordable to low income families in Sacramento and wishes to propose a means by which to mitigate that impact; and

WHEREAS, the Sacramento Housing and Redevelopment Commission believes that the proposed development will have adverse effects on commercial and office development in the Downtown, Del Paso Heights, and North Sacramento areas; and

WHEREAS, the Commission sees significant potential for augmenting the City's efforts to promote economic development among minority and women owned businesses (MBE/WBE) by ensuring their participation in the construction activity in North Natomas.

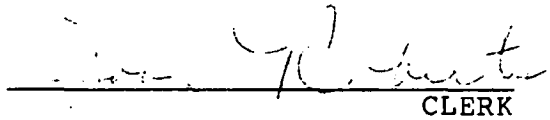
NOW, THEREFORE, BE IT RESOLVED BY THE SACRAMENTO HOUSING AND REDEVELOPMENT COMMISSION:

Section 1. The Commission wishes to endorse the proposals of the Sacramento Housing and Redevelopment Agency staff, previously forwarded to the City Planning Director, regarding establishment of an MBE/WBE program for North Natomas, the establishment of programs to mitigate the impact of North Natomas development on Downtown and North Sacramento, and the establishment of a trust fund to help develop the housing which will be needed for the low income employees of North Natomas businesses.

Section 2. The Commission further requests that these proposals be considered in the context of the North Natomas plan hearings.

CHAIR

ATTEST:



CLERK

NORTH NATOMAS MOTION (AS AMENDED)

FEBRUARY 6, 1986

Councilman Pope moved that we continue our hearing and that the City Council express its intent to: (1) approve the General Plan amendments recommended by the Planning staff in their report to the Council dated January 27, 1986; and, (2) approve the North Natomas Community Plan as recommended by the Planning Staff and set forth in the staff report dated January 2, 1986, and as modified by the staff reports dated Janaury 27, 1986 and February 3, 1986, and as modified by this motion.

In addition to the items set forth in the reports cited, the final terms and conditions of the Community Plan shall provide for:

1. 100% reimbursement to the City for all planning expenses incurred in developing this community plan, which reimbursement shall occur in a manner acceptable to the City staff.
2. Conveyance fee without any reservation of any reversionary interest, free of all liens and encumberances and without credit towards Quimby fees, of a 200 acre park site together with all offsite improvements, that's including curb, gutter, sidewalks, streets, water, sewer and storm drainage, and a 500 foot greenbelt/buffer as shown on the Community Plan.

3. Participation by all the property owners in the planning area, in the necessary public facilities fee assessment plan or other financing mechanism(s) for financing, both design, engineering and construction of all library, fire, police, street, traffic, water, sewer, drainage improvements and all monitoring programs provided for in the Plan and those things, those mechanisms not otherwise provided for in the Community Plan. Guarantees for this shall be via development agreements or other means acceptable with our staff. The construction of the stadium and arena, however, may commence prior to these guarantees being given with the provision that these fees will be applied retroactively.

4. The Plan for the property commonly referred to as the Tsakopolous property shall be modified to provide for approximately 30 acres of commerical, 97 acres of light industrial, 117.5 acres of medium density residential and 57.5 acres of high density residential, the particular configuration and exact mix of this area to be worked out with staff. This modification, however, is given on the contingency that it have no change in the traffic figures set out from the Community Plan and not increase the housing balance also set out in the Plan.

5. The Natomas Airpark, it may continue operating, in its present location, so long as possible, until the development in the area require its removal. Good faith efforts to relocate the airport must be undertaken for the period not less than one year following closure.

6. The language in the February 3, 1986 staff report regarding agricultural preservation is adopted. However, the words "permanent" and "exclusive" from that recommendation are deleted.

7. The Council expresses it's desire to cooperate with the Board of Supervisors, both at our level and at the staff level, with the County regarding Metropolitian Airport and its surrounding land uses.

8. Future employers in the surrounding plan area will be required to follow the jobs program outlined in the Gateway Point Memorandum of Understanding. Further, the provisions regarding minority and women business enterprises contained in Councilmember Johnson's memorandum dated February 3, 1986, are a part of this motion. These programs replace the employment and economic development portion of the Community Plan as recommended by the Planning Commission.

9. Staff is directed to monitor any adverse impact of this Plan on the Downtown Central Business District as outlined in Councilmember Serna's memorandum to the Council dated February 6, 1986, which memorandum is a part of this motion.

10. The arena and stadium facilities provided for in the Plan shall at a minmum be designed to accommodate the design requirements of major league football, baseball and basketball leagues.

11. There shall be established a housing trust fund as described in the Memorandum of Understanding from the Gateway Point applications and in the February 3, 1986 staff report.

12. A freeway landscaped parkway shall be provided along all the freeways in the Plan area which parkways shall be at least the same if not greater than that already provided for on the Gateway Point application.

13. There shall be an irrevocable offer to dedicate a light rail route through the plan area, the reservation of which is contingent upon the identification of the route by Regional Transit within a reasonable time. Further, at such time that the light rail line is actually constructed in the Plan area, the route so reserved shall be conveyed, by the property owners, to the entity operating the light rail system, in fee, free of all liens and encumberances, at no cost to the City, Regional Transit or any other public entity.

    Staff will report back on the impacts of a "dedication of a transit route" instead of "light rail" at the March 4 meeting.

14. The alignment of the road on the southwest quardant of the Plan area shall be shifted southward to provide a southern shift of the park site as is shown on Attachment 1 of this motion and this property we're shifting the alignment on is sometimes called the McQuen and Steele property.

15. The area commonly referred to as Valley View Acres shall remain rural estate and the alignment for Northgate Blvd. extension shall be referred back to staff for realignment so as to avoid its present route through Valley View Acres.

16. The phasing program described in the previously mentioned staff reports and in the Gateway Point Memorandum of Understanding is approved. Staff is directed to develop triggering mechanisms for review and approval prior to final adoption of this Plan.

17. In reference to Item 20 of Attachment A of the staff report of February 3, 1986, Item 20 is concerning school finance for those of you who don't have a report. The school financing mechanisms to be addressed in addition to those things discussed in the staff report include Mello-Roos financing and school impaction fees.

18. Whereas, there is a significant community support for a sports complex in the City of Sacramento; and

Whereas, there are economic and social values to supporting professional sports in the City of Sacramento;

Now, therefore, Be It Resolved the City Council supports the development of a sports complex in North Natomas;

And Be It Further Resolved that the development of a North Natomas will not be added to the taxpayers burden but will go forward at the expense of the landowners and the developers in North Natomas area.

19. The following language is referred to staff to come back with a report on Councilwoman Robie's proposed amendment at the time of the Findings of Fact:

> Air quality to meet the significant air quality concerns identified in the final environmental impact report for the North Natomas Community Plan and amend the following language to the Plan: Develop an air quality implmentation element to be adopted as part of the Findings of Fact on North Natomas Community Plan. The air quality implementation element should include an up-to-date assessment of the Air Quality Plan in the Sacramento region. The inventory of Sacramento City policies and measures adopted in 1982 Regional Air Quality

and a set of specific air quality measures to be applied in North Natomas in order to maintain consistency with the Regional Air Quality Plan and the requirements of the EPA Area 9 reasonable extra effort program.

20. Establish a safe, efficient and convenient bicycle circulation system in North Natomas for both recreation and commuting; establish a Bicycle Task Force to recommend a specific Bike Coordination Element for North Natomas Community Plan; recommendations should include routes, standards, access to adjacent communities, parking, storage and other facilities; establish a bikeway system including off-street bikeways along drainage features and easements along major or minor streets as necessary.

The final Findings of Fact with the detailed plan adopted based on this motion shall be returned to the Council eight (8) after tonight which is April 8, 1986. Further, staff shall make a progress report back to this Council on March 4, 1986.

During that interim period, the staff will meet with respective parties and in those meetings it should be clear to the staff that in preparation of the development agreements all property owners shall be included in those agreements.

And finally, this hearing as part of this motion should be continued and shall be continued to March 4 and April 8 at 7:30 p.m. in the City Council Chambers. Seconded by Councilman Kastanis. The main motion, as amended, carried by the following vote:

AYES: Councilmembers Chinn, Johnson, Kastanis, Pope, Serna, Shore, Smallman

NOES: Councilmembers Robie, Rudin

CITY OF SACRAMENTO

DEPARTMENT OF PLANNING AND DEVELOPMENT
1231 "I" Street Sacramento, Ca. 95814

Administration
Room 300 449-5571
Building Inspections
Room 200 449-5716
Planning
Room 200 449-5604

January 2, 1986

City Council
Sacramento, California

Honorable Members in Session:

SUBJECT: Proposed North Natomas Community Plan (M84-007)

SUMMARY

The Planning Commission voted on December 18, 1985 to recommend adoption of the attached Community Plan for North Natomas subject to Commission approval of recommended General Plan amendments on January 9, 1986. Included with the Plan are implementation plans for a Housing and Infrastructure Trust Fund; an Employment and Economic Development Opportunity Plan, and an Agricultural Impact Mitigation Strategy. The first Council hearing on the Plan is scheduled for Tuesday, January 7, 1986.

BACKGROUND

On November 21 and December 9, 12, and 18, 1985, the City Planning Commission conducted public hearings on the North Natomas Community Plan as proposed by the Planning staff. On December 18, 1985, the Commission voted 6-2 to recommend that the Council adopt the Plan as amended subject to Commission review and approval of amendments to the General Plan necessary to achieve consistency between the Plans. The Commission has scheduled action on the General Plan amendments for January 9, 1986. The Commission's amendments to the Proposed Community Plan are reflected in the attached text and are summarized below.

Planning Commission Amendments to the Proposed North Natomas Community Plan

1. Amend the proposed land use phasing program by deleting the date 1995 and adding criteria such as employment growth, housing need, and the availability of infrastructure.

2. Add a policy indicating that the existing Natomas Airpark is an important community asset that should be phased out of operation over time. The City encourages the relocation of the Airpark to another area.

3. Adopt the light rail transit right-of-way alignment as recommended by the Regional Transit Board of Directors.

4. Recognize in the Plan text that transit should be considered a necessary component of the basic North Natomas infrastructure, since transit is essential to the efficient functioning of the community.

5. Add a policy encouraging the City and County and Regional Transit to accelerate recommendations for financing transit capital improvements, including a recommendation that North Natomas developers finance some portion of public transit capital costs in the community.

6. Add the following policy:

   - o High Occupancy Vehicle lanes should be provided along all major roadways and freeway access ramps within North Natomas to encourage ridesharing and to ensure efficient bus service. CALTRANS should be encouraged to develop HOV lanes and/or a busway along both the I-5 and I-80 freeways as part of the proposed widening of these freeways. The reserved LRT alignment should be uitilized, if possible, as a busway until LRT is operational.

7. Include the protection of Metropolitan Airport as one of the criteria to be used in determining the timing, location, and size of development phases beyond the first phase.

The Commission also forwarded the following comments to the Council:

1. The City should investigate ways of having an Employment and Economic Development Program that it can enforce, rather than programs that may not be enforceable.

2. The City should be more active and involved in promoting sports and in bringing sports to Sacramento.

3. The City should encourage RT to locate a LRT station to serve the sports complex.

In addition to the roadway facilities described in the Community Plan, the City's traffic consultant has indicated that the following road segments will need to be developed to eight lanes in order to accommodate projected traffic.

Eight Lane Road Segments

- Truxel Road between North Loop Road and Del Paso Boulevard
- Truxel Road between North Market Boulevard and I-80
- Northgate Boulevard between North Market Boulevard and I-80
- Del Paso Road between Truxel Road and I-5
- North Market Boulevard between Truxel Road and I-5
- Truxel Road between I-80 and San Juan Road
- I-80 between Truxel Road and Business 80 (East)

These projects should be incorporated into the Plan.

Staff has been working with property owners to determine specific mechanisms for the dedication of land and financing the development of the infrastructure necessary to make the Plan work. We expect to present agreements on these mechanisms during your hearings.

City Council Hearing Schedule

Staff is recommending that the Council conduct a public hearing on the Proposed Plan on Tuesday, January 7, 1986. A brief staff report and all public testimony should be heard that night if possible. The Council should continue the item to Monday, January 13, 1986. An additional meeting has been scheduled for Monday, January 27, 1986.

RECOMMENDATION

I recommend that the Council hear the staff report and receive public testimony on the Plan. The hearing should be continued to Monday, January 13, 1986. Council requests for additional information should be made as soon as possible.

Respectfully submitted,

Gary L Stenhouse for

Marty Van Duyn
Planning Director

MVD:GLS:lr
Attachments

January 7, 1986
District No. 1

CITY OF SACRAMENTO

DEPARTMENT OF PLANNING AND DEVELOPMENT
1231 "I" Street Sacramento, Ca. 95814

Administration
Room 300 449-5571
Building Inspections
Room 200 449-5716
Planning
Room 200 449-5604

January 27, 1986

City Council
Sacramento, California

Honorable Members in Session:

SUBJECT: North Natomas Community Plan Hearings (M84-007)

SUMMARY

Attached are proposed General Plan Amendments as recommended by the Planning Commission. These amendments will establish consistency between the General Plan and the North Natomas Community Plan. Also attached is an amended text of the Transportation Element of the North Natomas Community Plan as recommended by the City Attorney. Finally, attached is the recommendation of the Department of Parks and Community Services regarding uses of the greenbelt.

BACKGROUND INFORMATION

General Plan Amendments

Prior to adopting the recommended North Natomas Community Plan, the City Council should amend specific portions of the General Plan to insure that the two plans are consistent. The Planning Commission recommends adoption of the amendments contained in the attached report.

Generally, the proposed amendments cover the following issues:

1. The amendments remove the preservation of agricultural land as a policy and program of the City. Policies that prevent the premature urbanization of land through phasing are retained and enhanced.

2. The amendments include North Natomas in sections describing the growth areas of the City. Policies indicating that North Natomas will not be needed for urban development within the timeframe of the plan are deleted.

3. The amendments incorporate the North Natomas land use map and circulation system in the General Plan map and major street system map. The text indicates that studies on the feasibility and alternatives to the external transportation facilities associated in part with the North Natomas Community Plan will be included in the General Plan update studies.

4. The amendments indicate that the Natomas Airpark will be phased out at its present location.

5. The amendments indicate that there will be Light Rail Transit in Sacramento and that the right-of-way for LRT should be dedicated without compensation when possible.

Transportation Element Amendments

The proposed amendments to the Transportation Element clarify issues regarding "internal" circulation within the community and "regional" circulation. The amendments also indicate that an immediate study of methods of increasing capacity across the American River is needed. The study of alternatives including the Truxel Bridge should be included in the City's General Plan update.

Greenbelt

The Parks and Community Services Department recommends that active recreation not be encouraged in the greenbelt.

RECOMMENDATION

It is recommended that the Council adopt the proposed amendments to the General Plan and the recommended modifications to the Transportation Element of the North Natomas Community Plan.

Respectfully submitted,

for Marty Van Duyn
Planning Director

MVD:GLS:lr
Attachments
M84-007

City Planning Commission
Sacramento, California

Members in Session:

SUBJECT: Amendments to the City General Plan to Achieve Consistency with the Recommended North Natomas Community Plan

SUMMARY

The existing City General Plan must be amended in several places to bring it into consistency with the recommended North Natomas Community Plan. Amendments are recommended to the General Plan Element, Land Use Element, Circulation Element, Open Space Element, Conservation Element and the Land Use Map.

BACKGROUND INFORMATION

On December 18, 1985, the Commission voted to recommend adoption of the North Natomas Community Plan as amended and subject to review and approval of necessary General Plan Amendments at your January 9, 1986 meeting. Staff recommends amendments to five elements of the General Plan and to the Map. The amendments by Plan section and page are described below.

Section 1 - General Plan

Page 1-5

The current policy states that the City will support contiguous growth by "preserving agricultural lands from urbanization, by placing lands not ready for urbanization into agricultural open space until such time as they are needed...". This policy should be amended by dropping the phrase "preserving agricultural land from urbanization". The remaining policy will read: "It is the policy of the City of Sacramento to support contiguous growth by placing lands not ready for urbanization into agricultural-open space until such time as they are needed, and by encouraging the orderly expansion of urban utilities and facilities without their major, unwarranted extension."

Page 1-6

Three of the trends identified on this page should be amended to read as follows:

"1. Residential construction will continue to occur along the City's urban fringe, with the greatest expansion in the next 20-year period in the North Pocket, South Pocket, Northgate-Gardenland, Meadowview, Valley-Hi, South Natomas, and North Natomas communities."

Delete #2 and renumber remaining trends. Number 2 currently reads:

"2. Natomas north of Interstate 880 freeway will not be needed for urbanization within the next 20-year period.

Delete the Following Finding

"9. Mass rapid transit which utilizes a fixed rail system will not be a physical form within the next 20 years..."

Page 1-11

This table (Attachment A) should be replaced by the following table:

PLANNING AREA	1983 POPULATION	2005 DWELLING UNITS	2005 POPULATION
North Natomas	1,613	34,636	67,165
South Natomas	15,329	24,949	61,783
North Sacramento	37,840	26,493	65,839
Arden Arcade (City and County)	110,359	48,694	115,228
East Sacramento	35,191	15,985	36,408
Central City	31,005	21,673	39,283
East Broadway	44,545	20,057	47,954
South Sacramento (City and County)	83,791	48,734	122,399
Airport-Meadowview	31,681	18,863	53,107
Land Park	34,615	15,364	36,319
Pocket	27,609	21,203	31,442

Page 1-13

The map on this page should indicate that the ultimate population density in North Natomas will be 23 persons per residential acre.

Section 2 - Land Use Element

Page 2-12

The paragraph under "Distribution" should be amended to read that industrial development can be grouped into "six", not five, locations. The following text should be added:

"6. The industrial area in North Natomas along both sides of I-5 and on the north side of I-80. This vacant industrial land is planned for manufacturing, research and development industries and for a stadium and arena. Except as allowed in the North Natomas Community Plan, other industrial uses would not be allowed in North Natomas.

Section 3 - Circulation Element

Page 3-3

This map should be revised to show the major street network in the North Natomas Plan including the Truxel Road Bridge.

Page 3-5

The first full paragraph on this page describes areas forecasted for significant growth over the next 20 years. North and South Natomas should be added to "Northgate-Gardenland, North and South Pocket, Meadowview, and Valley Hi."

Page 3-8 Add

Truxel Road/American River Bridge: The EIR Traffic Analysis identifies significant levels of congestion on I-5 into Downtown with the selection of Alternatives D and E. Mitigation measures proposed in the Final EIR include construction of an American River overcrossing of Truxel Road extended into the Downtown. This new road, a six-lane divided major facility, enters Downtown in the vicinity of North 7th Street. The Southern Pacific Railroad complex must be traversed by this new facility. This bridge is depicted in the community plan as an alternative method of mitigating the identified traffic impacts. Other alternatives to be studied immediately as part of the General Plan update include the improvement of the I-5 or 12th Street Bridge across the American River and the widening of I-5 and I-80. No enviornmental assessment of this proposed crossing or other alternatives has been done, and it is depicted solely for the purpose of identifying the need to address this issue through the immediate implementation of a study.

As part of the General Plan update process, immediately initiate a study of the need for improvement of existing American River bridges at 12th Street and Interstate 5, or the construction of an additional river crossing between those two existing bridges. The study should include the following:

- An analysis of future needs for transporting goods and persons across the American River in the study area as a means of facilitating the land uses depicted on the North Natomas Community Plan, the South Natomas Community Plan, and the existing City plans for the development of the Central City.

- An analysis of any additional infrastructure to service Regional Transit and light rail which would reduce or eliminate the need for construction of an additional river crossing in the study area.

- An analysis of implementation of measures for alternative travel modes which might reduce or eliminate the traffic impacts identified in the Final EIR.

- An analysis of the financing mechanisms available for construction of any additional infrastructure identified in the study, including a preliminary analysis of the costs of constructing such infrastructure.

- An environmental assessment of proposals developed as a result of the study which are initially determined to be feasible.

Pending the completion of the study and the adoption of an updated General Plan, the City should condition the granting of all building permits, tentative subdivision maps, and other land use entitlements in the North Natomas upon the willingness of the permittee, subdivider or entitlee to enter into legally binding commitments with the City to pay an equitable share of any additional infrastructure identified in the study as approved by the City Council its adoption of an updated General Plan.

Pages 3-10 and 3-11

Modify the last sentence on page 3-10 to read: "Natomas Airport will continue to function in its present status for the immediate future but must be phased out at its present location prior to the development of conflicting land uses."

Page 3-14

Add the following policy:

6. When possible in North Natomas, require the dedication of right-of-way for the light rail transit system.

Section 6 - Open Space Element

Page 6-4

Add the underlined language to Open Space Goal #2:

"2. To prevent the unnecessary or premature conversion of agricultural and other open space lands to urban uses and discourage urban development patterns which are detrimental to the overall community. In North Natomas, the conversion of agricultural lands to urban uses will be phased and dependent upon need and the goals and standards of the Community Plan."

Page 6-5

Add the underlined language to Open Space General Policy #2:

"2. Protect open space lands by discouraging the premature or unnecessary extension of public services into them which would facilitate their urbanization. In North Natomas, the extension of urban services and facilities will be phased and dependent upon need and the goals and standards of the Community Plan."

Pages 6-6, 6-7 and 6-8

Delete the section titled "Managed Resource Production Production" and the map.

In some [redacted] control of smoke from agricultural burning is even more difficult to deal with than pesticides. While the intent of pesticide regulations is to keep the pesticide on the property, with burning the aim is to get the smoke off the property, mixed with the air, and disbursed away from populated areas. We do this primarily by allowing burning only when wind will carry the smoke away from people, or to allow the smoke to rise and dissapate if there is sufficent distance between the burning and the people. The Sacramento Air Pollution Control District Regulations prohibit burning in Natomas when the wind is out of the north to protect the City of Sacramento. However, if development should occur to the north of your Natomas property, it will be very difficult to allow any burning because people will be impacted by either a north or south wind, unless several miles separate the burning from the people.

If I may be of further assistance, please give me a call.

Very truly yours,

Leland Brown
Agricultural Commissioner

CITY OF SACRAMENTO

DEPARTMENT OF PARKS AND COMMUNITY SERVICES

ROBERT P. THOMAS
Director

G. ERLING LINGGI
Assistant Director

CROCKER ART MUSEUM DIVISION
GOLF DIVISION
METROPOLITAN ARTS DIVISION
MUSEUM AND HISTORY DIVISION
RECREATION DIVISION
PARKS DIVISION
ZOO DIVISION

January 21, 1986

MEMORANDUM

TO: Gary Stonehouse, Principal Planner

FROM: Robert P. Thomas, Director
Parks and Community Services Department

SUBJECT: Uses of the Proposed North Natomas Greenbelt

This memo is in response to the City Council's request to evaluate alternative uses of the North Natomas greenbelt. Based upon a quick evaluation of the greenbelt alternatives, the following is provided:

1. According to a letter from Leland Brown, Agricultural Commissioner, a buffer of at least 500 feet between populated areas and active farming operations is required for the application of pesticides by air (refer to attached letter). Given this restriction, this department would not encourage active recreation use within the buffer area as proposed.

2. The plan identifies one regional park of ±200 acres and ±170 acres of community and neighborhood parks. The City of Sacramento should prioritize the development of this usable park space to meet the active recreation needs of the future North Natomas community before any use of the greenbelt is considered.

3. The North Natomas Plan identifies 560 acres of buffer and drainage ways. After funding the active parks proposed in the community plan, the city should prioritize the development of pedestrian/bikeways and passive recreation areas in these areas before considering any development in the greenbelt area.

As previously stated, this department would not recommend active recreation use of the greenbelt given the current restrictions as outlined by the Agricultural Commissioner.

RPT:jm

Attachment

COUNTY OF SACRAMENTO

W. LELAND BROWN
AGRICULTURAL COMMISSIONER
DIRECTOR OF WEIGHTS AND MEASURES

4137 BRANCH CENTER ROAD . SACRAMENTO, CALIFORNIA 95827
TELEPHONE (916) 366-2003

July 8, 1985

Perry Farms
Joe and Joaquin Perry
1831 Garden Highway
Sacramento, California 95833

Dear Mr Perry:

You asked how the regulations enforced by this office will affect your farming operations if development should occur adjacent to your property. With regards to your property, we are primarily concerned with the regulation of pesticide use and the control of agricultural burning.

Generally, the closer the farming operations are to people the more problems we can expect, and the more restrictive the regulatory controls. The application of pesticides by air becomes especially troublesome, because aerial applications are more subject to off-target drift. It is for this reason that your pesticide permit is conditioned to prohibit the aerial application of category 1 (highly toxic) pesticides within 500 feet of any dwelling or other areas where people may become exposed. The use of Parathion on rice for shrimp control would be an example of a material that might be prohibited if your rice was grown next to a populated area. In addition, the FAA rules require additional controls when pest control planes are flying over congested areas. Turn-arounds are completly prohibited below 500 feet over populated areas. This in itself could make the use of aircraft for pest control next to impossible unless the farming operation was quite large.

Additional restrictions may also be imposed for some ground pesticide applications. As an example, Paraquat cannot be applied to areas that may be contacted by children or pets. A permit for the use of Paraquat next to a subdivision, school or park would not be allowed unless some means could be found to keep the children and pets out of the field.

Every year new restrictions are placed on pesticide use, and the problems mentioned above will become more burdensome with time.

B. Goals and Objectives

Goal:

Ensure the provision of Public Transit services to whatever degree necessary to maintain traffic conditions of Level of Service "C" on the proposed internal transportation network and a level of service on regional highways consistent with LOS conditions in urban areas on similar highways.

Objectives:

Promote accessible transit service for all residents and commuters of North Natomas.

Promote bus service expansion throughout the community.

Pursue the extension of light rail service into the community.

Provide transit services for events at the stadium and arena.

C. Public Transit Policies and Actions

1. Identify and implement feasible financing mechanisms for the construction, expansion and operation of bus and light rail transit services.

2. Encourage the City and County Regional Transit to accelerate recommendations for extending and financing transit. North Natomas developers should finance an equitable portion of public transit capital costs in the community.

3. Provide public transit routes in areas of high employment and high residential densities. Bus routes should, at a minimum, be established on all six- and four-lane divided major streets and collector streets.

4. Dedicate right-of-way for the potential extension of light rail service into the community, once the alignment has been adopted. The adopted light rail alignment should serve North Natomas employment centers. Dedication of land for the track right-of-way, stations, setbacks and buffers and ancillary facilities is required.

5. Study and report on the feasibility of utilizing light rail right-of-way for exclusive bus lanes until such time that light rail services are extended into the community.

IV. TRANSPORTATION SYSTEMS MANAGEMENT (TSM)

A. Existing Conditions and Trends

There are currently no TSM programs operating within the community.

B. Goals and Objectives

Goal:

Provide TSM measures and programs to achieve a minimum 20 percent reduction in peak hour trips to assist in achieving traffic operating conditions of at least Level of Service "C" on the proposed internal circulation system and a level of service on regional highways consistent with LOS conditions in urban areas on similar highways.

Objective:

Promote the use of alternative modes of transportation by both residents and employees of the North Natomas community.

access from land uses, primarily residential, to collector streets. The local street system should be designed to serve the specific needs of local developments within the community. The local street system should be designed to discourage through traffic use, and to provide for safe residential neighborhoods.

e. Intersection Channelization: The maximum channelization design shall include dual left-turn lanes and single exclusive right-turn lanes. Maximum channelization shall be limited to intersections of four-and six-lane divided majors, or a combination of both.

f. Freeway Interchanges: the North Natomas major street plan also includes the completion of the Truxel Road/ I-80 Interchange and the construction of an interchange at North Market Boulevard/I-5. The EIR also identifies as a traffic mitigation measure construction of an interchange at Power Line Road/I-5. This action is in response to the assumed buildout of 500 acres of the Airport SPA during 20-year time frame of this Community Plan.

g. Truxel Road/American River Bridge: The EIR Traffic Analysis identifies significant levels of congestion on I-5 into Downtown with the selection of Alternatives D and E. Mitigation measures proposed in the FEIR include construction of an American River overcrossing of Truxel Road extended into the Downtown. This new road, a six-lane divided major facility, enters Downtown in the vicinity of North 7th Street. The Southern Pacific Railroad complex must be traversed by this new facility. This bridge is depicted in the community plan as an alternative method of mitigating the identified traffic impacts. Other alternatives to be studied immediately as part of the General Plan update include the improvement of the I-5 or 12th Street Bridge across the American River and the widening of I-5 and I-80. No environmental assessment of this proposed crossing has been done, and it is depicted solely for the purpose of identifying the need to address this issue through the immediate implementation of a study.

C. Recommended Policies and Actions

1. Construct circulation system improvements to meet the existing City goals that Level of Service "C" conditions exist on all internal streets and roads within the North Natomas community.

2. Study and implement, if feasible, measures for alternative travel modes to lessen identified traffic impacts on inter-

nal streets and roads and regional highways affected by land uses identified in the North Natomas community plan.

3. As part of the General Plan update process, immediately initiate a study of the need for improvement of existing American River bridges at 12th Street and Interstate 5, or the construction of an additional river crossing between those two existing bridges. The study should include the following:

   An analysis of future needs for transporting goods and persons across the American River in the study area as a means of facilitating the land uses depicted on the North Natomas Community Plan, the South Natomas Community Plan, and the existing City plans for the development of the Central City.

   An analysis of any additional infrastructure to service Regional Transit and light rail which would reduce or eliminate the need for construction of an additional river crossing in the study area.

   An analysis of implementation of measures for alternative travel modes which might reduce or eliminate the traffic impacts identified in the FEIR.

   An analysis of the financing mechanisms asvailable for construction of any additional infrastructure identified in the study, including a preliminary analysis of the costs of constructing such infrastructure.

   An environmental assessment of proposals developed as a result of the study which are initially determined to be feasible.

   Pending the completion of the study, the City should condition the granting of all building permits, tentative subdivision maps, and other land use entitlements in the North Natomas upon the willingness of the permittee, subdivider or entitlee to enter into legally biding commitments with the City to pay an equitable share of any additional infrastructure identified in the study as adopted by the City Council.

III. PUBLIC TRANSIT

A. Existing Conditions and Trends

There is currently no public transit service available within the community.

Transit should be considered a necessary component of the basic North Natomas infrastructure, since transit is essential to the efficient functioning of the community.

Objectives:

Integrate the transportation network to complement the land use and density proposals.

Design the internal circulation system so that Level of Service "C" is maintained on all streets within the community during both the peak hour and on a daily basis.

Construct the required major internal circulation system prior to anticipated and ongoing development.

Provide a circulation system that can support and promote alternative transportation modes such as bus, light rail, bicycling and car pooling.

C. Vehicle Circulation Policies and Actions

The proposed major circulation system is depicted in Figure 11.

1. Functional Classifications

The major street system shown in Figure 11 is composed of the following facility types:

a. Six-Lane Divided Major: These facilities shall be designed as six-lane, high volume facilities with access limited to signalized intersections. The roads are intended to provide efficient, safe travel for large traffic volumes within and through the community. In many areas throughout North Natomas, residential and industrial type uses will be separated by these six-lane divided roads. Those streets designated for six-lane divided major are:

North Market Boulevard between Northgate Boulevard and El Centro Road.

Del Paso Road between Northgate Boulevard and westerly plan boundary.

Elkhorn Boulevard between State Route 99 and Northgate Boulevard Extension.

Northgate Boulevard between I-80 and Del Paso Road.

Truxel Road between I-80 and North Loop Road.

Truxel Road between I-80 and San Juan Road, in South Natomas.

East Commerce Way between San Juan Road and North Loop Road.

West Commerce Way between San Juan Road and Del Paso Road.

Loop Road.

Truxel Road Bridge extension over the American River into Downtown, which has been proposed for further study and evaluation.

b. Four-Lane Divided Major: Thse facilities shall be designed as four-lane roads, controlled by traffic signals, that provide inter- and intra-community travel as well as access to local businesses and residential areas. The following roads depicted in Figure 11 shall be four-lane divided major facilities:

East Commerce Way between North Loop Road and Elkhorn Boulevard.

San Juan Road within the community.

Extension of Northgate Boulevard between Del Paso Road and Elkhorn Boulevard.

Elkhorn Boulevard, east to Watt Avenue from Northgate Boulevard extended, and from State Route 99 west to Metro Airport.

Truxel Road, between North Loop Road and Elkhorn Boulevard.

c. Collector Streets: Collector facilities are two- or four-lane roads that provide access to the arterial and expressway system from other areas of the community. Traffic on collector streets shall be controlled by either traffic signals or stop signs. The following collector facilities:

Road from East Commerce Way to westerly plan area boundary, between Del Paso Road and North Market Boulevard.

Road from Truxel Road east to extension of Northgate Boulevard.

Road from Truxel Road to East Loop Road, between Del Paso Road and North Market Boulevard.

Road from West Commerce Way to westerly plan area boundary, between North Market Boulevard and San Juan Road.

d. Local Streets: No local streets are shown in the circulation system. Local streets provide immediate

TRANSPORTATION ELEMENT

I. INTRODUCTION

The North Natomas community currently has a limited transportation network due to its largely undeveloped nature. The development of the land uses proposed in the Land Use Element of this community plan may require that circulation systems improvements and measures for alternative travel modes be extended to areas outside the North Natomas which may be impacted by that development. This element will describe the circulation system improvements that will be required to adequately serve the North Natomas Land Use Plan and adjoining areas of the City and County. The circulation system improvements and measures for alternative travel modes have been proposed to meet ~~existing City goals that~~ Level of Service "C" conditions ~~exist~~ on all internal streets and roads within the community and that LOS conditions on regional highways are consistent with LOS conditions experienced in urban areas on similar highways.

II. VEHICLE CIRCULATION

A. Existing Conditions and Trends

The existing circulation system serving the North Natomas area is depicted in Figure 10. Two major interstate freeways, I-80 and I-5, provide regional access on an east-west and north-south basis, respectively. These facilities are both six lanes through most of the North Natomas area. I-5 northbound becomes five lanes north of its interchange with State Route 99. At this interchange, State Route 99 diverts off of I-5 and continues north as a two-lane highway to Marysville, Yuba City and beyond. This area currently has grade-separated interchanges at Northgate Bolulevard/I-80, Del Paso Road/I-5, and Airport Road/I-5, and a freeway-to-freeway interchange at the intersection of I-80 and I-5. There is also an at-grade, signalized intersection at State Route 99 and Elkhorn Boulevard.

The internal circulation system is composed primarily of rural, two-lane, unimproved facilities which are compatible with the existing predominately agricultural land uses. Elkhorn Boulevard in the northern North Natomas area, and San Juan Boulevard in the extreme southern portion of the area, are improved two-lane roadways which provide east-west access within and to points outside the study area. The major improved north-south roads within North Natomas are El Centro Road and Northgate Boulevard. South of I-5, El Centro Road is a local facility; north of I-5, El Centro Road becomes State route 99. Northgate Boulevard is a four-lane facility from its interchange with I-80 north to North Market Boulevard. North of Main Avenue, Northgate Boulevard becomes East Levee Road, a narrow, winding, levee-top road. Northgate Boulevard continues south of

I-80 and provides important access to South Natomas and points further south.

Other existing roadways within the study area that have more minor roles in providing circulation for the North Natomas area include Del Paso Road-Main Avenue, Elverta Road, and North Market Boulevard.

Regional traffic impacts from North Natomas development are greatest immediately adjacent to North Natomas and diminish as the distance from the study area increases. The most significant impacts would occur on I-5 from State route 99 south to Business 80, and on I-80 from I-5 east to Business 80. The impacts on other regional facilities such as I-5 and State Route 99 in the south area, US 50 and I-80 to the east and west, are marginally above what would occur for the year 2005 without any new development within North Natomas.

While the projected volumes on the regional facilities do not significantly change under the different alternatives analyzed in the EIR, development in North and South Natomas does appear to affect commute patterns between downtown and the northeast communities, as projected by the traffic model.

The traffic model assigns traffic patterns based on congestion and travel time. The effect of this process on the regional system has been to assign a large amount of the northeast area-downtown commute traffic to Business 80 as opposed to I-80/I-5. This can be directly attributed to development in North and South Natomas in that traffic generated in those communities have created significant congestion and delay on I-5 into the Central City, and that commute traffic has been assigned to Business 80 because the model has calculated this as a faster route. This is evident in Exhibit 43 of the Draft EIR where volumes on I-80 east of the study area increase by only 14-30,000 ADT, while on Business 80 ADT increases are 40-52,000.

Several freeway segments in the region will be operating at significantly congested levels under the 2005 projections even without any new development in the North natomas area. They include:

FREEWAY SEGMENT	V/C	LOS
I-5 between I-80 and U.S. 50	0.86	D
Segment of Business 80 between I-80 and U.S. 50	1.30	F
U.S. 50	1.39	F
State Route 99 between U.S. 50 and Meadowview Road	1.19	F

B. Goals and Objectives

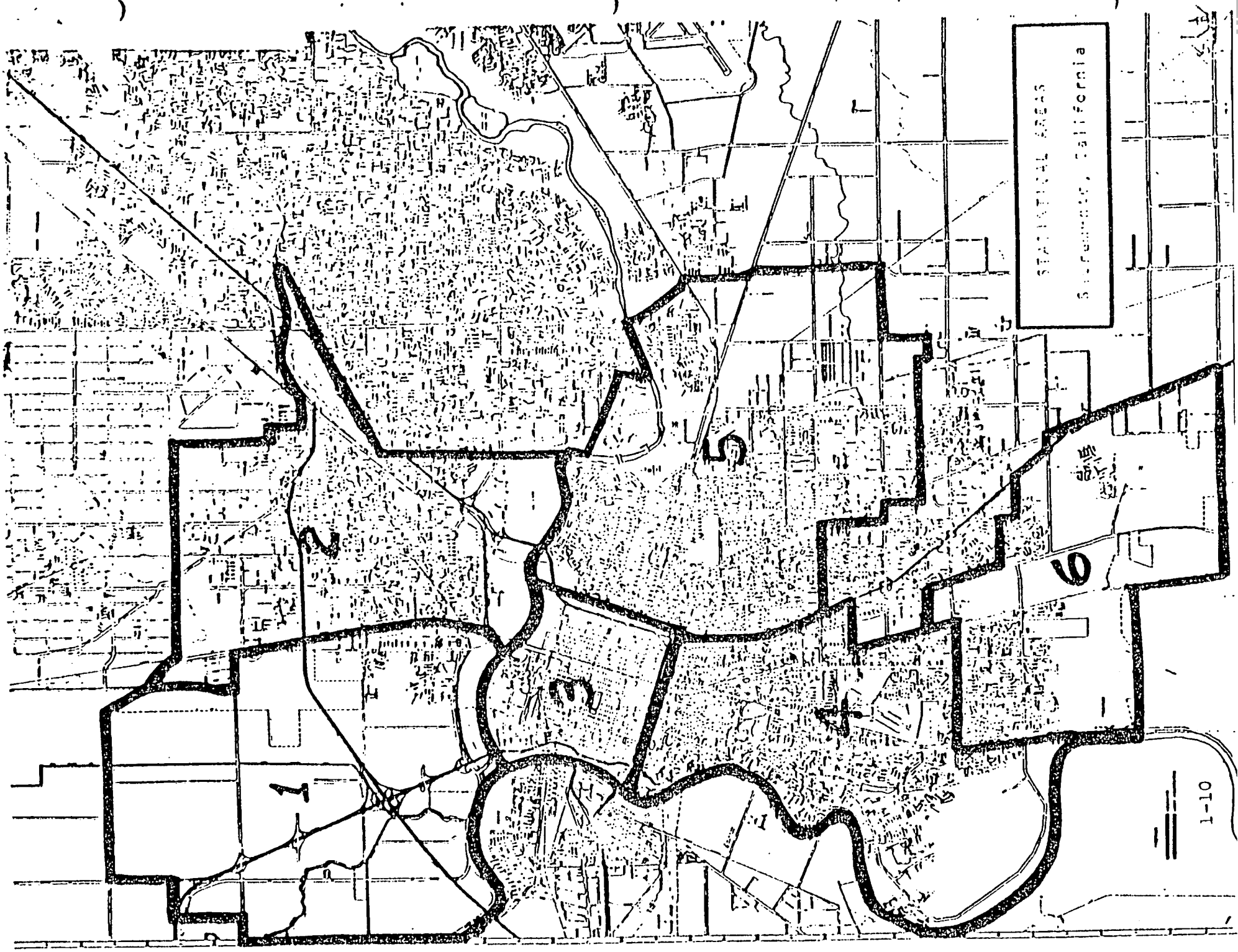
Goal:

Create a circulation system that will ensure the safe and efficient movement of people and goods within the community and to other areas in the City and region.

POPULATION TREND AND FORECAST by Statistical Areas within 1970 City Limits

Area	1960 Population	Annual Growth 1960-1970	1970 Population	Annual Growth 1970-1980	1980 Population	Annual Growth 1980-1990	1990 Population
1	8,076	-0.71%	7,500	10.8%	15,600	13.0%	35,820
2	49,290	-1.53%	41,763	0.5%	43,930	0.5%	46,180
3	41,109	-2.04%	32,734	0.6%	34,800	0.7%	37,200
4	53,279	2.11%	64,522	2.1%	78,100	2.3%	96,200
5	84,654	0.13%	85,725	0.6%	91,100	0.5%	95,600
6	7,039	25.32%	24,861	3.3%	33,170	2.7%	42,000
TOTAL	243,447	0.56%	257,105	1.45%	296,700	1.76%	353,000

ATTACHMENT 1


STATISTICAL AREAS
San Francisco, California
I-10

Delete

"Managed Resource Production

Agricultural Areas

1. Reserve the Natomas area north of Interstate 880 (see map on next page) for commercial agriculture by:

   A. Using Williamson Act contracts to preserve these lands in an agricultural land use status.

   B. Defining development standards, permitted uses and minimum acreage for agricultural areas.

   C. Exploring alternative programs which have a positive effect on retaining open space for agriculture purposes.

2. Review City agriculture-urban reserve areas at the time of General Plan updating every 5 to 7 years and adjust these areas if contiguous urban growth warrants the change.

3. Review permanent agriculture areas every 20 years and adjust these areas if warranted.

4. Prohibit the formation of new urban-type assessment districts or the expansion of existing districts inside designated agricultural lands."

Page 6-13

Delete the following two paragraphs.

"Lands that are recommended for retention in the Open Space Plan as an agricultural preserve are located in the Natomas area north of Interstate 880. Of the total 6,934 acres within the City in this area, the 3,582 acres north of Del Paso Road are recommended for a permanent agricultural designation while the approximately 3,172 acres of agricultural land south of Del Paso Road are recommended for an agriculture-urban reserve designation. Lands designated for permanent agriculture are not anticipated, at the present rate of urban growth locally, to be required for urban land uses within the time span of the City's General Plan; while lands designated for agriculture-urban reserve could be needed in part or wholly for contiguous urban growth outward from the City core within the next 20-year period.

"If open space for agriculture is to be preserved, there are implementation aspects which must be considered. Refined policies must be developed which deal with accepting contracts under the Williamson Act, exploring other means of implementing State laws relating to property tax relief, and pursuing means for recovering tax revenues lost

over the short term through such actions. In addition, permissible development standards in this area must be thoroughly reviewed."

Page 6-17

Delete the following paragraph and replace it with the underlined language:

"Non-urban forms of visual amenity through securing open space could be accomplished by use of the agricultural preserve designation in the Natomas area and the control of possible visual obstruction within the floodplains of both rivers.

"It is important to control possible visual obstructions in the floodplains of both rivers."

Section 7 - Conservation Element

Page 7-2

Add the underlined language to the fourth paragraph:

"...The City shall also discourage urbanization in those areas which are designated to be protected from premature development. In North Natomas, premature development will be avoided through phasing based on the City's need for additional urban lands and the goals and standards of the Community Plan."

Attachments to the General Plan.

The maps for the Northwest and Northeast Quadrants need to be revised to reflect the adopted North Natomas Community Plan.

RECOMMENDATION

It is recommended that the Commission recommend these amendments to the City General Plan to the City Council.

Respectfully submitted,

Kathy Malloy for

Gary L. Stonehouse
Principal Planner

GLS:lr
Attachments
(M84-007)

CITY OF SACRAMENTO

DEPARTMENT OF PLANNING AND DEVELOPMENT
1231 "I" Street Sacramento, Ca. 95814

Administration
Room 300 449-5571
Building Inspections
Room 200 449-5716
Planning
Room 200 449-5604

February 3, 1986

City Council
Sacramento, California

Honorable Members in Session:

SUBJECT: Resolution of Issues and Motion of Intention to Adopt the North Natomas Community Plan (M84-007)

SUMMARY

This report recommends a motion of intention to adopt the North Natomas Community Plan subject to the resolution of a number of important issues that have been identified during the hearing process. Council action on the motion and on the specific recommendations will allow staff to proceed with the development of the final plan and findings of fact.

BACKGROUND INFORMATION

During the Planning Commission's and the Council's review of the Draft North Natomas Community Plan, staff has identified twenty-five issues that need to be resolved by the Council as part of plan adoption. The twenty-five issues are summarized on the attached table. The table also contains options or comments on the issue and presents the staff recommendation. Several of the issues for which the Council requested additional information are described below.

Land Use Issues

1. Reduce Residential Densities

The North Natomas Community Plan provides for higher density residential development than does the South Natomas Community Plan for example (31,019 units on 2,751 acres or 11.3 units per residential acre versus 9.2 units per acre in South Natomas). But the North Natomas Community Plan also provides for more employment generating land uses than other communities (2,466 acres in North Natomas versus 592 in South Natomas). The density of units and the 56.7 percent jobs/housing ratio is necessary to keep the number of "imported" work trips into North Natomas at an acceptable level. The reduction of dwelling units in the community without a commensurate reduction in jobs would result in increased traffic impacts on the regional freeway network and the interchanges.

2. Housing West of I-5

The County Board of Supervisors and Department of Airports have asked that there be no residential land uses west of I-5 in order to protect Metropolitan Airport from complaints about noise. The Plan shows 7,920 dwellings on 635 acres of land west of I-5. This constitutes 24 percent of the total housing stock in the Community Plan. A reduction or loss of these units would destroy the jobs/housing ratio and cause regional freeway impacts as noted above. A total deletion of development west of I-5 would increase the job/housing ratio in the communtiy to 63 percent. Staff believes, however, that without a strong commitment from the Council and the Board, the deletion of land uses west of I-5 would only be temporary and therefore should be considered in this Plan.

3. Phasing

The phasing program for North Natomas is based on the timing of specific events. Areas beyond Phase 1 will be allowed to develop when specific triggering events are reached. The triggering events include the provisions of infrastructure, results of the jobs/housing monitoring program, and participation in appropriate financing mechanisms. Between the Council's intent motion on the plan and the formal adoption, staff will develop specific triggering criteria. We suggest that all North Natomas property owners be asked to enter into development agreements with the City that will insure that the phasing mechanisms are in fact implemented. In the agreements, the City will agree to process rezonings as shown in the Plan once all of the triggering events have been satisfied.

4. Agricultural Preservation

We recommend the following language be included in the Community Plan regarding agricultural preservation strategies:

> "Initiate studies of the mechanisms and procedures to encourage permanent agricultural uses in the exclusive agriculture districts within and abutting the Community Plan area. Mechanisms studied may include a transfer of development credits program as recommended by the City's consultants, and a joint City-County program to acquire development rights in areas where airport noise may be a nuisance factor. The study should assess the feasibility of those methods which are identified and should propose specific financing mechanisms for implementation of recommended agricultural preservation programs adopted in the General Plan as a result of said study."

5. Natomas Airpark

The Plan encourages retaining the airpark until competing land uses require its closure. The Plan also encourages the relocation of the airpark into the unincorporated area north of this community. The County Department of Airports indicates that there may be difficulties in relocating the airport to this area based on the operating patterns of Metro and McClellan.

The Airport Land Use Commission staff has indicated that the Airpark and the Plan land uses are inconsistent. ALUC staff has indicated, however, that by controlling operations at the airpark in coordination with activities in the community, a phasing out of the airpark might be acceptable. City staff will work with ALUC to work toward this accommodation.

Implementation

1. Proposals from the Sacramento Housing and Redevelopment Agency

SHRA presented a written proposal for three additional housing and employment programs for North Natomas. The three programs concerned: providing housing for low and moderate income families, MBE and WBE Employment Programs, and an Office Impact Mitigation Program. While these programs have merit and address important issues, we do not recommend them for inclusion in the North Natomas Community Plan. We do recommend that the Council give the programs consideration for Citywide application.

2. School Finance

The Plan currently requires agreement between residential developers and school districts on financing mechanisms for schools prior to granting development entitlements. We would amend this policy by adding the requirement that the districts and developers make good faith efforts to develop cooperative agreements to secure financing. City staff will assist in developing acceptable school financing arrangements.

3. Planning Cost Recovery

The City should require, as a condition of development agreements, reimbursement to the City of the costs of the North Natomas Community Plan STudies. These costs (approximately $1.5 million) should be apportioned according to acreage planned for urban development. The reimbursement fee would be about $300 per acre.

4. Financing Mechanisms

The City Treasurer and the Finance Department recommend the Plan be amended to substitute "Fee Based Assessment Districts" in all places where the Plan mentions assessment districts as financing mechanisms. The concern is that the City does not have the bonding capacity to back an uncontrolled amount of assessment bonds. The Fee District is similar to the South Natomas Facilities Benefit Assessment District.

Air Quality

Testimony was presented and letters have been received concerning air quality issues associated with the development of North Natomas. The EIR acknowledges that the development of North Natomas will add to already unacceptable pollution levels that exist now and are expected to worsen in the future. We believe, however, that the plan with its Jobs/Housing ratio, TSM program, transit commitments, and reference to the EPA Reasonable Extra Efforts Program does all it can to mitigate air pollution.

Much of the air quality testimony correctly relates to concerns about the status of the entire region in combating air pollution. We concur that a new air quality plan is needed to document the comprehensive impacts of development decisions that have been made by many jurisdictions since the 1982 Air Quality Plan was adopted. We are encouraged that SACOG is now beginning the effort to develop such an updated plan.

RECOMMENDATIONS

I recommend that the City Council approve a motion expressing its intent to adopt the North Natomas Community as modified and amended by the recommendations contained in this report and on Attachment A. The Council should direct staff to prepare the necessary findings and other materials to allow formal adoption of this plan.

Respectfully submitted,

Marty Van Duyn
Planning Director

RECOMMENDATION APPROVED:

Walter J. Slipe, City Manager

MVD:GLS:lr
Attachments
M84-007

ATTACHMENT A

RESOLUTION OF NORTH NATOMAS COMMUNITY PLAN ISSUES

	ISSUE	OPTIONS/COMMENTS	RECOMMENDATION
1.	Stadium and Arena Guarantee	None	- Zone Phase 1. - ½ Permits when arena is ½ complete. - ½ permits when stadium is ½ complete.
2.	Decrease Residential Densities	- Decreasing residential densities will increase traffic on regional freeway system and interchanges. - Would decrease Job/Housing Ratio.	- Maintain residential densities in Plan. Require mix of types and densities.
3.	Residential Land West of I-5	- Allowing industrial but no residential uses causes a housing imbalance and increases traffic into the community. - No development west of I-5 improves the Jobs/Housing ratio in the community but is a temporary measure.	- Approve the residential and non-residential uses west of I-5 as shown in the Draft Plan and CPC recommendation.
4.	Valley View Acres	- Various residential land uses and a high school. - Extend Northgate to Elkhorn. - Retain rural estate designation.	- Retain rural estate designation. - Extend Northgate to Elkhorn.
5.	Natomas Airpark	- Close airport now as an inconsistent use. - Phase out airport by 1990. - Revise Plan to accommodate airport.	- Phase out airport by 1990. - Encourage relocation into County.
6.	Greenbelt-Size	- Maintain 800' greenbelt. - Reduce 800' greenbelt to 500'. - Abandone greenbelt for additional park acreage.	- Reduce 800' greenbelt to 500'
7.	Greenbelt-Use	- Establish active recreational use for greenbelt. - Use buffer to separate active agricultural and urban uses.	- Use buffer to separate active agricultural and and urban uses.
8.	Regional Park	- 250 acre park, gifted to City. - 200 acre park, gifted to City with no Quimby Act credit, installation of off-site infrastructure.	- 200 acre park, gifted to City without Quimby credit, base infrastructure.
9.	Freeway Landscaping	- Require 150' landscaped freeway strip. - Require landscaped freeway strip that meets the standards of the strip installed by the Gateway Point applicants.	- Require landscaping at standards set by Gateway Point project.
10.	Phasing	- Need phasing to allow City to adjust Plan as condition change and perfonmance is monitored. - Phasing tied to known conditions and events provides security to both the City and property owners.	- Development agreements that contain phasing triggers and conditions.
11.	Agricultural Preservation Program	- Transfer of development credit program requiring participation by County. - City needs a new agricultural preservation policy.	- Initiate a study as part of the General Plan Update and resulting in an agricultural preservation policy and program for the City.

ISSUE	OPTIONS/COMMENT	RECOMMENDATION
12. Infrastructure Financing Plan	- Financing all capital costs is the responsibility of the developers. - All infrastructure must be sized for the full planned development of the community.	- Require all infrastructure financing arrangements to be included in Development Agreements including reimbursement for planning costs and for upfront or oversizing costs.
13. Truxel Bridge and Other Regional Facility Requirements	- Alternative methods of providing highway capacity across the American River need to be studied. - A financing method involving all beneficiaries needs to be developed.	- City should immediately initiate feasibility and alternatives study. Entitlements conditioned on equitable participation in financing.
14. Non-Profit Construction Trust Fund	- This is the Gateway Point Applicants proposal for a $100,000/year non-profit construction program.	- The City should encourage and support this program.
15. North Sacramento Housing Trust Fund	- This is the Planning Department's proposal to stimulate housing in North Sacramento. The program requires contribution of $3,500/unit for 4,340 units. Unit construction in lieu of fees are allowed. Program begins with building permits for industrial development projects.	- Approve program as outlined.
16. SETA/PIC Job Referral Program and Construction Hiring Program (Gateway Point)	- Employment opportunity programs proposed by applicant.	- Amend Plan to include the applicants proposal in place of earlier proposals.
17. Low Income Housing Program (SHRA)	- $46 million program to provide affordable housing for people employed in North Natomas.	- This program should be considered on a Citywide basis.
18. Downtown Office Impact Mitigation Program (SHRA)	- $1,000/phasing space surcharge in North Natomas to help finance parking in the downtown.	- This program should be considered on a Citywide basis.
19. MBE/WBE Contractor Retention Program	- Program to link development in North Natomas with existing MBE/WBE businesses that could participate in development.	- The City Attorney has determined that this program cannot be legally required.
20. School Finance	- The Plan requires agreement between residential developers and the school districts prior to entitlements. - The BIA has recommended the following language: "The appropriate school district(s) and the building community will cooperate in drafting a financing plan which will address the provision of adequate school facilities to serve the planned residential areas when needed."	- The BIA language is preferable because it requires a cooperative effort.

ISSUE	OPTIONS/COMMENT	RECOMMENDATION
21. Planning Cost Recovery	- The City should be reimbursed for the approximately $1.5 million it spent in the development of the North Natomas Community Plan. Options include: a) First entitlement pays in full and is reimbursed by later development. b) Per acre share for urban uses at zoning. c) Per acre share as condition in development agreement.	- Equal cost per acre of urban land use to be a condition of the development agreement.
22. EPA Sewer Hook-Up Penalty	- Estimated $6.2 million fee.	- Regional Sanitation District responsibility. No cost to City.
23. Linkage to Downtown Revitalization	None	- Councilman Serna to prepare resolution.
24. Transit Financing	- Bus and Light Rail services planned. - System wide financing mechanism needed.	- Dedicate LRT alignment. - Participate in capitol and operation financing in an equitable manner when a system wide financing mechanism is developed.
25. Air Quality	- City is encouraged to adopt effective emissions control programs and to participate in Air Quality Plan Update. - Plan contains transit, TSM and Reasonable Extra Efforts Program.	- Approve recommendations of the Plan.
26. Sports Support Strategy	- Actively encourage professional sports in Sacramento. - Organize Council Task Force on sports.	- Refer to Transportation and Community Development Committee.

GLS:lr

Office of the Sacramento City Council

February 3, 1986

MEMORANDUM

TO: Honorable Mayor, Councilmembers, City Attorney Jim Jackson, City Manager Walter Slipe and Planning Director Marty VanDuyn

FROM: Councilmember Grantland Johnson
District 2

SUBJECT: Resolution of Issues and Motion of Intention to Adopt the North Natomas Community Plan

The attached resolution reflects an alternative approach to issue Number 19 Attachment A, as outlined in the February 3, 1986, staff memorandum from Marty Van Duyn to the Council. I plan to indroduce it as apart of the motion of intention to adopt the North Natomas Community Plan.

GJ:asj

RESOLUTION - M.B.E./W.B.E. Contracting Incentives

Whereas, the North Natomas community plan, as presented to the Council, called for certain percentages of the construction work in North Natomas to be apportioned among city residents, minority business enterprises (MBE) and women's business enterprises (WBE), and,

Whereas, the City Attorney's office has advised the Council that such programs unless undertaken on a voluntary basis, are of questionable legality and place the City at risk of litigation; and,

Whereas, the voluntary efforts already agreed to by North Natomas project applicants lessen the need for stringent MBE/WBE requirements; and,

Whereas, the advice and council of the City Attorney's office and the willingness of this particular group of applicants to enter into voluntary agreements to address the problems of jobs for low-income city residents and for "fair shair" contracting with MBE/WBE firms notwithstanding, the problem remains a critical one, not only for the development of the North Natomas area, but for the future economic growth of the City of Sacramento as a whole; now, therefore, be it

8A

Resolved that the City of Sacramento recognizes and identifies the following problems regarding the need to create incentives for employment and business opportunities among low income residents, minority populations and women:

1) Unemployment in the Sacramento area while leveling off in recent years, remains higher than the statewide average;

2) Unemployment remains critically high among minority groups in certain economically depressed and disadvantaged areas of the City;

3) There are inadequate mechanisms in place to encourage the region's large employers to utilize the services of MBE/WBE firms.

4) The responsibility for encouraging and assisting in the creation of MBE/WBE firms has traditionally rested at the federal and state levels of government; both levels are not only cutting back on such programs, but in some cases (i.e., the Small Business Administration) eliminating them entirely.

5) In the absence of state and federal efforts, it is the

proper responsibility of City government to pursue solutions to the aforementioned problems so that the benefits of future growth and development will be shared among all elements of the community and so that those traditionally depressed and disadvantaged neighborhoods within the City can participate in and enjoy the revitalization efforts that will occur in other areas of the region.

6) Given the current economic and regulatory climate, the optimum way to achieve the aforementioned goals is through public and private sector cooperation and partnership; and therefore be it further

Resolved, that the City Council directs City Staff to investigate, explore and report back with specific plans and solutions addressing these problems. Said investigation shall include, but need not be limited to:

1) Discussions and negotiations with local Chambers of Commerce, the Building Industry Association and other such organizations, to establish on a voluntary basis a Sacramento Area Purchasing Council, which will have as its principal objective the bringing together of the region's major employers with small business enterprises to encourage contracting and sales among these various groups (Note: Los Angeles, San

Francisco, and San Diego already have such regional purchasing councils in place. Several large Sacramento regional employees -- most notably Pacific Bell, Hewlett Packard, Pacific Gas and Electric and Aercjet General already belong to the Bay Area Regional Purchasing Council and would presumably be willing to participate in a local purchasing council as well.)

2) Exploration of the establishment and funding on a citywide basis of a mechanism to encourage and assist in the development and creation of small business enterprises, particularly those headed by minorities and women. (The federal Urban Development Action Grant Program - UDAG - should be closely examined as a model for this proposal. Under such a proposal, staff would be required to identify neighborhoods or communities in which levels of unemployment, depressed income and economic activity would trigger eligibility of indigenous business enterprises for participation in this program.)

Office of the Sacramento City Council

MEMORANDUM February 3, 1986

TO: Honorable Mayor, Councilmembers, City Attorney Jim Jackson, City Manager Walter Slipe and Planning Director Marty VanDuyn

FROM: Councilmember Joe Serna
District 5

SUBJECT: Resolution of Issues and Motion of Intention to Adopt the North Natomas Community Plan

The attached resolution reflects an alternative approach to issue Number 23 Attachment A, as outlined in the February 3, 1986, staff memorandum from Marty Van Duyn to the Council. I plan to introduce it as a part of the motion of intention to adopt the North Natomas Community Plan.

JS:ms

NORTH NATOMAS, DOWNTOWN

Whereas, the City of Sacramento has a long-standing commitment to the revitalization of the downtown area and the restoration of the core city as the center of urban life in this community; and,

Whereas, the size and scope of the North Natomas Community Plan has raised concerns -- expressed both in the Draft and Final Environmental Impact Reports -- that "premature"urbanization of North Natomas would:

- "diminish the importance of downtown Sacramento as the major employment center in the region" (DEIR, p. B-86)

- "dilute City efforts to direct growth to the urban area existing in 1981 [particularly downtown] (DEIR p. B-86)

- "siphon away jobs from other areas in the region", including downtown (DI4EIR, p.C-10)

- The level of office space proposed in North Natomas "would diminish the influence of downtown Sacramento as the major retail, trade, and financial center

of the region, contrary to City Policy" (DEIR, p. D-34)

- The significant impact of the urbanization of North Natomas is that "inner-city communities which have poor images due to deterioration and blight and socioeconomic factors already require special revitalization efforts...to stimulate private investment and realize their development potential. These communities would be unable to compete with North Natomas." (DEIR p.D-37)

and,

Whereas, the proposed community plan already makes specific provisions for alleviating the adverse impacts of North Natomas Development and sharing the benefits of North Natomas developments with the neighboring communities of North Sacramento and Del Paso Heights where the impact is certain and demonstrable; and,

Whereas, in spite of the concerns raised in both the Draft and final environmental documents regarding possible deterioration of conditions in downtown, the Council has heard other testimony from other groups already located in the Downtown area -- specifically, the Sacramento Downtown Association and such pioneer retailers in the Sacramento area as Weinstocks,

expressing their clear belief that the development of North Natomas will inevitably spur additional growth and economic activity in the core city; and,

Whereas, the Council has been presented with evidence of enormous investments and commitments to build, develop and revitalize the downtown area by individual citizens of the community who are also applicants for North Natomas development, such evidence including but not limited to:

1) 9th and "Q: Streets. 50,000 sq. ft. of office space. $4 million.

2) 1515 "K" Street. 147,000 sq. ft. of office space (fully leased). $15 million.

3) 1600 "K" Street Office Building. 112,000 sq. ft. office space available Fall 1986. $10 million.

4) 1700 "K" Street Office Building. 112,000 sq. ft. office space available Fall 1986. $10 million.

5) Thompson Diggs (3rd, 4th, "R" and "S" Streets). 350,000 sq. ft. office space (preliminary design phases). $35 million.

6) Clunie Hotel. Site acquired for future office building. $35 million.

(The demolition of the Clunie Hotel and the proposed construction of Renaissance Towers is described in the Draft Environmental Impact Report prepared by the City Planning Staff as a project which would "provide the City with a catalyst for future economic growth in the Core area, particularly on the K Street Mall, in the form of a major office complex with supporting retail uses. It will contribute to the revitalization of the Central Business District and of the K Street Mall, and serve as an inducement for other investors and developers to create additional commercial enterprises in the Central Business District.")

(Note: These projects demonstrate a commitment to the downtown area in excess of 2.2 million square feet of development, a direct investment of $260 million into downtown Sacramento and a long-range economic impact of $910 million dollars on the Sacramento region.); and,

Whereas, the economic forecasts presented to the City of Sacramento by the Bank of America and others, clearly indicate the belief that economic growth in North Natomas will be beneficial to the Downtown area and

will assist in lowering current vacancy rates in the downtown area rather than adding to the problem;

9A

Now, Therefore, Be It Resolved, that based upon the preponderance of evidence presented by both economic forecasters as well as the substantial on-going economic commitments of North Natomas applicants in the Downtown area, the City Council finds no reason to believe that the proposed urbanization of North Natomas will have a deleterious impact upon future development of the Downtown Central Business District at this time, and that no specific mitigating measures such as those proposed for North Sacramento are necessary at this time;

And Be It Therefore Further Resolved, however, that due to the concerns expressed in the environmental impact reports, City Staff will be directed to monitor any adverse impact of North Natomas on the Downtown Central Business District and report back to the Council should such adverse impacts materialize and should further Council consideration of this matter be required; specific mitigating measures will be identified and proposed to the City Council for consideration and adoption.

Special Mtg. - North Natomas

United States
Environmental Protection
Agency

Regional Administrator
215 Fremont Street
San Francisco CA 94105

Region 9
Arizona, California
Hawaii, Nevada
Pacific Islands

EPA

January 24, 1986

Ref: EXR 2

Mayor Anne Rudin and
Members of the City Council
City of Sacramento
915 I Street
Sacramento, CA 95814

Dear Mayor Rudin and Members of the City Council:

This letter refers to your hearing on January 27, 1986, regarding the transportation and air quality impacts of the proposed North Natomas Community Plan. I regret that I will not be able to attend this meeting, but I would like to offer EPA's comments on the subject.

As you are aware, in 1982 the Cities and Counties of the Sacramento Metropolitan Area adopted the Sacramento Air Quality Plan as required by the federal Clean Air Act. Sacramento is presently not meeting the national air quality standards for ozone and CO, and the 1982 Plan does not predict attainment of the ozone standard by the statutory deadline of 1987. The Clean Air Act requires that areas not demonstrating attainment by 1987 be subject to federal restrictions on funding and growth. However, EPA Region 9 has developed a program, termed "Reasonable Extra Efforts", which seeks a regulatory solution for "post-1987" areas who try to attain the clean air standards, but fail. While conceding that more time is needed, the goal of the Reasonable Extra Efforts Program (REEP) is to ensure that post-1987 areas meet ozone and/or CO standards by both fully implementing existing plans, and by working with the State and local lead agencies to develop for adoption additional control measures which go beyond the strategies contained in the 1982 plans.

Under REEP, EPA looks for adequate management of both stationary and area source growth. We, therefore, expect that any major land use changes in Sacramento should be consistent with the 1982 Air Quality Plan. We also expect the City of Sacramento to implement the measures it adopted in 1982. Specifically, the 1982 Plan commits the City to reduce motor vehicle trips by 30 percent, and to pursue air quality mitigation measures such as mixed land uses, infill incentives, reuse or redevelopment of existing areas, increased

residential densities, parking management, trip reduction educational programs, a mandatory ridesharing ordinance, as well as contingency measures such as requiring financial participation in transit system improvement and expansion by private developers.

In light of Sacramento's post-87 status, EPA believes that everything possible must be done to mitigate the significant increase in air pollution emissions which will result from the North Natomas Community Plan. This includes implementing existing measures, as well as considering additional measures as they become available. Both mitigation measures and contingency measures should be incorporated into the Community Plan. Finally, EPA endorses the California Air Resources Board comment (attached) on the Draft Environmental Impact Report that full implementation plans and schedules should be included in the Community Plan.

Sincerely,

John Wise

for JUDITH E. AYRES
Regional Administrator

Attachments

cc: Jane Hagedorn, American Lung Association
Mike Eaton, Environmental Council of Sacramento
Norm Covell, Sacramento APCD

STATE OF CALIFORNIA — GEORGE DEUKMEJIAN, Governor

AIR RESOURCES BOARD
1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812

SACRAMENTO CITY
PLANNING - ENVIRONMENTAL

AUG 22 1985

RECEIVED

Date: August 21, 1985

To: 1) John Ohanian, Director
State Clearinghouse
Office of Permit Assistance
1400-10th Street
Sacramento, CA 95814
MS A-8

Attention: Peggy Osborn

2) Stephen L. Jenkins
City of Sacramento
Planning Department
1231 'J' Street
Sacramento, CA 95814

Thru: John V. Doyle
Office of Environmental Affairs

From: James D. Boyd
Executive Officer

COPY TO:
BERMAN
TOM SPARKS
8-22-85
FRANK
BLOODGOOD
8-22-85

Subject: Draft Environmental Impact Report for North Natomas Community Plan Alternative (M84-007) SCH No. 84073010

We have reviewed the draft environmental impact report (DEIR) for the North Natomas Community Plan Alternatives. The North Natomas Community Plan Study Area comprises approximately 22 square milesor 14,300 acres -- 7,778 acres within the City of Sacramento and 6,552 acres within Sacramento County. Sacramento Metropolitan Airport is within the study area. The predominant existing land use is agriculture and rural residential. In addition to the North Natomas Community Plan alternatives, the DEIR includes analysis of five individual project applications: Gateway Point, Fong Ranch, Schumacher-Inerson, Payne, and Reid-Ketscher.

The Draft North Natomas Community Plan Alternative, also called Alternative C, would enable development to the following levels: (Exhibit C-13))

office	6,055,500 square feet
commercial	1,260,000 square feet
high growth manufacturing	290 acres
manufacturing - industrial	721 acres
housing	30,000 dwelling units
sports complex	200 acres

Total employment is projected to reach 54,595. Total population is projected to 62,294 persons. Automobile trips resulting from this development are projected at 523,700 trips a day (Exhibit E-37).

We have four areas of concern: 1) documentation of assumptions used to estimate project-related air pollution emissions from traffic; 2) implementation of project-specific transportation impact mitigation measures to be incorporated at each stage of the planning process; 3) the need for additional mitigation measures to reduce the projected severe traffic congestion and resulting air pollution; and 4) identification of source of funds for the proposed roadway improvements and a timetable for construction of these improvements.

Air Quality Analysis

The air pollution emissions projected in the DEIR to result from the plan are significant:

Pollutant	tons/day
carbon monoxide	41.0
nitrogen oxides	4.5
hydrocarbons	4.2

The DEIR notes that the effect of Alternatives B through E would be to increase ozone levels in the Sacramento area by roughly 3 - 4%.

Mitigation Measures

F-9 The projected increase in traffic levels is significant. Therefore, implementation of all available mitigation measures, coupled with project-specific measures, is necessary to minimize the air pollution impact of this project.

Traffic Circulation and Funding for Roadway Improvement

J-17 We recommend the final environmental impact report (FEIR) identify the sources of funding committed to the following roadway improvements mentioned in the DEIR:

1. Widening of Highway 99 to four lanes between I-5 and the Sutter County boundary. An elevated interchange with Elkhorn Boulevard.
2. Widening of I-5 and I-80 from six to eight lanes.
3. Major arterial improvements for Del Paso Road, Truxel Road, and North Market Boulevard.

E-85 Additionally, the FEIR should include contingency plans in the form of additional mitigation measures and/or scaling down the size of the proposed

E-85 plan to mitigate impacts which may result if some of the roadway improvements are not funded. An estimate of the air pollution reduction from the traffic improvement measures should be included in the FEIR.

TSM Action Program

E-86 The DEIR outlines a proposed TSM action program (pages E-78 - 87 and F-20 - 21). The DEIR notes that city staff have estimated that such a program could reduce traffic 12 - 15% from non-residential and non-commercial land uses. To increase the effectiveness of the program, we suggest the city and county include the South Natomas Plan area into an areawide TSM program.

Light Rail

J-18 The DEIR discusses proposed light rail alternatives and states that daily southbound and eastbound traffic could be reduced by 2 - 6% and that peak hour traffic could be reduced as much as 12 - 15% with such a new light rail line.

We suggest the FEIR estimate costs of implementing and operating such a system and propose mechanisms for obtaining financing for land acquisition, construction, and purchase of light rail cars that can be included with the development agreements which result from the implementation of this plan.

Commuter Lanes

E-87 The DEIR does not mention preferential carpooling lanes as a way of increasing capacity on adjacent freeways or major arterials. We suggest that consideration of high occupancy vehicle lanes be evaluated as part of any lane additions being considered for I-5, Business 80, and I-80.

An 8-mile commuter lane recently implemented on Route 91 in Los Angeles has reduced peak travel time on that segment from 10 - 15 minutes for single occupant vehicles and between 15-25 minutes for carpools of 2 or more persons (down to 9 minutes). A description of this project is attached. Additional information can be obtained from David Roper, Deputy District Director of Operations, Caltrans, District 7. His telephone number is: (213) 620-3874.

F-10 Finally, the FEIR needs to include commitments by the city and county as well as the project proponents as to which mitigation measures outlined on page E-78 - 87, and F-20 - 21 will be implemented, the responsible entities for their implementation, and an implementation schedule. The source of funds for the mitigation measures should be identified and the emission reductions by each measure should be quantified and documented.

We recommend a monitoring system for the TSM action plan be developed, including an annual report to the Sacramento County Air Pollution Control District, documenting city implementation efforts and TSM program results.

We would appreciate receiving a copy of the FEIR for this project. If you have any questions regarding these comments, please contact Arthur Diamond of my staff at (916) 324-6916.

Attachment

cc: Norm Covell, Sacramento County Air Pollution Control Officer
David Boggs, Sacramento Regional Transit District
Al Freitas, Sacramento County
Steve Sanders, Sacramento Transportation Coalition
David Roper, Caltrans District 7

EMPLOYMENT AND ECONOMIC DEVELOPMENT OPPORTUNITY PLAN
NORTH NATOMAS COMMUNITY PLAN

Prepared by:

City of Sacramento
Planning and Development Department
Economic Development Coordinator

December 1985

TABLE OF CONTENTS

I. INTRODUCTION AND AUTHORIZATION

On January 31, 1984, the Sacramento City Council adopted Resolution No. 84-075 which initiated the City's North Natomas Community Planning Program and requested that:

> "The City Planning Commission and Planning staff are hereby directed to work with the Sacramento Employment and Training Agency and the Sacramento Housing and Redevelopment Agency to work with the proposed developers to complete an Employment and Economic Development Opportunity Plan. The Plan should be completed at no cost to any of the public agencies, and shall be completed prior to any action on the Gateway Point application."

The recommendations in the following Plan are based on three assumptions inherent in the resolution:

1. The City must take steps to ensure to the extent possible that new jobs created within North Natomas benefit City residents, especially the unemployed.

2. The City must seek ways to encourage compatible economic development in existing urbanized areas, thus minimizing negative impacts from competing North Natomas development.

3. City actions for employment and economic development are proposed in a spirit of cooperation that must exist and flourish between the City, developers, employers, and the people of the City.

DESCRIPTION OF RECOMMENDATIONS

Staff recommends the following actions be implemented in the event City Council adopts a development intensive plan for North Natomas:

- o Employment agreements with future employers.
- o Construction employment agreements for minority and women's employment and minority business enterprise and women's business enterprise contractor retention.
- o Employer sponsored day care.

Staff considered four additional actions and these are included in this report for discussion purposes but not recommended at this time. These are: the Enterprise Zone Program, a non-profit development corporation with loan pool for business and housing development; and the school business contract. The City can implement the recommendation for the North Side Mini Civic Center irrespective of the North Natomas planning process. Strict monitoring and evaluation through the Monitoring Program is proposed for all the recommended actions.

Recommendations were prepared with the assistance of the Sacramento Employment and Training Agency and the Sacramento Housing and Redevelopment Agency.

A. RECOMMENDED ACTIONS

1. Employment Agreements with Future Employers

Action: Require employers of ten or more employees to enter into an employee recruitment plan agreement with the Private Industry Council of the Sacramento Employment and Training Agency (PIC-SETA) prior to locating within North Natomas. Employers with fewer than 10 employers will also be encouraged to work with PIC-SETA.

Purpose: The purpose of this plan would be to introduce employers in Sacramento to the employee recruitment services offered by the Private Industry Council. Employers wouldn't be obligated to hire individuals. Rather, consistent with identified needs and expressed interest, they would be required to interview pre-screened job candidates referred from PIC-SETA.

Benefit: This would increase employment of Sacramento's unemployed. Future employers can realize recruitment cost savings of up to 15 percent and Targeted Jobs Tax Credits. Employees placed through PIC-SETA have a track record of stability and dependability, which has resulted in additional employer savings.

Drawback: Places burden on future employers, most of whom will be unaware of the reason for the requirement and may see it as an obstacle.

Implementation: Require proof of a signed employment agreement prior to issuance of building permits, PUD special permit or the business tax certificate. The Planning and Development Department and the City Revenue Division can distribute a fact sheet to applicants which explains

the requirement, geographic area covered, and who to contact at PIC-SETA. PIC-SETA may ask for reimbursement costs if necessary to meet employer deadlines.

PIC-SETA is currently preparing a similar program for the Sacramento Housing and Redevelopment Agency (SHRA). Here, SHRA is providing financing to the Norwood/I-80 Business Park and is requiring that:

- Owner includes the requirement that all occupants of the PUD sign an SHRA-approved employee recruitment plan in the Covenants, Conditions, and Restrictions of the PUD.

- Owner agrees to notify all future purchasers of portions of the PUD about the employee recruitment plan requirement.

- Owner agrees that all special permits issued for development of the PUD shall require signing the SHRA approved employee recruitment plan prior to issuance of the Occupancy Permit.

A similar agreement is currently in effect between PIC-SETA and the Sacramento Sports Association (SSA). In this voluntary employment agreement, SSA agreed to hire at least 67 percent of all its employees for the sports arena through referrals from PIC-SETA. In addition to recruiting and screening potential employees, SETA is assisting SSA to obtain targeted job credits through the California Employment Development Department, and will also negotiate separate contracts to subsidize wages for on-the-job training activities for some of the jobs. SSA is reimbursing PIC-SETA for actual costs incurred above regular PIC-SETA service costs. Even with this, SSA is projected to save money through this agreement in employee recruitment costs alone. To date, 157 participants have been offered employment through SSA. Targeted Jobs Tax Credit (TJTC) benefits, over a two year period, exceed $475,000.

2. Construction Employment Agreements

The following two actions relate to construction employment agreements for the employment of minorities and women and the retention of minority and women's business enterprises as subcontractors. A combination of the two will be prepared for the final implementation plan.

Construction Employment Agreements for Minority and Women's Employment

Action: Require contractors constructing buildings of 40,000 square feet or more to enter into an employee recruitment plan agreement with PIC-SETA prior to the issuance of a buiding permit.

Purpose: Similar to employment agreements with future employers but focusses on economic benefits that accrue to the community through construction employment.

Benefit: Same as for employment agreements with future employers and is also being used in Boston, Massachusetts as a strong affirmative action measure.

Drawback: At the minimum, contractors will be unfamiliar with such a measure. In Boston, where the City is requiring the hiring of 50 percent residents, 25 percent minorities, and 10 percent women, union halls are

unable to find qualified candidates to meet hiring standards. Their PIC is working with the unions to set up apprentice programs, however there are many obstacles.

The greatest drawback is a legal question. In 1983, the Supreme Court upheld Boston's ability to require employment agreements in projects publically financed, subsidized, or backed. Boston's 1985 executive order, expands the program to cover both private and public projects. Boston developers and unions are cooperating with the requirements and do not expect to legally challenge the provisions.

Sacramento's unemployment problems may not warrant such far-reaching measures.

Implementation:

- Establish Sacramento Residents Construction Employment Standards. As an example, Boston uses the following on a craft-by-craft basis:

    1. At least 50 percent total employee workhours in each trade shall be bona fide Boston residents.

    2. At least 25 percent of the total employee work hours in each trade shall be by minorities.

    3. At least 10 percent of the total employee work hours in each trade shall be by women.

- Require the submission of a Sacramento Residents Construction Employment Plan, which meets the Residents Construction Employment Standards, prior to the issuance of building permits for structures of greater than 40,000 square feet. This could be scaled back to include only public funded, subsidized, or backed projects. If only publicly-involved projects are included, the impact in North Natomas would be small, if any, since the current financing approach requires all capital improvements to be privately financed. Redevelopment and public works projects all over the City would potentially be affected.

- Presently, the Sacramento Housing and Redevelopment Agency participates in the Sacramento Home Town Plan sponsored by the Greater Sacramento Area Plan Agency. Current minimum hiring goals in construction are 20 percent for minorities and 6.9 percent for women. This mechanism could be incorporated into the Boston concept for implementation in Sacramento.

- Implementation would also call for an extensive network of staff and support services for monitoring, compliance and sanctions.

Minority Business Enterprise (MBE)/Women's Business Enterprise (WBE) Contractor Retention Requirements

Action:

- Impose MBE/WBE contractor utilization goals on construction of buildings of 40,000 square feet or more, which realize a minimum

utilization rate of 20 percent MBE and 5 percent WBE contractors during each calendar year of build-out.*

- o Review and update goals periodically to assure the percentages agree with the percentages of MBE/WBE's in the SMSA.

- o Establish an MBE/WBE construction bonding loan pool ($500,000) to ensure MBE's/WBE's can meet the financial requirements for competitive bidding.

Purpose:

- o Allow MBE's/WBE's to share in economic benefits to be realized from development.

- o Provide MBE's/WBE's an opportunity to compete fairly and equally.

- o Ensure that MBE's/WBE's grow with the community and provide additional local employment resources.

Benefit:

- o Increased participation in the marketplace by types of firms currently underrepresented.

- o The development and contracting community who will have a pool of qualified and competitive MBE/WBE firms to work with.

Drawback:

- o Finding MBE/WBE's in each trade area.

- o May need to divide jobs into more specialized parts; more costly.

- o Less experienced MBE/WBE's may need more time to perform job.

- o The need to set MBE/WBE participation goals higher or lower in each trade area depending on the number of MBE/WBE's in the particular trade.

Implementation: The program could be implemented in two ways: first, under the umbrella of the City a special MBE/WBE Unit could be established in conjunction with the economic development program. The

---

* These goals are based on the anticipated increase when an analysis is completed on the percentage of MBE's/WBE's in the Sacramento Standard Metropolitan Statistical Area (SMSA). Current utilization goals (based upon a statistical analysis of SMSA) being used by California Housing Finance Agency (CHFA), Regional Transit (RT) and cable in the Sacramento area are MBE - 15 percent and WBE - 3 percent. These goals could be used as long as there is a mechanism for review of the SMSA that determines when periodic increases in goals should occur.

Unit would be responsible for a) establishing an annual action plan for meeting MBE/WBE goals based on upcoming contract opportunities; b) monitoring compliance; and c) administration of the MBE/WBE bond fund.

A second method would be to contract with either an experienced MBE/WBE consulting firm and/or create a non-profit MBE/WBE assistance center to administer the program.

Overall, the program would follow the bid and contract review and monitoring steps as outlined in the City/County MBE/WBE Plan.

Cost: A one-time up front cost of $500,000* to support the MBE/WBE bonding pool is required. Annual cost for administering the overall program would be $100,000 annually.** These operating costs would be sufficient to fund either one full-time equivalent MBE/WBE specialist, benefits, overhead, and support staff; or to provide for an outside contract to undertake the development, implementation and administration of the program.

While some increased cost for the development of experienced contractors may occur at the front end, over time a meaningful MBE/WBE program will create increased competition not only among MBE/WBE's but within the overall contracting community. This should balance out increased costs of requiring MBE/WBE utilization, and will have a lasting effect on the economic health of the community as a whole.

3. Employer Sponsored Day Care

Action: In October of this year, the Mayor's Task Force on Child Care presented recommendations to improve child care services in Sacramento. Recommendations are geared to furthering local economic development.

Two recommendations are especially relevant in North Natomas:

- o Appoint a child care coordinator.
- o Increase child care facilities in major employment centers and residential developments.

Per the Task Force recommendations, require developers and employers to meet with the child care coordinator to discuss employment center design, projected child care needs of employees, and child care resources available.

Additional actions, which can initially be implemented in North Natomas, or later through the child care coordinator include:

- o Land dedication for child care sites especially within park sites.
- o Construction of child care facilities in major building complexes.
- o Fee assessment for child care development fund.
- o Contribution toward funding child care coordinator position.

---

* To be apportioned among those receiving benefit from the land use entitlements.

** To be raised as a surcharge on building permits.

The Planning Department will prepare, over the next six months, implementation guidelines for the Task Force recommendations. These will be enforced Citywide and become an amendment to the North Natomas Community Plan.

B. ADDITIONAL ACTIONS FOR DISCUSSION

Staff considered the following actions but they are not recommended at this time.

1. Enterprise Zone Program

Action: Require pre-agreements between applicants and the Sacramento Housing and Redevelopment Agency to participate in the Enterprise Zone Program sponsored by the Agency.

Purpose: To ensure success of the Enterprise Zone Program should it be extended to the area in future years.

Benefit:

- Those low-income and disadvantaged employees who would be more likely to be hired with the Enterprise Zone incentives in place.
- Those employees who would benefit from the tax and regulatory incentives contained in the Enterprise Zone Program.

Drawback: Extension of the Del Paso/Northgate Enterprise Zone (if approved in the first place) into the North Natomas area could be done only within State approval. This would take considerable effort but could potentially be approved with justification. There are also a number of administrative concerns that need to be more fully discussed.

Implementation: By letter or agreement from each business/developer as projects are approved. Several aspects of the Enterprise Zone program are uncertain at this time not the least of which is the question of how Environmental Impact Reports would be handled. More discussion between City Planning and SHRA needs to occur on this proposal.

2. Non-Profit Development Corporation with Loan Pool for Business (and Housing) Development

Action: Require developer contributions to form a self-sustaining, private, non-profit development corporation to provide below market interest loans for business development in the West of McClellan area and surrounding commercial revitalization target areas. As an alternative, require a contribution to the Sacramento Housing and Redevelopment Agency Business Development Loan Pool to be earmarked to affected areas.

Purpose: The purpose of this action would be to ensure, to the extent possible, that compatible industrial employers and local serving commercial uses develop in affected areas.

Benefit: Primary benefit will be to existing City residents, especially those in high unemployment areas and lacking neighborhood commercial services. North Natomas developers would benefit through improvement in adjacent areas.

Drawback: Start-up time of six months to a year.

Implementation: Financial contributions by developers would start a revolving loan fund, or add to existing revolving loan or subsidized interest loan program. Approximately $80,000 annually would be necessary to administer a loan fund which could be of any amount but probably more than $1 million. As an alternative, a contribution could be made to the existing revolving loan program presently being set up by the Metropolitan Chamber of Commerce for the SHRA. Funds would be earmarked and marketed to affected areas only.

3. Develop a School Business Contract: Education for Employment

Action: Require developers/employers to work with schools in high unemployment areas of affected areas to link high school graduates to new jobs that will be created. In addition, require developer contributions to improve the physical settings of affected schools. Schools would need to commit to work with business to lower drop-out rates and improve student performance.

Purpose: The purpose of this action would be to reach into the cycle that creates concentrations of high unemployment and lack of connection to the productive business world and make this connection. This would be aided by improved physical environments.

Benefit: Young people in affected areas would benefit by the opportunity to study and prepare for actual jobs. Business would benefit by having a flow of literate, competent graduates in nearby communities. The community would benefit because better educated youth are less likely to fall into criminal patterns.

Drawback: Time and staff resources required to make such a commitment work.

4. Mini Civic Center in North Sacramento

Action: Locate the proposed mini civic center services in North Sacramento. Plans are currently underway to locate at least a new police substation and City corporation yard in the northern part of the City.

Purpose: The purpose of this action would be to guide public investment, and its economic stimulating impact into North Sacramento where growth has been slow or declining.

Benefit: North Sacramento residents would benefit by the new development which would catalyze further development.

Drawback: City may need to purchase property rather than receive property as a developer dedication.

Implementation: City policy should be adopted regarding this facility location, and staff should be directed to proceed.

C. MONITORING AND EVALUATION

Monitoring of the implementation of approved employment and economic development measures and evaluation of results, is essential to the City's strategic plan for accomplishing its goals.

Therefore, require landowners and/or employer-leasees to provide information requested by the City for an ongoing study (similar to the annual Roseville-Placer County studies) monitoring employment patterns. PIC-SETA would also produce reports on the status of employment agreements. Other evaluation measures would be established to chart progress on each approved action.

This component will be necessary for each implementation element. Therefore, require developer support to staff and computerize this component.

III. OVERVIEW OF PROPOSED EMPLOYMENT AND ECONOMIC DEVELOPMENT IMPACTS

A. NORTH NATOMAS COMMUNITY PLAN

In order to address the employment opportunities within North Natomas, it is necessary to know and project employment by land use, how this compares to the local labor market, and key thresholds. The following provides an overview of these.

The North Natomas Community Plan proposes a total of 2,466 acres of non-residential land uses that at build-out, in 2005, would generate 65,760 jobs. Table 1 shows the proposed non-residential land uses and projected employment.

TABLE 1

NORTH NATOMAS COMMUNITY PLAN
NON-RESIDENTIAL LAND USES AND
PROJECTED EMPLOYMENT

LAND USE	NET ACRES	EMPLOYEES
Major Employers		
M-50 (45 emp/ac)	117	5,265
M-20 (30 emp/ac)	1,306	39,180
Light Industrial (20 emp/ac)	630	12,600
Office/Business (55 emp/ac)	53	2,915
Community Commercial (30 emp/ac)	114	3,420
Highway Commercial (30 emp/ac)	46	1,380
Sports Complex (5 emp/ac)	200	1,000
SPA (5 emp/ac)*	(500)	(2,500)
TOTAL	2,466	65,760

* Not included in totals.

Sixty-seven percent, or 44,445 of the new jobs created, would be in land uses designed to accommodate high technology firms. To place this in the regional employment perspective, only 28,000 new high technology jobs are projected by year 2000, regionwide. Of these 9,200 would be within the City, based on historic trends. Additionally, Delta Shores Village (Huntington Park) is the projected to generate 8,700 non-office high technology jobs. Thus, North Natomas has the potential to greatly increase the job pool in the Sacramento region, especially in the technology-related areas where it would compete with existing high technology developments.

In addition to permanent employment, North Natomas would generate construction employment. Table 2 summarizes construction employment generated by Alternatives C and D.

TABLE 2

NORTH NATOMAS CONSTRUCTION EMPLOYMENT

	ALTERNATIVE C	ALTERNATIVE D
Total Value of Construction	$3,699,027.5	$4,489,352.4
Share of Value to Labor	36%	36%
Average Construction Worker Salary	$31,000	$31,000
Peron Years of Construction Employment	42,956	52,134

Table 3 presents the most recent employment and unemployment figures for Sacramento City and Counties.

TABLE 3

EMPLOYMENT AND UNEMPLOYMENT
SEPTEMBER 1985

	IN LABOR FORCE	EMPLOYED	UNEMPLOYED	PERCENT
City of Sacramento	139,000	128,000	11,000	7.9
County of Sacramento	411,000	382,700	28,300	6.9

SOURCE: Employment Development Department.

In addition to the City and County unemployment rates North Sacramento's rate in 1980 was 19.4 percent in 1980, and in South Natomas the unemployment rate was 8.6 percent. This represented approximately 2,500 people. Unemployment in general is lower now in 1985 than in 1980, therefore these can be expected to be slightly lower. Matching local unemployed residents with jobs generated in North Natomas will reduce overall unemployment to the extent to which such matching is closely targeted. In other words, unemployment in a community such as North Sacramento can be greatly reduced by development in North Natomas by the extent to which jobs and unemployed residents are matched.

In order to trigger job matching with local unemployed residents it is necessary to identify thresholds at which it becomes efficient for both business and government to work together. The two major thresholds are: which firms to work with and at what point.

With regard to which firms, employment size is critical. Seventy-five percent of all firms in the County have fewer than 10 employees. Only 25 percent have more than 10 employees with only five percent having more than 50. Given this trend, about 13,000 of the North Natomas projected employees will work in firms of 10 or more employees. Thus, firms of 10 or more employees should be targeted for job matching.

There are several points at which firms moving into Sacramento are identified. There is only one point, however, through which each firm must pass. This is the City Revenue Division where application is made for the Business Tax Certificate. Thus, new North Natomas employers of 10 or more people could be identified during the Business Tax Certificate application process.

B. NORTH NATOMAS ENVIRONMENTAL IMPACT REPORT

The employment and land use sections of the North Natomas Environmental Impact Report are relevant to the Employment and Economic Development Plan. Projections, significance and mitigations are summarized here for Community Plan Alternatives C and D.

Between Alternatives C and D 56,540 and 77,525 jobs are projected. More than two-thirds of the jobs would be high technology related, an employment sector not currently concentrated in Sacramento. The significance of this would be an expanded employment base. Proposed mitigation is preference in hiring to existing Sacramento residents and job training programs targeted to occupations to be provided in North Natomas.

Between Alterantives C and D 5,500,000 to 19,300,000 square feet of offices and other employment generating uses are proposed. This would create a new focu for jobs within the region which could rival and diminish the importance of downtown. Further, this would divert efforts to build out existing communities, in particular to revitalize older neighborhoods where investment in employment generating and residential uses is needed.

This would create a significant adverse impact. Mitigation would be to redesignate North Natomas land uses to non-competing uses. Short of this, there is no mitigation except to develop a much more aggressive and substantially better funded redevelopment program to dramatically improve incentives for infill development and revitalization of existing communities. This includes efforts to channel high technology businesses into Delta Shores (Huntington Park), the City's designated area for these uses.

With regard to the diversion of employment development from other areas, the EIR states that the net increase of new jobs to the region will only be 25,000. This is because of what is termed a 50/50 increment siphon. In other words, about 50 percent of the projected new employment will be from companies already in the region that will be attracted to relocate in North Natomas. This is coupled with the projected reduction in employment opportunities in other communities from the number of jobs which would be created without significant development in North Natomas. Most substantial diversion would be from North Sacramento, Downtown Sacramento, South Sacramento and the Vineyards area. Without development in North Natomas, North Sacramento would receive 16,630 new jobs by 2005. Assuming North Natomas is available for urbanization under Alternative D, the projected increase in jobs is decreased from 16,630 to only 6,633 jobs by 2005, a decrease of 9,997 or approximatley 60 percent fewer jobs than without development of North Natomas.

C. GRUEN GRUEN AND ASSOCIATES REPORT

The Gruen Gruen and Associates Report was commissioned by the North Natomas developers to analyze the impact of development of North Natomas on North Sacramento, and refute arguments within the EIR. The key points regarding commercial and industrial development are summarized below.

Citing the North Sacramento Community Plan the report discusses the weak demand and high storefront vacancy rates in area commercial trips. Gruen Gruen attributes this primarily to the lack of demand for retail goods by North Sacramento residents. North Sacramento is characterized as an area with low incomes, high unemployment, low labor force participation, and high rate of poverty. This contributes to a negative image, and this in turn reinforces aesthetically and economic depressed conditions in the community.

The case is made that the image and quality of the commercial areas may not improve until there is an increase in demand for commercial services by local residents. Further stated, the commercial improvement goals of North Sacramento may not be obtainable in the near future unless there is growth-inducing activitiy in the adjacent areas which have a greater potential for development than North Sacramento. Hence, North Natomas can provide this new vitality.

With regard to industrial development in North Sacramento, Gruen Gruen and Associates identifies the West-of-McClellan area as having the best potential for industrial development. The report agrees with the Plan authors that this untapped potential is as a regional warehousing and distribution center. Gruen Gruen and Associates surveyed developers, property owenrs, and appraisers to gather information on the relative desirability of different locations in Sacramento for alternative types of land uses. North Sacramento was rated very likely for commercial services, warehousing and distribution, as well as non high technology manufacturing. North Natomas was rated very likely for high technology manufacturing and research and development space. The case is made that development in the West-of-McClellan area is closely tied to development of surrounding areas.

LP:lr

December 18, 1985

City Planning Commission
Sacramento, California

Members in Session:

SUBJECT: North Natomas Community Plan (M84-007)

SUMMARY

The Commission should approve the light rail alignment as recommended by Regional Transit, recommend the adoption of the recommended North Natomas Community Plan and recommend the adoption of specified amendments to the City General Plan.

BACKGROUND

The Commission has conducted public hearings on the Proposed North Natomas Community Plan on November 21, December 9, 12, 16 and 18. During these hearings, the Commission has been presented with recommendations on the Community Plan text, land use map, implementation programs, transit corridors, traffic analysis, and general plan amendments.

Staff recommends the following modification to the Proposed Plan:

1. Amend the description of the phasing program to the program recommended by staff at the December 16, 1985 hearing. This requires dropping the date 1995 and basing the phasing program on growth monitoring, the performance of the TSM, housing, and employment programs, and the provisions of infrastructure.

RECOMMENDATION

1. Staff recommends that the Commission approve the Light Rail Transit route as recommended by the Regional Transit Board of Directors and include the alignment in the North Natomas Community Plan and on the Plan map.

2. Staff recommends the Commission recommend Council adoption of amendments to the General Plan Land Use Map, Open Space/Conservation Element, Land Use/Industrial Element, Circulation Element, and Public Facilities and Services Element to achieve consistency between the General Plan and the Community Plan.

3. Staff recommends the Commission recommend Council adoption of the Proposed North Natomas Community Plan and Implementation Programs with the modification noted in this staff report.

4. Staff recommends that the Commission advise the Council that the monitoring program described in the Plan will require a continuing staff effort that will have to be reflected in future City budgets.

Respectfully submitted,

Gary L Strandberg for

Marty Van Duyn
Planning Director

MVD:GLS:lr

M84-007

DRAFT
GENERAL PLAN AMENDMENTS

The North Natomas Community Plan which is proposed for adoption would be an amendment to the 1974 Sacramento City General Plan. Therefore, amendments and revisions to the General Plan are needed to assure consistency between the Proposed North Natomas Community Plan and the General Plan.

Amendments to the 1974 Sacramento General Plan are needed in the following elements:

OPEN SPACE/CONSERVATION ELEMENT

Delete

Page 6-6

Managed Resource Production

Agricultural Areas

1. Reserve the Natomas area north of Interstate 880 (see map on next page) for commercial agriculture by:

   A. Using Williamson Act contracts to preserve these land sin an agricultural land use status.

   B. Defining development standards, permitted uses and minimum acreage for agricultural areas.

   C. Exploring alternative programs which have a positive effect on retaining open space for agriculture purposes.

2. Review City agriculture-urban reserve areas at the time of General Plan updating every 5 to 7 years and adjust these areas if contiguous urban growth warrants the change.

3. Review permanent agriculture areas every 20 years and adjust these areas if warranted.

4. Prohibit the formation of new urban-type assessment districts or the expansion of existing districts inside designated agricultural lands.

Page 6-9 and 4-4

5. Develop standards for providing "mini-parks" as opposed to more conventional neighborhood or community parks in the more highly urbanized sections of the City.

Replace

Page 6-9

5. Develop standards and programs for providing "mini-parks", "community parks" and "Regional parks" in newly urbanized sections of the City.

LAND USE/INDUSTRIAL ELEMENT

Delete

Page 2-12

"Major industrial complexes can be grouped into five locations with smaller complexes proposed in other locations throughout the City.

Replace

Page 2-12

"Major industrial complexes can be grouped into six locations with smaller complexes proposed in other locations throughout the City."

Add

Page 2-12

6. The largely undeveloped area north of Interstate 80, south of Elkhorn Road, and west of the East Main Drainage Canal, plus the Sacramento Metropolitan Airport (Metro Airport).

Page 2-13

6. Direct industrial growth in North Natomas and Delta Shores.

TRANSPORTATION ELEMENT

Delete

Page 3-13

"Studies by the Sacramento Regional Area Planning Commission and its consultants have concluded that rail rapid transit, for example and Bay Area Rapid Transit (BART) system, is not economically feasible in this region in the near future. Nevertheless, continuing study of this important aspect of transportation will be reqauired if the growing metropolitan area is to have a more diversified transportation system, particularly one less dependent on the automobile as the primary mover of people."

"Future Requirements. Further study of mass transportation requirements and opportunities is necessary. For example, the results of the Sacramento-Stockton-San Francisco Bay Area Corridor Study could have an important impact on local Sacramento transit planning. (In any event, options should be kept open to consider rail transit in the long-term future if growth in population size and density should warrant it.)"

Add

Page 3-1

6. Promote and encourage to the highest degree the City's Transportation Systems Management (TSM) measures and programs to achieve and maintain a Level of Service C.

Page 3-14

6. Support and encourage usage of all modes of transportation particularly the newly developed Light Rail System.

7. Give special attention to reserving right-of-way for future Light Rail extention in newly urbanized areas.

PUBLIC FACILITIES AND SERVICE ELEMENT

Add

Page 4-4

14. Encourage the development of privately-owned sports stadiums and arenas as an alternative to publicly financed sports facilities of that nature.

POPULATION AND URBAN GROWTH

Add

Page 1-9

The following chart summarizes Alternative A and Alternative D growth allocations for North Natomas during 1984 to 2005. These forecasts are reflected below:

PLANNING AREA	ALTERNATIVE A		ALTERNATIVE D	
	DWELLING UNITS	POPULATION	DWELLING UNITS	POPULATION
North Natomas	0	0	33,100	64,178
South Natomas	19,000	46,246	17,000	41,390
North Sacramento	12,000	29,208	11,500	27,999
Arden Arcade (see County)				
East Sacramento	500	1,217	500	1,217
Central City	4,000	9,736	3,400	8,278
East Broadway	1,400	3,408	1,400	3,409
South Sacramento (City/County)	20,000	48,680	17,500	42,608
Airport Meadowview	9,500	23,123	8,800	21,426
Land Park	700	1,704	700	1,704
Pocket	9,800	23,853	9,800	23,860
TOTAL	76,900	187,175	103,700	236,070

BW:lr

NORTH NATOMAS
COMMUNITY PLAN
TRAFFIC ANALYSIS

Prepared For:
City of Sacramento

Prepared By:
OMNI-MEANS, Ltd.
Engineers & Planners

DECEMBER 10, 1985
3053-02

TABLE OF CONTENTS

LIST OF FIGURES

FIGURES

LIST OF TABLES

TABLES

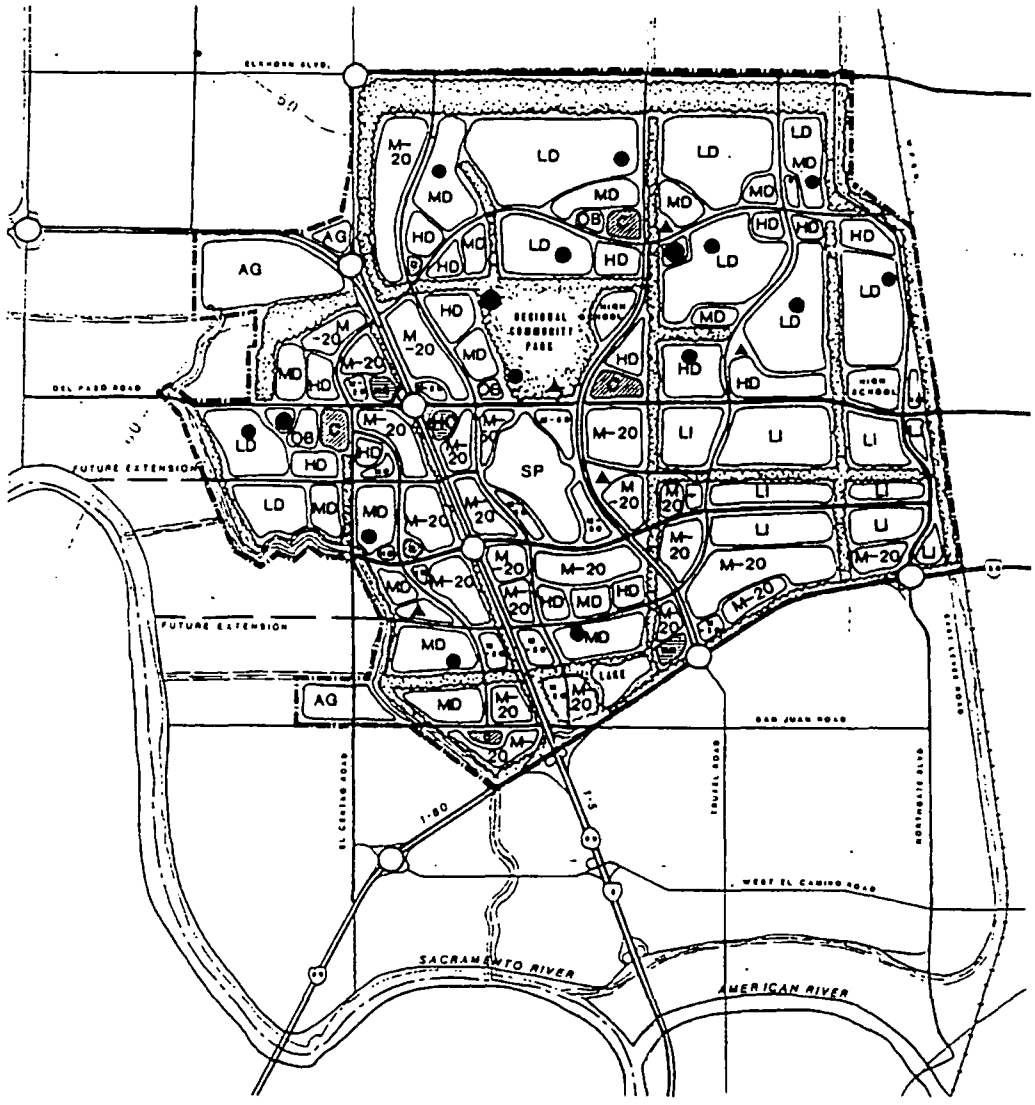
INTRODUCTION

This traffic analysis was prepared to address the potential traffic impacts associated with the North Natomas Draft Community Plan, December 9, 1985. This plan is amended from the previous Draft Community Plan, identified as Alternative C in the North Natomas Final Environmental Impact Report. The new Draft Plan lies between Alternatives C and D in terms of land use densities.

The methodology used in this analysis involved re-running the existing sub-regional traffic model developed for the North Natomas DEIR (please refer to that document and the North Natomas Analysis Report, September, 1984 for detailed descriptions of the modeling process). Because of its similarity to the Draft Plan in terms of land use and circulation network, Alternative D's data base was modified to match the information contained in the new plan. Modifications were also made to the South Natomas land use file to represent changes made through November 22, 1985 on the original Blayney-Dyett Plan of November, 1984. Two additional modifications to the previous model were made. The new Draft Plan, shown in Figure 1, proposes a new crossing of the American River via a Truxel Road bridge extending into the downtown area, potentially merging with 7th and 8th streets. Secondly, through traffic within the Study Area was increased to simulate year 2010 conditions. This was done because the DEIR indicated that full buildout of any alternative more dense than Alternative C could not occur by 2005.

The following report presents in greater detail the modifications that were made to the original traffic model and methodology in order to analyze the new Draft Plan. In addition, the resulting traffic impacts and potential mitigation measures are thoroughly described.

NORTH NATOMAS COMMUNITY



PROPOSED LAND USE

HD — HIGH DENSITY RESIDENTIAL (22.0 DU/AC)	HIGHWAY COMMERCIAL	OB — OFFICE/BUSINESS	AG — AGRICULTURE
MD — MEDIUM DENSITY RESIDENTIAL (11.0 DU/AC)	M-20 — MANUFACTURING/ RESEARCH/DEVELOPMENT (20% OFFICE)	SP — SPORTS COMPLEX	ELEMENTARY SCHOOL JUNIOR HIGH SCHOOL
LD — LOW DENSITY RESIDENTIAL (7 DU/AC)	M-50 — MANUFACTURING/ RESEARCH/DEVELOPMENT (50% OFFICE)	PARK/OPEN SPACE	CIVIC/PUBLIC USE (LIBRARY, FIRE STATIONS, MEDICAL CENTERS)
COMMUNITY/NEIGHBORHOOD COMMERCIAL	LI — LIGHT INDUSTRIAL	FREEWAY/BUFFER/ HIGHWAY OR ROAD LANDSCAPING	4-LANE DIVIDED MAJOR 6-LANE DIVIDED MAJOR 8-LANE DIVIDED PARKWAY

CITY OF SACRAMENTO-Planning and Community Development NOV. 1985

DRAFT NORTH NATOMAS COMMUNITY PLAN

N

OMNI-MEANS, Ltd. Engineers & Planners | Figure 1

MODEL MODIFICATIONS

North Natomas Land Use and Circulation System

As noted previously, the Alternative D data base was used as a basis for developing the new Draft Plan inputs for use in the traffic model. No changes other than the described Truxel bridge and connection to downtown were made to the circulation network, since both Alternative D and the Draft Plan possess identical street systems both locally and in regard to regional facilities. Modifications were required to the Alternative D land use file to represent differences proposed in the Draft Plan. Table 1 summarizes the differences in land use between Alternative D and the Draft Plan. The Draft Plan is depicted in Figure 1.

TABLE 1
LAND USE

MAJOR EMPLOYERS (IN EMPLOYEES)	ALT D	DRAFT PLAN
M-50	20,475	5,265
M-20	25,500	39,180
LIGHT INDUSTRIAL	10,900	12,600
OFFICE/BUSINESS	9,350	2,915
COMMUNITY COMMERCIAL	4,200	3,420
HIGHWAY COMMERCIAL	1,600	1,380
SPORTS COMPLEX	1,000	1,000
SPA	2,500	2,500
TOTAL EMPLOYEES	75,525	65,760
RESIDENTIAL (IN DWELLING UNITS)		
LOW DENSITY	9,800	8,995
MEDIUM DENSITY	10,116	9,876
HIGH DENSITY	13,948	14,146
TOTAL DWELLING UNITS	33,864	33,017

As shown in Table 1, the Draft Plan possesses approximately 10,000 fewer employees and 800 fewer dwelling units than Alternative D.

Trip Generation

The trip generation rates used in this analysis are identical to those used in the EIR with one exception. The commercial trip generation rates were reduced by 25% in response to comment E-70 in the FEIR. The reduction is attributable to studies (see summary in ITE Trip Generation 3rd Edition) that have indicated that up to 45% of the raw trip generation from a commercial site is link non diverted. Simply stated, a link-non diverted trip is one which is already driving on the street adjacent to the site and stops as part of a multi-purpose trip. The most common example is that of a stop at a food store while returning home from work, where the "work" trip is combined with a "shopping" trip to form one multi-purpose trip.

For review, the trip generation rates used in this study are listed in Table 2.

TABLE 2
TRIP GENERATION

LAND USE	UNIT	DAILY TRIPS (vehicle)
Residential*		
0 Vehicle SF[1]	Dwelling Unit (DU)	0.7
1 Vehicle SF	DU	5.7
2+Vehicle SF	DU	9.0
0 Vehicle MF[2]	DU	0.6
1 Vehicle MF	DU	4.5
2+Vehicle MF	DU	7.2
Non-Residential		
Hi-Tech[3]	Employee (EMP)	3.2
Light Industrial[4]	EMP	2.7
Neighborhood Commercial[5 7]	EMP	24.8
Highway Commercial[6 7]	EMP	25.0
Office[5]	EMP	3.8
Defense[5]	EMP	1.8
Community Shopping Center[5 7]	EMP	11.3
Elementary School[5]	EMP	13.1
Junior High[5]	EMP	13.1
High School[5]	EMP	45.5
Community Park[5]	Acre	6
University[5]	Student	1.5

* All residential trip rates from SATS model.

1 Single-Family Dwelling Unit

2 Multi-Family Dwelling Unit

3 Includes M-20 and M-50 employees. Trip rate from City Traffic Engineer.

4 CALTRANS

5 ITE Trip Generation Handbook, 3rd Edition, 1983. Some rates were adjusted to conform with employee density assumptions provided by McDonald and Associates.

6 OMNI-MEANS, Ltd.

7 25% reduction for link-non diverted trips not included.

Trip Distribution

The trip distribution characteristics used for the evaluation of the Draft Plan are those identified by the regional model run for Alternative D. Proposed changes of land use in the Draft Plan would marginally effect the distribution of traffic from North Natomas, however, the changes would not be significant enough to change the results of this analysis. The distribution used is listed in Table 3.

TABLE 3
TRIP DISTRIBUTION

DIRECTION	% OF TOTAL TRIPS
NORTH	2%
EAST	16%
SOUTH	20%
WEST	1%
INTERNAL	61%
	100%

Changes To South Natomas Land Use

The Blayney-Dyett Draft South Natomas Community Plan, November 1984, was the basis for the land use assumptions in South Natomas used in the North Natomas EIR. Since that time the City Council has approved land use plans different than proposed in the Blayney-Dyett that could potentially alter the results of any traffic study which included the South Natomas area. For this reason, changes in South Natomas land use were therefore input into the traffic model prior to performing any further analysis. The differences between the current and the Blayney-Dyett South Natomas land use plans are summarized in Table 4.

TABLE 4
SOUTH NATOMAS LAND USE

LAND USE	CURRENT	PREVIOUS
Residential (dwelling Units)	25,924	24,949
Office Park (square feet)	5,270,000	4,560,000
Business Park (square feet)	1,188,000	765,000
Neighborhood Commercial (square feet)	667,000	309,000
Highway Commercial (square feet)	514,000	360,000
Community Commercial (square feet)	565,000	405,000

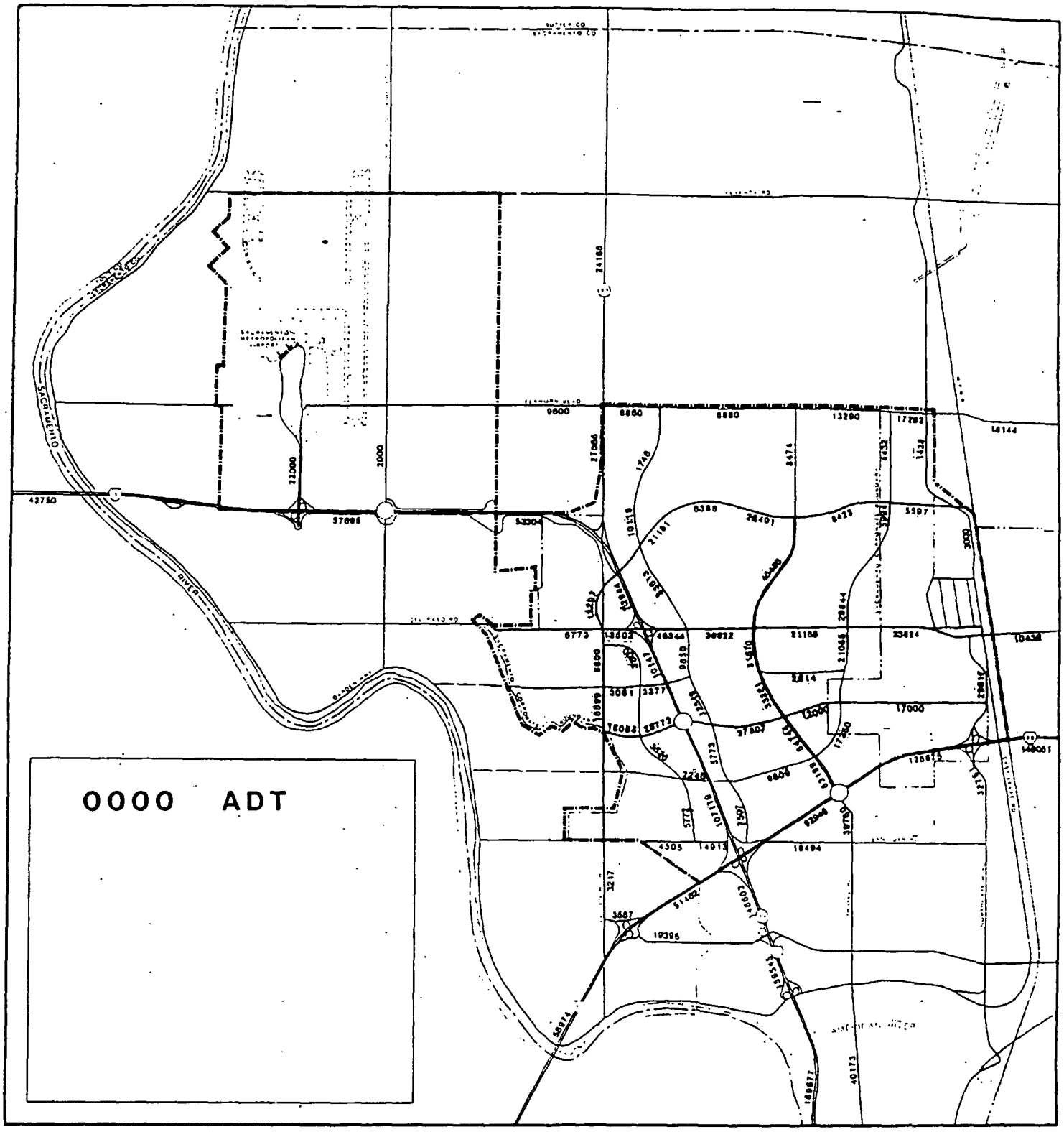
As shown in Table 4, there is an increase in all land use categories under the current plan. The increases will result in a corresponding increase in total raw trip generation.

Through Traffic

In the North Natomas EIR, the traffic analysis assumed a 2005 study year. It was found however, that Alternatives D and E could not achieve buildout conditions by the year 2005. For this reason, through traffic volumes were adjusted from the previous model by 2% annually to reach a 2010 base condition.

TRAFFIC IMPACTS

The criteria for evaluating impacts from the Draft Plan remained identical to those identified in the North Natomas EIR. The Level of Service (LOS) criteria is listed in Table 5 and the projected traffic volumes resulting from the Draft Plan are shown in Figure 2. The critical impact locations remain similar to those identified for Alternatives C and D in the North Natomas EIR. Table 6 lists the locations where LOS C would exceed at buildout of the Draft Plan.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

AVERAGE DAILY TRAFFIC VOLUMES

FIGURE 2

TABLE 5
EVALUATION CRITERIA FOR LEVEL OF SERVICE
DAILY

Facility Type	Level of Service "C" ADT Traffic Volumes	Level of Service "D" ADT Traffic Volumes	Level of Service "E/F" ADT Traffic Volumes
Urban Streets	V/C = 0.71 - 0.80	V/C = 0.81 - 0.90	V/C = 0.91 - 1.00
Two Lane	10,700 - 12,000	12,000 - 13,500	13,500 - 15,000
Four Lane	21,300 - 24,000	24,000 - 27,000	27,000 - 30,000
Six Lane	32,000 - 36,000	36,000 - 41,500	41,500 - 45,000
Eight Lane	42,600 - 48,000	48,000 - 54,000	54,000 - 60,000
Freeway	V/C = 0.66 - 0.85	V/C = 0.86 - 0.95	V/C = 0.96 - 1.00
Four Lane	52,800 - 68,000	68,000 - 76,000	76,000 - 80,000
Six Lane	79,200 -102,000	102,000 -114,000	114,000 - 120,000
Eight Lane	105,600 -136,000	136,000 -152,000	152,000 - 160,000
Ten Lane	132,000 -170,000	170,000 -190,000	190,000 - 200,000
Twelve Lane	158,400 -204,000	204,000 -228,000	228,000 - 240,000

Source: Transportation Research Board, Circular 212 and the 1965 Highway Capacity Manual.

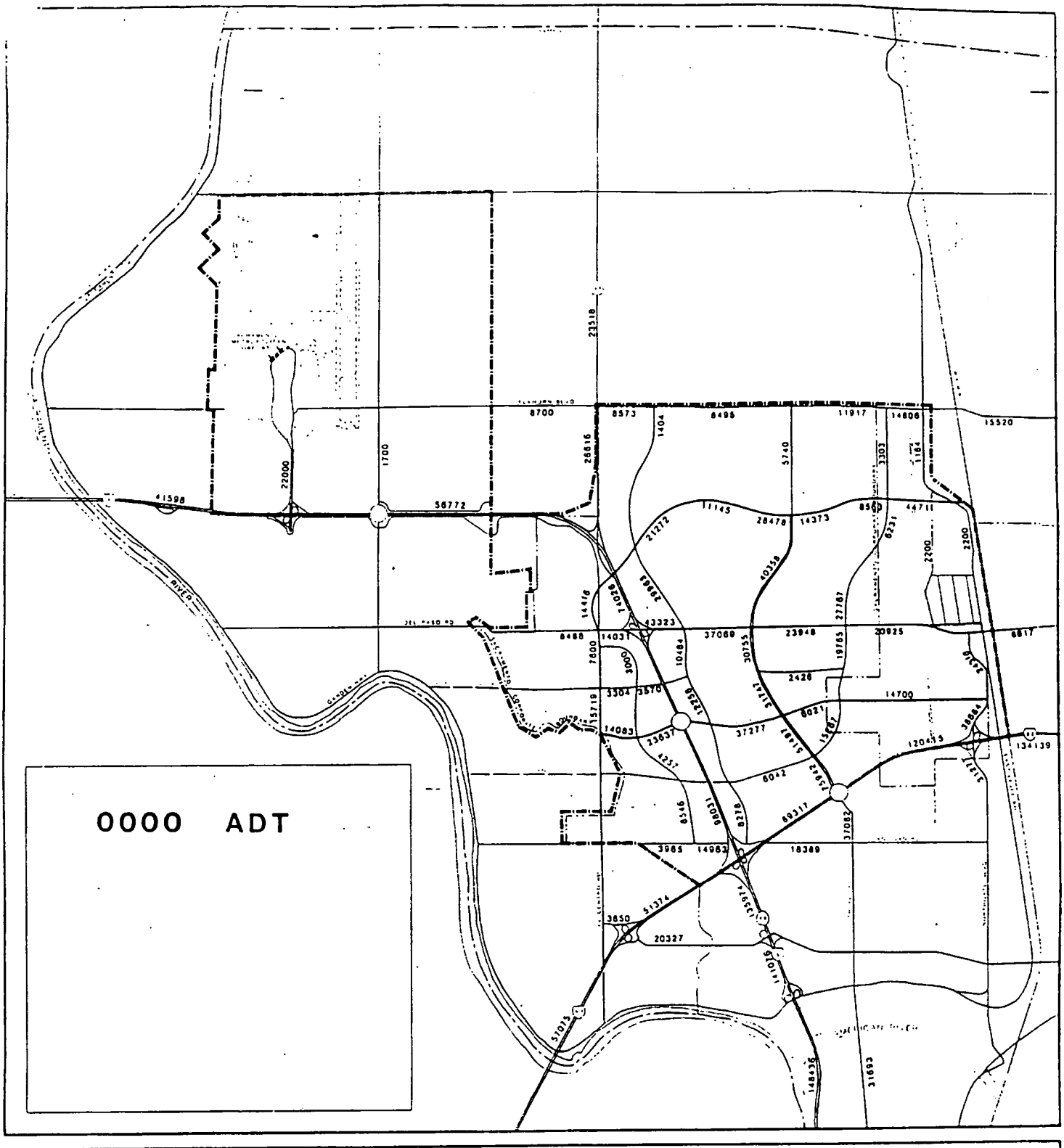
TABLE 6
DRAFT PLAN LEVEL OF SERVICE
AND VOLUME TO CAPACITY RATIO

LOCATION	LOS	V/C
Regional Facilities		
I-80 between Truxel Road and Business 80 (east)	F	1.23
I-5 between I-80 and North Market Street	D	0.89
I-5 between I-80 and Central City	D-F	0.93-1.06
Truxel Road Bridge over American River	D	0.89
Local Roads		
Truxel Road between N. Loop Road and Del Paso Rd.	D/E	0.90
Truxel Road between N. Market and I-80	F	1.22-1.85
Northgate Blvd. between N. Market Blvd. and I-80	E/F	1.00
Del Paso Road between Truxel Road and I-5	D-F	0.85-1.03
N. Market Blvd. between Truxel Road and I-5	D	0.80-0.86
South Natomas		
Truxel Road between I-80 and San Juan Road	D	0.85-0.88

MITIGATION MEASURES

Transportation Systems Management (TSM)

As directed by City staff, a second model run was performed incorporating a trip reduction factor for implementation of various Transportation Systems Management (TSM) measures in accordance with the City TSM ordinance. For office, hi-tech and industrial land uses, a 20% reduction from the raw trip generation was allowed. The projected traffic volumes with a TSM reduction are shown in Figure 3.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

AVERAGE DAILY TRAFFIC VOLUMES

WITH TSM REDUCTION

FIGURE 3

With the TSM credit, improvements in volume to capacity (V/C) ratios are experienced at all critical impact locations. There are, however, only two locations where LOS is improved to level "C". Those locations are on the Truxel Bridge-crossing the American River where LOS would rise from "D" to "C" and on I-5 between North Market Boulevard and West El Camino Boulevard where LOS would also improve to "C". With TSM credit, the locations listed in Table 7 would still operate at unacceptable LOS.

TABLE 7
DRAFT PLAN LOS WITH TSM CREDIT

LOCATION	LOS	V/C
Regional Facilities		
I-80 between Truxel Road and Business 80 (east)	F	1.00-1.12
I-5 between I-80 and Central City	D	0.88-0.93
Local Roads		
Truxel Road between N. Loop Rd. and Del Paso Rd.	D-E	0.90
Truxel Road between N. Market Rd. and I-80	F	1.14-1.69
Northgate Blvd. between N. Market Blvd. and I-80	D	0.86
Del Paso Rd. between Truxel Rd. and I-5	D-E	0.82-0.96
N. Market Blvd. between Truxel Rd. and I-5	D	0.83-0.85
South Natomas		
Truxel Road between I-80 and San Juan Road	C-D	0.79-0.82

Additional Mitigation Measures

City staff have indicated that on certain segments of major roadways, with the exception of the Truxel Road bridge, the construction of eight-lane facilities may be acceptable. Given such improvements in combination with a 20% TSM reduction, many of the remaining problem locations can be successfully mitigated to LOS "C". The only segment of the local street system that cannot be mitigated with such additional measures to LOS "C" is Truxel Road between North Market Boulevard and I-80. Table 8 lists the locations where eight lane roadways would improve LOS.

TABLE 8
DRAFT PLAN LOS WITH TSM AND IMPROVEMENTS
LOCAL STREETS WITH 8 LANE SEGMENTS

LOCATION	LOS	V/C
Truxel Rd. between North Loop Rd. and Del Paso Rd.	B	0.67
Truxel Rd. between North Market Blvd. and I-80	D-F	0.85-1.27
Northgate Blvd. between N. Market Blvd. and I-80	B	0.64
Del Paso Rd. between Truxel Rd. and I-5	B-C	0.62-0.72
North Market Blvd. between Truxel Rd. and I-5	B	0.62-0.64
Truxel Rd. between I-80 and San Juan Road	A-B	0.59-0.62

On the regional facilities, I-80 between Truxel Road and Business 80 (east) and I-5 between West El Camino Road and the Central City would still operate at unacceptable LOS even with implementation of TSM measures. The widening of I-80 to eight lanes between Truxel Road and Business 80 (east) would successfully mitigate that segment to a LOS "C" condition. I-5, however, cannot be expanded beyond its present eight lane width without change in existing CALTRANS policy, which is to limit freeway width to a maximum of eight through travel lanes. If CALTRANS did allow additional widening of I-5, it would be extremely costly and disruptive due to extensive bridge improvements and right-of-way constraints. Without any additional widening, the LOS on I-5 into the Central City would, with TSM reductions, be level "D", V/C = 0.93. It should be noted that while City policy is to maintain LOS "C" on all roadways, CALTRANS does use LOS "D" as a standard goal on the regional freeway system.

December 12, 1985

City Planning Commission
Sacramento, California

Members in Session:

SUBJECT: Agricultural Impact Mitigation Strategy for the North Natomas Community Plan (M84-007)

SUMMARY

On January 31, 1984, the City Council adopted Resolution No. 84-075 which initiated the North Natomas Community Planning Program. The Resolution required that in formulating a Master Plan for the entire North Natomas area, the Plan was to include consideration of the preservation of agricultural lands and the establishment of permanent greenbelts. The attached Agricultural Impact Mitigation Strategy responds to the direction given to staff by the City Council, as well as to the results of the impact analysis contained in the North Natomas Community Plan Alternatives EIR.

Staff recommends that the Planning Commission endorse the attached market-based Agricultural Impact Mitigation Strategy, and recommend that the City Council and Board of Supervisors enter into the agreements necessary to implement the program.

BACKGROUND INFORMATION

City Council/Board of Supervisors Direction to Staff

On January 31, 1984, the City Council adopted Resolution No. 84-075 which initiated the North Natomas Community Planning Program. Key provisions of the Resolution required:

A. That the Board of Supervisors be requested to coordinate their planning with the City in the formulation of a Master Plan for the entire North Natomas area.

B. That the Master Plan include consideration of:

1. Protection of Sacramento Metropolitan Airport and its clear zones.

2. Preservation of agricultural lands.

3. Establishment of permanent greenbelts.

At the time, members of the City Council viewed the greenbelt concept as a way to "contain" urbanization of the Study Area so as to protect the surrounding agricultural areas from growth inducing pressures.

As indicated in a March 1984 communication from the Board of Supervisors, participation by the County of Sacramento in the North Natomas Planning Program was based on recognition of the following existing County policy objectives:

A. Protection of current and proposed Metropolitan Airport operations from any encroachment by incompatible uses within the defined ALUC Area of Influence (60 CNEL contour line).

B. Protection of Williamson Contract lands from proximate urban development (within one mile).

C. Urban service delivery only to those areas already designated for such use (i.e., Northgate and Airport SPA) or within the City of Sacramento's current boundaries.

Based on the above criteria, County staff defined the Study Area boundaries for the North Natomas Community Planning Program.

Provisions of 1974 City General Plan

The City's current General Plan, adopted by the City Council in 1974, designates that portion of the Study Area north of Del Paso Road for Permanent Agricultural land use, and the area south of Del Paso Road for Agriculture-Urban Reserve land use. However, the 1974 General Plan also determined that urbanization of the area north of Interstate 80 would not be necessary during the 20-year time frame (1974-1994) of the Plan (see pages 1-6).

Pages 6-19 of the Open Space element of the City's General Plan indicates that acquisition of "development rights" is an appropriate method for preserving agricultural open space lands.

Provisions of 1982 County General Plan

With the exception of Metro Airport, the adjacent 2,000 acre Airport SPA, the Northgate industrial area, and a truck stop complex at El Centro Road and I-80, the 1982 County General Plan designates the remainder of the North Natomas area for long-term agricultural land uses.

Federal Farmland Protection Policies

In 1981, the Federal Government adopted a Farmland Protection Policy Act as part of Public Law 97-98. The purpose of the Policy is to:

> "...minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses, and to assure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with State, unit of local government, and private programs and policies to protect farmland."

The Act requires that each federal agency use specific criteria to identify and take into account the adverse effects of federal programs on the protection of farmland. The criteria that is to be used is the same criteria

that was used to assess the impact of urban development in North Natomas on agricultural lands contained in the North Natomas Community Plan Alternatives EIR.

One specific area of federal involvement in North Natomas relates to conditions attached to the Clean Water Grant which was awarded to the Sacramento Regional County Sanitation District in 1979. Condition No. 2 prohibits new sewer connections within specified areas of North Natomas for a 20-year period. Violation of this condition would result in repayment of the grant funds plus interest which is currently estimated at some $6-7 million. According to a May 8, 1984 letter from the EPA:

> "The primary purpose of this grant condition is the preservation of prime agricultural land."

The letter goes on to address criteria which EPA would use in considering a change in the grant condition. A change in the grant condition would be considered if Sacramento can show that, with all environmental trade-offs taken into account, there would be a net positive impact on the environment by implementing such a change. Among other considerations, an environmental document must address the consistency of any proposal with the local air quality plan.

Draft North Natomas Community Plan (The SWA Plan)

In keeping with the direction provided by both the City Council and Board of Supervisors, a Draft North Natomas Community Plan was prepared for the City by The SWA Group on December 10, 1984. Page 56 of the Draft Plan indicates that:

> "...an important concern in urbanizing the North Natomas area is the establishement of limits or 'containment edges' to development within the Plan's 20-year timeframe. While a decrease in land use intensity toward the periphery is one step, an additional measure is the establishment of a 'greenbelt' open space surrounding the planning area."

The Draft Plan goes on to propose the following Goal and Objective on pages 57 and 58 of the text:

> "Goal: To create a strong edge between the Community and adjacent areas of permanent agriculture, develop a greenbelt along the northern and western boundaries of the incorporated portion of the planning area.
>
> Objective: Establish a low-maintenance greenbelt that is not easily accessible and does not encourage active recreational use."

Page 86 of the Implementation Section of the Draft Plan further defines the greenbelt as follows, and Figure 27 on page 90 provides a typical cross-section view of the features proposed to be included in the greenbelt:

> "The greenbelt varies in width from a minimum of 500 feet along the western edge (i.e., West Drainage Canal) to separate residential and agricultural uses, to a maximum of 800 feet along Elkhorn Boulevard.

"It is intended to provide a low-maintenance, limited-access open space that defines and preserves the urban limits of North Natomas throughout the 20-year term of the Plan.

"Suitable plant materials for the greenbelt are eucalyptus, acacias and similar fast growing evergreen species that will provide a wind/shelterbelt to protect residential areas from prevailing winds and agricultural spraying."

Finally, pages 98-111 of the Draft Plan contain a detailed discussion of legal methods which might be utilized by the City and County to create and maintain the greenbelt buffer zones and an agricultural preservation program.

North Natomas Community Plan Alternatives EIR

Section L of the Draft EIR (July 1985) contains an extensive analysis of the impacts of the Draft Plan on agriculture in the North Natomas area. The EIR lists several significant adverse environmental effects which would result from 1) the urbanization of the area, 2) the loss of a significant amount of productive agricultural land, and 3) creation of significant operational conflicts for surrounding agricultural lands.

The EIR makes additional findings regarding growth inducing and cumulative impacts resulting from urbanization, and recommends mitigation measures to substantially lessen (but not eliminate) the identified impacts. The primary recommendation of the EIR is the inclusion of a specific agricultural preservation strategy in the adopted North Natomas Community Plan.

Proposed North Natomas Community Plan (The Staff Plan)

On November 15, 1985, the City Planning Division released its recommended Community Plan for the North Natomas area. The Plan is based on Alternative "D" (see EIR) and, although it retains the concept of "greenbelts" which are to be dedicated to the City, it also proposes the extension of numerous major roadways through the "greenbelts" to the north and west of the Study Area. The Plan text also incorporates the agricultural policies and mitigation programs discussed in the North Natomas Community Plan Alternatives EIR which are the basis for the attached Strategy.

Greenbelt Buffers as Separation Rather than Containment

As the North Natomas Planning Program has evolved, it has become clear that the City Council's original idea of a 500-800 foot greenbelt will not serve to "contain" urbanization. This is especially true given the fact that the proposed agricultural areas and (related land use decisions) would be under County jurisdiction while the "urban" portions of the Study Area would be under City jurisdiction. This problem is discussed in detail in the Implementation Section of the Plan.

However, if the extent of urbanization is to be "contained" and agricultural uses protected within the North Natomas area (either by means of the attached or some other program) then the urban and agricultural areas must be "separated" so as to reduce operational conflicts and incompatible land uses.

As an example, the County Agricultural Commissioner requires a 500 foot separation between the aerial application of highly toxic pesticides and any dwelling or other areas where people may become exposed. This situation would support the retention of low-maintenance, limited access greenbelt buffers along the north and west boundaries of the Study Area.

Purpose of Proposed Agricultural Impact Mitigation Strategy

The purpose, then, of the attached program is to develop and implement an agricultural mitigation strategy for North Natomas that will:

A. Substantially lessen the significant adverse environmental impacts identified in the EIR for North Natomas related to growth inducement, cumulative impacts and agricultural lands.

B. Implement existing policies of the City and County of Sacramento.

C. Serve as a basis for subsequent federal approvals of items such as interstate freeway interchanges and mainline improvements, drainage improvements, revisions to existing EPA sewer grant conditions, etc. which must all conform with the provisions of the Federal Farmland Protection Policy Act.

RECOMMENDATION

Staff recommends that the City Planning Commission:

A. Endorse the concept of an Agricultural Impact Mitigation Strategy as outlined in the attached report and include the Strategy as part of the Implementation Section of the Proposed North Natomas Community Plan.

B. Direct staff to include the policies and goals contained in Section 4 of the attached report in the Land Use Section of the Proposed North Natomas Community Plan.

C. Recommend that the City Council authorize staff to proceed with Phase 2 of the proposal, and that the City Council and Board of Supervisors enter into agreements necessary to implement the proposed Strategy prior to issuance of land use entitlements for any uses other than a stadium or arena in North Natomas.

Respectfully submitted,

Marty Van Duyn
Planning Director

MVD:lr
Attachments

NORTH NATOMAS COMMUNITY PLAN
HOUSING IMPLEMENTATION PROGRAM - CONCEPTS AND BACKGROUND

Prepared by:

City of Sacramento Planning Department

December 1985

TABLE OF CONTENTS

LIST OF TABLES

I. SUMMARY

Under existing land use plans for the City, Sacramento has enough vacant residential land to meet projected housing needs and its fair share allocation to at least 1995. When North Natomas is opened for development, there is a long-term potential for a jobs-housing imbalance, which would result in undesirable housing market conditions. When North Natomas is opened for development, there is the potential for growth to be shifted to North Natomas from other communities (particularly North Sacramento), thus impeding progress toward meeting adopted goals for these other communities.

In order to prevent these undesirable outcomes, it is recommended that the City institute a Housing Monitoring Program and a Housing and Infrastructure Trust Program. The Monitoring Program would include Employee Surveys to assist in analysis of housing market characteristics such as availability and affordability. The intent of the Housing and Infrastructure Trust Fund would be to develop moderate income housing units in North Sacramento, thus alleviating a jobs-housing imbalance and promoting growth and revitalization of North Sacramento. North Natomas non-residential developers would be obligated by to participate in the Monitoring Program and Housing Trust and Infrastructure Fund.

II. HOUSING IMPLEMENTATION PROGRAM CONCEPTS

A. Introduction

Perceptions of the impact of North Natomas development on other areas of the City, particularly North Sacramento, differ. City consultants predict an almost 50 percent "siphoning" of employment-generating development away from North Sacramento and to North Natomas. Developer consultants predict enhanced land values and industrial development in North Sacramento that would be complementary to, rather than in competition with, the type of development that would occur in North Natomas.

North Sacramento has the potential to accommodate about 13,000 additional dwelling units in both large vacant areas and small infill lots. In theory, the residential capacity of North Sacramento will be needed to serve the employment capacity of that community, but in practice, job development could be slower or not as job-intensive as anticipated. Housing developers have not been active in North Sacramento over the past 20 years and positive efforts are necessary to induce residential construction in North Sacramento to house employees generated by North Natomas development.

Since timing of housing creation to meet the needs of employment generation is the critical issue, the main objective is to see that future employees - in North Natomas or in North Sacramento - have adequate housing. It may be that housing developed in North Sacramento could serve employees working in North Natomas. The developer's consultant (Gruen, Gruen and Associates) feels that "the development of North Natomas may create sufficient pressures to induce greater demand for housing in North Sacramento, and by so doing increase market prices to that point at which new housing development will become feasible.

An overriding goal of the planning process is to maintain a balance between new non-residential construction and residential construction. A poor balance, or out-of-sync timing, can result in a tightening of the housing market, lower vacancy rates, higher housing prices and rents, longer commutes,

and poor choice of housing type, size and quality. Another potential result is discontinued investment in poorer neighborhoods. The Sacramento Housing and Redevelopment Agency (SHRA) fears that if potential impacts of North Natomas development related to Del Paso Heights and North Sacramento are not mitigated, then the following consequences could occur:

> "Diversion of development investment and diminished development opportunity; reduction of employment opportunities and diversion of jobs; lessened ability to attract office, industrial, residential development; reduced revenues in the redevelopment project areas if development is diverted away; and reduction and/or diversion of funding for public infrastructure improvements."

The Proposed North Natomas Community Plan states that "attaining these community plan goals (for North Natomas) involves achieving goals in other communities as well as in North Natomas...development of North Natomas has benefits which will be enjoyed outside the planning area boundaries, and which are possible only by directing development efforts to adjacent communities. (Emphasis added.)

In order to ensure that this goal is achieved, that in fact development of North Natomas does benefit and assist in attainment of goals in other communities, a Monitoring Program and a Housing and Infrastructure Trust Program are recommended.

B. Recommended Monitoring Program

The Monitoring Program will provide information about the actual characteristics of the job and housing markets in North Natomas and North Sacramento (and perhaps other communities). In this way, it will be possible to determine the actual level of housing need, whether indeed North Sacramento housing development is meeting this need, and whether housing market characteristics such as affordability, type and location occur at desirable levels.

The South Placer area currently has in place an Employee Monitoring Survey which is conducted within a specified Housing Impact Area. It is anticipated that a Monitoring Program that would be implemented in Sacramento would be modeled after this existing program, and would include factors such as:

Number of Employees
Job Type
Job Income
Location of Employee Residence
Commute Distance and Time
Commute Mode
Household Income
Household Size
Adequacy of Housing Type, Size, Quality, Mobility

The Jobs-Housing Monitoring Survey of this type is to be expanded to evaluate other North Natomas implementation programs, such as the Transportation Systems Management (TSM) Program, and the Employment and Economic Development Opportunity Plan.

The Monitoring Program would establish whether community plan goals, and the goal of promoting development in North Sacramento, are indeed occurring. It is intended that housing development in North Sacramento would keep pace with

and be credited toward the housing needs generated by Phase 1 job development in North Natomas.

C. Recommended North Sacramento Housing and Infrastructure Trust Fund

In order to meet housing and revitalization goals for North Sacramento, measures are necessary in order to ensure that Sacramento's existing communities are treated fairly and equitably in the urban growth process and fully share in the economic benefits of urban development. A "linkage" program which links discretionary zoning actions that enhance the value of property to tangible land use benefits for moderate-income residents and neighborhoods is recommended; in the form of a "North Sacramento Housing and Infrastructure Trust Fund.

The City would use its police power to regulate for the general public health, safety and welfare to require, via its discretionary zoning authority, that non-residential developers in North Natomas participate in a housing program to create housing in North Sacramento. The public health, safety and welfare is protected by promoting desirable housing market conditions and economically healthy communities, and efficient extensions of City services (infill rather than fringe development).

The Cities of San Francisco, New York and Boston have established Housing Trust Funds used to provide low and moderate income housing opportunities. An article titled "Developer Payments and Downtown Housing Trust Funds", published in November 1984 by the National Clearinghouse for Legal Services, describes these existing programs and discusses legal rationales and authority in detail.

Generally, the key features of a development payment program are:

- o A per square foot fee or unit construction requirement based on employment generation and housing need.
- o A minimum square foot threshold exempting smaller developments.
- o A set percentage or formula to determine the mix of low-income or moderate-income units.
- o Some form of tenant screening and long-term occupancy controls to ensure a subsidized unit remains occupied by eligible tenants.
- o A separate administrative mechanism to oversee disbursement of funds and to ensure compliance.

A housing trust fund is a separate account outside of the general City budget process, and may be administered by a City agency or by an independent, non-profit organization set up to deal with the trust and perhaps other City housing funds and programs.

A straight fee approach based on criteria applied uniformly to non-residential projects would probably be the most equitable and easiest to administer, but developers could be given the option of directly providing on- or off-site the housing units that are necessary to fulfill their identified housing requirement.

A non-residential developer could do this by either directly sponsoring and/or financing housing unit construction, or by coordinating with a residential developer to construct units that "would not otherwise be built".

If a straight fee approach is used, then funds collected upon issuance of building permits would accrue in a North Sacramento Housing and Infrastructure Trust Fund which would be used to create moderate income housing units in targeted North Sacramento areas. The Housing and Infrastructure Trust Fund should be provided with some initial capital in advance of any development, the total of which should be collected from landowners at the time of rezoning based upon the proportion of total acreage rezoned. The Trust could also receive and administer other funds in the future, such as from local, State and federal programs and revenues. The Board of the Trust Fund would set guidelines and make judgements about distribution of fund revenues to appropriate projects that meet the identified needs of moderate income households.

It is recommended that the Housing and Infrastructure Trust Fund monies be available to pay for public infrastructure improvements, land assembly, financial assistance, housing construction, and other necessary measures in the identified North Sacramento targeted areas, if any of the above are necessary in order to develop moderate income housing in the targeted areas.

D. Follow-Up Procedure to Implement a Housing Monitoring Program and Housing and Infrastructure Trust Fund

As the North Natomas planning process proceeds, land use and housing goals will become more certain. In order to pursue the recommended Monitoring Program and Housing and Infrastructure Trust Fund, additional work must be completed. Some of the steps that would need to be taken include:

Monitoring Program Implementation

1. Identification of an area to be monitored (North Natomas, North Sacramento and South Natomas, most likely).

2. Structuring development conditions for North Natomas non-residential projects that would obligate participation in a Monitoring Program and North Sacramento Housing and Infrastructure Trust Fund.

3. Identification of factors to be monitored, to include the Employment and Economic Development Opportunity Plan (EEDOP), TSM Program, job creation and housing construction, and types of non-residential uses developed and developing in both North Natomas and North Sacramento.

4. Preparation of Employee Survey questionnaire and Monitoring strategy.

5. Identification of private business and public staff respective responsibilities to ensure complete and accurate surveys.

6. Analysis by planning staff of levels of building permits by community within the City, job creation and housing construction by community, and various housing market characteristics (availability, affordability, etc.). Also, analysis by appropriate agencies and/or staff of the EEDOP and TSM programs.

7. Identification of the threshold point(s) that would trigger the need to open up North Natomas lands north of Del Paso and east of I-5 (for primarily residential development). Vacant residential lands in North Sacramento and South Natomas would be substantially built-out before additional North Natomas lands are made available for development.

Housing and Infrastructure Trust Fund Implementation

1. Determination of a method to determine the required level of dwelling unit construction or in-lieu fee on North Natomas non-residential developers. The factors that go into this calculation include estimation of employee generation, establishing the percentage of these employees that are expected to require housing units, establishing a percentage of these employees that would require housing assistance, determination of the level of housing construction in North Sacramento that should be required, or the level of an in-lieu fee.

2. Structuring the specifics of how the Housing and Infrastructure Trust Program will be designed and implemented.

3. Establishing a non-profit group to administer the Program funds and implementation.

4. Establishing a method to ensure continued occupancy by moderate income households.

Information and programs that become available through the City's General Plan Update process and/or Housing Element Program Implementation should be useful in designing the parameters and methods used for the Monitoring Program and North Sacramento Housing and Infrastructure Trust Fund. Updated vacant land information and other residential land use information should be useful in the analysis of housing market characteristics, trends, and goals.

Implementation of the Housing Element will be useful on at least three points. One, a Housing Task Force has been set up. Two, this Task Force is examining the use of housing trust funds. Third, the Task Force is exmaining a program for increasing the supply of limited equity ownership housing. The limited equity strategy could be one way of ensuring that housing credited to meet the needs of moderate income households remains affordable. The Housing Task Force is scheduled to report its findings in the summer of 1986.

This follow-up work will, of course, require a significant amount of staff time and funding to analyze, set up and operate the Programs. A successful and accurate Monitoring Program is the key to realization of City land use, transportation and revitalization goals. Authorization of the necessary level of Planning Department staffing and program operation funding is essential. The strategies should be adopted as part of the North Natomas Community Plan, conditions obligating developer participation should be included in project approvals, and the Programs must be in place before non-residential development of North Natomas begins to occur.

III. HOUSING NEEDS BACKGROUND

A. Regional Housing Need

In order to maintain a desirable relationship between levels of housing availability, affordability and choice of location, type and quality, dwelling unit construction must keep pace with job creation in the region.

Just as jobs are created at many commercial, industrial and office nodes throughout the region, paying various wage and salary levels, housing must be created in sufficient quantities and at reasonable commute distances from job centers. Housing prices - as determined by type, size, quality and location - should be affordable to the employees filling jobs being created in the region. Each jurisdiction has a responsibility to see that there is adequate housing for its employees, and must not rely unrealistically on other jurisdictions to provide housing for employees located within its own boundaries. The Sacramento City Council and Planning Commission recognized this responsibility when the following jobs/housing assumptions were included in the list of basic assumptions contained in the North Natomas Background Report, which were to be used in formulating the North Natomas Community Plan.

> "The North Natomas Community Plan (text and map) will be consistent with policies and objectives of the City and County of Sacramento as they relate to providing a jobs/housing balance, including those which:
>
> - Promote a job/housing balance in each local jurisdiction of the County and region.
> - Establish appropriate linkages between residential areas and work centers.
> - Assure that new residential construction is in balance with expansion of job opportunities.
> - Achieve a distribution of home-work trips such that 60 percent are less than 6 miles one-way and 20 percent are between 6 and 8 miles one-way."

B. 2005 Forecasts

Year 2005 forecasts done by the economic consultants for the North Natomas Planning Studies indicate levels of job creation and housing demand throughout the region as shown by Table 1.

It can be seen that the City of Sacramento, with an estimated existing 191,422 jobs and 131,914 dwelling units, does currently rely to some extent on Sacramento County (and Placer and Yolo Counties) to provide housing for employees who work within the City. Even without development of North Natomas, employment within the City is expected to increase by 133,136 jobs, while only 68,200 dwelling units would be created in the City. This reflects the fact that the City of Sacramento is and will continue to be the primary employment center in the region. Unincorporated Sacramento and Placer and Yolo Counties would continue to provide some of the dwelling units necessary for employees who work within the City of Sacramento.

When North Natomas does develop, by the year 2005 jobs within the City would increase to 168,740, which is 35,604 more than if North Natomas did not develop. Dwelling units would increase to 96,100, which is 27,900 more than

if North Natomas did not develop. North Natomas itself would provide 65,760 jobs and 33,892 dwelling units under the Community Plan, meaning that 40,760 jobs and 8,892 dwelling units are shifted from other areas in the region as North Natomas develops.

TABLE 1
REGIONAL DEMOGRAPHIC FORECASTS*

	83/84 EXISTING	GROWTH WITHOUT NORTH NATOMAS	GROWTH WITH** NORTH NATOMAS	WITHOUT/WITH DIFFERENCE
REGIONAL				
Employment	423,636	280,300	305,300	25,000
Population	1,091,575	590,000	650,800	60,800
Dwelling Units	422,703	242,300	267,300	25,000
CITY OF SACRAMENTO				
Employment	191,422	133,136	168,740	35,604
Population	310,769	165,999	217,566	51,567
Dwelling Units	131,914	68,200	96,100	27,900
UNINCORPORATED COUNTY OF SACRAMENTO				
Employment	172,816	98,972	85,935	-13,037
Population	531,206	224,171	212,307	-11,864
Dwelling Units	195,722	92,100	87,200	-4,900
PLACER AND YOLO COUNTIES				
Employment	46,867	42,498	26,933	-15,565
Population	249,600	199,588	148,518	-51,070
Dwelling Units	96,000	82,000	61,000	-21,000

* See "Revised Sacramento SMSA Growth Allocations", found in the North Natomas Community Plan Technical Report titled "1983-2005 Regional Economy and Land Demand", available at the City Planning Department.

** Assuming a level of North Natomas development similar to Alternative D.

C. Regional Housing Needs Fair Share Allocation Plan for 1990

In addition to the overall level of demand for dwelling units, there are different levels of demand for units affordable by persons of differing levels of income. In October of 1984, the Board of the Sacramento Area Council of Governments (SACOG) adopted a 1984 Regional Housing Needs Allocation Plan. This Plan projected growth of households between 1983 and 1990, and allocated housing needs to individual jurisdictions on the basis of the following household income categories:

o	Very Low Income	0-50 Percent of Median Family Income
o	Low Income	51-80 Percent of Median Income
o	Moderate Income	81-120 Percent of Median Family Income
o	Above Moderate Income	Above 120 Percent of Median Family Income

The regional housing needs allocation for the City and County of Sacramento are shown in Table 2.

The numbers in Table 2 could be adjusted upward by 6 percent to allow for a healthy vacancy rate that ensures a competitive market and adequate mobility.

It can be seen that to the year 1990, the City will need to provide 26,250 units (or 27,825 with a 6 percent vacancy rate), with 16,043 (or 17,006) units affordable to very low, low and moderate income households.

D. 1985 City of Sacramento Housing Element

The adopted 1985 Housing Element states that:

> "Sacramento had enough land as of 1980 to construct 42,316 single family and 20,876 multi-family housing units for a total of 63,192 housing units within the City limits. It can be safe to assume, therefore, that there is enough vacant non-constrained residential land at present to supply the housing needs to 1995." (Page 29).

The 63,192 capacity was broken into the categories shown by Table 3:

TABLE 3
DISTRIBUTION OF VACANT RESIDENTIAL LAND
BY CONSTRAINT CATEGORIES

Non-Constrained	
Existing Subdivisions	17,071
Tentative Maps	11,252
Unsubdivided Land	12,312
	40,635
Moderately Constrained	
Deep/Irregular Lots	5,808
Freeway Noise	3,003
Inconsistent Zone Districts	995
	9,836
Significantly Constrained	
Lacking Major Services	11,775
Other Physical Phenomena	946
	12,721
CITY TOTAL	63,192

Since 1980, much vacant land, especially in North Sacramento, has been taken out of the "significantly constrained" category. This is due to the provision of major sewer trunk lines, drainage facilities and other facilities improvements over the past few years.

TABLE 2

Regional Housing Needs Allocation by Jurisdiction

Income Category	1983	% of 1983 Total	1990	% of 1990 Total	1983-1990 Increase	% of Increase
Unincorporated Sacramento County						
Very Low	45,941	24.0%	65,541	26.9%	19,600	37.8%
Low	36,370	19.0%	46,088	18.9%	9,718	18.8%
Moderate	44,218	23.1%	53,959	22.2%	9,741	18.8%
Above Moderate	64,892	33.9%	77,632	31.9%	12,740	24.6%
Total	191,421	100.0%	243,220	100.0%	51,799	100.0%
City of Sacramento						
Very Low	44,012	36.8%	48,696	33.4%	4,684	17.8%
Low	22,724	19.0%	27,640	19.0%	4,916	18.7%
Moderate	23,202	19.4%	29,645	20.3%	6,443	24.5%
Above Moderate	29,661	24.8%	39,868	27.3%	10,207	38.8%
Total	119,599	100.0%	145,849	100.0%	26,250	100.0%

Source: 1984 Regional Housing Needs Allocation Plan, Sacramento Area Council of Governments, October, 1984.

The Housing Element analysis was based on the build-out capacity of each community as derived from the 1980 Vacant Land Survey, and did not assume development of North Natomas. Obviously some of the 63,192 unit capacity has been decreased by housing construction over the past 5 years. From January 1, 1980 to January 1, 1985, SACOG documents a 11,928 unit increase within the City of Sacramento. This would reduce the total capacity to 51,264 within the City. Even if all of this construction had occurred only on non-constrained land, there would still be a capacity for an additional 28,707 units to be constructed on non-constrained land, plus 9,836 on moderately-constrained and 12,721 on significantly constrained land (much of which, as noted in the previous paragraph, is not now rated "significantly constrained").

These figures demonstrate the capacity of the City to meet its housing needs to at least 1995, and probably well beyond, without developing North Natomas before that time. When North Natomas does develop, it will increase the demand for housing in the region in order to provide housing for about 65,760 employees that would work there. These 65,760 employees would require 54,800 dwelling units.

E. Jobs-Housing Balance

North Natomas will ultimately provide about 60 percent of the units necessary to house North Natomas employees. The Proposed Plan would require 54,800 units, and would provide 33,892 units, for a deficit of 20,908 units. As previously stated, the City Council and Planning Commission approved the following assumption at the start of the North Natomas Planning Program:

The North Natomas Community Plan (text and map) will be consistent with policies and objectives of the City and County of Sacramento as they relate to providing a jobs/housing balance, including those which:

- Promote a job/housing balance in each local jurisdiction of the County and region.
- Establish appropriate linkages between residential areas and work centers.
- Assure that new residential construction is in balance with expansion of job opportunities.
- Achieve a distribution of home-work trips such that 60 percent are less than 6 miles one-way and 20 percent are between 6 and 8 miles one-way.

The Joint City-County Planning Commission recommended that consultants preparing the North Natomas Community Plan use the following home-to-work commute distances for people employed in North Natomas:

- Eighty percent of employees should have commutes of 6 miles or less.
- The remaining jobholders (20 percent) should have commutes of no more than 8 miles.

The Draft North Natomas Community Plan prepared by The SWA Group contained the following jobs-housing policy:

"The Plan shall provide at least an 80 percent balance of jobs and housing such that at least 60 percent of home-work trips are less than

six miles one-way and at least 20 percent are between six and eight miles one-way. In the event that surplus residential capacity does not exist outside of the planning area, the required balance of jobs and housing shall be provided within the planning area ." (Page 13).

The Proposed Plan would revise the above policy to include several jobs-housing related policies:

- The Plan shall accommodate supportable market demand for land in North Natomas, subject to achieving a jobs/housing balance and maintaining a traffic Level of Service "C" or better.

- "The Plan shall provide housing opportunities within North Natomas to accommodate at least 60 percent of the people employed within the community.

- Jobs and housing development in North Natomas shall be directly related to achieving housing and revitalization goals in North Sacramento. The private sector shall participate in efforts, such as a Housing Trust Fund, to meet this additional housing demand in North Sacramento.

- A job-housing balance in North Natomas shall be achieved as shown in Table 4 (of the Proposed Community Plan). This balance assumes that each dwelling unit houses an average of 1.2 workers, and that a surplus housing capacity exists in North Sacramento and South Natomas until 1995. This land, in addition to Phase 1 North Natomas residential land, will meet some of the housing demand of Phase 1 development.

- In achieving the jobs-housing balance for North Natomas Phase 1 development, surplus residential lands in South Natomas and vacant residential level in North Sacramento will be utilized. As part of an on-going monitoring program, residential construction in identified areas of North Sacramento will be credited toward the Phase 1 jobs-housing goals.

The 1985 Housing Element contains the following adopted policy:

"Refine and implement a jobs-housing balance policy that provides an adequate supply of housing within reasonable commute distance to meet the needs generated by employment growth. This should be done by requiring that sufficient land for residential uses be planned for upon approval of non-residential development." (Page 48)

An eight-mile radius would encompass vacant residential lands within the North Sacramento and South Natomas communities, as well as portions of eastern Yolo County and southern Placer County. Both Yolo and Placer counties have indicated that there is no "surplus" residential capacity available to house persons employed within North Natomas. Dwelling units to be created in Yolo and Placer Counties will be needed to house the job workers to be created in these areas.

F. South Natomas and North Sacramento Jobs-Housing Balance

Based on the approved 1984 North Sacramento Community Plan and the the July 1985 Council Intent-to-Approve South Natomas Community Plan, the jobs-housing situation for each of these communities is shown by Table 4:

TABLE 4
SOUTH NATOMAS AND NORTH SACRAMENTO
JOBS-HOUSING BALANCE

BUILD-OUT DIRECT EMPLOYMENT	TOTAL DWELLING UNITS NEEDED*	TOTAL BUILD-OUT UNITS PROVIDED	DEFICIT OR SURPLUS
South Natomas			
25,555	21,296	26,286	+4,990
(30,625)	(25,521)	(24,949)	(-572)
North Sacramento			
41,025	34,188	28,130	-6,058
Combined Total			
66,580	55,484	54,416	-1,068
(71,650)	(59,709)	(53,079)	(-6,630)

* At 1.2 Employees per Dwelling Unit.

Upon build-out, South Natomas would have a 123 (98) percent jobs-housing balance, while North Sacrmento would have an 82 percent jobs-housing balance. Together, the communities provide a 98 (89) percent balance, with a deficit of 1,068 (6,630) units.

Recently, the City Council revised their South Natomas Intent-to-Approve. They intend to increase employment and decrease housing to the extent of the numbers shown in parentheses within Table 4. This reduces the South Natomas jobs-housing balance to 98 percent, as noted by the numbers shown in parentheses in the previous paragraph.

G. Effect of North Natomas Development on Other Communities

When North Natomas develops, an estimated 40,760 jobs and 8,892 dwelling units are shifted away from the locations where they would be created if North Natomas did not develop.

Based on market considerations, the economic consultants for the North Natomas Planning Studies found that the City community areas of North Sacramento, the Central City and East Broadway would be most affected by making North Natomas avilable for development. Opening North Natomas creates a regional demand for only 100 additional acres of industrial demand (from 2,900 to 3,000 acres). North Natomas captures about 30 percent of the total demand, and the primary areas of the City that "lose" industry to North Natomas include the North Sacramento and East Broadway communities.

Opening up North Natomas creates about a 5 percent increase in the regional demand for office land (from 43.5 to 45.7 million square feet). The primary areas of the City which "lose" include North Sacramento, the Central City and Airport-Meadowview communities.

Opening up North Natomas creates a regional demand for 375 additional acres of high growth ("high tech") land (from 425 to 800 acres), with the major portion going to North Natomas. However, no areas experience a reduced demand for High Growth land, in fact, the Airport-Meadowview community shows an incrementally greater demand than when North Natomas is not avialable.

Opening up North Natomas creates no real difference in the magnitude of regional demand for commercial land. North Natomas could capture one million square feet, and which is shifted in small proportions from almost all other areas of the region.

Opening up North Natomas, then, creates a somewhat larger pie. Regional employment increases by 8 percent. However, North Natomas captures 19 percent of the regional growth under a "with North Natomas" scenario. The obvious conclusion is that some areas of the region "lose" employment-generating land uses to North Natomas. These City of Sacramento "losers" include the North Sacramento, Central City and East Broadway communities, as shown by Table 5.

TABLE 5
NORTH NATOMAS' EFFECT ON GROWTH
IN OTHER COMMUNITIES

CITY COMMUNITY	GROWTH WITHOUT NORTH NATOMAS	GROWTH WITH* NORTH NATOMAS	WITHOUT/WITH DIFFERENCES
North Sacramento			
Employment	16,630	6,633	-9,997
Population	29,208	27,999	-1,209
Dwelling Units	12,000	11,500	-500
Central City			
Employment	46,433	38,100	-8,333
Population	9,736	8,278	-1,458
Dwelling Units	4,000	3,400	-600
East Broadway			
Employment	7,472	6,705	-767
Population	3,408	3,409	No Change
Dwelling Units	1,400	1,400	No Change

* Assuming a level of development similar to Alternative D.

The Final North Natomas Community Plan EIR states on page 97 that:

> "It is the conclusion of the EIR that opening North Natomas to development at this time would dilute City efforts to direct growth to the existing urban area, thus adversely affecting efforts to confine the extent of urbanization. Opening North Natomas also would adversely affect efforts to channel development and redevelopment onto vacant lands or infill parcels in existing communities. The extent of this impact would depend on the amount of development allowed."

H. EIR Mitigation Measures

In order to ensure adequate housing availability and affordability, to prevent growth-inducing impacts on unincorporated Sacramento, Sutter, and possibly Yolo County lands, and to ensure that the timing of housing construction keeps pace with job creation, the following measures are recommended in the EIR to mitigate the significant adverse impacts on the jobs-housing balance.

1. The adopted Community Plan should achieve a jobs-housing balance within North Natomas by providing an adequate housing supply within the Study Area for every job created there. This can be accomplished by designating more area devoted to residential land uses and less areas where employment-generating growth can occur. Alternatively, higher residential densities than proposed should be considered, and lower employment-generating densities should be designated for non-residential uses. (Emphasis added.)

2. The City and County should develop a program which requires periodic surveys of the jobs-housing balance in North Natomas in order to monitor the effectiveness of Community Plan programs and their respective policies. Housing affordability should be considered as part of these reviews. Policies should be revised or new programs should be developed and implemented which would ensure the required availability and affordability of dwelling units as jobs are created within the Study Area. (Emphasis added.)

3. The Community Plan should better define how phasing of housing would keep pace with job creation. Development of 200 to 300 acres of residential use for every 100 acres of employment-generating use as now recommended would not assure a home for every employee unless the residential densities and employment densities were balanced. Consideration should be given, therefore, to establishing a mechanism to allow the City to tie approval of specific housing and employment-generating development programs together and to base permit granting on total housing unit yield versus job creation. One means for accomplishing this would be by tying the issuance of Building Permits for job creating uses to those for dwelling units. Means to encourage residential and employment-generating developers to coordinate their projects should be established so that projects could proceed in a timely manner rather than being stalled until the jobs-housing balance between development proposals can be achieved. The City must retain ultimate authority, however, to withhold approval of employment-generating development if housing would not be available in North Natomas for jobholders based on the findings of the periodic survey suggested above. (Emphasis added.)

4. Both the buildout housing stock and housing units phased during the 20-year development period should provide an adequate mix of housing types to be affordable by North Natomas workers at all times. Consequently, the sizes of units built and the decision to sell or rent completed units should be determined on the basis of the composition of the North Natomas workforce and, thus, household incomes of North Natomas employees. Recognizing that upper income households are best served by the housing market and since new housing generally is more expensive than older housing, special efforts should be made to encourage development of housing which would be affordable by North Natomas employees to rent to buy. One approach would be to increase the proportion of medium and high

density housing in proportion to the total housing stock. Another approach would be to establish worker-built housing programs under which persons who participate in housing construction earn "sweat equity" toward (or covering) downpayments. This later approach has been used successfully by the Ecumenical Assocation for Housing in its projects in Marin County which have enabled middle and lower-middle income persons just entering the housing market to purchase their homes. (Emphasis added.)

5. Increased housing densities should not be interpreted as support only for apartment construction which would house only a small number of persons per household. Provision should be made for family housing of all income levels expected to hold North Natomas jobs, including condominiums and townhouses. (Emphasis added.)

6. If the private market does not ensure the construction of affordable housing within the Study Area, the City and County should require the provision of at least 10 percent of units in all North Natomas housing developments to be affordable to low and/or moderate income households. Such units should be designated as affordable housing (rental or purchase) in perpetuity, and public agency housing officials should administer their rental, sale, or resale to ensure that residents qualify and that the units will remain affordable in the future. Affordable units should be required to be scattered (not concentrated) throughout projects. Alternatively, developers should be required to donate the equivalent in improved, buildable lots plus "in lieu" fees to a non-profit housing development organization or public housing agency for their construction of affordable housing. (Emphasis added.)

7. If the private market does not ensure the construction of affordable housing within the Study Area, developers of employment-generating land uses should be required to pay a housing fee to the City or County housing agency based upon the value of their projects and the number of units required by their workforce. The funds collected should be spent on the construction of below market rate housing units in North Natomas and/or to subsidize the rent or mortgage cost of low and moderate income residents. This fee should be paid in increments beginning with initial construction through and until completion and occupancy of developments, in order to ensure the construction of housing units to be available for persons having low and moderate incomes (rather than delaying housing development and forcing employees to seek housing outside the community). (Emphasis added.)

8. The Community Plan should establish incentives for developers in order to encourage their provision of affordable housing above the minimum requirement of 10 percent of units within a project. Incentives could include density bonuses or more liberal site coverage requirements which would allow a developer to build more market rate housing in exchange for provision of affordable housing for low and moderate income households. Another incentive might include planned unit development (PUD) zoning which would enable developers of adjacent parcels flexibility in planning and coordinating their projects or to enable mixed use developments which would provide both residential and employment-generating land uses within certain areas. (Emphasis added.)

1. Recommended North Natomas Community Plan Phasing

The Draft North Natomas Community Plan prepared by The SWA Group contained the following policy:

> "In as much as the land use and circulation policies of this plan are based on the principle that additional housing units will be developed concurrently with new employment-generating land uses, development phasing shall insure that an adequate supply of residential land, dwelling unit types, and affordability of units is incorporated into each phase." (Page 19-20)

The Final EIR concluded that:

> "The number of workers per household in North Natomas would influence housing demand elsewhere in the City and region. It should be remembered, however, that both the employment and housing figures represent buildout of each alternative and that it would be equally important to phase job creation and housing development to balance the two during buildout of North Natomas (not only to achieve a jobs-housing balance upon completion of all planned development)." (Page 82)

The Proposed North Natomas Community Plan recommends that North Natomas be developed in two phases, as detailed by the following excerpt:

> "North Natomas is planned to be developed in two phases. Phase 1, land south of Del Paso Road and east of I-5, is comprised mainly of employment-generating land uses with some medium and high density residential. The arena and sports stadium is also proposed for this initial development phase. Phase 2, the remainder of the planning area, is not to be considered for development prior to 1995. Development may occur earlier if the monitoring program, adopted as part of this Plan, identifies a need for additional housing.
>
> This phase schedule has been developed based on two criteria. The first, availability of vacant residential lands, is designed to promote housing opportunities and incentives for new housing construction in North Sacramento and South Natomas. The second criteria involves extensive infrastructure (drainage) improvements needed to serve lands north of Del Paso Road but that are unnecessary for Phase 1 lands to the south.

The basis for the phasing recommendation was that projected housing demand until 1995 could be accommodated by developing existing vacant residential lands within the City, as detailed by the 1985 Housing Element and 1981 Vacant Land Study. It is being recommended that Phase 1 North Natomas development use the available residential lands, in addition to the North Natomas residential acreage south of Del Paso Road, to meet the projected housing demand of North Natomas workers. It is anticipated that there will be a demand for 32,211 units outside of the planning area for Phase 1 employees, as shown by Table 6 below:

TABLE 6
NORTH NATOMAS PHASE 1 JOBS-HOUSING BALANCE

EMPLOYMENT	HOUSING NEED	HOUSING PROVIDED	DEFICIT
41,485	34,571	2,360	32,211

The jobs-housing balance of Phase 1 is 6.8 percent.

J. Recommended North Natomas Community Plan Goals, Objectives, Policies and Actions - Phasing, Monitoring Program, Housing and Infrastructure Trust Fund for North Sacramento

The phasing, jobs-housing, monitoring program, and Housing and Infrastructure Trust Fund policies are reflected by the following goal and policy statements, which are found in the Proposed North Natomas Community Plan.

Goal: Stimulate new residential construction in identified areas of North Sacramento and absorb surplus residential units in South Natomas with Phase 1 development of North Natomas.

Objective: Housing demand generated by Phase 1 employers shall be met initially through residential development in the planning area, as well as development of residential land in North Sacramento and South Natomas prior to opening-up Phase 2. The North Natomas Housing Implementation Program consisting of a Monitoring Program and a Housing Trust Fund shall be adopted as part of this plan.

Policies and Actions

- To meet the jobs-housing balance during Phase 1, the excess housing demand will be met through development of South Natomas and North Sacramento residential lands. This will help promote new housing opportunities for North Sacramento residents and North Natomas workers. To prevent undesirable housing market conditions and adverse impacts on other communities, a Monitoring program and Housing Trust Fund will be established as part of the implementation program. The Monitoring Program will track North Natomas job creation with housing construction in North and South Natomas and North Sacramento to ensure compliance with the Plan's housing goals and jobs-housing balance criteria. The Trust Fund will be used to develop moderate income housing units in North Sacramento, thus alleviating a jobs/housing imbalance and promoting growth and revitalization of North Sacramento.

IV. RECOMMENDATION

It is recommended that the City Council authorize further work as outlined in this report on designing a Monitoring Program and North Sacramento Housing and Infrastructure Trust Fund as implementation programs for an adopted North Natomas Community Plan, to be completed and ready to apply to the first North Natomas development applications. As work proceeds and development begins to occur in North Natomas, funding for staff and support services to operate the Monitoring Program will be necessary.

KM:lr

December 18, 1985

City Planning Commission
Sacramento, California

Members in Session:

SUBJECT: Report Back on Matters Concerning the North Natomas Community Plan (M84-007)

SUMMARY

At the Planning Commission's North Natomas Community Plan Hearings on December 9 and December 12, 1985, the Commission requested staff response to issues raised by ECOS, the County Department of Airports, individual speakers, and Commissioners.

BACKGROUND INFORMATION

Staff was requested to respond to the questions on pages 2-4 of the ECOS statement.

1. A supplemental EIR is needed to address the cumulative impacts of the North and South Natomas Community Plans and to address the traffic impacts of the sports stadium during the weekday rush hour.

   The cumulative impacts of proposed land use in South and North Natomas have been adequately assessed in the 1984 South Natomas Community Plan EIR and the 1985 North Natomas Community Plan Alternatives EIR. The stadium proponent has indicated that events would not occur during weekday peak commute times, consequently no assessment is necessary.

2. Will the City subsidize assessment district bonds?

   The private financing plans for North Natomas have not been fully revealed to City staff. If assessment districts are used, it is most likely the City would require a 1911 act district that backs the bonds with the land at no risk to the City.

3. Who will pay for City services in the short run?

   The staff position is that the City will provide services to North Natomas on the same basis it does for the rest of the City.

4. Why does the Plan include only two phases? Shouldn't the timing be based on achievement of Plan goals, the developments of necessary infrastructure, and implementation of mitigation measures?

   Staff proposes modifications to the phasing program contained in the Plan as follows:

"The North Natomas Community will develop in phases. The first phase of development will be the land in the Plan area that is east of I-5 and South of Del Paso Road. Phase 1 consists mainly of employment generating land uses, a sports stadium and arena, and some medium and high density residential areas. The proposed land uses for Phase 1 are shown on Table 1.

TABLE 1

NORTH NATOMAS PHASE 1
SOUTH OF DEL PASO ROAD, EAST OF I-5

RESIDENTIAL

HD -	50 acres	x 22 dwellings/acre	=	1,100 dwellings
MD -	105 acres	x 12 dwellings/acre	=	1,260 dwellings
	155 acres			2,360 dwellings

EMPLOYEES

LI -	630 acres	x 20 employees/acre	=	12,600 employees
M-20 -	723 acres	x 30 employees/acre	=	21,690 employees
M-50 -	117 acres	x 45 employees/acre	=	5,265 employees
HC -	31 acres	x 30 employees/acre	=	930 employees
Sports -	200 acres	x 5 employees/acre	=	1,000 employees
	1,701 acres			41,485 jobs

41,485 divided by 1.2 jph = 34,571 dwellings needed (for 100% balance)
2,360 dwellings provided Phase 1
6.8 J/H balance Phase 1
32,211 dwellings deficit Phase 1

"The remainder of the Plan area will be developed in a series of phases. The location, size, and land use mix of each successive phase will be based upon the analysis of data from the monitoring program (described in the Implementation Plan) and the availability of infrastructure. The analysis of the monitoring data will allow judgements by the City on the extent to which Plan goals and standards are being met; the extent to which the TSM, housing and employment opportunity programs are being successfullly implemented; and the actual employment, population, and housing growth rates in North Natomas and adjacent communities."

5. The Plan includes 1,423 acres of high tech development, but the market study included within the EIR indicated that such development should be limited to 300 acres. What other uses will locate in this acreage or will it remain empty?

Staff acknowledges the comment. Staff does not expect this Plan to be built out for either non-residential or residential uses within a 20-25 year time frame.

6. Why doesn't the Plan provide statistical data for Phase 1 and Phase 2?

See #4 above.

7. Where is the Economic Development Plan? Where is the Housing Plan? Where is the Housing Implementation Plan? Why doesn't the Plan include an Implementation Program?

These programs have been made available since the ECOS comment.

8. An air quality element should have been included within this Plan.

The Implementation Element describes a TSM program for North Natomas which lists possible emission reduction measures that are being studied as part of EPA's Reasonable Extra Efforts Program. The "Design Guidelines and Environmental Development Standards" portion of the Implementation Element also contains an Air Quality section.

Other Comments

1. Explain what the City can do to relocate the Natomas Airpark within the City.

At the December 12, 1985 hearing, the consultant for the Gateway Point application indicated that they are working on an arrangement to keep the airpark where it is for a few years and then relocate it to the north, out of the Plan area. Staff would oppose maintaining the airpark in its current location when applications for conflicting land uses (based on Airport Land Use Commission policies) are submitted.

2. Explain the future of the Greenbelt?

The purpose of the greenbelt is to separate urban land uses, people, and activities from continuing agricultural activities. The greenbelt is to be dedicated to the City in fee. We assume that the greenbelt will be used to separate urban and agricultural uses until the agricultural activity ceases. At that time, at the discretion of the City, the greenbelt could be retained, developed, sold or traded.

3. Respond to the phasing program proposed by the County Department of Airports.

The proposed modification to the phasing program described above may, in part, respond to the Department's request. We prefer to retain flexibility in determining the sequence of additional phases of development based on the needs of the City, the success of

mitigation and implementation programs, and the availability of infrastructure. Finally, staff prefers to show land uses on the map for the full community.

4. Describe how the potential impacts of the Plan are being mitigated.

Most of the mitigation measures recommended by the North Natomas Community Plan Alternatives EIR have been incorporated into the Proposed North Natomas Community Plan in order to reduce potentially significant adverse impacts to a less than significant level. Some measures reduce the severity of the impact, but not necessarily to a less than significant level. The following pages list the impacts which the EIR found to be "Unavoidable and Irreversible Environmental Effects Which Cannot be Avoided".

The "policies and actions" found at the end of each Element of the Plan contain many measures which were included based on the EIR recommendation. The Implementation Element is primarily comprised of programs, policies, actions and standards that are designed to mitigate potentially significant impacts and promote environmentally sensitive development. The "Design Guidelines and Environmental Development Standards", in particular, responds to many concerns raised by the EIR with respect to quality of development, open space and drainage, vegetation and wildlife, hydrology and water quality, geology and soils, hazardous materials, archaeological resources, noise, air quality, and energy.

Unavoidable and Irreversible Environmental Effects Which Cannot be Avoided

The unavoidable impacts which would occur, based upon the scale and magnitude of urbanization of the North Natomas Study Area are listed below. These impacts are significant and incapable of mitigation to less than significant levels.

- The Proposed Community Plan would have significant growth inducing impacts due to the surplus of jobs in relation to housing in North Natomas.

- The Proposed Community Plan would produce significant cumulative impacts due to the scale and magnitude of development which would replace environmental resources and contribute incrementally to environmental degradation.

- The Proposed Community Plan would produce a jobs-housing imbalance in North Natomas, resulting in North Natomas employees requiring housing elsewhere in the region.

- The Proposed Community Plan would result in a significant number of persons who could not afford to purchase homes or rent in the community.

- The Proposed Community Plan would convert significant amounts of agricultural land to urban uses, contrary to the City's Growth Policy.

- The Proposed Community Plan would result in the adoption of a Community Plan which would commit North Natomas to urbanization prior to 1995, contrary to the existing Growth Policy.

- The Proposed Community Plan would result in significant pressure to convert additional agricultural land, especially to the north and west of the Study Area.

- The Proposed Community Plan would result in a significant amount of employment-generating land uses making North Natomas a major new focus for jobs in the region. The Proposed Community Plan would diminish the importance of downtown Sacramento as the major employment center in the region.

- The Proposed Community Plan would dilute City efforts to direct gorwth to the urban area which was existing in 1981.

- The Proposed Community Plan would result in significant traffic generation which would add to traffic volumes experienced on the local and regional road system and which would require an expansion of that system.

- The Proposed Community Plan would result in a significant net increase in regional emissions of carbon monoxide, oxides of nitrogen, sulfur oxides, and reactive organic gases.

- The Proposed Community Plan would increase ozone levels in the Sacramento area by roughly three to four percent.

- The Proposed Community Plan would be inconsistent with the Regional Air Quality Plan.

- The Proposed Community Plan would designate residential uses west of I-5 in an area where aircraft noise would exceed 60 CNEL.

- The Proposed Community Plan would locate residential use in areas where residents who participate in outdoor evening activities may be driven indoors by persistent and aggressive mosquitoes.

- The Proposed Community Plan would result in the conversion of a significant amount of productive agricultural land.

- The Proposed Community Plan would result in the loss of a significant amount of riparian wetland habitat bordering drainage canals.

- The Proposed Community Plan would result in the loss of a significant amount of seasonal wetland habitat provided by rice fields.

- The Proposed Community Plan would result in the loss of a significant amount of agricultural land and open space for foraging by Swainson's hawk.

- o The Proposed Community Plan would convert the Study Area to urban uses which would contrast with the area's present visual quality and with agricultural lands remaining outside the Study Area.

Some of the more major impacts identified by the EIR, such as on housing affordability and availability, jobs-housing balance, land use, effects on other communities, transportation, employment and agricultural preservation have been addressed by the following programs, which are discussed in the Implementation Element:

Housing and Infrastructure Trust Fund
Employment and Economic Development Opportunity Plan
Transportation Systems Management (TSM) Program
Phasing Program
Monitoring Program
Agricultural Preservation Program

If all of the above programs, and the Design Guidelines and Environmental Development Standards, are adopted, then the identified potentially significant adverse impacts will have been substantially mitigated.

The primary mitigation measures which have not been incorporated into the Plan include the following, which are listed by impact category.

Population, Employment and Housing

Jobs-Housing Balance

- o The adopted Community Plan should achieve a jobs-housing balance within North Natomas by providing an adequate housing supply within the Study Area for every job created there. This can be accomplished by designating more area devoted to residential land uses and less area where employment-generating growth can occur. Alternatively, higher residential densities than proposed should be considered, and lower employment-generating densities should be designated for non-residential uses.

- o If the alternative adopted as the North Natomas Community Plan is to result in 60 to 80 percent of North Natomas workers living within six miles of their jobs, as recommended by the Joint City-County Planning Commission and the Draft Community Plan, the number of housing units within the Study Area should be equal to or greater than 80 percent of total employment in the community. Because of the lack of surplus residential capacity in surrounding communities and the size of the Study Area, home-to-work trips of five miles could be confined within North Natomas. Consequently, it should be assumed that the 80 percent jobs-housing balance can be achieved within the Study Area.

Land Use

The significant adverse impacts from allowing development to proceed in North Natomas cannot be reduced to less than significant impacts. This is true whether the amount of development which occurs already is permitted by

existing County zoning (Alternative A) or whether the amounts of development envisaged by Alternatives B through E are allowed.

The impacts discussed in the previous subsection could be avoided, however, if none of the alternatives is adopted and if a) the County redesignates existing light industrial and airport-related industrial (SPA) land to Agricultural Cropland, and b) the City reaffirms its Growth Policy to maintain North Natomas in agricultural use at least until 1995 and includes this as a policy of the yet-to-be completed updating of the 1974 General Plan.

- If the City decides to amend existing policies and permit urbanization in North Natomas, if must determine that there are overriding social and environmental needs for opening the Study Area for development prior to 1995. (Reverse Growth Policy)

- In order to achieve some (but not total) conformance with the City's and County's agricultural preservation policies, the Community Plan should not allow any development west of I-5 or north of Del Paso Road. Lands west of I-5 and north of Del Paso Road within the Study Area should remain designated for agriculture.

- If the City approves private development of a sports complex in North Natomas, it should determine how much additional development would be necessary to support the sports complex and limit land use approvals and rezonings accordingly.

- The only way to ensure the dominance of downtown would be to reduce the employment-generating land uses in North Natomas or to redesignate land use allowing office development to uses which would not complete with retail, trade, and financial uses which are appropriate to locate in downtown.

- If North Natomas is opened for development at this time, there are no mitigation measures available aside from a much more aggressive and substantially better funded redevelopment program to dramatically improve incentives for infill development and revitalization of existing communities, including renewed efforts to channel high technology industrial and related development to the City's designated area for these uses-Delta Shores Village.

Traffic and Circulation

All transportation mitigation measures are assumed to have been taken into consideration in the redesign of the Proposed Plan transportation network and policies. The recently-completed traffic analysis of the Proposed Plan indicates that with improvements such as eight-lane facilities and the Truxel Road bridge, in combination with a 20 percent TSM reduction in trip generation, the only segment of the local street system that could not be mitigated to LOS C is Truxel Road between North Market Boulevard and I-80. Certain regional facilities, as described in the traffic analysis, still operate below LOS C, but this is not totally related to North Natomas development.

Air Quality

Increasing the ozone levels by 3 to 4 percent will delay attainment of the ozone standard, which is inconsistent with the Regional Air Quality Plan. The following measures have been incorporated to some extent into the Proposed Plan, but perhaps not to the extent necessary for mitigation:

> Implement land use measures which would reduce number of vehicle trips. Such measures include mixed land uses which provide housing within walking distance of employment centers and development of housing with prices compatible with the salary structure of major local employers.

Noise

Because of the potential impacts from aircraft noise and in view of the Sacramento County Department of Airport's concerns, residential land uses should not be allowed west of I-5. In the event that it is determined to allow residential use west of I-5, development should not proceed until it can be documented that aircraft noise in this area does not exceed CNEL of 60 dB.

Fiscal

A detailed composite financing plan will need to be prepared for the adopted North Natomas Community Plan. The private sector will be responsible for the preparation and implementation of a feasible financing plan for all necessary capital improvements. The City will provide traditional maintenance and operation services to the North Natomas community area after capital improvements are installed and development occurs.

Vegetation and Wildlife

If there is a choice between developing rice fields or other agricultural fields for the five alternatives, it usually would be desirable in terms of wildlife value to preserve the rice fields. In most cases, the only available mitigation for loss of rice fields would be acquisition of compensation lands or easements.

Visual and Aesthetic Considerations

Adverse visual impacts could be mitigated substantially if no development occurs west of I-5 (implementation of Alternatives A or B). If development is allowed west of I-5, densities should be increased so that the extent of urbanization can be reduced. Tighter densities at Study Area boundaries would help to better define the community visually. The separation between urban development and adjacent agricultural lands would be more distinct and less-suggestive visually of suburban sprawl and encroachment of urbanization onto productive farmland. Higher densities only should be allowed, however, if the total amount of land committed to development in North Natomas is reduced and if the development which occurs is pulled back away from permanent agricultural lands.

If Commissioner's or members of the public have questions about the disposition of specific EIR mitigation measures, call Kathy Molloy of the City Planning Department, at 449-5381, to find out where or how the specific measures have been incorporated into the Proposed North Natomas Community Plan.

Respectfully submitted,

Gary L Stmehmsc by

Marty Van Duyn
Planning Director

MVD:GLS:KM:lr

M84-007

Franchise of Americans Needing Sports

City Clerk's Office
City Hall
"I" Street
Sacramento Ca.

RECEIVED
CITY CLERK'S OFFICE
CITY OF SACRAMENTO
DEC 20 2 32 PM '85

RE: Attached material and appropriate hearing date

Dear City Clerk;

As a Sacramento city resident, I am writing today with regard to the attached material; three resolutions dealing specifically with professional sports. They are entitled: "Sacramento Sports Authority", "The Stadium", and "A Long Term Occupancy Guarantee".

As you may or may not recall, the first 2 resolutions have been introduced before the City Council on several occasions; all of which have led to their defeat by lack of motions thanks to the nebulous status of the North Natomas Project.

It is with this in mind, that I would like to call your attention to the fact that these resolutions have been brought into clearer focus and thus updated; both as the specifics of the North Natomas Project advanced and the nature of professional sports in America changed. In fact, this has led to the creation of a third "state of the art" resolution, entitled "A Long Term Occupancy Guarantee". This resolution is designed to put "teeth" into the proposed community plan. To me, this means that besides just having ordinary sports facilities, we will have both major league facilities and teams to occupy them for the future of the North Natomas Project.

Therefor, I would like to request that this material be placed on the City Council's Agenda, using the most convenient date available for you (I understand the scheduling conflicts the holiday season may bring).

Furthermore, I am sure that you are well aware of my first choice for a hearing date: the same date that you schedule the first hearing on the North Natomas Community Plan.

2160 Yorkshire Road • Sacramento, CA 95815 • (916) 927-5296

My second choice for a hearing date would be one week in advance of the Noth Natomas Community Plan Hearings.

Thank you very much for your assistance. I look forward to hearing from you as the date of the hearings near.

Sincerely;

Michael C. Ross
Fan Advocate
2160 Yorkshire Road
Sacramento Ca. 95815
(916) 927-5296

Franchise of Americans Needing Sports

SACRAMENTO SPORTS AUTHORITY

A LEGISLATIVE PROPOSAL

BY MICHAEL C. ROSS

WHEREAS the Political climate of Sacramento has revolved or centered around the issue of the construction and attraction of a professional sports facility and team to the City of Sacramento; and

WHEREAS we have currently spent over $1 million dollars to master plan an area on behalf of a request to construct a stadium or arena in the North Natomas area; and

WHEREAS until now, the issue of the attraction of sports to Sacramento has centered around the discussion of land use in the N. Natomas; and

WHEREAS the citizens of Sacramento, to some extent, have expressed their interests and desires to support both a sports franchise and stadium in their future; and

WHEREAS the City and County of Sacramento contains a variety of locations suitable for the construction of a sports facility; and

WHEREAS the construction of a sports facility to Sacramento will take a minimum of 3 years; and

WHEREAS the sports of baseball and football are in the process of expanding or are making preparations to expand by the end of the decade and Sacramento is not actually involved in the process; and

WHEREAS many other cities throughout the United States are currently competing for professional sports franchises or are preparing to make their bids for one; and

WHEREAS the many activities of both professional sports and governments across the land are making the development of public sports policy extremely complex; Therefor Be It

RESOLVED by the City Council of the City of Sacramento, that we do hereby recognize that the discussion of locating and

2160 Yorkshire Road • Sacramento, CA 95815 • (916) 927-5296

constructing a sports stadium goes hand in hand with the attraction of a sports team to our city; and that as such, we as a city must get down to the business of organizing our city for the attraction of professional sports to Sacramento before it is to late; and Be It Further

RESOLVED that we recognize that in order to attract professional sports to our city that we must discuss two distinct issues; the land use for any given site, and the attraction of quality sports to our city; and Be It Further

RESOLVED that in order to assist in the attraction and location of professional sports to Sacramento, that we the City Council, will discuss the attraction of a sports facility or team to our city through the creation of a sub committee designed to represent the City of Sacramento before the professional sports world; and Be It Further
RESOLVED that the City Council's Committee, entitled the Sacramento Sports Authority, is to be comprised of a cross section of the community, appointed and confirmed by the City Council, based on those interested and actually involved with the issue of sports in Sacramento as they meet the following criteria:

1. A representative from the Sacramento City Council

2. A representative from Sacramento's County Board of Supervisors

3. A representative from Sacramento's State Legislative Delegation

4. A representative from Sacramento's Congressional Delegation

5. Three representatives of the Sacramento Sports Consumer or fan

6. A representative supporting the location of a stadium at all proposed locations throughout the city and county

7. A representative from Sacramento's business community

8. Two representatives from the Sacramento Athletic community.

RESOLVED that the costs associated with this project are to be paid for by the developers of any sports complex in the city boundaries

A #16
37

Franchise of Americans Needing Sports

THE STADIUM

A LEGISLATIVE PROPOSAL

BY MICHAEL ROSS

WHEREAS Professional sports is watching the actions of Sacramento's residents and the City Council with regard to the location and attraction of a professional sports complex, sports team or expansion team(s) to our city; and

WHEREAS the image of Sacramento will be enhanced by the attraction of professional sports to the State Capitol and that the location of the facility will have an impact upon Sacramento's growth, tax base, image and sports future; and

WHEREAS the future of professional sports in Sacramento depends on the interaction of the owners, players, and fans in an effort to construct a tri-level system that allows professional sports to flourish in our city; and

WHEREAS the economy of Sacramento will be enhanced by the attraction of professional sports to Sacramento and thus provide, tax benefits, employment opportunities for Sacramento's residents; and

WHEREAS stability in the location of professional sports facilities, enhances the quality of athletic competition in professional sports leagues; and

WHEREAS Sacramento is one of the top 20 media markets in America, markets that extend past Sacramento's geographic boundaries and commonly referred to as sports markets; and

WHEREAS the introduction of legislation at all levels of governments, shows that problems do exist, and that questions need to be answered in advance when a professional sports program is being constructed; Therefore Be It

RESOLVED by the Sacramento City Council, that the design and location of any stadium constructed in Sacramento, take into consideration the future needs of the community, with special attention being given to: access to and from the stadium; working within the present foundation of the city's growth plan; accessibility to existing Rapid Transit Systems and

2160 Yorkshire Road • Sacramento, CA 95815 • (916) 927-5296

necessary utilities; and the stadiums use by the disabled, with specific attention being given to seating within the stadiums general population; and Be It Further

RESOLVED that as the capitol of the largest sports state in the nation, Sacramento is entitled to receive the highest quality facility, team and location; and in an effort to ensure that Sacramento maintains it's image and ensures the attraction, future growth and expansion of professional sports in our city, do hereby declare that Sacramento's residents, or fans, are entitled to the following in connection with the attraction of sports to our city:

1. Input into the design and location of a facility that will compete with the facilities in the Bay Area in size and design.

2. A sports facility and infrastructure improvements at no cost to the public for the life of the project.

3. An assurance that the facility will be designed to attract both indoor and outdoor sports.

4. A facility that will best enhance the image of the community and thus the Capitol of California for the next 25 years.

5. A facility that utilizes the foundation we as a city have established with regard to Sacramento's Community Growth plan.

6. A facility and team that is the best consumer product for the dollar.

7. A written long term guarantee that a sports team will stay in Sacramento for the life of the facility.

8. A $100,000 bond securing that these actions will take place.

A #17

37

Franchise of Americans Needing Sports

A LONG TERM OCCUPANCY GUARANTEE

A LEGISLATIVE PROPOSAL

BY MICHAEL C. ROSS

WHEREAS The capitol of the largest and most important sports state in the nation, Sacramento, is entering the "Brave New World of Professional Sports", and that in order to ensure that the future of sports works for the entire area, not just a few, we must plan it correctly from the beginning; and

WHEREAS As Sacramento turns the corner and becomes one of the elite cities classified as major league, we not only face the "visions of the future" that sports brings, but the many problems other cities face once sports teams comes to their shores; and

WHEREAS We as a community need to ensure that sports is correctly undertaken, because as we enter the major Leagues, we are going to have to compete against the Bostons, New Yorks, and Philidelphias, not just on the court or field, but in political halls across the nation.

WHEREAS Educated community participants know that we must learn from the past mistakes of our sister sports cities- cities like Oakland, San Francisco, San Diego, Philadelphia, Minnesota, New Orleans, Seattle and let's not forget Kansas City; and

WHEREAS Cities throughout the United States normally require that a long term contract be entered in to, outlining city rights and recourses for both sides, before any ground breaking occurs on the stadium development; and

WHEREAS The best way to secure the future of professional sport programs is to plan in advance, securely define roles and responsibilities, and to make sure both parties have a series of common goals for our sports future; Therefor Be It

RESOLVED by the City Council of the City of Sacramento, that before the rezoning of any land for a stadium and related development projects occur, a long term contractual agreement must be entered into before the development occurs; and Be It

2160 Yorkshire Road • Sacramento, CA 95815 • (916) 927-5296

Further

RESOLVED that on behalf of the inherent Community interest and investment Sacramento citizens are making, the aforementioned sports contract must come with the following:

1) a clause that binds a team to the facility for at least 3/4 of the facilities life expectancy

2) a Clause that prohibits the SSA and the team that occupies the new Sacramento facility from negotiating with another sports facility or city, with preestablished fines.

3) Who will pay for the infrastructure etc;

4) What the tax rates are going to be; and

5) A statement of who will represent the city and fans before professional sports.

6) What happens if the stadium or arena are sold;

7) when notification must be given before a team moves;

8) what rights and recourses does the city have should the team decide to go;

9) A clause governing the overall $100 million bonding process that guarantees that all of these actions will be taken.

10) An outline of what the city will receive in terms of money, if any, from national broadcasting revenue must be given to the city.

Dec. 30, 1985

Planning Department,

I am very concerned about the proposal to rezone the North Natomas area for the following reasons:

There is only one bridge to town that is open year round. The I-5 freeway cannot handle the huge volume of traffic which will be generated by the development. I drive I-5 to work every day and it is already impacted. South Natomas is not yet fully developed. How do you expect people to commute to work with freeways operating over capacity? Also, Regional Transit has no funds to provide bus service to North Natomas. I know. I asked them. Additionally, Cal Trans policies state that they won't build new freeways needed by new development.

I also hate to see prime agricultural land developed needlessly. N. Natomas is the home to egrets, hawks, blue herons, green herons, pheasant, quail, ducks, rabbits, etc. It also produces a variety of crops. I can't understand why you're developing it when Delta Shores isn't finished, South Natomas isn't finished and there is so much land in Sacramento which has been zoned for residential/commercial uses already.

Please record [illegible] that you will

encourage City Council to vote against the North Natomas General Plan Amendment.

Please respond. I am assuming that this letter will be included in correspondence for the January 7 public hearing.

Sincerely,

Barbara Graiche
5910 Sorento Road
Sacramento, Cal. 95835
916-991-2177

Environmental Council of Sacramento, Inc.

COMMENTS ON THE NORTH NATOMAS COMMUNITY PLAN

PRESENTED TO THE SACRAMENTO CITY COUNCIL

JANUARY 13, 1986

Mayor Rudin and Council Members:

The Environmental Council of Sacramento has participated actively throughout the hearing process before the Planning Commission and the City Council. We would like to use this opportunity to summarize our serious concerns about some of the specific land use, phasing, housing, and employment aspects of the proposed Community Plan.

1. Scale

The proposal to rezone and develop 15 square miles of farmland north of Sacramento is simply too large an increment of growth to deal with effectively in the Community Planning process. This is the largest current development proposal in the State. In magnitude, North Natomas is five times the size of downtown Sacramento.

The level of office and industrial development proposed far exceeds any conceivable need for the foreseeable future. For example, the ability of NN to absorb high technology (MRD) developent by the year 2005 was estimated in the EIR at 300 acres (Exhibit D-42). The proposed North Natomas Community Plan rezones 1,423 acres to high technology (M-50 and M-20).

We believe that it is premature to designate for development any of the area north of Del Paso Road and west of Interstate 5. Since the projected timing of development within these areas is ten years or more away, it is appropriate that there be a separate community plan amendment process for these lands at that time. In the interim, these lands should retain their current zoning and General Plan designation.

2. Phasing

ECOS believes that a comprehensive phasing program would mitigate some of the negative impacts associated with development in North Natomas at this time. We have two specific recommendations for phasing.

First, development within the area south of Del Paso and east of Interstate 5 should be phased to allow no more than 50% buildout until either 1) the area is served by LRT, or 2) the Sacramento region has made substantial progress toward compliance with the federal ambient air quality standard.

Second, any additional development to the north and west should be contingent on: 1) the development and occupation of 75% of Phase One properties; 2) LRT service to the Plan area; and 3) attainment of the federal ambient air quality standard.

3. Jobs/Housing Balance

Total non-residential development in North Natomas should be limited to 25,000 jobs to reduce the drain of jobs and business from the downtown, North Sacramento, and Meadowview communities. Further, we would like to see a substantially higher ratio of housing to jobs and a broader mix of land uses in the proposed plan.

The "Phase One" component of the plan should be revised so that it internally meets the 60% jobs/housing goal of the Community Plan. This would mean the addition of 18,400 dwelling units to the area south of Del Paso and east of Interstate 5. In addition, the Housing Monitoring Program and Trust Fund should be implemented to assure that housing is developed concurrently with job growth and that affordable housing is provided for "high tech" workers within North Sacramento and North Natomas.

4. Employment and Economic Opportunity Plan

This program should be supplemented with a new process (linked to issuance of business licenses) to enforce its employment, construction, and day care provisions.

5. Agricultural Lands Preservation

The prospective development of North Natomas has already given impetus to land speculation and development in northern Sacramento County, southern Sutter County, and western Yolo County. These trends threaten open space, air quality, and the viability of the regional agricultural economy.

An "urban limit line," greenbelt, and/or transfer of development rights program should be established to prevent sprawl onto agricultural lands. Any development plan for North Natomas should include a viable and effective mechanism for assuring the permanent economic viability of agriculture beyond this line. These programs or provisions should be developed and implemented in parallel with - not after - the adoption of the Community Plan.

6. Financing

While some North Natomas developers have committed to pay for on-site capital improvements, other developers have not made similar assurances. Other financing questions include:

- o Who will pay for providing City services (fire, police, water, and solid waste) during the initial period before development has reached a sufficient scale to generate property tax revenues to cover these costs? How long will this "short term" situation exist and how much subsidy from City taxpayers will this represent?

- o How will off-site improvements (schools and transit) be financed?

- o How will the substantial costs of widening I-80 and I-5 and/or extending Truxel Road over the American River be met?

ECOS appreciates this opportunity to testify.

Natomas Airport: Intentions of the Gateway Point applicants.

The Gateway Point applicants feel that a general aviation airport is a highly desirable amenity for the northern part of the city and county. As a result they are dedicated to doing their part to insure that the Natomas Airport should continue to exist--even it has to be at a different location. One measure of the applicant's commitment to the Natomas Airport is the little known fact that the owners of the land on which the airport sits (Sacramento Sports Association) have been most supportive of the airport and have done a great deal to help it continue operating since the property was acquired in 1979. This includes improving the runway and taxiways at no charge to the operator and keeping the rental of the property at a figure of $900/month, even though the owner's liability insurance for such a usage is over $1600 per month.

In addition to the above continuing support, the Gateway Point applicants are prepared to do the following should a community plan be adopted which would allow zoning in areas surrounding the airport:

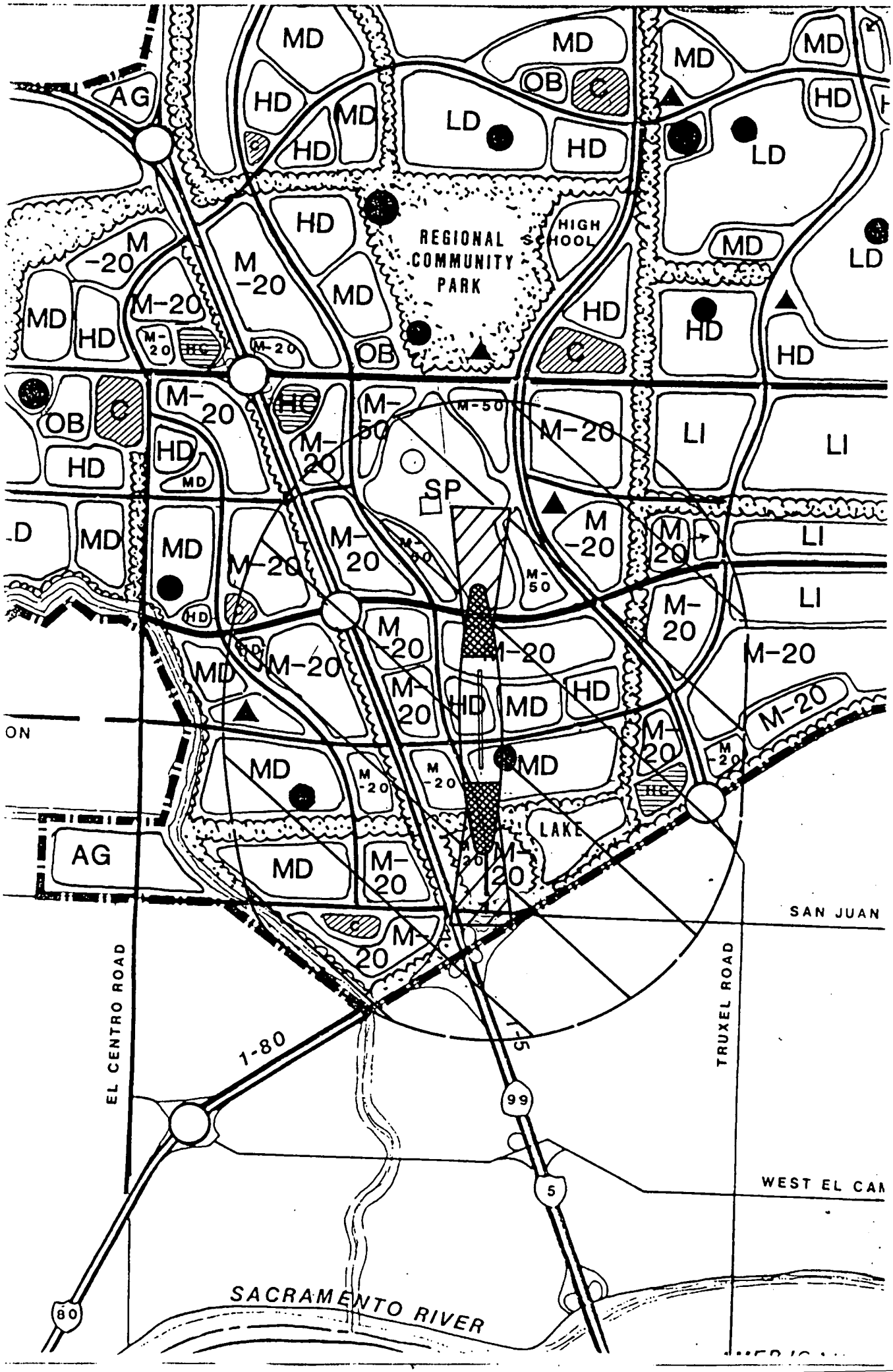
1. Allow the operators of the Natomas Airport to continue operation while the major infrastructure for North Natomas and the stadium and arena are being built.

2. Allow the airport to continue to operate until such time as plans are underway to develope in the direct vicinity of the airport and its landing zones. Note that the stadium and arena are sited so that, even after completion of the stadium and arena, the airport could apparently continue to operate. Operation would be subject, of course, to any necessary safety measures to protect the public.

3. In the meantime the applicants are already working with the airport operator and appropriate governmental offices to find a suitable new site nearby.

4. By the time the airport would have to relocate (estimated at not sooner than 1989 or 90), applicants feel that a new home for the Natomas Airport that is as good or better than the current one, could be secured and approved.

To sum up, the future of the Natomas Airport is secured until at least 1990, and a great deal longer, as far as the Gateway Point applicants are concerned.


AG
MD
HD
LD
OB
C
HIGH SCHOOL
REGIONAL COMMUNITY PARK
M-20
M-50
HC
SP
LI
LAKE
SAN JUAN
EL CENTRO ROAD
TRUXEL ROAD
I-80
I-5
99
5
80
SACRAMENTO RIVER
WEST EL CAM

SUGGESTED FACTS AND AMENDMENTS THAT NEED TO BE ADDRESSED AND CORRECTED IN THE NORTH NATOMAS COMMUNITY PLAN

The Sports complex section, found on page 33 and extending to page 34 should be revamped and expanded in accordance with the following suggestions:

a) The facilities located at: The Oakland Coliseum, Candlestick Park, UC Davis and Berkley, and Sacramento State University, should be included in the analysis of the section dealing with existing sports facilities because professional sports recognizes regional (as opposed to geographic) boundaries ranging from 90-125 miles.

b) The section dealing with the goals and objectives should be up dated and expanded to meet the provisions of todays modern sports system. Examples are as follows:

GOALS: to be added to the existing goal:

a) establish an effective professional sports program that will assist and allow the City of Sacramento to compete and participate in the professional sports process well into the 21st century.

b) establish an effective representation system that the City of Sacramento can officially adopt and support, one that will represent us as a community before the various professional sports systems and be paid for by the developers.

c) establish a Sports Fans Bill of Rights (SFBR), which is a long term contract that outlines city and developer (sports team ownership) responsibilities and duties. The SFBR must include a clause that requires teams to stay in the facility for a majority of the facility's life; a clause that forbids the teams ownership from talking to competing cities or regions about moving the team(s) there for the life of the contract; a clause outlining the specific notification procedure that the team must follow if and when they decide to relocate to another sports market; and an outline of what the appropriate fines are for breaking this "Bill of Rights", including what happens to the bond, the possible repossession of the land and cancellation of zoning permits.

OBJECTIVES: To be added to existing objective:

a) to protect and enhance Sacramento's sports future
b) provide for the construction of sports arena and stadium at no expense to the city
c) provide for the representation of the city and its fans before the professional sports system at no expense to the city.

C) the section dealing with recommended policies and actions needs to be expanded along the following lines:

a) establish a long range sports planning committee whose duties are to educate the community about professional sports, and assist us in the development of public sports policy.

b) allow for the construction of sports facilities to occur, using the phasing outline I have provided .

c) The entering into of a long term contract using the following clauses:

1) a clause that binds a team to the facility for at least 2/3 of the facilities life expectancy;

2) a clause that prohibits the SSA and the team that occupies the new Sacramento facility, from negotiating with another sports facility, sports market or city, with preestablished fines;

3) a clause that outlines who will pay for the infrastructure etc;

4) a clause that outlines what the tax rates are going to be;

5) a clause that states who will represent the city and fans before professional sports;

6) A clause that outlines what happens if the stadium or arena are sold;

7) a clause that outlines when notification must be given before a team moves;

8) a clause that outlines what rights and recourses the city has, should the team decide to relocate;

9) A clause governing the overall $100 million bonding process that guarantees that all of these actions will be taken;

10) A clause that outlines what the city will receive in terms of money (if any), from national broadcasting revenue.

PHASING OUTLINE FOR THE NORTH NATOMAS COMMUNITY PLAN

by Michael C. Ross

PLAN HIGHLIGHTS

* Ensures that long term contracts and guarantees are entered into;

* Ensures that land is used as needed to ensure the future of the area;

* A guarantee that Major League facilities are constructed;

* A guarantee that teams will be located in the facility;

* The establishment of a Major League Representation Committee, funded by the developers;

* The assurance that the community park and green belt are constructed;

* A guarantee that orderly development will occur;

Plan Overview: Since the stadium and arena facilities are the main reasons for the development of the North Natomas land, not to mention the largest project(s) in the area, the initial phasing elements of the plan should revolve around the construction of both, and then allow for clockwise development (starting at 3 o'clock) around the facilities on land South of Del Paso Road and counter clockwise for land North of Del Paso Road. This means that the facilities should be firmly established and in place before the "city" is constructed around it.

Furthermore, the phasing aspect of this project should occur in six (6) specific phases. The following is an outline of the concepts that those phases should include:

PHASE 1: the agreement

Phase 1 starts with the signing of specific city and fan protection measure entitled the Sports Fans Bill of Rights between the city and the SSA. This document will be based on an agreement to construct a 70,000 seat sports stadium and a 15,000 seat arena (both minimal major league standards); a long term agreement that guarantees that the 1st facility will have an occupant (presumably the Kings); not to mention the posting of a $100,000,000 bond that ensures that these two requirements occur, while ensuring that no major or dramatic changes happen to occur in the community plan that is being developed and approved. Also included in this phase is the establishment of a city representation committee, funded by the developers.

PHASE 2: 1st facility construction

This phase includes the total construction of either sports facility and its related parking; supporting network of roads and interchanges; the regional park and of course the green belt. Combined, their completed construction automatically triggers the granting of rezoning permits for 35% of the land

South Del Paso Road.

PHASE 3: initial business construction

Phase 3 finally allows the SSA and other developers to provide the area with its initial business development. The initial land available for use by the developers, again, shall only be the M-20 and M-50 land located around the stadium. In fact, if the plan is adopted as pictured in the comprehensive outline we have been discussing, then the construction will include all business oriented land directly around the facility that is scheduled to be zoned M-50 and M-20.

PHASE 4: other facility construction

The fourth phase of this project, will be the development of the other sports complex (presumably the outdoor stadium), which when 80% constructed, will allow for the development of the remaining land surrounding the facilities located South of Del Paso Road (again starting at the 3'o'clock position and comprising approximately 65% of the remaining land). Under this phase, Sacramento should urge the development of land zoned either residential or business.

PHASE 5: final team attraction

In the fifth phase, the final levels of development depend on the intentions of the SSA and their bonded promise to attract other professional sports teams. Once the attraction of a team to fill both facilities occurs according to major league rules and requirements, and it is in the facility for 3 years, then 50% of the land remaining on the North side of Del Paso Road will be available for developer use. This land shall be developed starting at the 3 o'clock position and traveling towards the 9 o'clock position, which is counterclockwise.

PHASE 6: final residency requirements

After a team has resided in both facilities for 2/3 of the facilities projected life expectancy, then the remaining 50% of the land on the north side of Del Paso Road should be made available for developer use, in accordance with the community plan.

QUESTIONS REGARDING SPORTS AND SACRAMENTO

BY

MICHAEL C. ROSS

Questions that need to be answered by staff and the SSA:

#1: What size facility is needed for Sacramento to compete against the facilities of the Bay Area and the rest of the major league sports world? Sacramento should have figures for the NFL, MLB, NHL and Indoor Soccer League (ISL).

#2 Can the SSA afford the estimated $60 million that is needed to construct a facility that will attract baseball and football teams?

#3 What is the projected life expectancy of a sports facility?

#4 Can the SSA meet the qualifications for team ownership that have been developed by the individual leagues? I mean if it costs over $80 Million to purchase an NFL team like the New Orleans Saints or $20 million for the Pittsburgh Pirates; Can and will the SSA do it?

#5 If the SSA can not meet these requirements, how can "we the public" help them? Through the sale of bonds or public stock?

#6 Will the ticket policy developed by the SSA management, work with city policy and law enforcement personnel to effectively combat ticket scalping?

#7 How do the nations anti-trust laws relative to professional sports, affect our community? And lets keep in mind the specific area of eminent domain.

#8 Now that Sacramento is competing on the major league playing fields, will we be expected to compete evenly with other national sports cities for governmental programs and money? How are we going to? And let us keep in mind the fact that other cities are actually supporting and promoting their sports programs, not to mention their city's image and attractions?

#9 How do other cities compete for professional sports expansion teams? Or better yet, how many others are now doing this?

#10 How many teams are for sale in the NFL, MLB NHL or Indoor Soccer League (ISL)?

#11 Who is currently competing for MLB and NFL expansion teams?

#12 How do other cities deal economically and socially with their sports teams? And lets put the emphasis on outlining what kinds of contracts, clauses and agreements they have?

#13 What legislative actions and policies are being created on the state and national levels that directly redefine the

basic relationship that professional sports teams and leagues have with their host cities and regions?

#14 What is the definition of a professional sports market?

#15 What are the internal regulations and requirements that were recently established by Peter Ueberroth on behalf of Major League Baseball, regarding the size of Stadiums, Team moves and team ownership?

#16 How will a long term residency contract help us promote Sacramento's image, assist our business economically, and ensure a long sports future for Sacramento?

#17 What is happening Sports wise to our Major League Neighbors (San Francisco and Oakland), with respect to stadium construction, team relocations, city bailouts and the construction of a long term occupancy contract(s), that has made San Francisco's first female mayor, Dianne Fienstein, look bad?

LEGAL SERVICES OF NORTHERN CALIFORNIA, INC.

712 - 12th STREET, SACRAMENTO, CALIFORNIA 95814
444-6760

TO: The Honorable Ann Rudin
Mayor of the City of Sacramento and
Members of the City Council of the City of Sacramento

FROM: Legal Services of Northern California, Inc.,
Sacramento Office - Eugene T. Moriguchi

RE: COMMENTS ON THE HOUSING IMPLEMENTATION PROGRAM OF THE NORTH NATOMAS COMMUNITY PLAN (December 1985)

DATE: January 13, 1986

The Sacramento Office of LEGAL SERVICES OF NORTHERN CALIFORNIA, INC., (LSNC), supports in concept the Housing Implementation Program as proposed in the North Natomas Community Plan dated December 1985, which is before the Council for consideration for adoption. LSNC urges the adoption of the Housing Implementation Program as part of the comprehensive approach taken by the City in the process which entails major land use changes in the North Natomas area.

LSNC's concern is the provision of permanent and viable employment and adequate and decent housing for its client population, the low-income persons and families residing in Sacramento County. A review of the Housing Implementation Program concepts reveals a comprehensive program to assure that the impact of the development of North Natomas will be shared by other areas of the City by the use of the proposed monitoring program and the creation of the North Sacramento Housing and Infrastructure Trust Fund. These programs which coordinate with other North Natomas implementation programs will assure that the goals of providing meaningful employment and affordable housing opportunities to the expected labor pool will be met.

A monitoring program will provide a realistic basis to determine the job and housing needs and characteristics and whether such needs are being met as North Natomas develops. Additionally, such a program will serve to be a basis for a comprehensive approach to assure balanced growth and to prevent negative aspects of unregulated growth for the City.

The establishment of the North Sacramento Housing and Infrastructure Trust Fund is vitally needed to assure that the job-housing linkage be assured. This trade-off process for the economic benefits of enhanced urban development will assure the

participation of North Natomas non-residential developers who will participate in the creation of housing opportunities and the provision of the infrastructure needed to support the new residential communities created by the expansion of the job market.

In the overall view of the proposed housing implementation program, the implementation procedures for both the monitory program and housing and infrastructure trust fund appear to be prudent and sound to assure that the planning goals be complied with and met by all parties concerned.

Housing.ju/ETM 1/13/86

Clearinghouse Review

NATIONAL CLEARINGHOUSE FOR LEGAL SERVICES, INC.

Special Housing Issue

Photo by Robert Serafin

Fair Housing and the Black Poor: An Advocacy Guide
Developer Payments and Downtown Housing Trust Funds

VOLUME 18, NO. 6, SPECIAL ISSUE, NOVEMBER 1984

DEVELOPER PAYMENTS AND DOWNTOWN HOUSING TRUST FUNDS

Developer Payments and Downtown Housing Trust Funds

by Philip D. Tegeler

I. Introduction[1]

In recent years the concept of a "Housing Trust Fund," which is financed primarily by zoning payments from commercial and residential projects, has emerged as a promising solution to supplement dwindling federal resources for the construction of low- and moderate-income housing. As more cities adopt variants of this "inclusionary zoning" policy, legal services attorneys and other advocates of low-income housing should become familiar with both the problems and the potential of such programs. This article will analyze the policy and legal issues raised by existing housing trust fund models; special attention will be given to proposals currently under consideration in New York City.

Traditionally, suburban inclusionary zoning programs have involved the dedication of a set percentage, or set-aside, of units for low- and moderate-income occupancy in new residential developments. Typically, such programs have offered incentives, such as increases in permitted density of units per acre, reduced site amenities, or shortened approval procedures to offset developer costs. Inclusionary zoning, which may be either mandatory or voluntary, has been most frequently applied when a developer seeks a special permit or other discretionary action of the municipality.

The new generation of downtown development payments, as represented by programs in Boston and San Francisco, has moved away from this traditional model: developers may be given the option of making a housing payment, which is also called an "exaction" or a "developer contribution," instead of building on site; special incentives may not be offered; as-of-right construction may not be exempt from the required payment; and most importantly, the concept may be extended to commercial development under the theory that new office space increases citywide demand for housing. Finally, to the extent that these new programs encourage construction of non low-income housing, they cannot be termed "inclusionary"; in addition, for commercial development payments, zoning is only one source of authority that may be relied upon.

A. "Housing Trust Fund" Concept

The housing trust fund, as distinct from inclusionary zoning, represents a special account outside the general city budget process. It may be administered by a city agency or independent organization for distribution to eligible projects either directly or through existing city housing programs. The housing trust fund may be capitalized from a variety of housing related revenues, like UDAG paybacks, cooperative and condominium filing fees or mortgage recording tax payments. The primary source of funds, however, is generally regarded to be zoning payments in lieu of actual production of units by the developer.

Philip D. Tegeler is a staff attorney at the Civil Clinic, University of Connecticut Law School, 65 Elizabeth St., Hartford, CT 06105. He was formerly on the staff of the Metropolitan Action Institute, New York.

The research in this article is based on the author's work with the Inclusionary Zoning and Housing Trust Fund Project, a joint project of the Pratt Institute Center for Community and Environmental Development and the Metropolitan Action Institute. Project staff include Ron Shiffman, Paul Davidoff, Brian Sullivan, Mary Brooks, Frank DeGiovanni, Keith Getter and Phil Tegeler. Brian Sullivan, Pratt Institute, was the project coordinator.

1. Several references in the article are to a legal symposium entitled "Inclusionary Zoning Moves Downtown," which was held in November 1983. The symposium was sponsored by Metropolitan Action, the Pratt Center; the American Planning Association; and the CUNY Law School at Queens College. Symposium proceedings will appear in a book published by the Planners Press in mid-1985. Funding for the Pratt/Metropolitan Action Project was provided by the New York Community Trust, the Robert Sterling Clark Foundation, and the James C. Penney Foundation.

In spite of its promise, the housing trust fund is not a panacea; it may only be appropriate in cities with strong commercial real estate markets.

In spite of its promise, the housing trust fund is not a panacea; it may only be appropriate in cities with strong commercial real estate markets.

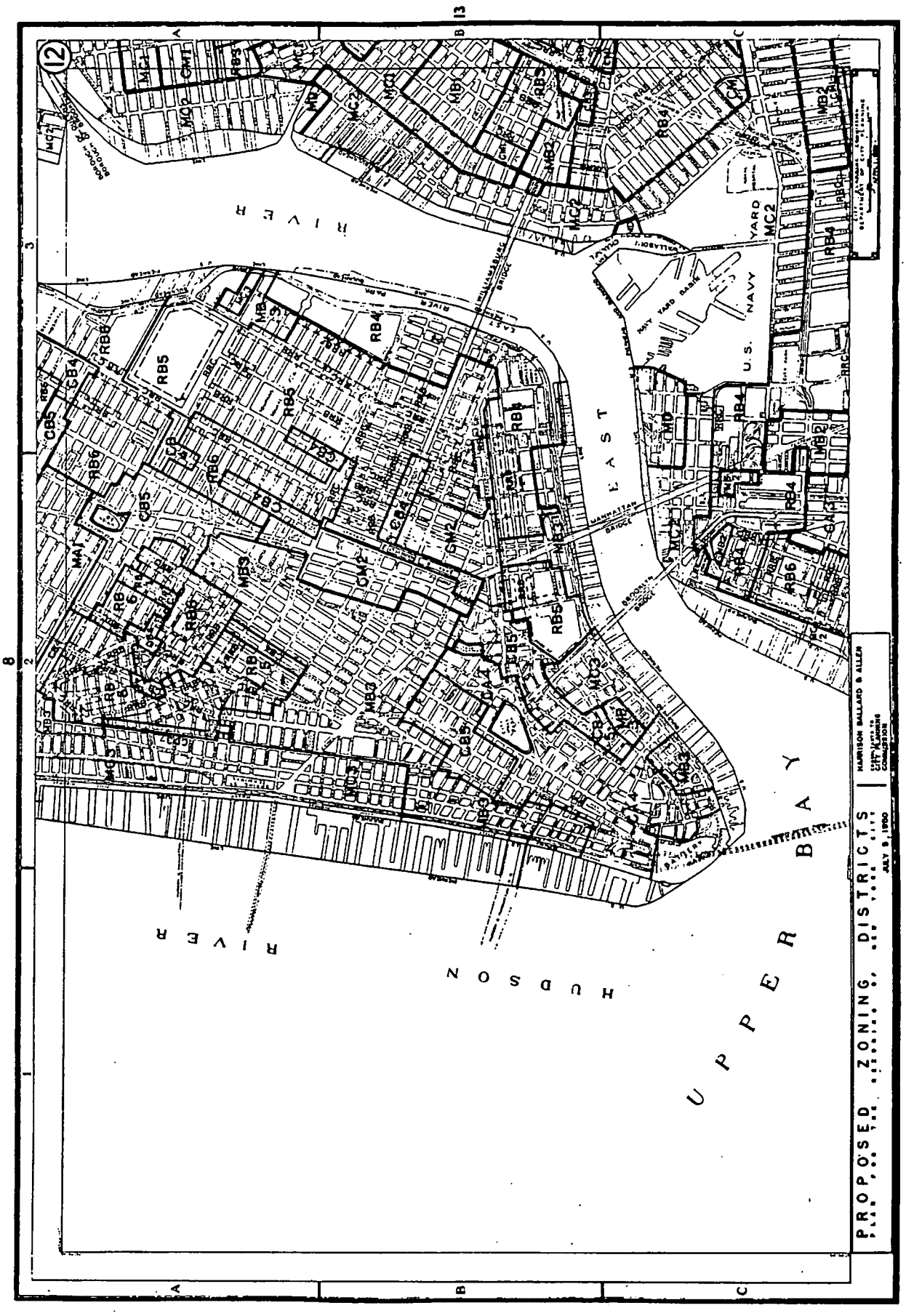
B. Inclusionary Zoning in the Suburbs

Inclusionary zoning originated as a remedy to exclusionary zoning practices in the suburbs. The responsibility of developing municipalities, as defined by the New Jersey Supreme Court in *Mount Laurel I*,[2] was to provide a realistic opportunity for provision of housing for a community's indigenous poor and for a fair share of the region's prospective housing need. The obligation was broadened by the court in *Mount Laurel II*[3] to include a numerical housing goal with inclusionary zoning as one of several mandatory steps to be undertaken by New Jersey municipalities.

The original *Mount Laurel* doctrine has been applied by Pennsylvania courts,[4] and, to a lesser extent, by those in New York.[5] Similar judicial challenges are being mounted in other states, notably in the rapidly growing southern New Hampshire region where New Hampshire Legal Assistance recently brought that state's first *Mount Laurel* challenge against a bedroom suburb on the Massachusetts border.[6] In such states where *Mount Laurel* has not yet been applied, exclusionary zoning provisions, such as large lot size or minimum floor area requirements, have been struck down on due process grounds or because they are beyond the scope of the state enabling statute.[7]

The vast majority of inclusionary zoning ordinances have come about not as a result of judicial intervention, but by legislative recognition of the need to plan for low- and moderate-income housing. Massachusetts[8] and California[9] have adopted statutes prohibiting exclusionary zoning; California has enacted affirmative zoning requirements requiring replacement of low-income housing in coastal zone areas.[10] More importantly, municipalities throughout the country have acted independently to pass inclusionary zoning ordinances.[11] Among the more successful of the local ordinances were the ones in Orange County, California, where more than 3,000 affordable units were approved in the first two years,[12] and Montgomery County, Maryland, where almost 2,500 "moderately priced dwelling units" were completed during first 10 years.[13] One reason for the success of suburban inclusionary zoning is the frequent practice of allowing developer participation in government subsidy programs in order to satisfy the inclusionary requirement. But government subsidies are not necessary to ensure success, at least when other incentives are offered. For example, following *Mount Laurel II*, the response by New Jersey developers to density bonuses offered in exchange for set-asides of affordable units has been enormous. In Mahwah Township[14] alone, initial

2. Southern Burlington County NAACP v. Township of Mount Laurel, 67 N.J. 151, 336 A.2d 713, *appeal dismissed*, 423 U.S. 808 (1975) [hereinafter cited as *Mount Laurel I*].
3. Southern Burlington County NAACP v. Township of Mount Laurel, 92 N.J. 158, 456 A.2d 390 (1983) [hereinafter cited as *Mount Laurel II*].
4. Surrick v. Zoning Bd. of Providence Township, 476 Pa. 182, 382 A.2d 105 (1977); In re Girsh, 437 Pa. 237, 263 A.2d 395 (1970).
5. Berenson v. Town of New Castle, 38 N.Y.2d 102, 341 N.E.2d 236, 378 N.Y.S.2d 672 (1975).
6. Russell Knee & Lewis Builders v. Town of Atkinson, Equity No. 36-80 (N.H. Super. Ct., Rockingham County, filed Jan. 26, 1980).
7. *See* Note, *Developments in the Law—Zoning*, 91 HARV. L. REV. 1427 (1978).
8. MASS. GEN. LAWS ANN. ch. 40B, §§ 20 *et seq.* (West 1983) (Low and Moderate Income Housing).
9. CAL. GOV'T CODE, §§ 65580 *et seq.* (West 1983) (Housing Elements).
10. CAL. GOV'T CODE, §§ 65590 *et seq.* (West 1983) (Low- and Moderate-Income Housing Within the Coastal Zone).
11. A comprehensive list of small cities, towns and counties that have passed some form of inclusionary zoning is not available. A sample of municipalities that have passed such ordinances in the last 15 years includes Montgomery County, MD; Pitkin County, Lakewood, and Boulder, CO; Fairfax County, Arlington County and Rosslyn, VA; Dade County, FL; Windsor, CT; Highland Park and Skokie, IL; New Castle County, DE; Lewisboro, NY; and Newton, MA. Some of these ordinances may have been repealed. County and local ordinances have been passed throughout California, including Marin County, Orange County, Santa Clara County, Santa Cruz County, Davis, Petaluma, Palo Alto, and numerous smaller municipalities; New Jersey's original inclusionary ordinance, in Cherry Hill, has been succeeded by a number of ordinances, which were passed in response to the ongoing Mount Laurel litigation. *See* Housing Handbook for NJ Municipalities, N.J. Dept. of Community Affairs, 12-16 (1976). For general discussions of suburban inclusionary zoning programs, including program evaluation, *see generally*, Housing Choice (1980) (available from Metropolitan Action Institute, New York, NY); Schwartz & Johnston, *Inclusionary Housing Programs*, AM. PLAN. A.J., Winter 1983, at __; Bauman, *Inclusionary Housing Programs in Practice*, URBAN LAND, Nov. 1983, at __; Kleven, *Inclusionary Ordinances—Policy and Legal Issues in Requiring Private Developers to Build Low Cost Housing*, 21 UCLA L. REV. 1432 (1974).
12. Schwartz & Johnston, *supra* note 11.
13. Bauman, *supra* note 11.
14. Urban League of Essex County v. Township of Mahwah was one of the six cases consolidated by the New Jersey Supreme Court in *Mount Laurel II*. The revised Mahwah zoning ordinance is now



Source: Harrison, Ballard & Allen: *Plan for Rezoning the City of New York*. New York City Planning Commission, Oct. 1950.

development proposals exceeded the town's fair share obligation of 699 low- and moderate-income units based on a 20 percent set-aside of new units in new developments.[15] Whether downtown zoning payments can duplicate the successes of inclusionary zoning in the suburbs remains to be seen.

II. Downtown Housing Trust Funds: Existing and Proposed Models

The most widely known housing payment programs are the housing trust funds established in San Francisco and Boston, both of which rely on office development payments. Santa Monica has also used developer payments to fund housing on a case-by-case basis, as part of the discretionary zoning review process.[16] A lesser known, traditional program involving percentage set-asides in residential projects, which was passed in Los Angeles[17] a decade ago, is currently under review. Housing trust funds similar to those in Boston and San Francisco have been proposed in Seattle, Honolulu, Chicago, Denver and New York.[18] Of these proposals, the Seattle housing incentive program[19] is perhaps the closest to enactment since it was officially proposed by the mayor and has passed through at least one round of environmental reviews and public hearings.

Generally, the key features of a developer payment program are

- a per unit or per square foot or set-aside,
- a minimum square foot threshold exempting smaller developments,
- a set percentage or formula to determine the mix of low-income, moderate-income or unrestricted units,
- some form of tenant screening and long-term occupancy controls to ensure a subsidized unit remains occupied by eligible tenants, and
- a separate administrative mechanism to oversee disbursement of funds and to ensure compliance.

A. San Francisco Program

San Francisco's Office-Housing Production Program (OHPP), now four years old, requires developers of new office space to contribute to the construction or rehabilitation of housing to offset the increased demand generated by new office workers entering the city housing market.

The amount of OHPP contribution is set by a formula based on a 1979 planning study[20] of citywide housing demand. The formula calculates the housing demand created by new office space by multiplying the projected number of new workers based on one employee per 250 square feet of office space times the projected housing needs of those workers based on the percentage of office employees living in San Francisco (40 percent) and the average number of working adults per housing unit (1.8). The result is the theoretical housing demand created by a new office building:

$$\frac{\text{Gross Square Feet of Office Space}}{\text{250 Square Feet}} \times \frac{\text{.4 employees}}{\text{1.8 employees/unit}} = \text{Housing Requirement (credits)}$$

The housing requirement is in the form of "housing credits." Each "bedroom" assisted under the program is worth at least one credit to the developer. If the unit is occupied by a low-income family, each bedroom may be worth up to four credits.[21] The OHPP requirements are applicable to all new or

14. *(cont'd from p. 680)* under review in the Superior Court to determine whether it is likely to achieve the numerical fair share goal set by the court.
15. Conversation with Richard Bellman, Plaintiff's Attorney (Apr. 13, 1984).
16. Santa Monica City Council Res. 6385 (Oct. 27, 1981) directs the planning department, in negotiations with developers seeking zoning approvals, to seek at least one low-moderate income housing unit for each 5,000 square feet of commercial space in new developments of over 7,500 square feet. The alternative is a monetary exaction of 6.5 percent of total development cost. Developments of greater than 20,000 square feet are also subject to additional non-housing related requirements. Available from the Clearinghouse, No. 37,064.
17. Los Angeles Bernardi Ordinance 145,927 (enacted 1974) requires a reasonable effort by residential developers to provide 6 percent of total units for low-income households and 9 percent of total units for moderate-income households. Apparently the reasonableness requirements has been closely tied to the availability of government subsidies or housing assistance payments. *See* M. Brooks, Appendix in Final Report of the Inclusionary Zoning and Housing Trust Fund Project (1984) (available from Pratt Institute Center for Community & Environmental Development and Metropolitan Action Institute, New York, NY).
18. M. Brooks, *Zoning Lessons from the Suburbs*, CITY LIMITS NY, Dec. 1983, at 9.
19. The Seattle proposal would require on-site amenities of office developers seeking to exceed as-of-right densities as well as housing payments for higher density developments up to a maximum f.a.r. (floor area ratio) limit. *See* Mayor's Recommended Land Use and Transportation Plan for Downtown Seattle, City of Seattle (May 1984).
20. Sedway-Cooke Planning Associates, Downtown San Francisco Planning Conservation and Development Planning Program, Phase I Study, San Francisco Planning Department (1979).
21. Each bedroom in the dwelling unit earns a credit, to stimulate multiple-bedroom construction. Housing for moderate-income persons earns three credits while housing for low-income persons earns four credits. Developers get two credits per dwelling unit if their lower- or moderate-income projects are assisted by other government funding sources, such as Section 8 rent supplements, Share & Diamond, *San Francisco's Office-Housing Production Program*, LAND USE LAW, Oct. 1983, at 5. This article provides a cogent summary of OHPP and is the basis for some of the program description presented in this section.

converted[22] office developments in excess of 50,000 square feet.[23]

The OHPP program allows the developer a great deal of discretion. Subject to city approval, the OHPP contribution may be satisfied by (1) directly sponsoring a housing development, (2) assisting in the financing of housing that "would not otherwise be built," or (3) contributing $6,000 per credit to a "home mortgage assistance trust fund."[24] Only the latter option could be characterized a pure "housing trust fund."

The program's track record has been impressive. As of April 1984, OHPP had generated $20,437,000, to assist the construction or rehabilitation of 2,987 units in the city.[25] About half of the units assisted by OHPP have involved substantial or moderate rehabilitation. Share and Diamond observe that the program has not discouraged office development although increasing development costs by less than three percent and rents by less than one dollar per square foot: "[Developers] consider OHPP an unpleasant but not unbearable increase in their costs of doing business in San Francisco."[26]

A principal criticism of the OHPP program is that it is not explicitly limited to low- and moderate-income housing. Rather, the city seeks to ensure production of affordable housing through the housing credit system and to limit a developer's financial assistance to projects that would not have been built without the OHPP contribution. This goal is accomplished through a set of project criteria enforced by withholding the Certificate of Occupancy. A developer's contribution "cannot be used solely to reduce the sale price of a housing unit already under construction."[27] Yet, despite these precautions, five developers have been allowed to satisfy the OHPP requirement by building high-priced condominiums on top of their office buildings.[28]

The OHPP program has also been criticized for allowing too wide a variation in the amount of developer contribution. The cost of the program to developers has ranged from $2,200 to $6,000 per housing credit, with a $4,000 average contribution per credit.[29] One reason for this wide variation is the range of options open to the developer, and the difficulty in monitoring compliance. It may also be difficult to assess whether housing would have been built without OHPP assistance because the program permits contributions to institutional housing such as dormitories and the OHPP funds may be coupled with other housing finance programs.

Although the OHPP program has not been challenged in the courts, the program has had a somewhat checkered legal history. The OHPP is based on guidelines set by the Planning Commission to govern the review of projects applying for zoning approval from the city. The guidelines were initially based on the California Environmental Quality Act (CEQA), which required disclosure and mitigation of social and housing impacts of new office construction.[30] In 1981, CEQA was amended, removing the city's ability to impose mitigation fees for social and economic impacts of new office construction. Without a specific legal basis for OHPP in the state environmental law, the city based its authority on the discretionary review power exercised by the Planning Commission in approving new office developments.[31] The city is now preparing to formally adopt the OHPP program in a municipal zoning ordinance as an exercise of the local zoning power delegated by the state. Such an ordinance would also be supported by California's State Housing Laws, which require municipalities to meet their fair share of regional housing need.[32]

The proposed Office/Affordable Housing Production Program (OAHPP) ordinance[33] now under consideration responds to some of the criticisms of the current OHPP program. The proposed ordinance restricts the program to low- and moderate-income housing, standardizes the amount of each developer's contribution, eliminates the complicated "Housing Credit" system, and simplifies other procedural aspects of the program. The new ordinance is expected to produce $5 to $10 million per year in affordable housing production, based on current office development projections.

B. Boston "Linkage" Program

Boston, like San Francisco, has experienced a drastic boom in new downtown office construction in recent years, accompanied by an increasingly tight rental housing market and

22. Where an industrial facility is converted to office use, the developer is charged only for the increment of new jobs created. The same principal would apply when a new office building replaces an old office building on the same site.
23. The 50,000 square foot threshold is computed on a gross square foot basis as opposed to net rentable square feet. New office buildings in excess of 50,000 square feet are charged on the total number of square feet in the building.
24. The Home Mortgage Assistance Fund, also known as the Citywide Affordable Housing Program, has raised approximately $5 million from three developers. These funds have been used in tandem with the $60 million 1982 Single Family Mortgage Revenue Bond issue to write down interest on single family mortgages for 150 low- and moderate-income families and 100 families with between 80 percent and 120 percent of median area income.
25. Mayor's Office of Housing and Economic Development, OHPP Commitments Report, San Francisco Office/Housing Production Program: OHPP Commitments to Housing Developments (Apr. 1, 1984) [hereinafter cited as OHPP Commitments Report].
26. Share & Diamond, *supra* note 21, at 6.
27. Sedway, *The San Francisco Downtown Plan: Office Boom Brings Housing Boon*, in INCLUSIONARY ZONING MOVES DOWNTOWN (forthcoming 1985).
28. Share & Diamond, *supra* note 21, at 5-6.
29. OHPP Commitments Report, *supra* note 25.
30. CAL. PUB. RES. CODE §§ 21,000 *et seq. amended by* 1981 Cal. Stat. C 264, 1.
31. SAN FRANCISCO, CAL., CODE, pt. 3, 26, Resolution 8,474 (Jan. 17, 1980).
32. CAL. GOV'T CODE, §§ 65580 *et seq.* (Housing Elements). *See* Diamond, *The San Francisco Office/Housing Program: Social Policy Underwritten by Private Enterprise*, 7 HARV. ENVTL. L. REV. 449 (1983) for a more detailed discussion of the legal foundations of the current OHPP program.
33. Council of Community Housing Organizations, San Francisco, Affordable Housing Production Program (OAHPP) (Feb. 28, 1984) (Office Draft) [hereinafter cited as Proposed OAHPP Ordinance]. Available from the Clearinghouse, No. 37,065.

continuing disinvestment in poorer neighborhoods.[34] The paradox of the city's active promotion of downtown development and its apparent neglect of neighborhood revitalization became the chief issue in the 1983 mayoral election. In that election eight out of nine candidates endorsed the concept of "linkage" between new development and housing in low- and moderate-income neighborhoods.[35] In response to the popularity of the linkage issue, and perhaps to forestall a more progressive program in the future,[36] the outgoing mayor appointed an Advisory Committee on the Linkage Between Downtown Development and Neighborhood Housing (Linkage Committee), which was composed of public officials, real estate interests, and community representatives. In their report to the mayor,[37] the Linkage Committee proposed a two-stage implementation process: a local zoning amendment requiring a development fee from all projects seeking relief from as-of-right zoning requirements and a Home Rule Petition submitted to the state legislature requiring a neighborhood impact excise applicable to as-of-right projects. The second option has been determined unnecessary since most commercial projects fall within the local discretionary zoning requirements.[38]

The first phase of the Linkage Committee's recommendations, known as the "Development Impact Project Requirements,"[39] have already been passed by the Boston Zoning Commission under the city's delegated zoning authority. These requirements more closely resemble a pure "housing trust fund" model than the San Francisco OHPP because the preferred option for developers is a "housing payment exaction" to a "Neighborhood Housing Trust." Developers are also given the option of building low- and moderate-income housing units, but only "at a cost at least equal to the amount of the appropriate housing payment exaction." Without the option of structuring a lower total housing contribution, as in San Francisco, it is expected that office developers will be more likely to simply write a check than to become involved in the unfamiliar business of low-income housing construction. The straight fee approach should also be easier to administer than the San Francisco program and will probably be "fairer," since the cost to developers will be uniform. An added advantage is that the city, rather than the developer, will have control over the disbursement of funds.

The Boston program requires a $5 per square foot payment spread over 12 years for office space in excess of 100,000 square feet. The program now applies only to commercial developments seeking a "variance, conditional use permit or exception, or the adoption of a zoning map amendment." This includes most large office construction in the city. Residential and industrial projects are exempted except to the extent that they involve direct displacement of existing low- and moderate-income housing units. The program is enforced through the building permit process. Although it is too early to judge the success of the Boston linkage program, it has been estimated that the fund will raise between $37 and $52 million over a 10-year period.[40]

The administrative mechanism proposed by the Linkage Committee is an independent Neighborhood Housing Trust,[41] empowered to collect and allocate funds to "public and private entities," at the discretion of a five-member Board of Trustees. The guidelines for distribution of trust funds place emphasis on low- and moderate-income housing, although funds must only be "reasonably restricted to the target population" allowing financial support for mixed-income developments. The guidelines also favor support for existing city housing programs, public-private partnerships, and "housing initiatives of community development organizations," including limited equity cooperatives and single room occupancy hotels. The Neighborhood Housing Trust will be capitalized initially by the sale of four downtown municipal garages and might also receive other funds in the future, such as UDAG repayments, which are now collected by Boston's Neighborhood Development Fund under the terms of the Copley Place UDAG Agreement.

The 30-member Linkage Committee included two full-time low-income advocates: Albert Wallis of Greater Boston Legal Services, and Emily Achtenberg, an independent housing consultant. In a "[s]tatement of partial concurrence and partial dissent" to the committee report, these advocates highlighted the key weaknesses of the proposal: the extended 12-year payment schedule, which in effect, reduces a $5 per square foot fee to a present value of $2.50 per square foot, a minimal amount even when compared with the flexible San Francisco program or with payments already negotiated for individual projects in the city of Boston,[42] the failure of the Committee to limit the fund exclusively to low- and moderate-income housing, and the Committee's reluctance to base the proposed program on an explicit linkage between downtown development and neighborhood housing.[43]

---

34. Advisory Group, Edward J. McCormack, Jr. and Bruce C. Bolling, co-chairs, Linkage Between Downtown Development and Neighborhood Housing, Report to Mayor, Boston, 5-7 (Oct. 1983) [hereinafter cited as Linkage Report]. Available from the Clearinghouse, No. 37,068.
35. Achtenberg, *Comments*, in INCLUSIONARY ZONING MOVES DOWNTOWN (forthcoming 1985).
36. *Id.*
37. Linkage Report, *supra* note 34.
38. *Id.*
39. BOSTON, MASS., ZONING CODE, art. 26 (Development Impact Projects) (passed 1983).
40. Brooks, *supra* note 18.
41. All references to the proposed neighborhood housing trust are from Linkage Report, *supra* note 34, at 26, 28-34, 38.
42. In a separate letter to Kevin White, Mayor of Boston (Oct. 13, 1983), Wallis & Achtenberg contrast the de minimus $2.50 per square foot present value of the installment payment approach with zoning contributions obtained from comparable developments (up to $8.55 per square foot in one case) and point out that the recommended development contribution would be entirely offset by a planned reduction in the effective tax rate for commercial property.
43. The zoning amendments as finally adopted exclude all references to an office development/housing link. The deletion of these legislative findings was a result of lobbying by the real estate board and others aimed at making the linkage requirements vulnerable to legal attack. Boston Globe, Dec. 21, 1983, at 1.

C. New York City Context

New York City has long used zoning to require neighborhood amenities as a condition of new construction. In the 1961 comprehensive amendment to the Zoning Resolution, New York City introduced the concept of incentive zoning, with as-of-right floor area bonuses provided in exchange for public plazas at street level. Since that time, the incentive zoning model has been expanded to include provision of theatres, preservation of natural areas, subway improvements, park improvements, community facilities, and a variety of other public amenities. In the case of special permit applications or zoning map amendments, amenities can be negotiated between the developer and the City Planning Commission, which must approve any such zoning change prior to adoption by the Board of Estimate and after compliance with local review requirements imposed by the Uniform Land Use Review Procedure (ULURP). Public amenities are not limited to discretionary or incentive zoning: the Zoning Resolution requires provision of off-street parking, as well as traditional set back and bulk requirements, for most as-of-right buildings in the city.[44]

Most of the public amenities required under the New York City Zoning Resolution are part of special district regulations. New York City now has 34 special districts, which form an overlay on the existing zoning map. These districts, generally limited to specific geographic areas, have unique procedural and substantive requirements and special incentive programs. The special districts are supplemented by incentive programs not specifically tied to geographic areas, such as the density bonus provisions of the Housing Quality Program.[45]

In recent years, provision of low- and moderate-income housing has become one of the public amenities in certain special districts. The Special Clinton District[46] best exemplifies the use of housing incentives in New York City, although it has yet to produce any new units. The Clinton District was established in 1974 in a residential area west of midtown Manhattan, where development pressure from the proposed convention center threatened the existing housing stock. The special district sought to "preserve" the mixture of income groups presently residing in the district and "to restrict demolition of buildings that are suitable for rehabilitation and continued residential use." Restrictions on demolition and tenant harassment were imposed by the district, and any application for a floor area bonus was required to include provision of a substantially rehabilitated affordable unit, at the rate of 500 bonus square feet per each room or rehabilitated affordable housing. Other special districts with incentive provisions for affordable housing include the Special Lincoln Square District, the Special Yorkville-East 86th Street District, and the Special Manhattan Bridge District.[47]

The provision of housing in exchange for an increase in total density has been especially prominent in major discretionary zoning actions negotiated among the developer, the City Planning Commission, and local Community Boards. The state and city environmental review processes probably also require a consideration of housing impacts, although they have not been viewed as a useful method to exact neighborhood housing payments. The increasing use of zoning bonuses, the wide variance in the dollar value of negotiated amenities, and the unpredictability of an "ad hoc" zoning approach led many New York elected officials and community representatives to call for the establishment of a uniform system of housing zoning payments.

The controversy over the negotiated bonus approach reached its peak in 1982 with the approval of a zoning map change to allow construction of the massive Lincoln West Project, a 4,700-unit luxury housing development on the site of the old rail yards on Manhattan's Upper West Side. The zoning "package" that was finally developed called for $7 million in off-site public amenities, including park and transit improvements, and 220 moderate-income rental units. Neighborhood representatives were justifiably concerned over the potential displacement impact of the project in a mixed-income area and criticized the less than five percent set-aside of units as being far too low. Of particular concern were the large number of single-room occupancy hotels in the vicinity of the project, which were occupied largely by indigent elderly tenants.

In her concurrence to the City Planning Commission's approval of the project, Commissioner R. Susan Motley called for a citywide housing trust fund to replace the ad hoc negotiation process:

> The Lincoln West project provides an opportunity for the City of New York to establish a long-discussed policy and implementation mechanism that would link discretionary zoning actions that enhance the value of property to tangible land-use benefits citywide for low[-] and moderate[-] income residents and neighborhoods. Such benefits would help to remedy the effects of displacement, both direct and indirect, caused by major real estate development. What is proposed here takes advantage of existing procedures for mitigating the negative impacts of new developments and for deriving benefits from "bonus" floor-area increments. The proposal recognizes that direct displacement is rarely adequately mitigated under current policies; further it recognizes that many developments create indirect—sometimes citywide—displacements for which no remedy now exists.The recommendation then, is as follows: a predictable contribution would be required from each recipient of a discretionary zoning approval based on a rationale that roughly allocates 20 percent of neighborhood amenity contribution to a Citywide Planning and Development Fund; at least half of the allocated funds would be used outside of the upgrading neighborhood and the other half would be earmarked for use within the neighborhood, to be used in conjunction with the remaining 80 percent or to be held by the Fund to be used for an appropriate displacement mitigating project. The Fund would be directed by City Planning, Housing and Economic Development officials. The

44. *See* New York City Department of City Planning, Zoning Handbook: A Guide to the New York City Zoning Resolution.
45. New York City Zoning Res., § 74-95.
46. New York City Zoning Res., art. IX, ch. 6.
47. New York City Zoning Res., art. IX, ch. 2; art. X, ch. 1; art. XI, ch. VI.

> Fund would be empowered to make grants or loans to provide tangible land-use benefits to low and moderate income residents and neighborhoods. Maximum leverage would be one of the watchwords of this Fund. With the phase-out of an increasing number of federal programs such a fund would provide an opportunity to address these citywide needs using an appropriate public-private cooperative mechanism.[48]

The controversy over Lincoln West was followed by renewed efforts to establish a San Francisco-style housing trust fund mechanism in New York. The major impetus for the fund is the severe, continuing housing crisis in New York City, witnessed by a vacancy rate of about 2 percent, a homeless population of over 30,000, a city-owned stock of 6,000 vacant buildings, and evidence of "doubling up" in thousands of public housing units.

The first major proposal to follow Commissioner Motley's call for a uniform system of development payments was from the New York Metropolitan Chapter of the American Planning Association, which issued a policy statement[49] recommending a housing trust fund financed by discretionary zoning payments, UDAG paybacks and other sources, including housing court fines and city housing loan proceeds.

In April 1983, Mayor Koch appointed a "Development Commitment Study Commission" chaired by Mitchell Sviridoff of the Local Initiatives Support Corporation to study and propose recommendations for reform of the current ad hoc system of developer payments in the city. In a draft report, the Mayor's Commission has recommended curbing the practice of negotiated zoning bonuses and financing a "development trust fund" by "turning back" New York City's fair share of New York State capital gains taxes on real estate sales. The statewide total for the last fiscal year was $159 million, with 85 percent of tax revenue originating in New York City.

In the meantime, two New York advocacy planning organizations had embarked on a major policy project to design a housing trust fund proposal. The project is independent of the Mayor's Commission, although it has broad-based support in the city and among community organizations and elected officials. While the policy is still being considered, it is difficult to predict the final ingredients of the New York City Housing Trust Fund, but it is very likely that some form of uniform developer contribution system will be adopted. At the present time, the proposal designed by the Pratt Institute Center for Community and Environmental Development[50] and the Metropolitan Action Institute[51] (Pratt/Metropolitan Action Proposal) is the most fully developed. Our proposal may also serve as a useful model for legal services attorneys because it was developed by low-income housing advocates, yet at the same time is sensitive to political and financial constraints. It is both a progressive and realistic model for New York and other cities.

D. Pratt/Metropolitan Action Proposal

The Pratt/Metropolitan Action housing trust fund proposal[52] is a program that would be financed by commercial and residential development payments as well as a series of specially earmarked housing related revenues.

1. Commercial Development

The foundation of the program would be a commercial development exaction based on the increased demand for housing created by new office development. Assuming that 33 percent of New York office workers will seek housing in the city, assuming 1.32 workers per household, and assuming about 250 square feet of office space per employee, one dwelling unit will be necessary for each 1,000 square feet of office space. The amount of the payment, at $6,000 per required dwelling unit or $6 per square foot, is similar to San Francisco's payment level and was calculated to ensure an "acceptably" high rate of return for developers. Unlike the San Francisco program, this proposal would not give office developers the option of sponsoring or financing housing development on their own. The requirements would apply to all net rentable square feet above a 50,000 square foot threshold. At the current rate of new office development in New York, these commercial development payments could yield $32 million per year to a housing trust fund.

2. Residential Development

The second major component of the Pratt/Metropolitan Action Proposal is an inclusionary zoning requirement of low-

48. Statement by Commissioner R. Susan Motley on Lincoln West Development, New York City Planning Commission (July 15, 1982).
49. American Planning Association, New York Metropolitan Chapter, A Housing Trust Fund for New York City (1983). The APA committee that drafted the proposal was chaired by Rebecca A. Lee, Program Officer, Local Initiatives Support Corporation. Available from the Clearinghouse, No. 37,063.
50. Pratt Center for Community & Environmental Development, 379 DeKalb, Brooklyn, NY 11205, is a non-profit technical assistance and advocacy planning organization that was founded in 1963. The Center's staff of architects and urban planners works with neighborhood organizations that serve low- and moderate-income people. The Center provides free professional services in housing preservation, community facilities development, neighborhood economic development, energy conservation, appropriate technology and communications design.
51. The Metropolitan Action Institute, Queens College, Flushing NY 11367, is a non-profit organization dedicated to advocacy planning and civil rights with a particular focus on issues of housing and regional development. Founded in 1969 as Suburban Action Institute, it was established to apply planning, research and legal expertise to protect the rights of and expand opportunities for social and economic minorities chiefly by breaking down exclusionary policies and practices in the suburbs. Ten years later the agency broadened its focus and changed its name to reflect its work in urban communities. Metropolitan Action is currently working toward the goal of equitable development and redevelopment without displacement.
52. Pratt Center for Community and Environmental Development and Metropolitan Action Institute, Final Report of Inclusionary Zoning and Housing Trust Fund Project (1984).

and moderate-income units in new market rate residential projects. The requirement would impose on all unsubsidized projects in excess of 10 units a 10 percent set-aside of units or a sliding scale payment of up to $8 per net rentable square foot to a housing trust fund.[53] Maximum rents for the inclusionary units would be set at the Section 8 existing housing fair market rent level. In New York, this level is $420 for a two bedroom apartment. The 10 percent inclusionary zoning requirement may be met by building units on site or off site within the immediate neighborhood. If a developer elects to make an in-lieu payment to the housing trust fund, at least 25 percent of the payment will be earmarked for the originating Community District.[54] When the project is built in a census tract eligible for the Community Development Block Grant Program, the entire contribution will be earmarked for the local community district. Subsidized housing developments, and housing subject to existing special district housing requirements, would be exempt from the requirements. At the current rate of market rate housing construction, the proposed inclusionary zoning requirements could create 300 units of housing per year or $18 million in in-lieu housing payments.

3. Other Sources of Funds

As envisioned by Pratt/Metropolitan Action and other housing advocates, the housing trust fund need not be limited to developer payments but could also be financed by earmarking certain state and local revenues. The cyclical nature of government housing assistance points to the need for a stable, independent source of revenue specifically earmarked for housing production. Such a fund could include revenues from a variety of sources. Unlike the developer payments proposed above, earmarking most of these programs would require state legislative action and diversion of a tiny fraction of funds from the general budget. Unlike the Interest on Lawyers' Trust Accounts (IOLTA), these revenue sources are not "found" money. Potential annual revenue sources for the New York City housing trust fund might include: the city's portion of the Real Property Transfer Tax, State Capital Gains Tax (recommended by the Mayor's Commission), Mortgage Tax, UDAG Repayments, N.Y.C. Participation Loan and Article 8A Loan Program repayments, sales of city-owned property, cooperative and condominium filing fees, registration for limited partnership syndication, interest earned on real estate escrow accounts for state-aided projects, and payback of the Municipal Assistance Corporation bond surplus.

The total annual revenue from the use of such earmarked funds has been set at more than $150 million. Coupled with a potential $50 million in fees from commercial and residential development payments, the fund could be a significant source of housing revenue. It has been argued that permanent earmarking of funds from the state and city budget is an anti-democratic measure that removes housing from the general competition for funds among other city services. To the extent that this is true, it is based on a recognition that housing is an entitlement that should be provided regardless of conflicting political demands.

The cyclical nature of government housing assistance points to the need for a stable, independent source of revenue specifically earmarked for housing production.

III. Designing a Housing Trust Fund: Policy Issues

In attempting to fashion a workable proposal for New York City, there have been recurrent policy issues that deeply affect low-income families in need of housing. The following discussion will highlight the key issues of concern for low-income housing advocates in the context of the planning process in New York, Boston and San Francisco.

A. Uniform v. Project-by-Project Payments

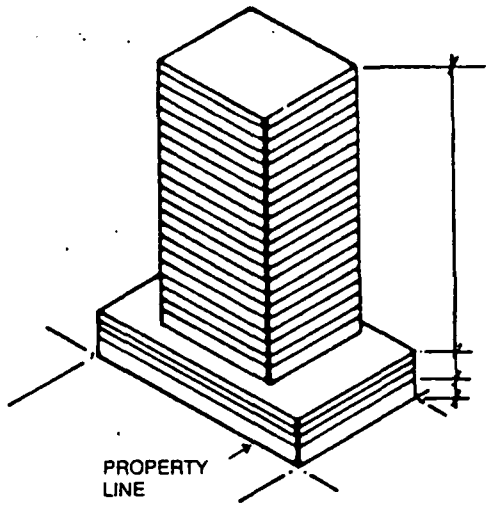
Uniform develpment fees have the advantage of predictability from the developer's point of view; they also require little ongoing monitoring by community organizations and do not result in the problem of widely varying payments based on a neighborhood's, or a developer's, political clout or access to legal representation. A uniform system, however, does have definite drawbacks. As noted above, individually negotiated development exactions, resulting from either city review power or from litigation instituted by the community, will in many cases far exceed the level of a citywide payment scheme reached through a process of political compromise. This has been true in Boston; it may be the case in New York. It is expected, however, that total revenues will increase as the citywide program will cast a wider net than the current ad hoc system in New York City.

B. Community Control

Uniform standards may portend a loss of community control or leverage over the development process, however symbolic that power may be. To the extent that developers may welcome a uniform system, it may be because they will be relieved of some of the "headaches" of the local review process. They can say, in effect, "I gave at the office." In fact,

53. The actual amount of the contribution would vary depending on the underlying as-of-right zoning. Residential developments in districts with lower allowable densities would be assessed an equivalent percentage of development cost as compared with the $8/square foot requirement in an R-10 zone, the highest as-of-right residential zoning density in New York City. The R-10 zone allows floor area ratios of 10-12 square feet for each square foot on the zoning lot. The $8/square foot requirement may amount to approximately 5 percent of total development costs.

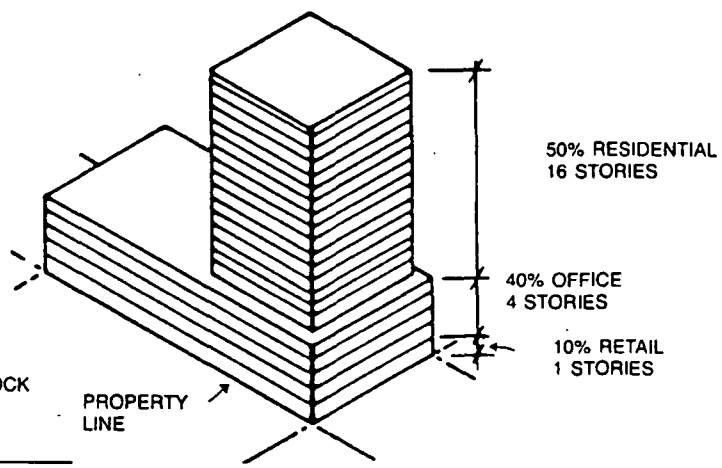
54. The community district is a local governmental unit established for certain planning and land use review purposes.



BUILDING ENVELOPE FOR ¼ OF LARGE BLOCK
ASSUMING DESIGN REVIEW,
MAXIMUM FAR AND
USE OF ALL BONUS PROVISIONS

HEIGHT: 350'
FAR: 3:1, Basic for Residential or Mixed Use
7:1, Bonuses
10:1, TOTAL
SITE SIZE: 19,440 sq. ft.
(¼ Block, 108' × 180')
LOT COVERAGE: 100%
AVERAGE AREA PER FLOOR
Residential: 8,000 sq. ft.
Retail: 19,440 sq. ft.
TOTAL BUILDING AREA: 194,400 sq. ft.

Source: Background Report of the Downtown Land Use & Transportation Project (City of Seattle, Office of Policy and Evaluation, 1981).



BUILDING ENVELOPE FOR ½ OF SMALL BLOCK
ASSUMING DESIGN REVIEW,
MAXIMUM FAR AND
USE OF ALL BONUS PROVISIONS

HEIGHT: 350'
FAR: 3:1, Basic for Residential or Mixed Use
7:1, Bonuses
10:1, TOTAL
SITE SIZE: 25,920 sq. ft.
LOT COVERAGE: 100%
AVERAGE AREA PER FLOOR
Office: 25,920 sq. ft.
Residential: 8,000 sq. ft.
TOTAL BUILDING AREA: 259,200 sq. ft.

one developer incentive that is often raised, in addition to the density bonus, is a streamlining of the local hearing and review process or "fast-tracking of applications." The local land use review process, along with the environmental review process and the threat of civil rights litigation, is perhaps the most important legal leverage a community may have over the development process and should be safeguarded. Nothing in the Pratt/Metropolitan Action Proposal negates the local land use review process, although the opportunities for negotiation of housing amenities are curtailed.

C. Citywide Housing Needs v. Neighborhood Housing Impacts

The impact of a new housing or office development may be confined to readily identifiable areas of the city. Displacement is most likely to occur in neighborhoods in which new office workers choose to live. But the need for new low-income housing is often greatest in poorer outlying areas of the city. When major land use decisions, like the rezoning of the Lincoln West housing development site, are subject to citywide review, the housing trust fund may have unintended political consequences. A commentator has suggested that the housing trust fund, which is financed primarily by Manhattan development, would "create a constituency for gentrification in the outer boroughs." Clearly, a balance must be struck. The Pratt/Metropolitan Action Proposal strikes the balance by allowing on-site or off-site low- and moderate-income housing construction in a neighborhood. If a residential developer elects to make a payment to the housing trust fund, 25 percent of the payment will be earmarked for the community district. New development within an area eligible for a Community Development Block Grant is considered prima facie evidence of displacement; and 100 percent of the total housing trust fund payment is earmarked for that community district. In the general disbursement of funds, the proposal has erred on the side of simplicity and flexibility by recommending financing of any qualified project within a CD-eligible census tract.

D. Density Bonuses

The granting of floor area bonuses in exchange for payments to a housing trust fund is often suggested as a means of maximizing revenue and avoiding legal challenge. From the beginning of the project, there has been concern about the impact of density bonuses in areas of the city where new development and existing low-income housing are in fragile balance. Allowing residential density bonuses in such areas, while adding incrementally to citywide revenues, might lead to the loss from displacement of far more affordable units than could be replaced by a housing trust fund. Opposition to the use of density bonuses has also been voiced by environmental advocates who are concerned with issues such as neighborhood density, architectural scale, access to light and air, and height and setback requirements. The Pratt/Metropolitan Action Proposal avoids the use of density bonuses altogether, based upon an analysis of rates of return of actual developments in New York City. In cities with more marginal development markets, however, developers may require significant incentives in order to offset the program's cost and maintain an "adequate" rate of return.

E. Special Zoning Districts and Other Protective Measures

An alternative to a citywide system of developer contributions in fragile areas of the city is the creation of special inclusionary zoning districts. Modeled on the Special Clinton District,[55] the inclusionary district could apply inclusionary revenues locally and maximize community control over the development process. Other features of the Clinton District that can be duplicated elsewhere include a restriction of development to selected portions of the district, penalties for developers who have engaged in tenant harassment,[56] and restrictions on demolition of salvageable residential structures. These and other safeguards are being considered on New York's Lower East Side. The Pratt/Metropolitan Action Proposal specifically exempts such districts from the requirements of a citywide housing trust fund.

F. Economic Integration v. Maximum Housing Production

If new units are to be financed through developer payments, where will they be located? If the housing trust fund can create more units in the South Bronx than through an on-site set-aside in an upper-middle-class neighborhood, should the overriding goal be economic integration? And is a mix of units within a building the best way to achieve integration or should incentives to build off-site units within the neighborhood at a lower cost be encouraged? In light of the severe housing crisis in New York City, the Pratt/Metropolitan Action Proposal encourages maximum production of units by allowing an in-lieu payment to the Housing Trust Fund, thereby relying on the judgment of the administrative body to distribute trust fund revenues to encourage residential integration.

G. Low- and Moderate-Income Mix

It is crucial to set specific guidelines for the mix of low- and moderate-income units. In the absence of legal restrictions,

---

55. New York City Zoning Res., art. IX, ch. 6.
56. The Special Clinton District requires a finding that the eviction and relocation practices followed by the developer satisfy all applicable legal requirements and that no harassment has occurred prior to granting a demolition permit. Similar anti-harassment provisions have been applied to the local tax exemption/abatement law for residential rehabilitation (no tax benefits where any owner of a substantial interest in the property guilty of harassment or unlawful eviction within previous 5 years, N.Y.C. ADMIN. CODE ch. 51, § J51-2.5 aa (1983)), and to the alteration or demolition of single room occupancy hotels (certification by housing commissioner of no tenant harassment in building during previous 36 months, prior to granting of alteration or demolition permit, N.Y.C. ADMIN. CODE ch. 26, § C26-118.8 (b) (1983)). Available from the Clearinghouse, Nos. 37,060, 37,061.

developers seek to cut costs; housing trust fund administrators will seek to maximize production by renting to families in the upper limit of the moderate income eligibility range. On the other hand, since the housing trust fund is not a "deep subsidy" program, it may make more sense to build as many moderate-income units as possible, leaving the responsibility of low-income housing production squarely on the shoulders of the federal government. In any event, since it was felt that the expenditure of funds for middle-income or mixed-income projects, as in San Francisco or Boston, was neither necessary nor appropriate in New York, the Pratt/Metropolitan Action Proposal restricts the Housing Trust Fund program to an equivalent proportion of low- and moderate-income units.

H. Enforcement and Administration

The key enforcement issues of concern to low-income advocates are a suitable mechanism for ensuring that inclusionary units remain occupied by low- or moderate-income families[57] and for avoiding marriages of convenience between market-rate developers and developers of subsidized housing. The Project's approach to the occupancy control issue has been to avoid the legal intricacies of restrictive covenants and declarations by recommending long-term leases of inclusionary units to the NYC Housing Authority, which is responsible for the Section 8 existing housing program. San Francisco deals with the latter problem by requiring that approved housing "would not have otherwise been built."

The administrative mechanism for a housing trust fund is perhaps the most difficult question to resolve and will depend in large part on local political considerations.

The administrative mechanism for a housing trust fund is perhaps the most difficult question to resolve and will depend in large part on local political considerations. Some of the major issues that have arisen in New York have been

- the choice between an independent nonprofit board, the "elite" model, and a city board or agency subject to review by the local legislative body;
- the extent to which geographic and programmatic disbursement formulas are necessary (this judgment is closely related to the degree of public access to the decision-making process);
- the choice between relying on existing city housing programs and funding innovative neighborhood housing initiatives; and
- the all-important choice of who is appointed to the board and by whom.

In regard to the last issue, there should be at least one low-income representative on the trust fund board. For example, the American Planning Association-NYC proposal recommends that a legal services or legal aid representative be designated to sit on the board to ensure some level of ongoing monitoring of low-income interests in the expenditure of trust fund revenues.

IV. Legal Context

Innovative urban programs like the housing trust fund are likely to face court challenges by developers. A well-drafted ordinance should withstand judicial scrutiny in New York. However, the new generation of downtown development payments has yet to face a major court challenge. The following discussion is a positive summary of the issues that will provide a starting point for legal services attorneys seeking to advise local community groups or coalitions on the proper structure of a housing trust fund proposal. The legal rationale for inclusionary zoning will vary for payments from residential development and payments from office development. Residential displacement, both direct and indirect, although an important motivation for the housing trust fund, is but one of many legislative justifications for urban inclusionary zoning. Alternative justifications for an inclusionary zoning program include regional housing need, fair housing goals, preservation of a mixed-income population or the "social fabric" in revitalizing neighborhoods, or promotion of balanced development throughout the city. Depending upon the proclivity of the state courts, a municipality may wish to base its inclusionary zoning program solely on the critical shortage of decent, affordable housing. The legal rationale selected will vary according to existing state zoning enabling legislation and will be crucial in withstanding a constitutional challenge.

A. Constitutional Challenges

The constitutional standards applied to an inclusionary zoning regulation are much the same as those applied to any local exercise of the police power: (1) the regulation must be based on legitimate government goals; (2) the means employed must be rationally related to those goals; (3) the regulation must not unreasonably discriminate against a small class of land users; and (4) the regulation must not deprive the owner of a "fundamental attribute of ownership," *e.g.*, a reasonable beneficial use. This last standard is a version of the traditional "takings" test.

57. *See* discussion in *Mount Laurel II*, 92 N.J. at 266-69.

This analytical sequence appears, often implicitly, in any case challenging a zoning action. At the heart of a traditional "takings" analysis is a consideration of the degree of interference with property rights or any diminution in value. But the courts will not limit themselves to an evaluation of economic impact alone. A modern "takings" analysis, as articulated by the Supreme Court in *Penn Central Transportation Co. v. New York City*[58] and *Agins v. City of Tiburon*,[59] embodies both due process and equal protection concepts in an independent analytic framework. For example, the emphasis on a "comprehensive plan" in *Penn Central* is really a restatement of the due process requirement of a legitimate end and a rational means. The Court also judges the plan by procedural standards such as the degree of public input and the range of alternatives and impacts considered. Likewise, the criteria for evaluating the arbitrariness of a zoning action based on the size of the class of owners affected, in *Penn Central*, is essentially the basis of an equal protection analysis. The effect of this integration of the traditional "takings" analysis with related constitutional standards governing the exercise of the police power in regulating land use is the emergence of an explicit "balancing test," wherein the degree of interference with the property owner's prerogatives is balanced against the importance of the government's interest, the rationality of the means selected, the size of the affected class, and the extent to which the government's ends and means are carefully explored and alternate strategies considered.[60]

Most of the constitutional questions raised by an inclusionary zoning ordinance are answered. The concept that zoning to build affordable housing is an illegitimate "socioeconomic" use of the police power was successfully raised in one of the first suburban challenges to an inclusionary zoning ordinance.[61] This concept has since fallen into disrepute, although it apparently is still routinely inserted in pleadings by developers' attorneys. The attitude of the New Jersey Supreme Court, which is also held in other states,[62] is that "any significant kind of zoning now used, has a substantial socioeconomic impact and, in some cases, a socioeconomic motivation."[63]

An equal protection attack on a system of required developer contributions might dispute the limiting of payments to new projects only, or to projects above a certain size. Such an attack is unlikely to be successful if the regulation is based on well-considered findings and applies to all covered projects equally. An equal protection challenge is particularly inappropriate in a city that is already successfully gerrymandered into numerous special zoning districts, each with its own set of requirements. As for the traditional "taking" issue, given the political realities in cities like New York or Boston, it is likely that the *political* limit of permissible payments will be reached long before there is any question of a legally cognizable impact on the developer's rate of return.[64] Furthermore, if a uniform citywide requirement is in effect, developers will simply factor the new costs into their calculations and the ultimate expense will be borne by some combination of land costs, rents and profits.

B. Relationship Between Development Impact and Exaction

The remaining constitutional issue is not so easily dismissed, but is no bar to a properly drafted ordinance. The "rational nexus" test, or "reasonable relationship" test in New York, is essentially a due process test that has required in some suburban subdivision and site review cases that a zoning exaction have some connection to the regulated property. The argument, as it might be applied to a citywide housing trust fund, is that the payment is in effect, an unauthorized "tax,"[65] since the uses of the funds will not necessarily be related to the impacts created by the project generating the funds. The logic of the rational nexus approach is that zoning payments are justified by a theory of mitigation of an environmental or fiscal impact. New York courts will apply a relaxed standard in evaluating the relation between development impact and exaction. The current test for evaluating the use of the police power to exact development fees in New York, which is derived from the opinion in *Holmes v. Town of New Castle*, is whether there is "a reasonable relationship between the problem that would result from the effectuation of the applicant's proposed development and the conditional solution designed to alleviate it."[66]

---

58. Penn Cent. Transp. Co. v. New York City, 438 U.S. 104, 131 (1978).
59. Agins v. City of Tiburon, 447 U.S. 255 (1980).
60. *See* Sax, *Takings, Private Property and Public Rights*, 81 YALE L. J., 149 (1971).
61. Board of Supervisors of Fairfax County v. Degroff Enters. Inc., 214 Va. 235, 198 S.E.2d 600 (1973).
62. In Maldini v. Ambro, 36 N.Y.2d 481, 330 N.E.2d 403, 369 N.Y.S.2d 385 (1975), the New York Court of Appeals noted
> that the users of the retirement community district have been considered in creating the zoning classification does not necessarily render the amendment suspect, nor does it clash with traditional use concepts of zoning. Including the needs of potential users cannot be disassociated from sensible community planning based upon the use to which property is to be put.
63. *Mount Laurel II*, 92 N.J. at 273.
64. At a $6/square foot exaction, the after-tax internal rate of return for a prototypical midtown Manhattan office development is reduced from 28.88 percent to 27.92 percent on an annual basis. For a prototype high-density (R-10) residential development, at the same level of exaction, the internal rate of return would be reduced form 20.14 percent to 17.73 percent. *See* DeGiovanni, Appendix in the Pratt/Metropolitan Action Final Report, supra note 52.
65. *See* Marcus, *A New Era of Zoning Exactions?*, in INCLUSIONARY ZONING MOVES DOWNTOWN (forthcoming 1985).
66. Holmes v. Town of New Castle, 78 A.D.2d 1, 433 N.Y.S.2d 587, 599 (2d Dept. 1980). The *Holmes* case involved a requirement of interconnected parking lots and common access drives as a condition to approval of a site plan for a commercial development in the hamlet of Chappaqua. The purpose of the requirement was to alleviate the existing traffic congestion in Chappaqua's shopping district, as well as to mitigate the additional traffic burdens to be created by the proposed site. The key to the constitutional challenge was that the conditions imposed went beyond the specific impacts of the project to benefit the public generally. The court characterized the situation as the interaction of an application with an existing problem—traffic congestion—in which the applicant was asked to consent to a reasonable share of the solution.

This test is significantly more lenient than the tests used in some of the other jurisdictions, such as the requirement that payments be made for public needs that are "uniquely and specifically attributable" to the development, or that there be a "rational nexus" between the developer payment and the needs created by or the benefits conferred upon the subdivision.[67] The New York Appellate Division in *Holmes* specifically reviewed and rejected these more stringent tests, citing the difficulty in apportioning impact in a complex metropolitan environment:

> Application of either of the foregoing tests would be extremely difficult in view of the population in the New York metropolitan area. Here every private significant improvement or development action has some public cost. Apportionment problems would be overwhelming.[68]

The reasonable relationship test is flexible since it does not require that the development payment be closely tied to the project's specific impact. Under the test, it is sufficient for the project to be a contributing cause of the problem:

> Since the police power is directed towards upholding the general welfare, an exaction condition is not defeated by incidental benefit to the general public provided that the proposed development is a contributing factor to the problem sought to be alleviated.

The *Holmes* court cites the California case of *Associated Home Builders of Greater East Bay v. City of Walnut Creek*[69] with approval. *Walnut Creek*, which demonstrates a flexible approach in upholding a local requirement of park contributions as a condition of development, is regarded as the nation's most liberal standard for evaluating development payments.

In the following discussion, the *Holmes* "reasonable relationship" standard will be applied to three uses of development payments: citywide expenditures of commercial payments; neighborhood expenditures of residential payments; and citywide uses of residential payments.

1. Commercial Development Payments

Even if the flexible "reasonable relationship" test is affirmed by the New York State Court of Appeals, a citywide system of commercial development payments should be upheld on constitutional grounds. Generally, residential construction lags behind new office construction, causing a tightening of the housing market and, in some cases, an indirect displacement of lower income units, which will not be replaced by the private market. There is strong evidence that new office development tends to increase citywide housing demand. This effect has been well-documented by case studies in San Francisco, Oakland[70] and Santa Monica.[71] These results can be duplicated using local census data. Of course, new commercial development also increases the need for public transportation, health care and other services. It has been argued for transit or health funds to be financed by commercial development. Such arguments do not address the legality of the zoning payment system, but they are important in weighing competing policy goals when the trust fund is initially designed.

Even when a new office development is only a contributing factor to citywide housing demand, citywide expenditures of a development fee would be justified. The legislative finding for the proposed revision of the San Francisco program makes this connection explicitly. As in New York, California courts have a flexible view of the relation between development impact and exaction:

> (A)*Findings* The Board hereby finds and declares as follows:
>
> There is a low vacancy rate for affordable housing in the City and County of San Francisco (hereinafter City) available to residents of the City. Large scale commercial developments have attracted and continue to attract additional employees to the City. The supply of housing units, particularly affordable housing units, has not kept pace with the demand for housing created by these new employees. Consequently, some of those employees are competing with present residents for these scarce, vacant, affordable housing units, thus further reducing the City residents' available supply. The policy of the City, as stated in the Resident Element of the Master Plan, calls for the preservation and expansion of the housing supply of the City most especially the expansion and preservation of the supply of affordable housing for residents of low and moderate income. In addition, the Residence Element of the San Francisco Master Plan calls for the provision of additional housing to accommodate the demands of new residents attracted here by commercial development.
>
> In order to enable the City to impose requirements on developers of commercial projects designed to mitigate the adverse effects on housing availability caused by such projects, a special review approval process is necessary. To that end, the City Planning Commission is authorized affirmatively to promote the policies of the Residence Element of the San Francisco Master Plan through the imposition of special housing development requirements.[72]

67. *Id.* at 597, 598 (citing Pioneer Trust & Savings Bank v. Village of Mount Prospect, 22 Ill. 2d 375, 176 N.E.2d 799 (1961)); Longridge Builders v. Planning of Township of Princeton, 52 N.J. 348, 245 A.2d 336 (1968).
68. *Holmes*, 433 N.Y.S.2d at 598.
69. Associated Home Builders of Greater East Bay v. City of Walnut Creek, 4 Cal. 3d 633, 484 P.2d 606, 94 Cal. Rptr. 630 (1971).
70. M. Beyeler, Office Development in Oakland: Estimating Future Housing Demand (Sept. 1983) (report to the Legal Aid Society of Alameda County). Available from the Clearinghouse, No. 37,066.
71. Hamilton, Rabinowitz & Szanton, Office Development in Santa Monica: Municipal, Fiscal, and Housing Impact (1981).
72. Proposed OAHPP Ordinance, *supra* note 33.

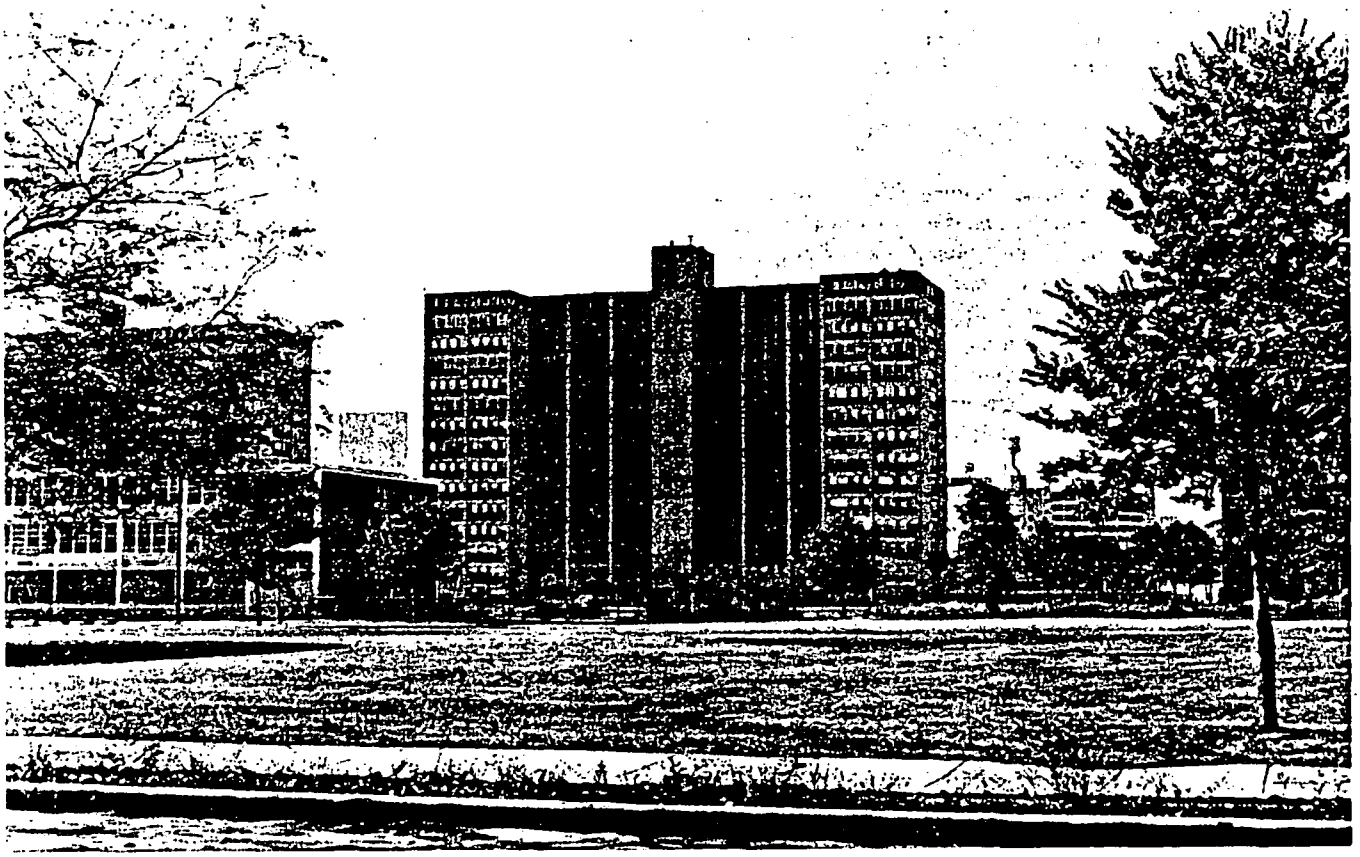


Photo by Robert Serafin

2. Residential Construction: Neighborhood Impact

Expenditures of residential development payments in the immediate neighborhood of the project seems to be within the ambit of reasonableness delineated by the courts. Although it is difficult to trace the specific impacts of a new luxury development, gentrification can be measured on a neighborhood level. For example, Rick Cohen, an advocacy planner in Jersey City, recently developed a useful methodology for tracing gentrification using published census and real estate data for a case brought by Hudson County Legal Services.[73] Frank DeGiovanni of the Pratt Institute has analyzed neighborhood change in six cities in a more comprehensive recent study.[74] Hartman, Keating and LeGates have also provided an excellent guide to displacement data, based on the experience of San Francisco's DuBoce Triangle Housing Alliance,[75] as well as a national summary of displacement research in this publication.[76] The drawbacks of these existing methodologies is that they measure the cumulative change in a neighborhood; they are not sufficiently sensitive to measure the effect of a single project. In his testimony in Boston's Copley Place Case,[77] housing economist Michael Stone suggested that a regression analysis would be equal to the task of tracing the displacement impacts of a single large project.[78]

Clearly, a project-by-project analysis of displacement impact would be both difficult and time consuming. But ade-

73. R. Cohen, Neighborhood Change in Downtown Jersey City: Summary Observations (affidavit), Montgomery Gateway Residents Council v. Mayor Gerald McCann, Civ. Action No. 82-3894-M (D.N.J.). Available from the Clearinghouse, No. 37,062.
74. DeGiovanni, Patterns of Change in Housing Market Activity Revitalizing Neighborhoods. Am. Plan. A.J., Winter 1983, at 22. DeGiovanni attempts to test the hypothesis that revitalization activity occurs in discrete stages by analyzing both neighborhood housing market activity and social and demographic changes.
75. C. HARTMAN, D. KEATING & D. LEGATES, DISPLACEMENT: HOW TO FIGHT IT 16 (1982).
76. LeGates & Hartman, *Displacement*, 15 CLEARINGHOUSE REV. 207 (July 1981).
77. Munoz-Mendoza v. Pierce, 711 F.2d 421 (1st Cir. 1983).
78. *See* Smizik, Munoz-Mendoza v. Pierce: *Pursuit of a Court Ordered Inclusionary Remedy*, in INCLUSIONARY ZONING MOVES DOWNTOWN (forthcoming 1985).

quate evidence exists to support a general legislative finding that new luxury housing tends to escalate rents in the immediate area and contributes to neighborhood displacement.

3. New Residential Construction: Citywide Impact

Demonstration of citywide, as opposed to neighborhood, housing impacts of new market-rate housing is far more difficult. In the debate over a residential inclusionary zoning program in New York City, this issue has exposed a basic conflict in the way policymakers and planners view urban housing markets. The question is simply whether a new luxury housing project exacerbates or eases the general citywide housing shortage.

On a citywide level, any new housing appears to reduce citywide demand and to ease the pressure on units presently occupied by middle- and moderate-income families. The total demand for luxury housing units is relatively finite and can be measured. It is likely that some new market rate units would be occupied by existing city residents, thus freeing units for families with lower incomes in a classic "trickle-down" fashion.

The experience of low-income advocates, on the other hand, suggests a different pattern. A new luxury development, located in a transitional neighborhood, often tends to accelerate local speculation, warehousing, and conversion. The total supply of low- and moderate-income housing in the neighborhood decreases; and many families are actively displaced. These families must seek housing in other areas, often in neighborhoods that are experiencing a net loss of units through disinvestment. Although citywide demand for market-rate housing may be finite, demand for housing in a particular neighborhood is not. A gentrifying neighborhood can be overwhelmed by new residents once it becomes a focus of the vast citywide demand for new housing. The local supply of existing affordable housing decreases and is not offset by new affordable housing in other parts of the city.

The debate over the citywide housing impacts of new residential construction has been largely ideological; and official city policy has tended to support the view that any new housing benefits the city. In Boston, the linkage committee reached a similar conclusion in exempting residential development from the impact fee requirement, except in cases of "direct" on-site displacement:

> It is recommended that industrial and residential development fall outside the scope of any program, except for such development above the threshold that directly causes a reduction in the supply of low or moderate income housing. Some housing advocates on the Advisory Group feel that all market-rate residential development above the threshold should fall within the scope of the proposals because of its potential impact on housing affordability in the neighborhoods. The majority of the Advisory Group feel that any housing that is brought on the market helps relieve the city's housing shortage.[79]

Given the difficulty of proof involved in such assertions, the resolution of this debate will likely be a result of political compromise rather than statistical data. The answer largely depends upon the time frame selected for analysis. In the very long run, the Linkage Committee may be correct, but this does little to compensate tenants who suffer, in the "short run," from displacement.

4. Zoning in the "General Welfare"

It remains to be seen whether the rational nexus test will even be applied by the courts to inclusionary zoning. Suburban ordinances, based on the "general welfare" rather than on a theory of mitigation, have avoided the test. By basing certain aspects of the urban trust fund on a non-mitigation general welfare theory, such as the need for balanced development or the general shortage of housing for low- and moderate-income families, and by incorporating this judgment in legislative findings, it may be possible to avoid the nexus test in the cities as well.[80] The inclusionary zoning ordinances that *Mount Laurel II* requires as one remedy for New Jersey municipalities have no relation to any project-specific impacts,[81] but are justified only by each town's obligation to house a fair share of the region's lower income population. In New York, the Court of Appeals has required that New York municipalities provide for "balanced and integrated communit[ies]" in their zoning ordinances[82] and has expressly upheld an "inclusionary" land

79. Linkage Report, *supra* note 34, at 12.

80. The precedent for a non-impact based inclusionary zoning program is not, of course, unanimous. There is a marked reluctance by some courts to cut the use of the zoning power loose from its traditional ties to the regulated property. For example, in DeSana v. Guide, 24 A.D. 65, 265 N.Y.S.2d 239 (1965), the Supreme Court, Appellate Division, criticized the use of zoning power for purposes extraneous to the land regulated and argued that there is no transcendental or magical effect from the use of the term "general welfare" in justifying adoption of a zoning ordinance.
In a similar vein, a leading commentator on inclusionary zoning ordinances draws a sharp line between impact and non-impact related fees:
> [C]ompensation need not be paid when a regulation which causes economic loss merely compels a property owner to internalize (i.e., bear the costs of) the harmful externalities or spillovers (i.e., the injuries to others) caused by him; but that compensation should be paid when the regulation seeks to extract a benefit to society.

Kleven, *supra* note 11, at 1493.

81. *Mount Laurel II*, 92 N.J. at 274:
> The constitutional obligation itself is . . . to provide through the zoning ordinance a realistic opportunity to construct lower income housing. All of the physical uses are simply a means to this end. We see no reason why the municipality cannot exercise its zoning power to achieve that end directly rather than through a mass of detailed regulations governing the physical use of land, the sole purpose of which is to provide housing within the reach of lower income families. We know of no governmental purpose relating to zoning that is served by . . . not allowing it directly to require developers to construct lower income units.

82. Berenson v. Town of New Castle, 378 N.Y.S.2d at 680.

use scheme intended to "correct social and historical patterns of housing deprivation" of elderly residents.[83]

The resolution of this issue by the New York courts will probably affect only the geographic distribution of funds, not the legality of the underlying requirement. But as noted above, the standards for evaluating the relationship between development impact and exaction vary from state to state, and required developer contributions may be vulnerable on their face in more conservative jurisdictions.

C. State Enabling Act

Part of the attractiveness of the housing trust fund mechanism is that it permits a city to create new housing revenue without recourse to the state legislature. Many states grant municipalities a wide latitude in adapting the zoning power to meet local needs. However, more than one zoning ordinance has been held to be beyond the scope of authority delegated to the municipality by the state under the zoning enabling act. Although most inclusionary zoning ordinances have been upheld, this concern led Boston to seek state authorization for payments on buildings that require no special zoning approval on the part of the city. Whether such concern is warranted can be determined by tracing judicial interpretation of the local grant of power. An analysis of New York law provides one example.

The general rationale for inclusionary zoning in New York City is based on the recognition that zoning, as part of the state's police power under the New York Constitution, must be exercised to further the general welfare. Insofar as low- and moderate-income families have extreme difficulty in obtaining affordable housing of minimum quality in New York City, and in light of the continuing housing crisis affecting the City and State of New York, the City may properly conclude that expansion of housing opportunity is within the general welfare and that the zoning power should be adapted to this goal.

The State of New York has delegated to New York City the authority to zone "to promote the public health, safety and general welfare."[84] This power is not to be narrowly confined by the courts, nor is it limited by the specific enumeration of zoning techniques mentioned in the zoning enabling act.[85] Courts have expressed deference to municipalities that adapt the zoning power to meet local needs.[86] The police power itself has long been recognized as a flexible power that must evolve to meet changing needs and conditions.[87] The courts' deference to local zoning actions, especially in urban settings, derives from a recognition of the complex factors and professional judgments made by a municipality in assessing local needs. For example, the Court of Appeals has noted that:

> Underlying the entire concept of zoning is the assumption that zoning can be a vital tool for maintaining a civilized form of existence only if we employ the insights and the learning of the philosopher, the city planner, the economist, the sociologist, the public health expert and all the other professions concerned with urban problems.[88]

Judicial deference to local zoning under the state enabling act is buttressed by a strong presumption of constitutionality of local zoning enactments.[89] The New York Court of Appeals observed in *Berenson v. Town of New Castle* that "[z]oning ordinances are susceptible to constitutional challenge only if 'clearly arbitrary and unreasonable, having no substantial relation to the public health, safety, morals or general welfare.' "[90] As noted above, the general welfare basis of the zoning power has been interpreted by the New York courts to include consideration of the present housing needs of the municipality, which includes the needs of low- and moderate-income families, and provision for "balanced and integrated communit[ies]" in their zoning ordinances.[91] By including low- and moderate-income housing among the allowable amenities in four special zoning districts, New York City has already begun to move in the direction of a citywide inclusionary zoning policy. Such a policy promotes the welfare of all New York's citizens and would help to redress the housing deprivations faced by many of the city's indigent residents. Such a policy also recognizes that zoning and its benefits apply equally to all citizens. In a broader sense, an inclusionary zoning policy will contribute to more balanced and economically integrated development and will serve to enhance the value of land throughout the city.

V. Conclusion

This article has barely touched upon the need for sound financial analysis in designing a successful housing trust fund.

---

83. Maldini v. Ambro, 369 N.Y.S.2d at 390.
84. N.Y. GENERAL CITY LAW § 20 (24,25) (McKinney 1968).
85. Maldini v. Ambro, 369 N.Y.S.2d at 388; Village of Belle Terre v. Boraas, 416 U.S.1 (1974). *See* N.Y. GEN. CITY LAW § 19 (McKinney 1968). Read in conjunction with the N.Y. STAT. LOCAL GOV'TS § 10(6) (McKinney 1969) and the N.Y. MUNICIPAL HOME RULE LAW § 10(11) (McKinney 1969), the act conveys a broad power to New York City to zone in the general welfare.
86. Huntington v. Park Shore, 47 N.Y.2d 61, 65, 416 N.Y.S.2d 774, 390 N.E.2d 282 (1979); Kravetz v. Plenge, 84 A.D.2d 422, 446 N.Y.S.2d 807 (1982); Town of Clifton Park v. C.P. Enters. 45 A.D. 2d 96, 356 N.Y.S.2d 122 (3d Dept. 1974).
87. People v. Weller, 207 A.D. 337, 202 N.Y.S. 149, *aff'd*, 268 U.S. 319 (1923); N.Y. State Thruway Auth. v. Ashley Motor Court, Inc. 12 A.D.2d 223, *aff'd*, 10 N.Y.2d 151 (1961).
88. Udell v. Haas, 21 N.Y.2d 463, 469, 288 N.Y.S.2d 888, 893 (1968).
89. Maldini v. Ambro, 369 N.Y.S.2d at 389 (citing Dauernheim, Inc. v. Town Bd. of Town of Hempstead, 33 N.Y.2d 468, 473-74, 310 N.E.2d 516, 518-19; 354 N.Y.S.2d 909, 913-14 (1974); Mary Chess, Inc. v. City of Glen Cove, 18 N.Y.2d 205, 209, 219 N.E.2d 406, 408, 273 N.Y.S.2d 46, 48-49 (1966)).
90. Berenson v. Town of New Castle, 378 N.Y.S.2d at 678 (1975) (citing Euclid v. Ambler, 272 U.S. 365 (1926); Matter of Diocese of Rochester v. Planning Bd. of Town of Brighton, 1 N.Y.2d 508, 522; 154 N.Y.S.2d 849, 858; 136 N.E.2d 827, 834 (1956)).
91. Berenson v. Town of New Castle, 378 N.Y.S.2d at 680-81.

Since most legal services offices and many city planning agencies lack the expertise to analyze the financial impact of new regulatory or payment programs, advocates for low-income housing are often left in the ancient quandary of relying on developers as the only available source of data and analysis. In New York, the Project has benefited enormously from the work of a city planner trained in real estate finance. While such individuals are rare, they can usually be found through organizations such as the Planners Network, 1901 Q Street, NW, Washington, DC, 20009, or in university business or planning departments. Finally, the housing trust fund is not a program that will appear overnight. It is only likely to be successful in cities with strong real estate markets and favorable political climates. Although it is an exciting concept, housing advocates and coalitions should be wary of diverting professional and political resources from other more pressing business. ■

CLEARINGHOUSE SEEKS ARTICLES

The Clearinghouse continually seeks and encourages authors to submit for publication in the *Review* articles of interest to legal services and public interest lawyers and paralegals. Articles should address any of the wide range of topics involved in poverty law or delivery of legal services and should be up-to-date in research (or the author should be willing to update them for publication). We formerly obtained many articles from the Research Institute, which is no longer in existence. We will thus be more dependent on individually submitted articles.

Articles are reviewed by an editorial committee and authors will receive prompt responses.

Articles need not be lengthy, and in fact, articles explaining "how to do" various kinds of poverty law or public interest law are welcomed along with articles on a more theoretical level.

Articles should be submitted to Michael Leonard, Executive Director, National Clearinghouse for Legal Services, Inc. 407 S. Dearborn, Suite 400, Chicago, IL 60605, and should be typed, double-spaced, with footnotes (also double-spaced) at the end of the article. Suggested length is under 40 pages, including footnotes. An editorial style sheet to assist authors in article preparation is available upon request. If you have any questions, please write or call Michael Leonard or Lucy Moss at (312) 939-3830.

1/27/86 (a)

Memorandum of Understanding
by Gateway Point Applicants
regarding North Natomas Community Plan

Overview
Key Issues:
1. Stadium and Arena
2. Infrastructure
3. Circulation and Transportation Proposals and Funding Mechanisms
4. Jobs Program
5. Jobs/Housing Link, North Sacramento Housing and Monitoring
6. Community Benefits and Amenities
    a. Greenbelt
    b. Regional Park
    c. Freeway Landscaping
    d. Fire Stations and Library
    e. Natomas Airport
    f. Light Rail
7. Phasing

Overview

As the North Natomas Community Plan now stands, the Gateway Point Project (which includes both the stadium and the arena) occupies a pivotal position in relationship to the development of the remainder of the region. Gateway Point comprises the majority of land within Phase I. The Plan contains trigger mechanisms for the phasing and completion of Gateway Point which by their very nature will affect and determine the rate and sequence of development within the rest of the Community Plan area. As the first project slated for development, Gateway Point is the keystone for providing adequately-sized infrastructure for the entire community plan area.

In order to begin the development of the Gateway Point project as quickly as possible, and to insure that the aims and goals of good planning, as embodied in the North Natomas Community Plan, are carried out in an exemplary manner, the owners of Gateway Point have indicated to the city staff, that we agree to a number of points which will make the plan more workable and tie up loose ends.

This document is to identify and describe these points of agreement and remove any doubt about our intentions in the areas covered so that everyone concerned will have a better understanding of the Gateway Point owners' genuine commitment to a community plan for North Natomas that can and will be put into effect as written.

We would like it to be acknowledged that the Community Plan with these agreements incorporated will be the most ambitious and generous ever done in this region. It will include: a better than average level of service for traffic; an unprecedented commitment for private financing of infrastructure, improvements, and amenities; and a number of Sacramento firsts— first Greenbelt, first Regional Park in 40 years, first non-profit housing construction program for a disadvantaged area, first major program to hire minorities in construction, largest use of SETA-PIC for hiring the unemployed, highest Jobs/Housing Link in the area, first Sports Complex for the region, and California's most ambitious Freeway Landscaping project.

1. Stadium and Arena

Building and completion of the Stadium and Arena are our top priorities. Prompt completion of a permanent arena is particularly critical. Such a facility is necessary if the Sacramento Kings are to remain in the area. Otherwise, the National Basketball Association has indicated its willingness to exercise its power to move the King's franchise to another community. In order to construct the stadium and arena, along with the rest of the Gateway Point property, we need to have in place a substantial amount of infrastructure (in excess of $50 million), including the Truxel Road and Midway freeway interchanges, sewers, water, drainage, electricity, gas, phones, and major surface streets.

As evidence of our intentions to construct both the proposed stadium and arena, we agree that during Phase 1 (properties south of Del Paso Road and east of I-5) :

One half of Phase 1 would be eligible for development only upon completion of 50% of the arena.

The balance of Phase 1 will be eligible for development only when the stadium is 50% completed.

2. Major Infrastructure Financing

To insure that major infrastructure is constructed as rapidly as possible, we will front the monies necessary for such infrastructure (estimated at 50 million dollars). This includes the oversizing of infrastructure necessary to complete the entire community plan area (estimated at 15 million dollars of the $50 million). Such financing will be done on a cash basis, using our own internal financing mechanisms. This will enable us to start construction quickly and will help other property owners in the community plan area by the installation of the appropriate sized infrastructure.

Specific infrastructure funding mechanisms:

a. Truxel Road Interchange
The Truxel Road Interchange will be initially funded by the Gateway Point property owners. Appropriate reimbursement mechanisms will be established by the City to assess beneficiaries of the interchange.

b. Midway Interchange (I-5 between I-80 and Del Paso Road)
Fifty percent of the cost of this interchange will be borne by North Natomas property owners west of I-5 and 50% by property owners east of I-5.

c. San Juan Drainage Canal
The initial cost will be paid for by Gateway Point property owners with the final costs apportioned to the property owners whose lands will drain into the canal.

d. Water Supply
The water system which will traverse Gateway Point will ultimately become the main line system for the entire community plan area. This will include the oversizing necessary for properties to the north and west of Phase 1.

e. Detailed Financing Plan
A deteiled infrastructure financing plan for the entire Community Plan area will be included as part of the zoning/development agreements.

Repayment of infrastructure oversizing costs to Gateway Point will be by means of a repayment mechanism to be established by the City. Such mechanism will include a means for reimbursing the Gateway Point property owners for monies spent for the benefit of other property owners as well as interest at a suitable rate.

3. Circulation and Transportation proposals and funding mechanisms

We concur with the overall community plan objective of maintaining a traffic Level of Service C on all internal streets and roads and level of service conditions on regional highways which are consistent with level of service conditions experienced in urban areas on similar highways.

American River crossing—we concur with the City staff's plan to initiate an immediate study of the need for improvement of existing American River bridges at 12th Street and at I-5, or the construction of an additional bridge in the same area. The study should include, but not be limited to, an analysis of financing mechanisms available for future construction of needed facilities identified in the study, including a preliminary analysis of the costs of constructing such facilities.

Pending the completion of such a study, we agree to a condition to be imposed on the granting of all building permits, tentative subdivision maps and other land use entitlements in North Natomas. Such condition will require property owners to enter into legally-binding commitments with the City to pay an equitable share of any additional transportation facilities identified in the study and adopted by the City Council.

4.Jobs Programs

We agree to the following elements of a Jobs Program:

a. SETA/PIC
Future employers in North Natomas would be required to meet with representatives of the Sacramento Employment and Training Agency and the Private Industry Council (SETA-PIC) to review the services offered by SETA-PIC. While there will be no requirement that employers hire through SETA-PIC, we will strongly encourage future employers to do so based on the benefits to employers and because of our own successful experience with the SETA-PIC program.

We will use SETA-PIC for hiring at the permanent arena and stadium.

We will provide office space in North Natomas for a SETA-PIC office.

b. Construction hiring in North Natomas
In construction work that we will be doing in North Natomas, we will be voluntarily recruiting construction employees based upon existing population percentages of minority groups within the City of Sacramento. We hope that the goals which we are establishing for ourselves will substantially exceed these percentages--a standard we have already achieved in our employment programs at ARCO Arena.

5. Jobs /Housing Link, North Sacramento Housing, and Monitoring

The 60% Jobs/Housing Link called for in the community plan depends upon the establishment of a Housing Trust Fund to be financed through an exaction fee of $3500 for each dwelling unit that North Natomas is responsible for in the North Sacramento area (At full build out, City staff has indicated that North Natomas will be responsible for the creation of 4340 dwelling units in the North Sacramento Community Plan area, and 2734 of those units will be necessary in Phase 1). This Housing Trust

Fund concept, modeled upon a successful program in San Francisco will not only guarantee that the goals of the Jobs/Housing Link are met, but will allow the benefits of development on North Natomas to directly accrue to economically depressed areas in North Sacramento.

Since revenue to the Housing Trust Fund would not beginfor several years because exaction fees cannot be levied until jobs have actually been created within the Community Plan area, the staff has recommended that other approaches to residential construction in North Sacramento be allowed as well. There are a number of acceptable alternatives, construction in lieu of exaction being the most attractive.

Therefore, we have proposed the following to meet the overall objectives of the Community Plan for providing housing in North Sacramento:

Commencing upon Community Plan approval, a voluntary trust fund will be created and financed by an annual fee of $100,000 spread among North Natomas property owners for the next five years. These funds will be used as seed money to start up and administer a non-profit housing construction company. The company will hire workers from the North Sacramento-Del Paso Heights area using SETA-PIC. The company will then train these workers in the construction of housing, and they will then build affordable housing in the areas targeted for in-fill housing in the North Sacramento area.

Properly monitored and administered, this program will do more than just build homes in North Sacramento--it will also hire and train North Sacramento area residents to build this housing, adding their incomes to North Sacramento's economy.

We suggest that the task of monitoring this program be done by a board of directors of the non-profit company consisting of:

-The City Council member from North Sacramento

-A representative of the City Staff

-A member of the Sacramento Housing and Redevelopment Agency

-A North Natomas builder/owner

-A representative of SETA-PIC

This board make up will ensure good communication between the various agencies concerned with the program and allow its goals to be carried out with a minimum of delay and red tape.

By the time that the exaction fees identified in the Staff's Housing Trust Fund concept would be applicable (estimated at not sooner than 1990), the non-profit construction company will have a healthy head start on building housing in North Sacramento and will, we are confident, be well able to keep ahead of the North Sacramento housing needs generated by the creation of new jobs in North Natomas.

The Board of Directors of this company will be responsible for the monitoring of the the Jobs/Housing Link in North Natomas, and if the housing lags behind jobs and this plan has not been successful, then the exaction fees of the Housing Trust Fund can be put into effect. Thus, the City will still have the Housing Trust Fund's exaction fees to insure that North Sacramento housing goals are met.

6. Community Benefits and Amenities

To ensure that North Natomas is developed consistent with its being the gateway to the Capital and to further mitigate some of the environmental impacts identified in the North Natomas EIR, we agree to the following:

a. Greenbelt
As recommended in the EIR by the Sacramento County Agricultural Commissioner, a 500 feet wide Greenbelt will be dedicated in fee across the northern boundary of the Community Plan area. This Greenbelt will act as a buffer between the lands in North Natomas and the actively producing agricultural lands to the north in the County.

The Greenbelt will be financed by an internal funding mechanism to be shared by the properties within the Community Plan area. Property owners will bear their pro-rata share of the financing of the Greenbelt through a fee levied upon issuance of a building permit for construction or through the dedication of land in lieu of a cash fee for those owners who own land within the Greenbelt area. The total cost of the Greenbelt is estimated at approximately $6 million.

b. Regional Park
In addition to the payment of normal Quimby Act fees, we will dedicate in fee to the City a 200 acre Regional Park. The cost of the Park land is estimated at $10 million. We will also bear the costs of providing the off-site infrastructure around the Park, estimated to be an additional $10 million. The cost for the Park lands and infrastructure will be spread among the property owners in the Community Plan area. As with the Greenbelt, there will either be a payment of a pro-rata cash fee upon issuance of a building permit or the dedication of land in lieu of the cash fee.

c. Freeway Landscaped Parkways
The Gateway Point owners have already begun construction of their portion of the Freeway Landscaped Parkway. We recommend that this type of Parkway (berm height, breadth, and scope of landscaping using native plants, where possible) should continue up to Elkhorn Road and on the west side of I-5 from I-80 to the northern boundary of the Community Plan. The owners of Gateway Point have funded our freeway landscaping on a cash basis. We suggest that landscaping along other portions of the freeway be similarly funded by the abutting properties.

d. Fire Stations and Library
We agree to fund,through existing fees or other funding mechanisms, Fire Stations and the Library as necessary on a pro-rata basis shared equally among all properties in the Community Plan area.

e. Natomas Airport
The Sacramento Sports Association, owners of the Natomas Airport, have previously made the following commitment to the Airport operators and users and the City: To keep the Airport operating at its present location as long as it is possible to do so without causing safety problems to the residents of North and South Natomas or the patrons of the sports facilities.

We estimate that the Airport will be able to remain in its present location for four to five years. Upon approval of the Community Plan we agree to work to find a new location within the North Natomas area for the construction of a new, privately-financed reliever airport to replace Natomas Airport prior to its closure. This is subject, of course, to getting the proper governmental approvals.

g. Light Rail
We will make an irrevocable offer of dedication for a Light Rail right of way route through North Natomas, contingent upon Regional Transit identifying a route within a reasonable time.

7. Phasing

We concur with the Community Plan which designates Phase 1 as properties south of Del Paso Road and east of I-5, and which further indicates that 50% of the construction of the Arena and Stadium must be completed and all appropriate infrastructure be in place before all land within Phase 1 will be zoned.

We support a phasing program that would be tied to the accomplishment of events that--when adopted by this City Council--would provide property owners with an incentive for developing the Plan as written. Thus, each property owner with land outside Phase 1 would be presented with a checklist of conditions which must be met before zoning would be granted. This method of phasing will require that developers participate in the early accomplishment of the social, environmental and funding goals of the adopted plan.

The conditions we suggest are:

a. The completion of the major infrastructure necessary to begin construction including, but not limited to, major trunk and main lines necessary to connect Phase 1 with outlying properties. The accomplishment of this would be by mutual agreement of the property owners. They could undertake the task individually or band together, depending upon the financing arrangements which they would work out.

b. Payment or in lieu dedication of their share of the Greenbelt.

c. Payment or in lieu dedication of their share of the Regional Park.

d. Participation in the Jobs Program.

e. Participation in the Freeway Landscaped Parkways.

f. Compliance with the Jobs/Housing Link as determined by the North Sacramento Monitoring Program.

g. Payment of their pro-rata share of funding for Fire Stations and the Library.

h. Irrevocable dedication of right of way for Light Rail.

i. Payment of appropriate Quimby Act fees.

j. A reimbursing mechanism shall be established as part of a development agreement/zoning approval for the payments specified

in the foregoing items—a, b, c, e, and g.

Finally, between the time that City Council adopts an Intent-To-Approve Plan and takes final action adopting the North Natomas Community Plan, City staff will develop and recommend specific quantifiable, "trigger" points for each of the above criteria. As North Natomas develops, the Monitoring Program and other factors will allow analysis of whether the trigger points for each of the criteria have been met. This would indicate that determination of the next phases to be developed in North Natomas is appropriate. This technical determination would be certified by the City Planning Commission and would authorize processing land use entitlements in the specified areas, as outlined in development agreements.

We believe that this type of phasing program will produce incentive-oriented infrastructure development; early dedication and payment of fees to secure the Greenbelt and Regional Park; and adherence to the Jobs Program, the Jobs/Housing Link and the North Sacramento Monitoring Program, thereby removing any negative impacts of residential development in the Community Plan area from affecting North Sacramento. Indeed, we believe such a program will expedite and enhance the immediate and long range benefits to North Sacramento of the economic growth and development which will occur in North Natomas.

Bank of America

ECONOMIC FORECAST 1986
SACRAMENTO

OVERVIEW

Sacramento, California's capital city, and the surrounding metropolitan area—including the communities of Roseville, Folsom, Rancho Cordova, Auburn, and Natomas—are experiencing increasingly rapid growth and economic diversity. Additionally, the economy has become more recession-resistant, allowing little chance for an economic downturn in the foreseeable future.

The Sacramento area has a population of 1.2 million, is America's twentieth largest media market, and is ranked sixth nationally in terms of economic growth. It has few of the urban problems facing California's coastal cities. Comparatively, homes are more affordable and traffic congestion, though increasing, now causes only short delays.

Population and employment in the Sacramento area will continue to grow through 1990 with population increases averaging about 2.4 percent annually. Employment will rise at a faster rate, with annual increases of around 2.8 percent during the remainder of the decade. Unemployment will decline somewhat, and thus the gap between the state's unemployment rate and the Sacramento region's traditionally higher rate will shrink.

The service industry will become the driving force behind job growth in Sacramento as more service operations move into the area. The government's position as the dominant employer in the region will continue to decline, although certain areas in that sector will remain key to the regional economy. In 1986, for example, McClellan and Mather Air Force Bases will have a total regional economic impact of $2.87 billion, approximately 12 percent of the total gross regional product. The area also is attractive to firms interested in relocating or expanding their operations. Few physical barriers impede growth in the county. The major unknown is the outcome of the growth control issues currently facing city government.

Table 1 Major Economic Indicators for the Sacramento Metropolitan Area, 1983–1986

	Annual Data				Percentage Change			
					Sacramento			California
	1983	1984	1985*	1986**	1983–84	1984–85	1985–86*	1985–86*
Employment								
Total (in thousands)	500.5	524.4	549.9	571.3	4.8%	4.9%	3.9%	2.5%
Unemployment Rate	10.3%	8.4%	7.9%	8.3%	—	—	—	—
Income								
Total Personal Income (in billions)	$14.0	$15.5	$16.7	$18.1	10.7%	7.7%	8.4%	8.0%
Household Income	$29,190	$34,900	$36,800	$39,100	19.6%	5.4%	6.2%	6.1%
Housing								
Total Permits	10,862	14,457	16,047	17,812	33.1%	11.0%	11.0%	−5.0%
Median House Price	$75,600	$76,325	$78,900	$81,800	1.0%	3.4%	3.7%	2.7%
Existing Home Sales (in thousands)	14.4	19.1	19.9	21.4	32.6%	4.2%	7.5%	−5.0%
Sales								
Taxable Sales (in billions)	$7.56	$8.71	$9.58	$10.44	15.2%	10.0%	9.0%	8.5%
Population (in thousands)	1,196	1,218	1,244	1,269	1.8%	2.1%	2.0%	1.7%

*Bank of America estimate.
**Bank of America forecast.
Sources: Chase Econometrics, California Association of Realtors, and State of California.

Although Sacramento will continue to attract businesses producing high technology products, because of the slowdown occurring in many sectors of the high-tech industry it will not become another Silicon Valley overnight. During the high-tech boom in the early 1980s, firms like Hewlett-Packard, Intel, GTE Sprint, Signetics, and Avantek were moving into the region. Since the slowdown, many firms have been consolidating.

The Sacramento region will grow steadily as the economic expansion that began in 1983 continues into 1986. As illustrated in Table 1, the area's economy is expected to change as follows:

Population will increase by about 2 percent in 1986, exceeding the state rate of 1.7 percent.

Household income will rise by about $2,300 to an average of $39,100 in 1986, a 6.2 percent increase.

Housing starts will increase by about 1,765 units, an 11 percent increase. Conversely, the state will have a decrease in housing starts of 5 percent in 1986.

The unemployment rate will continue to be higher than national and state averages, although the gap is closing as agricultural jobs that create seasonal unemployment are permanently phased out.

Economic Profile

The Sacramento Metropolitan Statistical Area (SMSA) consists of Sacramento, Placer, Yolo, and El Dorado Counties. All references to the Sacramento area in this report indicate the four-county region.

El Dorado County joined the SMSA in 1984, adding a tourist, agriculture, and lumber-based economy. El Dorado has had the most rapid population growth of the four counties during the last five years, with an average annual growth rate of 3.4 percent. However, the county's population remains less than 5 percent of the total regional population.

Industry Outlook

In 1986, the government, trade, and service sectors are expected to provide about 77 percent of all jobs; statewide, by comparison, the three sectors will employ only about 64 percent of the work force. In 1965, these sectors accounted for 69 percent of Sacramento's total employment.

Government. Government employment historically has been the driving force behind economic growth in the region. This sector continues to grow in absolute numbers while decreasing as a percentage of total employment (Table 2). Government employment will increase to 154,500 jobs in 1986, from 140,700 jobs in 1980. However, as illustrated in Figure 1, this sector's share of total employment will decline to 30.5 percent of all wage and

Table 2 Employment Profile of Sacramento Region—1970, 1980, 1985, and 1986

	Sacramento SMSA								California		
	1970		1980		1985*		1986**		Jobs (000)		
	Jobs (000)	Percent Of Total	Jobs (000)	Percent Of Total	Jobs (000)	Percent Of Total	Jobs (000)	Percent Of Total	1985*	1986**	Percent Of Total
Mining	.2	0.08%	.3	0.08%	1.0	0.20%	1.1	0.22%	51	53	0.47%
Construction	11.7	4.73%	19.8	4.97%	25.6	5.24%	27.3	5.37%	459	469	4.17%
Manufacturing											
Nondurable	11.9	4.81%	13.1	3.29%	15.5	3.17%	16.0	3.15%	659	668	5.93%
Durable	10.3	4.16%	14.2	3.56%	20.1	4.11%	21.7	4.27%	1,469	1,517	13.48%
Transportation/ Public Utilities	11.6	4.68%	21.8	5.47%	24.1	4.93%	24.9	4.90%	565	583	5.18%
Trade											
Retail	43.8	17.69%	75.4	18.93%	97.6	19.97%	103.0	20.27%	1,952	2,000	17.77%
Wholesale	10.6	4.28%	17.6	4.42%	23.6	4.83%	24.2	4.76%	670	684	6.08%
Finance, Insurance, and Real Estate	10.2	4.12%	22.0	5.52%	27.1	5.54%	27.9	5.49%	725	757	6.73%
Service	28.4	11.47%	73.4	18.43%	101.1	20.68%	107.5	21.16%	2,669	2,788	24.77%
Government	108.9	43.98%	140.7	35.33%	153.1	31.32%	154.5	30.41%	1,735	1,737	15.43%
Total Employment	247.6		398.3		488.8		508.1		10,954	11,256	

*Bank of America estimate.
**Bank of America forecast.
Source: Employment Development Department, State of California.

salary earners in 1986 from 35.4 percent in 1980. Some areas of government employment, however, will continue to grow. Since 1980, for example, the federal government has increased its employment in the area by 12.5 percent to 29,700, due largely to the increase in employment at Mather and McClellan Air Force Bases. During the same period, employment by state and local government agencies increased only 4.5 percent to 124,800 from 119,600.

Trade. Trade is the second largest regional employment sector, providing over 25 percent of all nonagricultural jobs. Retail trade has increased continually since the mid-1960s with taxable sales expected to reach $10.4 billion in 1986 compared with $9.6 billion in 1985.

Service. The service sector is the fastest-growing employment sector in the region. As illustrated in Table 2, by 1986, 107,500 people will work in service jobs compared to 73,400 in 1980. Figure 1 illustrates the incredible growth that has occurred in this sector. In 1986, service-related jobs will provide 21.2 percent of the area's employment, compared to 11.4 percent in 1970.

At its present growth rate, the service industry will be the area's largest employer by 1990. Service firms find the area attractive because of lower costs for rental space. Also, new advanced telecommunication networks encourage office consolidations and permit businesses to be headquartered away from the site of business transactions.

Manufacturing. Manufacturing employment will account for 7.4 percent of the work force, or 37,700 jobs, in 1986. In 1965, this sector accounted for 14 percent of the work force, with over 30,000 employed. By 1970, manufacturing had lost 8,000 jobs (Table 2). Even though the total number of industry jobs has increased in the past fifteen years, manufacturing's share of the Sacramento work force has diminished.

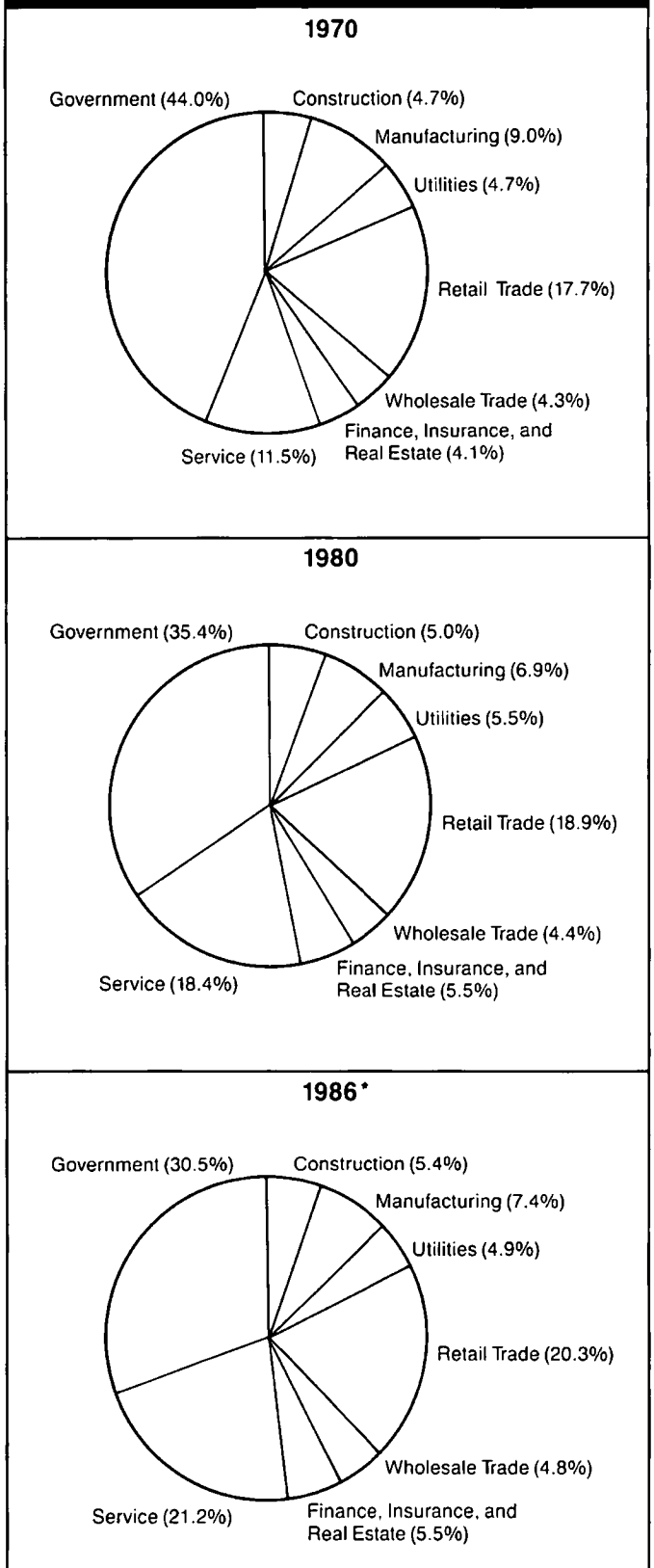
Historically, aerospace and agricultural employers dominated this sector. In the late 1960s, aerospace cutbacks created massive job losses. More recently, job growth in the food canning and processing industries has declined, with many outdated plants replaced by modern facilities outside the region.

Growth occurring in this sector has been in durable goods manufacturing, with many electronics firms planning expansion, including Intel, Hewlett-Packard, NEC Electronics, and Avantek.

Agriculture. Problems in the agricultural industry that have hurt other Northern California communities have not had the same impact on Sacramento, primarily because of the area's economic diversification. Agricultural problems have, however, affected certain isolated industries such as shipping. The Port of Sacramento, for example, no longer profits from the rapid growth of farm exports. The canning and processing industries also have been affected by the agricultural downturn. The Sacramento region does, however, contain the focal point of the state's high-tech farm economy.

Extensive agricultural research in biotechnology at the University of California at Davis presents a situation analogous to Santa Clara County's during Silicon Valley's formative years. Presently, at least three genetic engineering firms in the Sacramento area—Calgene,

Figure 1 Distribution of Employment, Sacramento SMSA



*Bank of America forecast.
Source: Employment Development Department, State of California.

Plant Genetics, and Applied Genetics—are involved in developing commercial agricultural products. It appears that biotechnology may turn into a multi-billion-dollar industry in the 1990s, with Sacramento in a very good position to reap some of the benefits.

Special Focus: Air Force

Both McClellan and Mather Air Force Bases, located near downtown Sacramento, contribute significantly to the regional economy.

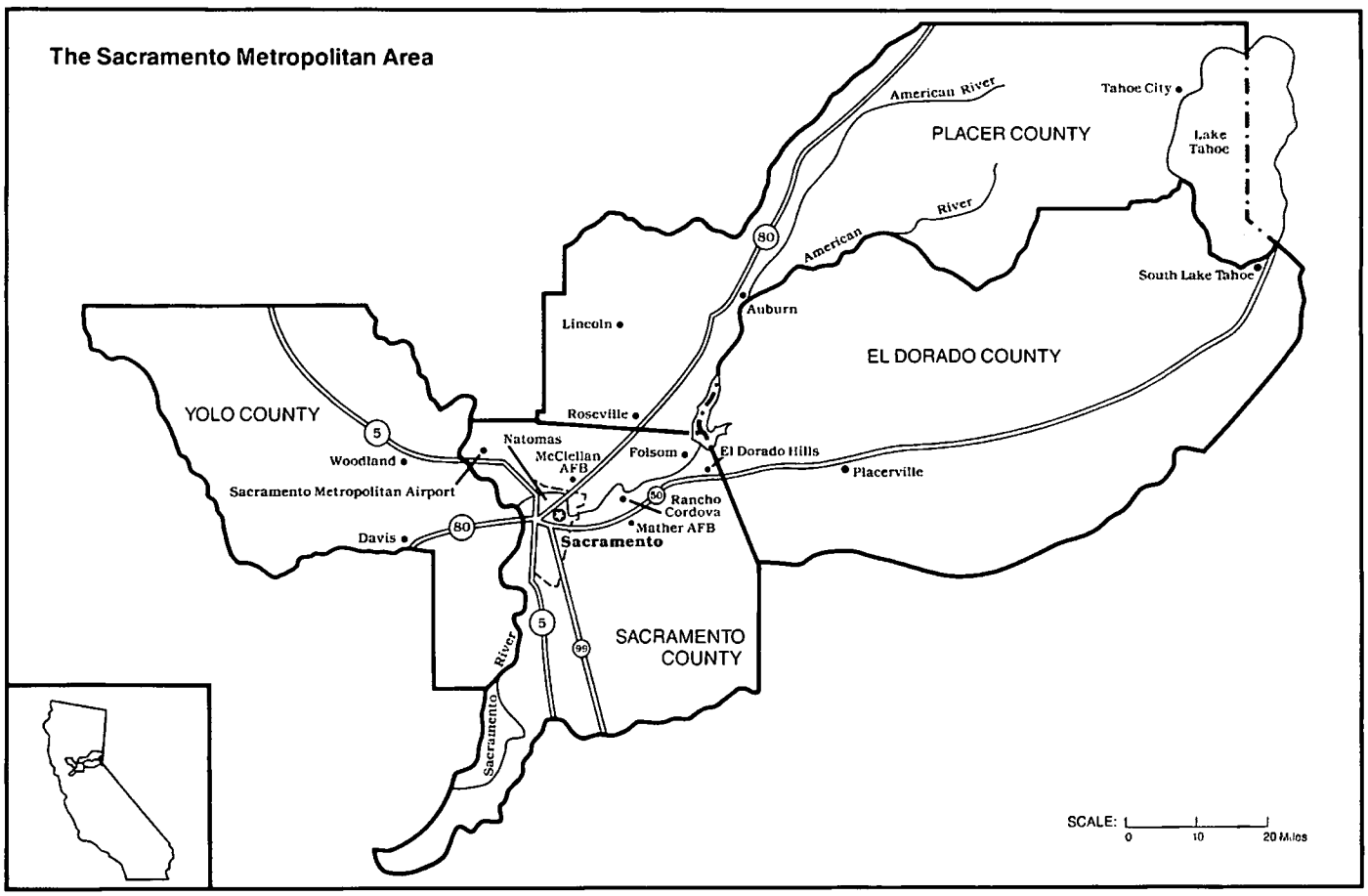
McClellan Air Force Base. McClellan Air Force Base, located 9 miles northeast of downtown Sacramento, has a base population of over 19,500 and resembles a "city within a city." Approximately 15,000 civilians are employed there, making it the area's third largest employer behind the State of California and the Sacramento County Office of Education.

McClellan is the home of the Air Logistics Center and is one of the Air Force's busiest bases. The primary mission of the base is to ensure that weapons systems are "ready, reliable, and sustainable." The base provides worldwide logistics support and provides maintenance, distribution, and essential contracting services for the Air Force. The civilian payroll in 1986 will rise slightly over the approximate $412 million in 1985. Total expenditures for 1986 will be approximately $1.6 billion.

The total impact of these expenditures at McClellan on Sacramento County and the region is significant—approximately $2.2 billion. Not only is there a direct county-wide financial impact from expenditures at McClellan, but there also is an effect on regional employment. Airbase employees spend their salaries in the region, promoting increased employment in the service and trade sectors. Using established employment multipliers, activity at McClellan creates another 26,700 jobs.

Despite current political pressure to reduce military spending, the McClellan complex appears to be safe from expenditure cuts for several reasons. First, the base is responsible for supplying aircraft parts for all other United States and allied air force bases worldwide. A tremendous number of defense-related tasks are assigned here, and it would be extremely difficult to disperse these to other bases in the near future. Second, the $18 million allotment for ongoing maintenance, alteration, and repair projects indicates that no changes in responsibility are forthcoming. Finally, with today's technological breakthroughs, the Pentagon considers air defense to be a critical link in the nation's security, so it is building up rather than cutting back the air force defense system.

Mather Air Force Base. Mather Air Force Base is located 12 miles east of downtown Sacramento near Rancho Cordova. Although several tenants occupy the base, the 323rd Flying Training Wing is Mather's host organization. Its mission is to train nonflying officers in navigation, bombardment, and electronic warfare skills. Approximately 3,000 students from all military branches



and 14 allied countries are trained annually at the base.

About 5,500 military employees are assigned to Mather; there also are about 1,900 civilian employees. The civilian payroll in 1986 is expected to be $38.7 million. Total outlays for salaries, goods, services, and new construction will be approximately $300 million in 1986.

Mather's total economic impact on the region's economy is substantial—an estimated $540 million. Secondary jobs resulting from the activity at Mather number about 3,300. Mather, like McClellan, also appears to be a relatively stable source of income and jobs for several reasons.

First, Mather has the Department of Defense's only navigator training school. It will not be closed and is unlikely to be moved. In fact, Mather's large site and available space make it a good candidate for expansion, not shrinkage. Second, significant construction is underway and additional construction is planned.

The bases affect the region in yet another way. The Sacramento area, with approximately 180,000 retirees, is one of the most favored by military retirees in the United States. Low-cost housing, mild winters, and hot, dry summers make it attractive. Additionally, retired veterans like the excellent health care and other services at McClellan and Mather Air Force Bases.

Communities

Most economic and residential growth is occurring north and east of Sacramento (see map) in Roseville, Folsom, Rancho Cordova, and Natomas. The growth is following three major transportation links out of the downtown area—north on Interstate 5 toward Natomas, east on U.S. Highway 50 toward Folsom and Placerville, and east on Interstate 80 toward Roseville.

The western part of the region around Woodland and Davis is composed mostly of agricultural land protected by the Williamson Act, which discourages nonfarm use of the land. Consequently, this area is not a prime target for commercial growth. The region's southern portion, with plenty of space available, could be a growth area later in the decade. A Cemo development close to El Dorado Hills represents the early signs of the future development that will take place along the Highway 50 corridor. Growth in the far eastern portion of El Dorado and Placer counties is restricted by foothills and mountains that inhibit development of transportation and other infrastructure.

The Natomas Area. North and South Natomas are emerging communities about 2 miles north of downtown Sacramento at the intersection of Interstates 5 and 80. Close proximity to the downtown area and the Metropolitan Airport make this one of the premier land sites for regional development in Northern California.

Rapid growth in the Natomas area is evident in the community's economic development plans. In July 1985, the South Natomas Community Plan was refined to include 30,000 new residential units, 5.4 million square feet of office space, and 20 million square feet of manufacturing, research, and warehouse space. The North Natomas Community Plan is currently the most ambitious in the state. Datsun, Consolidated Freightways, and Hewlett-Packard have facilities in the area, and a 10,333-seat temporary arena is in place. The new community plan calls for a 17,000-seat arena, and a 65,000-seat stadium. The final hearings on the plan are scheduled for January 1986.

Roseville. Roseville, site of large Hewlett-Packard and NEC production facilities, is located 16 miles northeast of Sacramento. City officials are intent on maintaining the high quality of life by following a general plan encouraging controlled growth over the long term. The completion of the State Highway 65 bypass in 1987 will have a large impact on growth by alleviating traffic congestion in the downtown area.

Folsom. Folsom, located 10 miles east of Sacramento, has a population of 14,000. One of the fastest-growing communities in the region, Folsom's aggressive city government has landed such high technology firms as Intel and Avantek. Once a bedroom community with a limited tax base, developers and businessmen have now targeted Folsom for rapid commercial and residential growth during the next 15 years.

Rancho Cordova. Rancho Cordova, which developed around the aerojet boom of the late 50s and early 60s and then experienced a decline, has, in the last 10 years, enjoyed great growth as a result of metropolitan area expansion in the Highway 50 corridor. The area now supports many office and light industrial projects.

Nonresidential Construction

Although the supply of Sacramento office space exceeds current demand, the balance between supply and demand for industrial and retail space is solid.

Office Market. The high office-space vacancy problems in Sacramento are common to rapidly growing areas. Short-run oversupply often occurs in a region expanding to accommodate the phenomenal level of office-space absorption in the region. However, because of high office-space vacancy levels, the region will experience a slowdown in the current construction boom in the next few years, along with a shakeout of undercapitalized developers.

Sacramento's 25 percent office-space vacancy rate is not unique. High vacancy rates also are the norm in rapidly growing Sun Belt cities such as Tampa, San Jose, Albuquerque, and Houston. A surplus of available commercial space can benefit fast-growing regions since developers can show business managers space their firms can move into immediately.

The source of Sacramento's current office vacancy situation is illustrated in Table 3. Office construction has been growing at a much faster pace than office absorption. A more mature and densely populated area such as San Francisco, with over 35 million square feet of net rentable space, is not subject to the same degree of vacancy rate fluctuation every time a project is completed. Sacramento, with about 18 million square feet of existing buildings, is more susceptible to vacancy rate fluctuations when a new building is finished.

Construction of office space more than tripled to 4 million square feet in 1984, up from 990,000 square feet in 1980. In 1985, construction is decreasing significantly for the first time in over five years, to 1.75 million square feet, the lowest level since 1982. In 1986, construction will stabilize near 2 million square feet. As absorption exceeds construction of new space, the gap between the two is expected to close. Vacancy rates will decrease in 1986, dropping for the first time in over five years to 22 percent. Absorption, meanwhile, is expected to hit an all-time high of 2 million square feet, a five-fold increase from the 1980 level of 400,000 square feet.

Rents are inexpensive compared to other California metropolitan areas. Office lease rates in Sacramento are expected to increase to an average of $1.45 per square foot in 1986 from $1.40 per square foot in 1985, while lease rates in the Bay Area or Southern California range upward from $3 per square foot. Sacramento's lower rates are supplemented with inducements such as free rent during start-up of operations and tenant-tailored site improvements to attract clients.

Industrial Market. To correctly evaluate the complete nonresidential construction picture, Sacramento's dynamic industrial and retail markets must be examined. With most attention focused on office construction, the supply and demand balance existing for industrial buildings may be overlooked. Since 1980, 17.5 million square feet of industrial space (warehouse and low-end industrial) has been constructed, while 17.8 million square feet has been absorbed. This incredibly balanced supply of and demand for industrial space accounts for the low vacancy rate, which will average 5.6 percent in 1986.

In contrast to the office market, industrial space absorption has exceeded construction, causing the low vacancy rate. Over 11 million square feet of space has been filled in the last three years. Table 3 shows how closely construction and absorption have moved in the industrial market. Since 1980, the largest difference between absorption and construction in any year was 700,000 square feet. Also, since 1982, when the industrial vacancy rate was 10.1 percent, absorption has outpaced construction every year. This has caused the vacancy rate to drop in each succeeding year.

The incredible demand for industrial space has driven up average lease rates about 10 percent per year, with rates expected to reach 27 cents per square foot in 1986, up from 19 cents per square foot in 1982. With all the attention office vacancy rates have been receiving, the strong industrial market in Sacramento is easily overlooked. Finally, since prime industrial land is still available, little can impede growth in this sector of nonresidential construction.

Retail Market. The retail market in Sacramento also is healthy. The increase in retail spending during the last few years has been reflected in land costs that will increase to $9.00 per square foot in 1986, up from $8.50 per square foot in 1985 and from $6.50 per square foot in 1980. The rising cost is due to the limited construction of retail space and increased retail sales that have driven up values. Despite the rising cost, retailers find the area attractive. Retail sales are growing 9 to 10 percent annually and regional demographics indicate continued growth.

Lease rates for space in regional malls will increase to $22 per square foot in 1986 compared to $13 per square foot in 1980. All but one of the area's seven regional shopping centers are located in Sacramento County. Because the last center was built in 1981, and since no new centers are planned for the near future, retail space will remain valuable.

Factors Spurring Growth

During California's growth from the end of World War II until the 1970s, most population and business activity occurred in coastal metropolitan areas. As land became scarce and overcrowding and pollution became prob-

Table 3 Sacramento SMSA Nonresidential Real Estate, 1980–1986

	1980	1981	1982	1983	1984	1985*	1986**
Office							
Construction (sq. ft., in millions)	.990	1.100	1.989	3.865	4.013	1.750	2.000
Absorption (sq. ft., in millions)	.400	.710	.937	1.012	1.500	1.850	2.000
Vacancy Rate (%)	10.0	13.2	16.8	22.9	23.4	25.1	22.0
Lease Retail Rate (per sq. ft.)	$1.10	$1.35	$1.50	$1.45	$1.40	$1.40	$1.45
Industrial							
Construction (sq. ft., in millions)	3.4	3.5	3.7	2.7	3.6	4.0	4.1
Absorption (sq. ft., in millions)	3.2	3.8	3.0	3.0	4.0	4.3	4.2
Industrial Base (sq. ft., in millions)	36.9	40.7	43.7	46.7	50.7	55.0	59.2
Vacancy Rate (%)	8.5	9.1	10.1	8.8	7.3	6.2	5.6
Lease Rate (per sq. ft.)	$0.19	$0.19	$0.19	$0.22	$0.24	$0.25	$0.27
Retail							
Commercial Land Prices (per sq. ft.)	$6.50	$7.00	$6.00	$6.00	$7.00	$8.50	$9.00
Shopping Mall Lease Rates (per sq. ft.)	$13.00	$15.00	$17.00	$19.00	$21.00	$21.50	$22.00

*Bank of America estimate.
**Bank of America forecast.
Source: Coldwell Banker, Sacramento.

lems, expansion shifted to inland regions such as Sacramento. As long as the inland areas avoid these problems, growth will continue. Since the beginning of 1980, the Sacramento area has added 162,000 residents, or 7.2 percent of the total increase in state population, although the area's share of state population is only 4.9 percent.

Transportation and Location. As illustrated on the map, several major transportation routes in Sacramento provide easy access to the major markets of the San Francisco Bay Area and the center of the electronics industry in Santa Clara County. Sacramento-area manufacturers can avoid the high cost of locating in these areas, yet can still be close enough to conduct business easily with their customers.

Because of its central location and comparatively low cost of land, Sacramento will continue to be a wholesale trade and distribution center. Wholesalers can serve the San Francisco Bay Area and the Reno area from Sacramento using the excellent transportation links: two interstate highways, a municipal airport, a deepwater port, and two major railroads.

Housing. The Sacramento area boasts much more affordable housing than the Bay Area or Southern California, or any of the coastal regions in the state. As indicated in Table 4, Sacramento's median single-family house price in 1986 will be $81,800 compared to $138,600 in San Francisco and a statewide average of $118,500. For this reason, recruiting younger workers interested in homeownership is relatively easy for Sacramento firms.

Labor Force. Sacramento is blessed with an educated and ample labor supply. For example, 43.5 percent of Sacramento's population age 25 and above have attended college, while the national average is only 31.9 percent. This is attributed to the region's fine community college system, California State University at Sacramento, and the University of California at Davis. In addition, because Sacramento's unemployment rate is higher than state and national levels, the base of available workers is substantial.

Comparative Costs. Prime office space in Sacramento averages about $1.40 per square foot, which compares quite favorably to costs in San Jose and San Francisco. In addition, rates for the water and electricity supplied by the Sacramento Municipal Utility District (SMUD) are relatively low. For energy-intensive industries such as electronics manufacturing, low-cost utilities are a major factor when choosing a location.

Community Support for Local Economic Development Organizations. Sacramento residents now realize that today's competitive business environment requires skill and resources to attract new firms. Sacramento's industrial recruiters have been instrumental to growth momentum. Membership and support for the Sacramento Area Chamber of Commerce, the Sacramento Area Trade Organization (SACTO), and the local chambers have been increasing. The Sacramento Area Chamber of Commerce, with approximately 3,000 members, is the fastest-growing chamber in the United States.

Barriers to Growth

Long-term Sacramento growth may be impeded by three significant constraints.

Infrastructure Financing. With residential and commercial growth continuing throughout the region, the issue of providing infrastructure has become a major concern. Many small communities are finding that they are not equipped to handle their growth. If congested roads and overcrowded school systems become prevalent, the region will lose much of its luster.

Most of the financial burden has been shouldered by developers, although significant tax dollars have been used as well. Since Proposition 13 was adopted in 1978, public funding for infrastructure has been more difficult to obtain. The private sector has joined this expensive venture, and long-range planning to ensure the adequate development of the region's infrastructure is necessary.

Accumulating Transportation Problems. The biggest problem in Sacramento's public infrastructure is its transportation system—the highway/freeway and street routes from work areas to residential areas. Approximately 98

Table 4 Median House Price Comparisons, 1978–1986

Year	Sacramento	San Francisco Bay Area	California	U.S.A.
1978	$50,000	$ 76,000	$ 69,900	$48,700
1979	56,000	89,600	82,300	55,700
1980	60,700	109,600	98,000	62,200
1981	72,500	120,000	106,000	66,400
1982	76,400	124,500	110,000	67,800
1983	75,600	129,000	112,600	70,300
1984	76,300	130,100	112,400	72,400
1985*	78,900	134,000	116,000	74,700
1986**	81,800	138,600	118,500	76,300

*Bank of America estimate.
**Bank of America forecast.
Sources: California Association of Realtors and National Association of Realtors.

percent of the work force drives to and from work. Although the area has a good network of freeways and highways, traffic congestion is a problem.

U. S. Highway 50 and Interstate 80 are affected by the growth of firms settling near service roads. Areas adjacent to Highway 50, in particular, have undergone tremendous growth in the past few years, and as development increases, the highway becomes more congested. No highway expansion is planned in the near future, and the problem is expected to continue, although Sacramento planners hope to reduce it by increasing the use of public transportation.

The Regional Transit Authority plans to begin service by mid-1986 on its light-rail system, serving the Interstate 80 corridor and the Folsom corridor along Highway 50. The $157-million light-rail project will ease future traffic and parking problems, with 55,000 to 60,000 riders per day expected to use the system. Taxes previously set aside for the Interstate 80 bypass are being used along with a combination of other federal, state, and local funds. How long it will take for the system to be accepted remains to be seen, but it will unquestionably have a major impact on the future of Sacramento.

"Small Town" Sentiment. Although Sacramento is quickly becoming a major metropolitan area, some would like to see it remain a small farm town. Sacramento's expected economic growth could quickly be thwarted if city residents are not receptive to growth. Controversy over zoning in the Natomas area illustrates the mixed emotions many people have on growth questions. However, growth in the county is vigorous. Only growth in the city is at risk.

Recreation and Cultural Activities

Sacramento has ballet, opera, a symphony, and, of course, the state capitol. Old Sacramento's attractions include the Railway Museum and the newly christened Sacramento History Center. The proximity of the Sierra Nevada and nearby rivers and lakes offers those who enjoy the outdoors many recreational opportunities. Warm summer weather and excellent skiing in winter are two of the area's major attractions.

Sacramento enthusiastically welcomed the arrival of its first major league professional sports franchise in 1985—the former Kansas City Kings of the National Basketball Association. With the Sacramento Kings comes the national exposure a professional sports team attracts. The community has already purchased all season tickets for the 1985-86 season.

In June 1985, the Kings became the first team in the National Basketball Association's history to be allowed to move to a city where an arena was not already built. The new temporary Natomas home of the Kings will seat 10,333 for basketball and 11,000 for boxing. Since Sacramento's largest existing indoor facility—the Memorial Auditorium—holds only 3,500, this new arena will enable Sacramentans to see major indoor concerts and other shows without driving to San Francisco. It is proposed that within two or three years a 17,000-seat arena will be built in the Natomas area to become the permanent home of the Kings. A 65,000-seat stadium is tentatively planned shortly after that. The intent is to attract a professional football or baseball team as well.

The Kings will be one of a handful of franchises who own their arenas or stadiums. This arrangement has proved successful for the Los Angeles Dodgers and Lakers.

The economic impact doesn't compare to the emotional impact the big league franchise has brought to Sacramento. The team's activities have dominated the local news media since January 1985. Many see this only as an important first step in Sacramento's quest to become a nationally recognized city.

By Michael S. Salkin and Frederick L. Cannon

Material contained in this report was based on data available at the time of publication and is for informational purposes only. Kevin Tsujihara conducted the research and wrote preliminary drafts of this report. Additional copies may be obtained by writing Bank of America Regional Administration #3525, P.O. Box 471, Sacramento, CA 95802. December 1985.

Bank of America

909-12th Street, Sacramento, CA 95814-2931 • (916) 444-5864
LUNG

AMERICAN LUNG ASSOCIATION
of SACRAMENTO-EMIGRANT TRAILS
The Christmas Seal People ®

TESTIMONY BY KEN DODGE, BOARD MEMBER
FOR THE AMERICAN LUNG ASSOCIATION OF SACRAMENTO-EMIGRANT TRAILS
MONDAY, JANUARY 27, 1986
BEFORE THE SACRAMENTO CITY COUNCIL

Good evening members of the Sacramento City Council. I am Ken Dodge, Board Member of the American Lung Association of Sacramento Emigrant Trails.

The National American Lung Association, with the assistance of the American Thoracic Society prepared position statements on land use, transportation, and non-attainment areas in 1974 and 1975 to guide local affiliates in their air conservation activities.

In the area of land use, our national office recommends that lung associations "actively involve themselves in state land use programs and attempt to play an effective role in the decision-making process." More specifically, associations should insure the adequacy of land use plans regarding air pollution control, paying particular attention to issues involving transportation, industrial siting, indirect sources, and significant deterioration.

National Lung Association policy also states that "exposure to air pollution above ambient air quality standards is associated with a significant disease excess that, in its cumulative impact represents a very substantial public health burden. This statement points out that diseases and conditions aggravated by air pollution exposure are very common in the general population. For example approx. 23% of our total population is at risk due to asthma, chronic bronchitis, emphysema, and heart disease. In addition, 100% of the exposed population is at risk of acute respiratory infections and 100% of exposed children are at risk of disturbed lung function.

National Lung Association Policy on transportation states that transportation accounts for half the air pollution that plagues our country. Of course in the Sacramento region autos contribute greater than half our pollution. Vehicles produce hydrocarbons, nitrogen oxides, carbon monoxides, sulfur oxides, and aerosol particulates that include such toxic substances as lead. Stricter emission control laws do not attack the basic problems leading to auto related pollution such as: urban sprawl and massive traffic congestion.

Now that I have discussed our mission from a national perspective,

I would like to focus on the specific air quality related problems with this North Natomas Community Plan which include: the large amount of unmitigated vehicle emissions from the proposed plan combined with inconsistency with the regional air quality plan.

Sacramento is now a non-attainment area. We currently experience 14 - 23 unhealthy days each year where ozone pollution is above national standards. This last year several of those unhealthy days occured in June during one of this region's characterisic inversion periods. The pollution was so noticeable that many citizens thought it was an ag burning problem, but at that time the pollution was largely due to automobiles.

My next point is that since we are a nonattainment area, we should follow the control measues adopted in our regional air quality plan and we should update our air quality plan based on major changes in population and growth trends. Air quality planning should precede major land use plans.

The North Natomas Community Plan Environmental Impact Report states that by 1987 the Sacramento region is estimated to be approximately 32 tons per day over the emission levels needed to attain the ozone standard. By 1995, the region is estimated to be 42 tons per day over that level and even further from the ozone standard. According to the EIR, the effect of alternatives B - E would be continued violation of the ozone standard with an additional 4-5 tons of emissions or total emissions over 1 1/2 times the required levels.

The EIR states that alternatives B - E are not consistent with the regional air quality plan. The EIR sums up air quality impacts with the statement that the approval of one of these alternatives would require additional and more stringent control measures implemented on a regional basis to show progress towards meeting the ozone standard. These additional measures will in fact be required by EPA as part of their reasonable efforts program for non-attainment areas. Inadequate measures are included in the community plan.

The Lung Association of Sacramento-Emigrant Trails is also concerned about our ability to adopt additional and more stringent measures when we are not fully implementing our adopted plan. Several of the most effective land use and transportation measures do not have community goals set. The measures included in the contingency plan are very reasonable and should be fully implemented. Your adopted contingency plan includes the following measures:

Establishing special benefit assessment districts along light rail alignments to subsidize transit service improvements and expansion

Requiring financial participation in transit system improvement

and expansion by private development as a condition of development approval

Requiring financial participation in developing a regional ride-sharing incentive and marketing program by private employers as a condition of development approval.

The Association has requested a report back from the City staff on the regional air quality contingency plan and the level of implementation. We would also like to make some specific recommendations regarding the North Natomas community plan.

1. Development should be limited to 50% of the area south of Del Paso and east of I-5 (the Phase One area) until served by LRT or Sacramento has made substantial progress toward air quality compliance.

2. A comprehensive transportation system management plan should be established for the area. Air Conservation Committee Chair Ralph Propper will address this point.
3. Additional development should be allowed only when 75% of Phase One properties have been developed and occupied, LRT service has been established to North Natomas, and Sacramento has attained the air quality standard.

4. Transit rights of way dedications should be included within the North Natomas Community Plan and land dedications for transit amenities should be required as a condition of development approval.

Thank you very much. We appreciated the opportunity to speak tonight.

January 27, 1986

Mayor
Members of the City Council
Sacramento, California

I realize the American Political System requires tons of useless paper to function. With this in mind, I am submitting to you a copy of my prepared speech for you to weigh.

Thank you for your consideration.

Klanke

KLANKE HARMOR PRODUCTIONS
Theatrical Design
927-0878
4930 Tunis Road • Sacramento, CA 95835

Mayor and city council members -- I am Klanke, 4930 Tunis Road, a resident of North Natomas. I am speaking under the assumption that you are not going to destroy my home and the homes of my neighbors in Valley View Acres, but will allow the new planned community to grow around us.

I believe the proposed development of North Natomas should include plans for a community performing and exhibiting arts center.

While I do not oppose the sports complex, I don't believe that a group of grown men chasing a ball around constitutes a cultural event. I feel that any community needs a center for live theatre, art and dance lessons for our children and community meetings. A place Natomans can feel proud of.

There are already many creative and talented people living in the Natomas area; actors, musicians, artists and authors, with more to come as development continues.

This cultural community center could be located in a park area or one of the many vacant business complexes.

The cost could be borne by the different developers on an equal basis as a good faith offer to the people of the community.

A cultural community center in North Natomas with theatrical performances, music recitals and art exhibits would further enrich the entire Sacramento metropolitan area.

And while I have a captive audience --

There once was a city council,
Who voted development bountiful.
They filled up the land
And it sure looked grand,
But did they consider the cultural?

Draft
Environmental
Impact Report

This goes with
4p meeting of
2/6/86

North Natomas Community Plan
Volume 1

Prepared by

City of Sacramento
Department of Planning
and Development
Planning Division

Technical Assistance from

- Nichols · Berman
- McDonald & Associates
- Omni-Means, Ltd.

M84-007
SCH No. 84073010
July 1985

CONSULTANT TEAM
NORTH NATOMAS COMMUNITY PLANNING PROGRAM

The following Consultants have assisted the City and County of Sacramento in preparing the various studies associated with the North Natomas Community Planning Program:

PROJECT MANAGEMENT AND COORDINATION

Stephen L. Jenkins, AICP	Planning Consultant

ENVIRONMENTAL IMPACT REPORT

Nichols•Berman	Prime Consultant
Donald Ballanti	Air Quality Meteorologist
David Chavez and Associates	Cultural Resources Consultant
Robert C. Dixon	Certified Professional Agronomist
Economic and Planning Systems	Agricultural Analysis
Holton Associates	Biologists
Merrill and Seeley, Inc.	Geotechnical Engineering
Shute, Mihaly and Weinberger	Legal Assistance
Charles M. Salter Associates	Acoustical Consultant
Philip Williams and Associates	Hydrologists

COMMUNITY PLANNING

The SWA Group	Prime Consultant
LSA, Inc.	Environmental Analysis
Buchanan, Falik and Dupree	Legal Assistance

ECONOMIC AND FINANCIAL ANALYSIS

Angus McDonald and Associates	Prime Consultant

STADIUM/ARENA MARKET AND FINANCIAL ANALYSIS

Economics Research Associates	Prime Consultant
HNTB	Architects

TRANSPORTATION PLANNING AND ANALYSIS

Omni-Means, LTD	Prime Consultant

WASTEWATER ENGINEERING ANALYSIS

CH2M Hill	Prime Consultant

WATER AND DRAINAGE ENGINEERING ANALYSIS

Dewante and Stowell	Prime Consultant

WORD PROCESSING AND FILE MANAGEMENT

Lorna Russell	Project Technician

CITY OF SACRAMENTO

DEPARTMENT OF PLANNING AND DEVELOPMENT
1231 "I" Street Sacramento, Ca. 95814

Administration
Room 300 449-5571
Building Inspections
Room 200 449-5716
Planning
Room 200 449-5604

July 1, 1985

Interested Persons:

SUBJECT: Draft EIR for North Natomas Community Plan Alternatives (M84-007)

The City Planning Division is forwarding this document for review and comment to all agencies, organizations, and interested persons indicated on the enclosed distribution list. Reviewers should focus on the comprehensiveness and accuracy of the EIR in discussing possible impacts upon the environment, ways adverse aspects might be mitigated, and alternatives to the project.

This document is being circulated for a 45-day review period; consequently, comments should be received by the Planning Division at 1231 I Street, Suite 300, Sacramento, California, 95814 NOT LATER THAN 5:00 P.M., AUGUST 15, 1985. A joint session of the Sacramento City Planning Commission and Sacramento County Policy Planning Commission will consider this document at their special meeting on August 1, 1985, at 5:30 p.m. in the Council Chamber of City Hall, 915 I Street, Sacramento, California. Persons commenting on this document are urged to submit written comments to this office prior to the public hearing. Failure to do so will not preclude your right to testify at the hearing. Written comments and oral testimony submitted at the public hearing will be incorporated into the Final EIR. This Draft EIR will also act as part of the Final EIR unless substantial changes are made. Comments on this draft document and replies will be sent to those who comment; therefore, it is requested that you keep this document. The Draft EIR, plus an addendum consisting of comments and responses and any additional information, will constitute the Final EIR.

A copy of this document has been forwarded for public review to the following libraries: Arcade, Carmichael, Central (downtown), McKinley, McClatchy, Del Paso, Martin Luther King, Southgate, North Sacramento, Hagginwood, Cosumnes College, and to the CSUS Science/Tech Library. In addition, a copy may be reviewed or obtained for $27.00 at the City Planning Division.

If you have any questions regarding this Draft EIR, please contact Stephen L. Jenkins, Project Coordinator or Kathy Molloy at (916)449-5381, or Cliff Carstens at (916)449-2073.

Sincerely,

Marty Van Duyn
Planning Director

MVD:SLJ:lr
Enclosure

DRAFT EIR DISTRIBUTION LIST
NORTH NATOMAS COMMUNITY PLAN ALTERNATIVES
JULY 1, 1985

Sacramento City Council
City Hall, Room 205
915 I Street
Sacramento, CA 95814

Sacramento City Planning Commission
1231 I Street, Third Floor
Sacramento, CA 95814

Walter J. Slipe
City Manager
City of Sacramento
915 I Street
Sacramento, CA 95814

Mel Johnson, Director
Department of Public Works
City of Sacramento
915 I Street
Sacramento, CA 95814

Jim Bloodgood
Traffic Engineer
City of Sacramento
915 I Street
Sacramento, CA 95814

Chief John Kearns
Police Department
City of Sacramento
915 I Street
Sacramento, CA 95814

Chief William Powell
Fire Department
City of Sacramento
915 I Street
Sacramento, CA 95814

Robert Thomas
Department of Parks and Community Services
City of Sacramento
Sacramento, CA 95814

James P. Jackson
City Attorney
City of Sacramento
812 10th Street
Sacramento, CA 95814

Tom Friery
Treasurer
City of Sacramento
915 I Street
Sacramento, CA 95814

Jack Crist
Finance Director
City of Sacramento
915 I Street
Sacramento, CA 95814

Harry Behrens
Water and Sewer
City of Sacramento
Sacramento, CA 95814

Al Hendrickson
Department of Public Works
City of Sacramento
915 I Street
Sacramento, CA 95814

Rob Richards
Sacramento Public Library System
7000 Franklin Boulevard
Sacramento, CA 95823

Christine Olson
PIO
City of Sacramento
915 I Street
Sacramento, CA 95814

Bill Edgar
Redevelopment Agency
City of Sacramento
Sacramento, CA

Sam Burns
Convention Center
City of Sacramento
Sacramento, CA

Susan Swain
Sacramento Central Library
828 I Street
Sacramento, CA 95814

Arcade Community Library
2443 Marconi Avenue
Sacramento, CA 95821

Carmichael Region Library
5605 Marconi Avenue
Carmichael, CA 95608

McKinley Library
601 Alhambra Boulevard
Sacramento, CA 95816

McClatchy Library
2122 22nd Street
Sacramento, CA 95822

Southgate Community Library
6132 66th Avenue
Sacramento, CA 95823

Del Paso Branch Library
920 Grand Avenue
Sacramento, CA 95838

Martin Luther King Region Library
7340 24th Street Bypass
Sacramento, CA 95822

North Sacramento Branch Librar
492 Arden Way
Sacramento, CA 95815

Hagginwood Branch Library
3271 Marysville Boulevard
Sacramento, CA 95815

The Library-Science/Technical
California State University
Attention: E. Heaser
2000 Jed Smith Drive
Sacramento, CA 95819

Cosumnes College Library
8401 Center Parkway
Sacramento, CA 95823

Sacramento Bee
City Desk
P. O. Box 15779
Sacramento, CA 95813

Sacramento Union
Rick Kushman
301 Capitol Mall
Sacramento, CA 95812

Suttertown News
2791 24th Street, Room 16
Sacramento, CA 95818

Sacramento County Board of
Supervisors
700 H Street, Administration
Building
Sacramento, CA 95814

Sacramento County Policy
Planning Commission
700 H Street, Room 2450
Sacramento, CA 95814

Sacramento County Planning
Department
Attention: Sue Ziegler
827 7th Street, Room 230
Sacramento, CA 95814

Sacramento County Environmental
Section
Attention: Al Freitas
827 7th Street, Room 101
Sacramento, CA 95814

Sacramento County Planning
Department
Attention: Tom Sparks
827 7th Street, Room 230
Sacramento, CA 95814

Sacramento County Environmental
Health Agency
3701 Branch Center Road
Sacramento, CA 95827

Keith Miller
County Agricultural Commission
4137 Branch Center Road
Sacramento, CA 95827

John O'Farrell
LAFCO
700 H Street, Room 7625
Sacramento, CA 95814

Brian Richter
County Executive
700 H Street, Room 7650
Sacramento, CA 95814

Randy Faust
County Highways and Bridges
827 7th Street, Room 201
Sacramento, CA 95814

Jim Dixon
County Drainage Engineer
827 7th Street, Room 301
Sacramento, CA 95814

Butch Hodgekins
Water Quality Division
9660 Ecology Lane
Sacramento, CA 95827

Tom Engel
Department of Airports
6900 Airport Boulevard, Suite 200
Sacramento, CA 95837

Barry Steiner
County Counsel
700 H Street, Room 2650
Sacramento, CA 95814

D. W. McKenzie
Director of Public Works
827 7th Street, Room 304
Sacramento, CA 95814

Stephen Birdlebough
Air Pollution Advisory Board
3701 Branch Center Road
Sacramento, CA 95827

Gary Glissmeyer
APCD
3701 Branch Center Road
Sacramento, CA 95827

STDA
926 J Street, Suite 611
Sacramento, CA 95814

Mike Wiley
Regional Transit
P.O. Box 2110
Sacramento, CA 95810

Paul Olmstead
SMUD
P. O. Box 15830
Sacramento, CA 95813

SACOG
106 K Street, Suite 200
Sacramento, CA 95814

Airport Land Use Commission
Attention: Peter Hill
106 K Street, Suite 200
Sacramento, CA 95814

Mike Hoffacker
SACOG
106 K Street, Suite 200
Sacramento, CA 95814

David Oto
SMUD-Distribution Planning
P. O. Box 15830
Sacramento, CA 95813

Gene Moir
Regional Transit
P. O. Box 2110
Sacramento, CA 95810

Walt Parsons
Sacramento Unified School District
1619 N Street
Sacramento, CA 95814

Dennis Clark
Port of Sacramento
World Trade Center
West Sacramento, CA 95691

Alan Hubbard
Sacramento-Yolo Mosquito Abatement District
1650 Silica Avenue
Sacramento, CA 95815

Mr. Raff McDonald
Natomas Union School District
3700 Del Paso Road
Sacramento, CA 95834

IRA Carter
Grant Joint Union School District
1333 Grand Avenue
Sacramento, CA 95838

Thomas Betts
RD-1000
1633 Garden Highway
Sacramento, CA 95833

Keith Lamb
PGandE
P. O. Box 7444
Sacramento, CA 95826

Rich King, Director
Sutter Yuba City Planning Department
204 C Street
Yuba City, CA 95991

Ben Hulse, Community Development
Yolo County
292 West Beamer Street
Woodland, CA 95695

Janet Ruggiero
Planning Director
300 First Street
Woodland, CA 95695

Office Of Planning and Research
Clearinghouse, Room 250
1400 10th Street
Sacramento, CA 95814

Reclamation Board
Attention: Ted Allen
1416 9th Street, Room 335-12
Sacramento, CA 95814

Air Resources Board
Regional Program Division
P. O. Box 2815
Sacramento, CA 95812

California Department Parks and Recreation, Cultural Resources
c/or Francis A. Riddell
P. O. Box 2340
Sacramento, CA 95811

California State Water Quality Control Board
c/o William Crooks
3201 S Street
Sacramento, CA 95816

CA Department of Conservation
Environmental Coordinator
1416 9th Street, 13th Floor
Sacramento, CA 95814

California Department Fish and Game
c/o John Turner
1416 9th Street
Sacramento, CA 95814

California Department of Healt
c/o Harvey Collins, Room 430
714 P Street
Sacramento, CA 95814

Native American Heritage Commission
915 Capitol Mall, Room 288
Sacramento, CA 95814

James M. Doyle
CA Department of Parks and Rec
Environment Review Section
P. O. Box 2390
Sacramento, CA 95811

Peter Troast
Assemblyman Llyoyd Connely's C
State Capitol, Room 2179
Sacramento, CA 95814

Allison Harvery
Assembly Isenberg's Office
State Capitol, Room 2175
Sacramento, CA 95814

Peter Detwiler
Senate Committee on Local Gvt.
State Capitol, Room 2080
Sacramento, CA 95814

California Housing & Developme
c/o DAve Williams
921 10th Street
Sacramento, CA 95814

Mr. Jim McClelland
Economic Development Department
800 Capitol Mall, MIC 57
Sacramento, CA 95814

Janice Moore
Department of Conservation
1516 9th Street, Suite 400
Sacramento, CA 95814

Kirk Breed
CAL EXPO
P. O. Box 15649
Sacramento, CA 95852

Donna Lott
Air Resources Board
Technical Services Division
1131 S Street
Sacramento, CA 95814

David Lundquist
Government Documents Department
Shields Library
U. C. Davis
Davis, CA 95616

Mr. Steven Krohn
Sacramento State
6000 J Street
Sacramento, CA 95814

Robert I. Remen
California Transportation Commission
1120 N Street
Sacramento, CA 95814

Scenic Highway Program Coordinator
1120 N Street
Sacramento, CA 95814

William Green
CALTRANS District 3
P. O. Box 911
Marysville, CA 95901

Joe Heller
CALTRANS District 3
P. O. Box 911
Marysville, CA 95901

Brian Smith
CALTRANS District 3
P. O. Box 911
Marysville, CA 95901

Burton Brockett
CALTRANS District 3
P. O. Box 911
Marysville, CA 95901

Irene Itamura
CALTRANS District 3
P. O. Box 911
Marysville, CA 95901

CA Department Trans/Aero
1120 N Street
Sacramento, CA 95814
Attention: Chief Planning and Programming

California Department of Agri.
1220 N Street
Sacramento, CA 95814
Attention: Dr. Gordon Snow

U.S. Bureau of Reclamation
Department of Interior
2800 Cottage Way
Sacramento, CA 95825

U.S. Soil Conservation Service
Area Conservationist
621 J Street, Suite 2
Sacramento, CA 95814

U.S. Army Corps of Engineers
650 Capitol Mall
Sacramento, CA 95814
Attention: Col. A.E. Williams

EIS Coordinator, Region 9
Environmental Protection Agency
215 Fremont Street
San Francisco, CA 94105

Office of Environmental Project Review
U.S. Department of Interior
18th and C Streets, NW
Washington, DC 20242

Federal Aviation Administration
Airport District Office
Burlingame, CA 94010

FHWA District Engineer
P. O. Box 1915
Sacramento, CA 95814
Attention: Michael Cook

Natomas Central Mutual Water
2601 West Elkhorn Boulevard
Rio Linda, CA 95673
Attention: Gene Stoltenberg

Golden Empire Health Systems Agency
827 7th Street, Suite 431
Sacramento, CA 95814

Robla School District
5248 Rose Avenue
Sacramento, CA 95838

Del Paso Heights School District
575 Kesner Avenue
Sacramento, CA 95838

PacTel
2700 Watt Avenue, Room 2135
Sacramento, CA 95821

Steve Speights
PSOMAS/Justice Associates
4153 Northgate Boulevard
Sacramento, CA 95834

Ron Smith
The Spink Corporation
720 F Street
Sacramento, CA 95814

Greg Thatch
Attorney-at-Law
1700 L Street
Sacramento, CA 95814

Rodger Fong
6230 Gloria Drive
Sacramento, CA 95831

Williamson and Associates
15 Healdsburg Court
Sacramento, CA 95831

Al Doyle
Brown and Caldwell
723 S Street
Sacramento, CA 95814

Richard Benvenuti
1515 K Street, Suite 100
Sacramento, CA 95814

Greg Lukenbill
Sacramento Sports Association
3600 Power Inn Road
Sacramento, CA 95826

Ken Klug
George S. Nolte & Associates
1700 L Street
Sacramento, CA 95814

Leonard Blackford
Dreyfuss and Blackford
3540 Folsom Boulevard
Sacramento, CA 95816

John Pitalo
Morton & Pitalo, Inc.
1430 Alhambra Boulevard, #200
Sacramento, CA 95816

Bob Bell
Hefner, Stark, and Marois
555 Capitol Mall, Suite 1425
Sacramento, CA 95814

George Tsakopoulos
300 Florin Road
Sacramento, CA 95828

Buzz Oates
8401 Jackson Road
Sacramento, CA 95826

Enlow Ose & Associates
100 Howe Avenue, Suite 100 North
Sacramento, CA 95825

Garden West Mobile Estates
4200 El Centro Road
Sacramento, CA 95837

Jacob Bolen
5507 Haskell Avenue
Carmichael, CA 95608

Ron Bass
Jones & Stokes Associates, Inc.
2321 P Street
Sacramento, CA 95816

Audrey Germain
Sacramento Aero Services
3801 Airport Road
Sacramento, CA 95834

Robert Waller
900 Wilshire Boulevard
Suite 1510
Los Angeles, CA 90017

Bill Abbott
1210 G Street, Suite 2
Sacramento, CA 95814

North Sacramento School Distric
670 Dixieanne Avenue
Sacramento, CA 95815

Joel Gray
Union Pacific-Legal Department
555 Capitol Mall, Suite 490
Sacramento, CA 95814

Mike Seward
Sacramento Chamber of Commerce
917 7th Street
Sacramento, CA 95814

John Roberts III
SACTO
1007 7th Street, Suite 450
Sacramento, CA 95814

Collette Schulkee
Sacramento Board of Realtors
1808 J Street
Sacramento, CA 95814

Vince Latino
BIASC
2211 Royale Road
Sacramento, CA 95814

Mr. Simpson
USDA
65 Quinta Court, Suite C
Sacramento, CA 95823

Betty Gwiazdon
Sacramento Apartment Assoc.
1330 21st Street, Suite 104
Sacramento, CA 95814

Bldgrs. Exc. of Sacramento
c/o Tom Pappas
P.O. Box 1462
Sacramento, CA 95807

Mike Ross
2160 Yorkshire Road
Sacramento, CA 95818

Prof. Robert Johnston
Division of Environmental Studies
U.C. Davis
Davis, CA 95616

SCOLD
c/o Daniel Yamshon
915 21st Street
Sacramento, CA 95816

Tina Thomas
Farms in Our Future
801 12th Street, Suite 500
Sacramento, CA 95814

Toxic Alliance
P. O. Box 163063
Sacramento, CA 95816

South Natomas Community Association
P. O. Box 15362
Sacramento, CA 95813

Jude Lamare
ECOS
909 12th Street
Sacramento, CA 95814

Lung Association
c/o Jane Hagedorn
909 12th Street
Sacramento, CA 95814

Mr. John Anderson
Sacramento Audubon Society
3615 Auburn Boulevard
Sacramento, CA 95814

Ms. Katharine Agruss
Modern Transit Society
5900 Hoffman
Fair Oaks, CA 95628

Lois Woodruff
League of Women Voters
2206 K Street, Suite 2
Sacramento, CA 95816

Tom Merril
Planning and Conservation League
1228 N Street, #33
Sacramento, CA 95814

Bob Doyle
Natomas Community Association
1209 Fairweather Drive
Sacramento, CA 95813

Steve Sanders
Transportation Coalition
1125 10th Street
Sacramento, CA 95814

George Cope Jr.
P. O. Box 1017
Sacramento, CA 95805

California Native Plant Society
c/o Lorraine Van Kekeriz
4201 62nd Street
Sacramento, CA 95820

Sierra Club
c/o Virginia Bacon
2837 Carrisa Way
Sacramento, CA 95821

Betty Novak
Route 3, Box 1238
Sacramento, CA 95834

Executive Secretary
California Natural Areas Coordinating Council
1505 Sobre Vista Way
Sonoma, CA 95476

John Harvey Carter
417 20th Street
Sacramento, CA

Sacramento Old City Association
P. O. Box 1022
Sacramento, CA 95805

Sacramento Downtown Association
455 Capitol Mall, Suite 376
Sacramento, CA 95814
Attention: Howard Evanson

Sacramento County Farm Bureau
c/o Gerry Lemieux
11695 Karry Lane
Galt, CA 95632

Arcade Creek
Restoration Project
c/o Steve Talley
4347 Stollwood Drive
Carmichael, CA 95608

NORTH NATOMAS COMMUNITY PLAN ALTERNATIVES EIR

VOLUME 1

TABLE OF CONTENTS

EXHIBITS

APPENDICES -- See Separate Technical Appendix

EXHIBIT NUMBERING SYSTEM

The Exhibits contained in this Draft EIR are not numbered consecutively. Because of the length of this report, as well as the length of each individual section, the Exhibits are numbered for the pages on which they are located in the report. For example, note that the first Exhibit in Section A is located on Page A-4 and, therefore, is labeled Exhibit A-4. It is hoped that this numbering system will make it easier to refer to specific Exhibits at public hearings during which this EIR is being considered or discussed.

PREFACE

BRIEF HISTORICAL PERSPECTIVE OF THE NORTH NATOMAS AREA [1]

1908 The Natomas Consolidated Corporation was formed to reclaim 80,000 acres of land from annual river flooding within and adjacent to North Natomas for agricultural purposes.

1911 Reclamation District 1000 was formed by the State Legislature.

1912 Construction of the Sacramento River Levee was begun. The reclamation effort was the largest area then being reclaimed in the United States.

1961 At the request of property owners, the incorporated area currently known as North Natomas was annexed to the City of Sacramento. Annexation of this area for the provision of future urban services was based on the proposed establishment of a sanitation district in North Natomas, the planned location of Metro Airport, and the anticipated construction of several freeways through the area. Due to its agricultural land use at the time, the annexed area was placed in the "A" Agricultural Zone Classification.

At the time North Natomas was annexed to the City in 1961, Sacramento County was in the process of establishing a sewer assessment district within the area. The Natomas Sanitation District was established in January, 1962 and served the area until its functions were assumed by the Sacramento Regional County Sanitation District in October, 1974.

Between 1959 and 1961, nearly 30 square miles of undeveloped land was annexed to the City of Sacramento, doubling the size of the City. As a result, the City Planning Department began the preparation of General Development Plans for the three major undeveloped areas of the City (Natomas, Pocket, and Florin-South). These General Development Plans were to serve as more detailed refinements of the broad criteria contained in the 1959 Citywide General Plan. The Plans would cover specific smaller areas so that location, size, and distribution of major land uses,

---

[1] Source: City of Sacramento Planning Department

transportation facilities, and public facilities (such as schools and parks) could be determined for the area. The Plans were not based on population or employment forecasts or projections, and, as a result, the Plans provided no information as to how fast or when the areas might develop.

1962 The Natomas General Development Plan was adopted by the City, incorporating adopted State, County, and City development plans and policies in effect at that time. Because of the large geographic area covered by the Natomas General Development Plan (nearly 28 square miles of both City and County territory which equalled the size of the entire City only four years earlier), the provisions of the Plan necessarily were general. The Plan was revised and re-adopted by the City in May, 1965.

1963 County Board of Supervisors adopted a Resolution approving the construction of Metro Airport in North Natomas.

1966 The City of Sacramento adopted an updated Citywide General Plan which incorporated the general land uses and public facilities indicated by the 1965 Natomas General Development Plan.

1967 Metro Airport was opened.

1968 Interstate 5 was completed in North Natomas.

1970 Interstate 80 (880) was completed in North Natomas.

1973 The City of Sacramento added the Open Space and Conservation Elements to its Citywide General Plan pursuant to State legislation. The Open Space Element designated that portion of North Natomas north of Del Paso Road as permanent (long-term) Agriculture, since the projected rate of local urban growth did not anticipate urbanization of the area within the 20-year planning period. The area south of Del Paso Road was designated as Agriculture-Urban Reserve, since all or part of the area might be needed to accommodate growth during the 20-year planning period.

1973 County Board of Supervisors approved urbanization of the Northgate Industrial Park located south of Del Paso Road west of Northgate Boulevard.

1974 The City adopted its 1974 Citywide General Plan, including the Open Space and Conservation Elements which had been adopted the previous year. The other elements of the Plan reflected the City's policy against leap-frog development and in favor of urbanization adjacent to existing urbanized areas.

1978 The City adopted the South Natomas Community Plan for the seven-square mile area located south of Interstate 80. Major features of the Plan included the provision of a substantial amount of mixed housing types and increased transit utilization near the region's major employment center (downtown) so as to reduce development pressures on prime agricultural lands located north of Interstate 80.

1979 Owners of a 435-acre parcel in North Natomas circulated a petition for an initiative measure which would rezone the site to allow the development of a sports complex. The measure was not approved by the voters.

1979 In September, 1979, the US Environmental Protection Agency adopted a policy to protect environmentally significant agricultural lands. In March, 1979, the EPA conditioned its grant funding for the Natomas Interceptor System to restrict future connections to this system in North Natomas.

1982 The City Council adopted Growth Policy Resolution 82-251 (see page iv) to serve as the framework for updating the 1974 Citywide General Plan. The Growth Policy also recommends that the North Natomas area be designated for Agricultural land use through 1995.

1983 The City received land use applications proposing urbanization within North Natomas. The City Council authorized $1.5 million to fund the North Natomas Community Planning Studies. The Planning Studies are the largest and most comprehensive planning program being conducted in the State at this time.

RESOLUTION NO. 82-251

ADOPTED BY THE SACRAMENTO CITY COUNCIL ON DATE OF

April 13, 1982

APPROVING GROWTH POLICY RECOMMENDATIONS
FOR THE CITY OF SACRAMENTO (M-500)

WHEREAS, the City of Sacramento is currently in the process of updating its General Plan; and

WHEREAS, the City Council has given priority to early resolution of growth matters affecting the City's future development; and

WHEREAS, the City Planning Commission and City Council recognize that timely decisions on the nature and extent of growth serves as the foundation for definitive studies and General Plan recommendations; and

WHEREAS, the City has the ability to accommodate projected growth trends within the existing urban area, and that ability can be substantially increased by implementing an infill policy emphasizing such land use strategies as reuse and increased densities in selected communities; and

WHEREAS, the Sacramento Metropolitan Statistical Area (SMSA) has the potential to capture up to one-third of the high technology industrial growth in California over the next 20 years if measures are taken to actively encourage such growth; and

WHEREAS, the North Natomas is, for the most part, high quality, economically productive agricultural land and there is no suitable land in the Sacramento area which can be substituted which is not already under production; and there are no remaining physical barriers within either the City or County which will limit the extent of urbanization if North Natomas is opened for urban development; and

WHEREAS, agricultural production is a viable economic use of land in North Natomas that should be viewed as long term rather than simply in a holding zone for urban development; and

WHEREAS, the City can still capture a fair share of high technology industrial growth while adhering to its agricultural land preservation policies and preferred land use strategies by permitting industrial development in the southerly portion of the Meadowview area; and

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Sacramento approves the recommendations contained in the document entitled "Growth Policy - Conclusions and Recommendations" amended by the Planning Commission on April 1, 1982, including redesignation of the entire North Natomas area as "agriculture" in the General Plan;

BE IT FURTHER RESOLVED that the City Planning Department is directed to designate the Delta Shores area as a primary high technology development area for the City of Sacramento, and to accelerate the planning process for that area, including resolution of the Interstate 5 freeway interchange and former Route 148 relocation problems; and

BE IT FURTHER RESOLVED that the City Planning Department is directed to prepare the updated General Plan using the growth policy recommendations referenced above.

MAYOR

ATTEST:

CITY CLERK

A. PROJECT DESCRIPTION

INTRODUCTION

This is an Environmental Impact Report (EIR) for the North Natomas Community Plan. In order to evaluate a range of possible Community Plans, the City of Sacramento has prepared five Community Plan alternatives. Each alternative is evaluated with equal weight in this EIR. The Community Plan which is proposed for adoption would be an amendment to the 1974 Sacramento City General Plan. In addition to the North Natomas Community Plan alternatives, this EIR has been prepared to assess the impact of five individual projects for which applications have been filed seeking land use entitlements for properties located in the North Natomas Study Area. The five projects are as follows: Gateway Point (City Planning Department file number P83-424), Fong Ranch (P84-013), Schumacher-Iversen (P84-032), Payne (P84-036), and Reid-Ketscher (P84-037). A discussion of the specific entitlements requested by each application is provided beginning on page A-24.

As part of the process to determine the scope of this EIR, the City of Sacramento circulated a Notice of Preparation on August 1, 1984 to all Responsible Agencies and to other interested persons. The Notice of Preparation stated that the EIR would examine the environmental impacts of a Draft Community Plan and two alternatives -- the No Project Alternative and a Composite Alternative which incorporated the five specific individual land use applications on file with the City. Subsequent to the final day for comments on the Notice of Preparation the City decided to expand the scope of the EIR by including two additional land use alternatives. The first additional alternative describes a level of urbanization between the No Project and the Draft Community Plan alternatives; the second additional alternative describes a level of urbanization between the Draft Community Plan and the Composite alternatives. The inclusion of the additional alternatives was partly in response to various concerns expressed by the public and City and County Planning Commissioners regarding the scope of the EIR.

This EIR has been prepared to cover the following legal and administrative actions related to the North Natomas Community Plan:

- Approval of a General Plan Amendment to the City of Sacramento 1974 General Plan.

- Approval of a Community Plan for the North Natomas Community.

- Approval of a General Plan Amendment to the Sacramento County 1982 General Plan.

- Establishment of a Planned Unit Development in accordance with Section 8 of the Zoning Ordinance of the City of Sacramento. The Planned Unit Development application includes a request for approval of a Planned Unit Development Designation and a PUD Schematic Plan for 1,620 acres known as Gateway Point.

- Approval of a Special Use Permit to construct an 18,000-seat sports arena.

- Rezoning of certain properties as requested by the five individual applications (Gateway Point, Fong Ranch, Schumacher-Iversen, Payne, and Reid-Ketscher).

- Approval of a Transmission Facility Permit in accordance with Section 29 of the Zoning Ordinance of the City of Sacramento. This is required to enable the Sacramento Municipal Utility District (SMUD) to provide electrical service to the Study Area -- not the proposed Geothermal Public Power Line Project.

The lead agency for this EIR is the City of Sacramento. Responsible agencies (including those with permit-granting authority over this action) include:

- Sacramento County

- Reclamation District 1000

- Sacramento County Regional Sanitation District

- Regional Transit (RT)/Sacramento Transit Development Agency (STDA)

- Sacramento Municipal Utility District (SMUD)

- Sacramento County-Yolo County Mosquito Abatement District

- State of California -- Reclamation Board, Department of Transportation, Department of Fish and Game

- United States Government -- Federal Highway Administration, US Army Corps of Engineers, Environmental Protection Agency

In accordance with correspondence on file with the City of Sacramento Planning Department dated January 9, 1984 to the Spink Corporation from the City Planning Department and dated February 8, 1984 from George S. Nolte and Associates, this EIR is being prepared to contain a level of detail and analysis adequate for consideration by the Sacramento City Council for action on the five land use applications and associated entitlements which have been requested. The EIR, however, may not adequately address the level of detail and analysis required for State and Federal actions on such matters as future interstate highway interchanges, drainage projects, or a waiver from present restrictions on sewer connections within the Study Area.

PROJECT LOCATION

The 14,300-acre North Natomas Community Plan Study Area is located within both the City and the County of Sacramento (see Exhibit A-4).

The Study Area boundaries generally include all City land north of Interstate 80, south of Elkhorn Road, and west of the East Main Drainage Canal, plus the Sacramento Metropolitan Airport (Metro Airport) and approximately 2,000 acres of airport-related industrial land immediately east of the airport (see Exhibit A-5). Including all drainageways and roadways as well as land parcels, the Study Area includes 7,778 acres within the City of Sacramento and 6,552 acres within Sacramento County.

In addition to the Study Area, this EIR refers to the North Natomas Analysis Area. The Analysis Area incorporates the Study Area and is bounded on the east by the East Main Drainage Canal, on the south by Interstate 80, on the west by the Sacramento River, and on the north by the Sutter County line.

In order to place the size of the Study Area in proper perspective, Exhibit A-6 provides a comparison of the Study Area with downtown Sacramento. The Study Area represents approximately 22 square miles -- approximately more than one-fifth of the area of the City or approximately six times the size of downtown Sacramento.

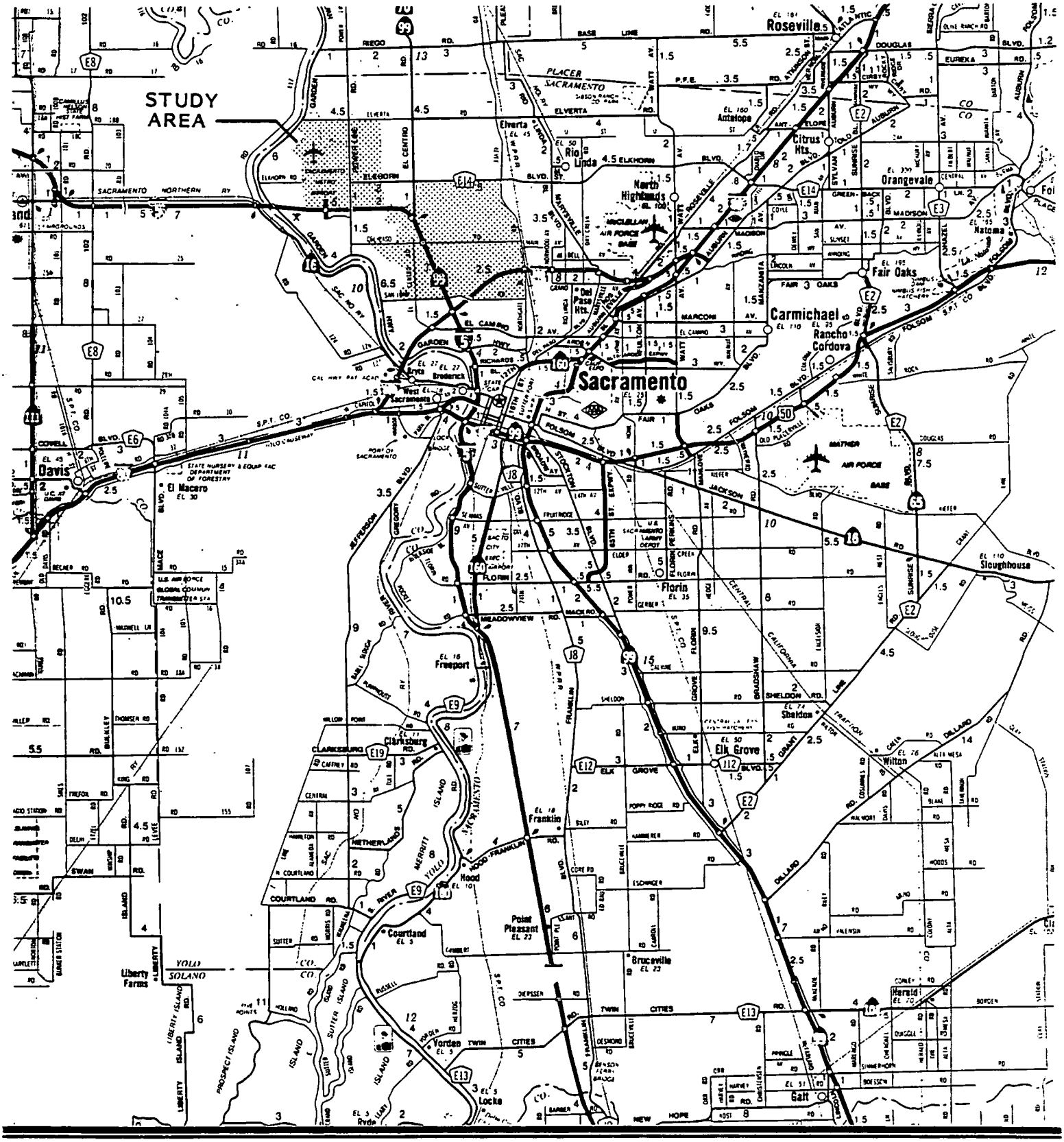


EXHIBIT A-4
REGIONAL LOCATION

North Natomas Community Plan study area

0 3 Mi.

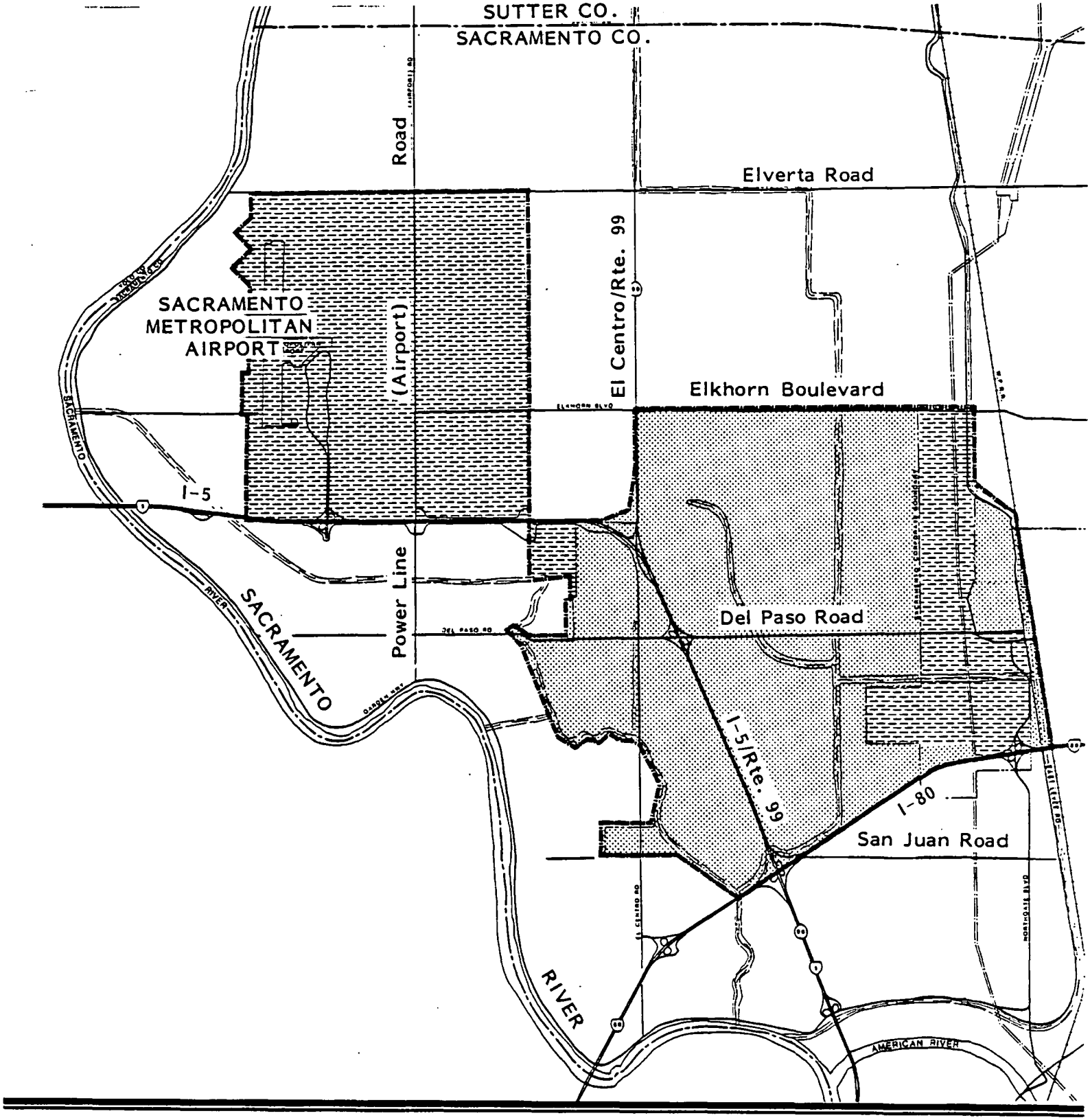


EXHIBIT A-5
STUDY AREA

City of Sacramento

County of Sacramento

0 3200 6400 Ft.

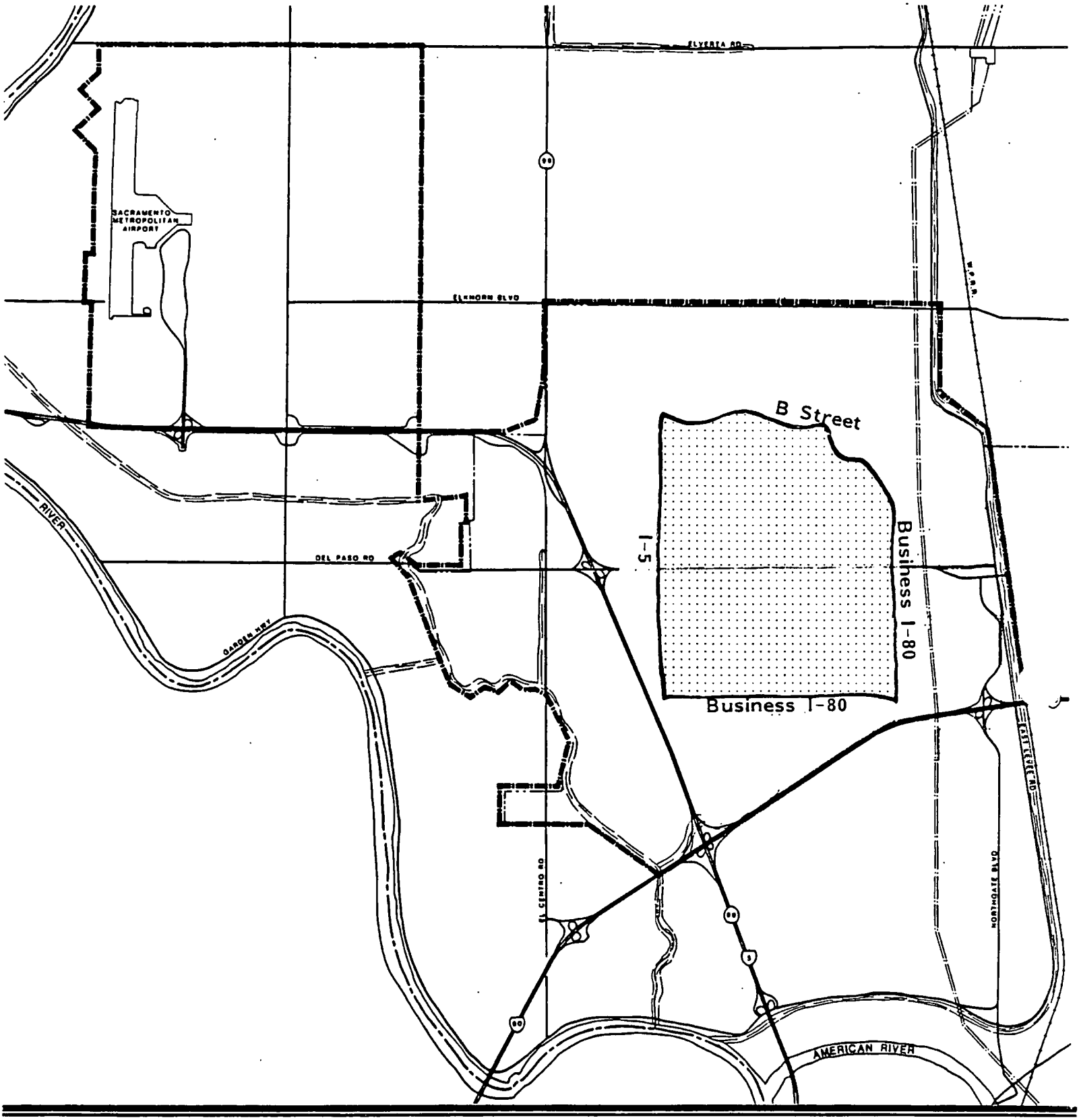


EXHIBIT A-6
COMPARISON OF STUDY AREA WITH DOWNTOWN SACRAMENTO

DESCRIPTION OF THE PROPOSED PROJECT

In December, 1983 and January, 1984 the City of Sacramento received five applications to convert agricultural lands within the North Natomas Study Area to urban use. Such a conversion would not be consistent with the provisions of the 1974 City of Sacramento General Plan or the Growth Policy adopted by the City Council in 1982. Rather than act independently on the five individual applications, the City Council adopted Resolution 84-075 on January 31, 1983 (Exhibit A-8), deciding that it first should determine whether urban development of the North Natomas area should occur at this time. The means for making this determination was to conduct a detailed community planning study and infrastructure study in conjunction with Sacramento County in order to determine market demand, constraints, and costs associated with such urbanization. Further processing of the five applications is being held in abeyance pending completion of the required studies.

As a result, the City and County of Sacramento initiated the North Natomas Planning Program to determine whether North Natomas should urbanize and, if so, to guide the nature of development. The Planning Program and this EIR are based on the following assumptions:

I. Background

The following assumptions will guide members of the Consultant Team in preparing the North Natomas Planning Studies and EIR. For the most part, each of the assumptions is based on existing policies and direction provided by the City Council and/or Board of Supervisors during the start-up and organization of the North Natomas Planning Program.

II. Overall Study Assumptions

1. The primary focus of the North Natomas Planning Program and all consultant studies will be aimed at determining whether the urban development of the North Natomas areas should occur at this time. The means for making that determination is to conduct a detailed community planning study and infrastructure study in order to ascertain market demand, constraints, and costs associated with any such urbanization.

CERTIFIED AS TRUE COPY of Resolution No. 84-075
FEB 6 1984
DATE CERTIFIED
Assistant CITY CLERK, CITY OF SACRAMENTO

EXHIBIT A-8

RESOLUTION NO. 84-075

Adopted by The Sacramento City Council on date of

JAN 31 1984

RESOLUTION RELATING TO GROWTH POLICY

WHEREAS, the City Council of the City of Sacramento on April 13, 1982, approved the report entitled "Growth Policy--Conclusions and Recommendations" dated March 18, 1982, and as subsequently amended; and

WHEREAS, an application called Gateway Point has been submitted to the Sacramento Planning Commission to amend the City's General Plan covering 1,550 acres in the North Natomas Area; and

WHEREAS, legal counsel has advised that the merits of the Gateway Point application for a General Plan Amendment cannot be prejudiced; and

WHEREAS, there may be other applications forthcoming for amendments to the General Plan or rezoning in the area north of Del Paso Road and west of Interstate 5 freeway; and

WHEREAS, there is an urgent need to develop a Comprehensive Plan for the North Natomas area covering both the land within the City of Sacramento and the unincorporated area;

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The City Planning Commission and Planning staff are hereby directed to continue the expeditious processing of the Gateway Point application in order to make an independent recommendation back to the City Council on the merits of that request;

2. The Sacramento County Board of Supervisors be requested to coordinate their planning with the City in the formulation of a Master Plan for the entire North Natomas area to include consideration of the protection of the Sacramento Metropolitan Airport and its clear zones, the preservation of agricultural lands, the establishment of permanent greenbelts and urban development in appropriate locations;

3. The City of Sacramento will discourage receipt of all other applications at this time for General Plan Amendments or rezoning in the area north of Del Paso Road and west of I-5 until the North Natomas Community Master Plan is completed; and,

4. The City Planning Commission and Planning staff are hereby directed to work with County of Sacramento staff, Sacramento County Regional Sanitation District staff, Reclamation District 1000 staff, and the proposed developers on a complete infrastructure plan including water, sewer, drainage, and transportation for the entire North Natomas area and the Gateway Point application. This plan should be completed at no cost to any of the public agencies, and shall be completed prior to any action on the Gateway Point application.

5. The City Planning Commission and Planning staff are hereby directed to work with the Sacramento Employment and Training Agency, and the Sacramento Housing and Redevelopment Agency to work with the proposed developers to complete an Employment and Economic Development Opportunity Plan. The Plan should be completed at no cost to any of the public agencies, and shall be completed prior to any action on the Gateway Point application.

6. In the interim, the Sacramento City Council reaffirms its adopted growth policy pending completion of the processing of the Gateway Point application, its environmental impact report and the North Natomas Community Plan.

ATTEST:

MAYOR

Assistant CITY CLERK

2. The North Natomas Community Plan, EIR, and all related studies will be prepared and completed in an expeditious manner so as to permit the matter to be scheduled for decision by the City Council not later than October 31, 1985. (Note: Due to the decision to prepare an additional two alternatives (B & D) the decision of the City Council has been revised to occur in January, 1986.)

3. The Study Area is defined as all areas of the City of Sacramento located north of Interstate 80 and west of the East Main Drainage Canal, plus Sacramento Municipal Airport and an area east of the Airport which is bounded by Interstate 5, Lone Tree Road, Elverta Road, and Power Line Road.

4. The North Natomas Planning Program and all consultant studies will be based on a 20-year planning horizon to include the period 1985-2005.

5. Population and employment projections used during the North Natomas Planning Program will include data for each five-year interval during the period 1980-2010.

6. Participation by the County of Sacramento in the North Natomas Planning Program is based on recognition of the following existing County policy objectives:

   a. Protection of current and proposed Metropolitan Airport operations from any encroachment by incompatible uses within the defined ALUC Area of Influence (60 CNEL contour line).

   b. Protection of Williamson Contract land from proximate urban development (within one mile).

   c. Urban service delivery only to those areas already designated for such use or within the City of Sacramento's current boundaries.

7. In formulating a Plan for the North Natomas area, the City Council has directed staff to include consideration of:

   a. Protection of the Sacramento Metropolitan Airport and its clear zones.

b. Preservation of agricultural lands.

c. Establishment of permanent greenbelts and urban development in appropriate locations.

8. Pending completion of the North Natomas Community Plan and EIR, the City Council reaffirms its Growth Policy - Conclusions and Recommendations, adopted April 13, 1982.

III. Community Plan Assumptions

1. The North Natomas Community Plan (text and map) will be internally consistent with the provisions of the adopted General Plans of both the City of Sacramento and County of Sacramento.

2. The North Natomas Community Plan (text and map) will be consistent with all other land use, planning, and transportation policies adopted by the City Council and Board of Supervisors.

3. During the preparation of the Draft North Natomas Community Plan, three alternative land use plans will be prepared -- at least one of which will incorporate a stadium/arena complex.

4. The North Natomas Community Plan will incorporate the planned expansion of Metropolitan Airport, and land uses proposed for the Metropolitan Airport/Vicinity Special Planning Area will be in accordance with County Ordinance No. 83-SPA3.

5. The North Natomas Community Plan (text and map) will be consistent with policies and objectives of the City and County of Sacramento as they relate to providing a jobs/housing balance, including those which:

   a. Promote a jobs/housing balance in each local jurisdiction of the County and region.

   b. Establish appropriate linkages between residential areas and work centers.

   c. Assure that new residential construction is in balance with expansion of job opportunities.

d. Achieve a distribution of home-work trips such that 60 percent are less than six miles one-way and 20 percent are between six and eight miles one-way.

6. The North Natomas Community Plan will not designate residential land uses abutting any freeway within the Study Area and will designate residential land uses of sufficient types and densities to provide for the area's fair share of dwelling units at a variety of price ranges and rental rates.

IV. Transportation Assumptions

1. Traffic assumptions and land use trip generation rates will be consistent with those used during the South Natomas Community Plan Update as contained in a memo dated February 21, 1984 from the City Traffic Engineer and a memo dated March 21, 1984 from the City Planning Department.

V. EIR Assumptions

1. At the request of the various applicants for land use entitlements in the North Natomas area, the EIR which is prepared for the Community Plan will contain a level of detail adequate for consideration during City Council action on their entitlements. However, the EIR may not adequately address the level of detail necessary for State and/or Federal actions on such matters as future freeway interchanges or waiver of EPA restrictions on new sewer connections.

2. The EIR will provide a detailed analysis of three alternative land use plans for the North Natomas area, including:

   a. No Project Alternative based on land uses designated by the adopted City and County General Plans for the area.

   b. Composite Alternative based on land uses contained in the various applications for land use entitlements which have been filed in the North Natomas area.

   c. Draft North Natomas Community Plan Alternative based on land uses proposed as a result of the North Natomas Planning Program.

(Note: Subsequent to the preparation of these assumptions it was decided to expand the scope of the EIR by including two additional land use alternatives.)

This EIR is based upon a 20-year planning horizon (1985-2005). Proposed employment generating uses would not be built-out by the year 2005 under any alternative but Alternative B. Where appropriate, therefore, this EIR differentiates between impacts at the year 2005 and upon buildout.

The culmination of the Planning Program would lead to the adoption and implementation of a proposed Community Plan by the City and County of Sacramento. If adopted, the Community Plan would amend the 1974 City General Plan, the 1982 County General Plan, and would supersede the City's 1982 Growth Policy. Neither the City nor County currently has a Community Plan for the North Natomas area.

Four of the alternatives considered for the Community Plan involve varying levels of urbanization in excess of land uses designated for the area by the existing City and County General Plans. The continuation of existing City and County policies (the No Project) is considered as a fifth alternative. The five alternatives (A, B, C, D, and E) call for progressively increasing amounts of development and decreasing amounts of land in agricultural use. Alternatives B through E each contain land use designations for a 60,000-seat open air stadium and 18,000-seat arena. Each of the alternative proposals addressed in this EIR is described below.

Draft Community Plan (Alternative C)

The City retained the SWA Group of Sausalito to prepare the Draft North Natomas Community Plan and alternatives. The ensuing planning process which led to the Draft Community Plan involved the following steps:

- Background studies were conducted including examinations of land use demand, transportation, water, sewer and drainage conditions, environmental conditions, and current jurisdictional plans and policies affecting the Study Area.

- Data were synthesized, and maps, other visual aids, and a Background Report were prepared.

- The Background Report studies were presented at a Joint City Planning Commission-County Policy Planning Commission workshop.

- Three Alternative Sketch Plans were developed for the Study Area, and an Analysis Report was prepared and presented at a Joint City Planning Commission-County Policy Planning Commission workshop.

- Three revised Alternative Sketch Plans were prepared based on the findings of the Analysis Report and input from the workshop.

- The Draft Community Plan (Alternative C) was prepared and submitted, together with the No Project Alternative (Alternative A) and Composite Alternative (Alternative E) for Environmental Impact Report (EIR) analysis.

- Additional Alternatives (B and D) were prepared for EIR analysis.

Exhibit A-14 provides a comparative analysis of the intensity of development of the following alternative Community Plan concepts which led to the formulation of the five alternatives evaluated in this EIR:

- Preparation of three land use plans (Alternatives A, C, and E).
- Revision of these three original plans.
- Formulation of the Draft Community Plan (Alternative C).
- Preparation of Alternatives B and D).

The North Natomas Draft Community Plan consists of a plan text and a map (Exhibit A-15) which indicate future land use patterns. Copies of the Draft Community Plan are available at the City of Sacramento Planning Department; the Plan is incorporated in this EIR by reference.

The Draft Community Plan describes existing conditions and trends within the Study Area. This assessment provided the basis upon which goals and objectives were identified and for which policies and actions were prepared. These goals, objectives, policies, and actions cover the following topics:

EXHIBIT A-14

COMPARISON TABLE OF PROGRAM SUMMARIES
NORTH NATOMAS PLANNING STUDIES
(IN ORDER OF INCREASING EMPLOYMENT DENSITY)

NOTE: THIS DATA REPRESENTS THE ULTIMATE HOLDING CAPACITY OF EACH PLAN, INCLUDING EXISTING LAND USES.

LAND USE	NO PROJECT ALTERNATIVE		CITY STAFF ALTERNATIVE B		REVISED SKETCH PLAN ONE		DRAFT COMMUNITY PLAN		REVISED SKETCH PLAN TWO		ORIGINAL SKETCH PLAN ONE		REVISED SKETCH PLAN THREE		CITY STAFF ALTERNATIVE D		ORIGINAL SKETCH PLAN TWO		ORIGINAL SKETCH PLAN THREE		COMPOSITE PLAN ALTERNATIVE	
	NET ACRES	EMPLOYEES	NET ACRES	EMPLOYEES	NET ACRES	EMPLOYEES	NET ACRES	EMPLOYEES	NET ACRES	EMPLOYEES	NET ACRES	EMPLOYEES	NET ACRES	EMPLOYEES	NET ACRES	EMPLOYEES	NET ACRES	EMPLOYEES	NET ACRES	EMPLOYEES	NET ACRES	EMPLOYEES
Major Employers																						
M-50 (45 emp/ac)	-	-	-	-	150	6,750	208	9,360	300	13,500	300	13,500	300	13,500	455	20,475	300	13,500	300	13,500	2,050	92,250
M-20 (30 emp/ac)	350	10,500	839	25,170	336	10,080	733	21,990	704	21,120	-	-	800	24,000	850	25,500	-	-	-	-	-	-
Light Industrial (20 emp/ac)	275	5,500	320	6,400	224	4,480	500	10,000	250	5,000	970	19,400	250	5,000	545	10,900	1,090	21,800	1,379	27,580	230	4,600
SPA (5 emp/ac)	2,000	10,000	250	1,250	250	1,250	500	2,500	500	2,500	500	2,500	500	2,500	500	2,500	1,000	5,000	2,000	10,000	2,000	10,000
Office Business (55 emp/ac)	-	-	80	4,400	170	9,350	122	6,710	142	7,810	322	17,710	210	11,550	170	9,350	460	25,300	550	30,250	-	-
Shopping Center (30 emp/ac)	-	-	-	-	75	2,250	-	-	75	2,250	75	2,250	75	2,250	-	-	75	2,250	75	2,250	-	-
Community Commercial (30 emp/ac)	-	-	90	2,700	75	2,100	100	3,000	110	3,300	100	3,000	120	3,600	140	4,200	115	3,450	125	3,750	220	6,600
Highway Commercial (30 emp/ac)	-	-	15	450	15	450	63	1,890	35	1,050	10	300	35	1,050	120	3,600	15	450	20	600	110	3,300
Sports Complex (5 emp/ac)	-	-	200	1,000	65	325	200	1,000	200	1,000	65	325	200	1,000	200	1,000	200	1,000	65	325	200	1,000
TOTAL	2,625	26,000	1,794	41,170	1,360	37,035	2,426	56,450	2,316	57,530	2,542	58,985	2,490	64,490	2,980	72,425	3,255	72,750	4,414	88,255	4,810	117,750
		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS
Residential																						
Rural Estate (1 du/ac)	300	300	-	-	257	257	374	374	800	800	257	257	800	800	-	-	1,118	1,118	715	715	-	-
Low Density (7 du/ac)	-	-	1,000	7,000	620	4,340	1,518	10,626	1,200	8,400	455	3,185	850	5,950	1,400	9,800	705	4,935	732	5,124	276	1,932
Medium Density (12 du/ac)	37	444	600	7,200	925	11,110	1,121	13,452	933	11,196	800	9,600	1,255	15,060	843	10,116	950	11,400	1,123	13,476	1,990	23,880
High Density (22 du/ac)	-	-	300	6,600	350	7,700	300	6,600	550	12,100	400	8,800	675	14,850	634	13,948	650	9,900	542	11,924	770	16,940
TOTAL	337	744	1,900	20,800	2,152	23,407	3,313	31,052	2,891	32,496	1,912	21,842	3,580	36,660	2,877	33,864	3,223	27,353	3,112	31,239	1,036	42,752
	GROSS ACRES		GROSS ACRES		GROSS ACRES		GROSS ACRES		GROSS ACRES		GROSS ACRES		GROSS ACRES		GROSS ACRES		GROSS ACRES		GROSS ACRES		GROSS ACRES	
Civic/Public																						
Elementary School (6 ac. each)	-		48		54		72		84		66		84		78		72		90		84	
Junior High School (20 ac. each)	15		40		40		60		60		60		80		60		60		80		100	
Senior High School (40 ac. each)	-		40		-		40		40		-		40		40		-		40		40	
Other Civic Uses	82		103		100		158		140		-		160		115		-		-		-	
Airport	2,900		2,900		2,900		2,900		2,900		2,900		2,900		2,900		2,900		2,900		2,900	
TOTAL	2,997		3,131		3,094		3,230		3,224		3,026		3,264		3,193		3,032		3,110		3,124	
Open Space																						
Parks[1]	-		95		350		600		520		850		500		350		900		1,110		-	
Greenbelt[2]	-		500		546		700		1,300		-		1,066		950		-		-		350	
Buffers and Drainages[3]	300		400		389		600		677		2,015		400		560		2,627		2,464		500	
Agriculture	7,341		1,630		1,897		386		110		2,720		100		190		463		-		80	
Agriculture/SPA Reserve	-		1,750		1,750		1,500		1,500		1,500		1,500		1,500		1,000		-		-	
Roads	700		1,100		762		1,545		1,170		-		1,400		1,700		-		-		2,600	
TOTAL	8,341		7,475		7,694		5,331		5,277		7,085		4,966		5,250		4,990		3,584		3,130	
TOTAL ACREAGE	14,300		14,300		14,300		14,300		14,300		14,365		14,300		14,300		14,500		14,300		14,300	
TOTAL POPULATION	1,613		41,766		44,801		63,907		63,478		60,665		68,846		69,792		52,459		58,991		76,625	
JOB/HOUSING BALANCE[4]	3%		60%		76%		64%		68%		44%		68%		52%		45%		42%		44%	

1 Includes regional park, linear park, community parks, and neighborhood parks associated with schools.
2 Refers to greenbelt abutting agriculture on the northern and western borders of the incorporated study area. Does not include agriculture/greenbelt areas.
3 Includes drainage canals and maintenance areas, freeway open space corridors, PGandE easement, and existing open space corridor along east border of study area.
4 Assumes 1.2 employed persons per household.

January 4, 1985

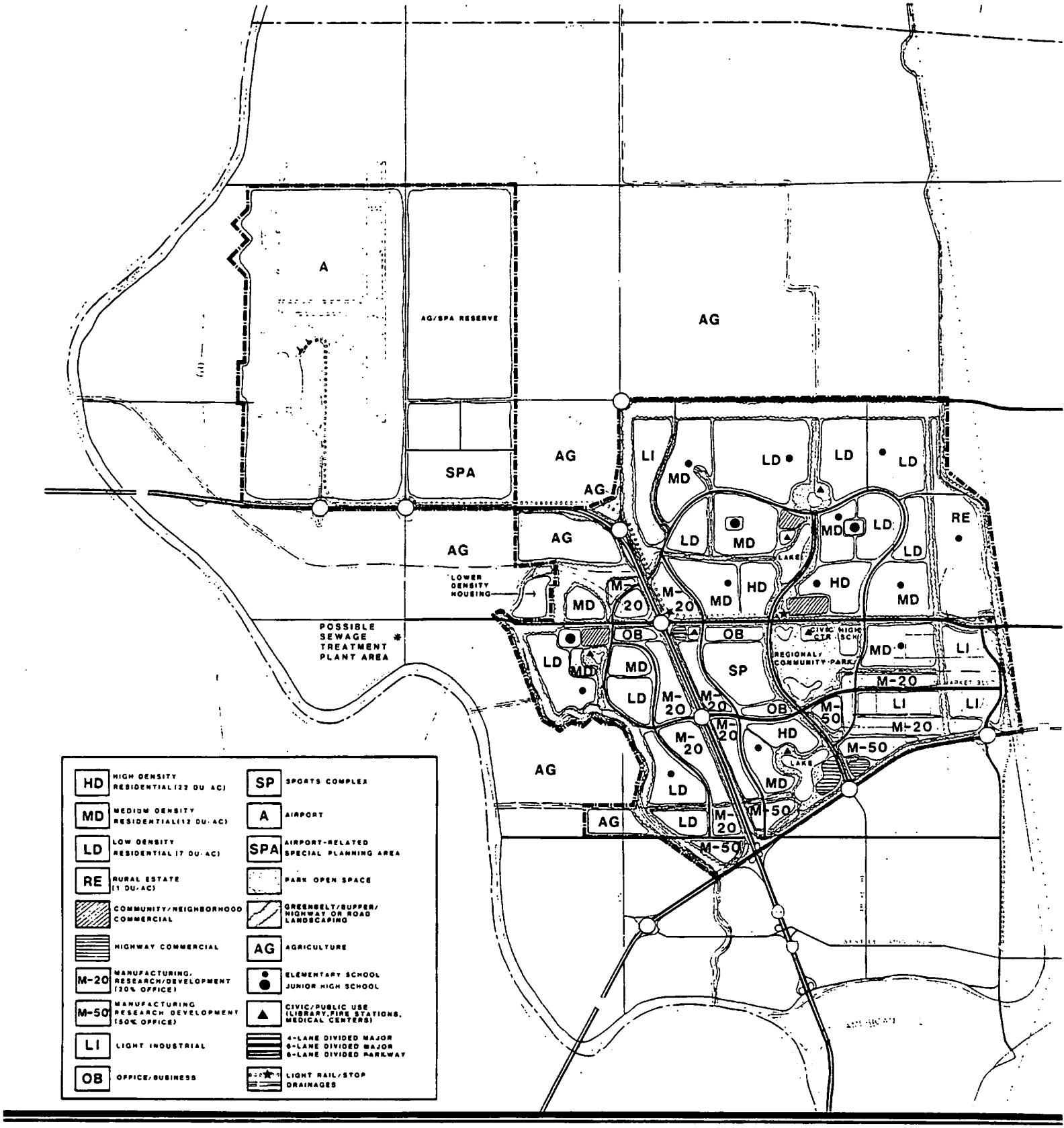


EXHIBIT A-15
ALTERNATIVE C (DRAFT COMMUNITY PLAN)

Source: The SWA Group

0 3200 6400 Ft.

- Land Use
- Transportation
- Community Facilities and Services

Specific goals as set forth in the Draft Community Plan are as follows:

Land Use

North Natomas shall develop as a mixed-use community, providing locations for residential, commercial, office, and industrial land uses with an adequate level of supporting public facilities and services.

North Natomas shall develop as a high quality community with a variety of desirable locations in which to live and work.

Residential Land Use

Residential development at North Natomas shall result in attractive and desirable communities with adequate open space and community facilities.

There shall be a variety of residential densities to provide for a diversity of housing types, prices, and rents.

Commercial Land Use

Provide commercial facilities which meet the daily needs of and are convenient to North Natomas residents.

Provide the opportunity to serve highway-oriented uses where appropriate.

Office Land Use

Provide for neighborhood personal services offices to serve the residents of North Natomas.

Industrial Land Use

Provide for comprehensive industrial development which contributes significantly to the City's employment base in the year 2005.

Develop attractive and nuisance-free industrial areas which will contribute to the balance and desirability of the community as a whole.

Sports Complex

Provide an appropriate site for the future private development of an arena and stadium for the enhancement of cultural and entertainment opportunities for the area's populace and to provide economic benefits for the City.

Vehicular Circulation

Create a circulation system which will ensure the safe and efficient movement of people and goods within and through the community.

Public Transit

Ensure the provision of public transit services to whatever degree necessary to maintain traffic conditions of at least Level of Service C on the proposed transportation network.

Transportation Systems Management (TSM)

Provide TSM measures and programs to whatever degree necessary to ensure traffic operating conditions of at least Level of Service C on the proposed circulation system and on the adjacent regional facilities.

Railroads

Designate land uses adjacent to freight rail lines which are tolerant of or can be designed to withstand high noise levels.

Airports

Ensure that development near Metro Airport is compatible with airport operations.

Bikeways

Establish a bicycle system at North Natomas for both recreation and commuting.

Pedestrianways

Provide adequate street improvements to ensure pedestrian safety and encourage pedestrian activity.

Parks and Open Space

Provide ample, accessible, and attractive parks and open space for North Natomas to contribute to the community's identity as a desirable place in which to live and work.

To create a strong edge between the community and adjacent areas of permanent agriculture, develop a greenbelt along the northern and western boundaries of the incorporated portion of the Study Area.

Schools

Provide quality education within convenient access of all residents and users in North Natomas.

Civic Uses

Concentrate civic-type uses, such as library facilities, meeting rooms, and administrative offices, at a central location in the community for economy and convenience.

Ensure that North Natomas has adequate fire protection.

Ensure that the community has adequate police protection.

Ensure that the community has adequate medical facilities.

Drainage

Install a drainage system commensurate with the needs associated with the conversion of an agricultural area to an urban area.

Other Public Utilities

> Ensure that future improvements planned for public services can accommodate desired growth levels and can meet City standards for health, safety, and attractiveness.

Exhibit A-20 compares anticipated development in the Study Area for the Draft Community Plan (Alternative C) and the other four alternatives. In summary, the Draft Community Plan (Alternative C) proposes 208 acres of Manufacturing, Research, and Development with a maximum 50 percent offices (M-50), 733 acres of Manufacturing, Research and Development with a maximum 20 percent of offices (M-20), 500 acres of light industrial uses, 500 acres of airport-related industrial uses, 122 acres of office/business uses, and 163 acres of commercial uses. The estimated total employment of the Study Area would be 56,450 jobs (see Exhibit A-20). A total of 3,313 acres would be allocated to residential uses including rural estate (374 acres), low density (1,518 acres), medium density (1,121 acres), and high density (300 acres). An estimated 31,052 housing units would be developed in the Study Area with an estimated total population of 63,907 persons. Exhibit A-20 shows anticipated future number of housing units by type and estimated total population.

The two other major uses in the Study Area would be the Metropolitan Airport (2,900 acres) and a privately-developed sports complex (200 acres) consisting of an arena and stadium.

The Draft Community Plan concludes with an implementation section which describes a process of coordinating legal, economic, and related mechanisms available to the City and County to ensure that future development meets the objectives of the Plan.

Alternative A (No Project Alternative)

Alternative A assumes that the Study Area would be developed in conformance with the 1974 City General Plan and the 1982 County General Plan (see Exhibit A-21). Under this alternative, the predominant land use would be agricultural; approximately 7,341 acres of the 14,300-acre Study Area would remain designated "agriculture". The second most prominent land use would be Metro Airport -- occupying approximately 2,900 acres. The lands immediately east of the Metro Airport between Power Line Road and Lone Tree Road (approximately 2,000 acres) in Sacramento County jurisdiction would remain designated a Special Planning Area. Based upon the current zoning it

EXHIBIT A-20

North Natomas EIR Alternatives Program Summary [1/]

LAND USE	ALTERNATIVE A		ALTERNATIVE B		ALTERNATIVE C		ALTERNATIVE D		ALTERNATIVE E	
Major Employers	Net Acres	Employees	Net Acres	Employees	Net Acres	Employees	Net Acres	Employees	Net Acres	Employees
M-50 (45 employees/acre)	-	-	-	-	208	9,360	455	20,475	2,050	92,250
M-20 (30 employees/acre)	350	10,500	839	25,170	733	21,990	850	25,500	-	-
Light Industrial (20 employees/acre)	275	5,500	320	6,400	500	10,000	545	10,900	230	4,600
SPA (5 employees/acre)	2,000	10,000	250	1,250	500	2,500	500	2,500	2,000	10,000
Office/Business (55 employees/acre)	-	-	80	4,400	122	6,710	170	9,350	-	-
Community Commercial (30 emp/acre)	-	-	90	2,700	100	3,000	140	4,200	220	6,600
Highway Commercial (30 emp/acre)	-	-	15	450	63	1,890	120	3,600	110	3,300
Sports Complex (5 employees/acre)	-	-	200	1,000	200	1,000	200	1,000	200	1,000
TOTAL	2,625	26,000	1,794	41,370	2,426	56,450	2,980	77,525	4,810	117,750
Residential		Dwelling Units		Dwelling Units		Dwelling Units		Dwelling Units		Dwelling Units
Rural Estate (1 unit/acre)	300	300	-	-	374	374	-	-	-	-
Low Density (7 units/acre)	-	-	1,000	7,000	1,518	10,626	1,400	9,800	276	1,932
Medium Density (12 units/acre)	37	444	600	7,200	1,121	13,452	843	10,116	1,990	23,880
High Density (22 units/acre)	-	-	300	6,600	300	6,600	634	13,948	770	16,940
TOTAL	337	744	1,900	20,800	3,313	31,052	2,877	33,864	3,036	42,752
Civic/Public	Gross Acres		Gross Acres		Gross Acres		Gross Acres		Gross Acres	
Elementary School (6 acres each)	-		48		72		78		84	
Junior High School (20 acres each)	15		40		60		60		100	
Senior High School (40 acres each)	-		40		40		40		40	
Other Civic Uses	82		103		158		115		-	
Airport	2,900		2,900		2,900		2,900		2,900	
TOTAL	2,997		3,131		3,230		3,193		3,124	
Open Space										
Parks [2/]	-		95		600		350		-	
Greenbelt [3/]	-		500		700		950		350	
Buffers and Drainages [4/]	300		400		600		560		500	
Agriculture	7,341		3,630		386		190		80	
Agriculture/SPA Reserve	-		1,750		1,500		1,500		-	
Roads	700		1,100		1,545		1,700		2,400	
TOTAL	8,341		7,475		5,331		5,250		3,330	
TOTAL ACREAGE	14,300		14,300		14,300		14,300		14,300	
TOTAL POPULATION	1,613		41,766		63,907		65,792		76,626	
JOBS/HOUSING BALANCE [5/]	3%		60%		66%		52%		44%	

1/ These data represent the ultimate holding capacity of each alternative, including existing land uses.

2/ Includes regional park, linear park, community parks, and neighborhood parks associated with schools.

3/ Refers to greenbelt abutting on the northern and western borders of the uncorporated Study Area. Does not include agriculture/greenbelt areas.

4/ Includes drainage canals and maintenance areas, freeway open space corridors, PG&E easement, and existing open space corridor along east border of the Study Area.

5/ Assumes 1.2 employed persons per household.

Source: City of Sacramento.

January 4, 1985

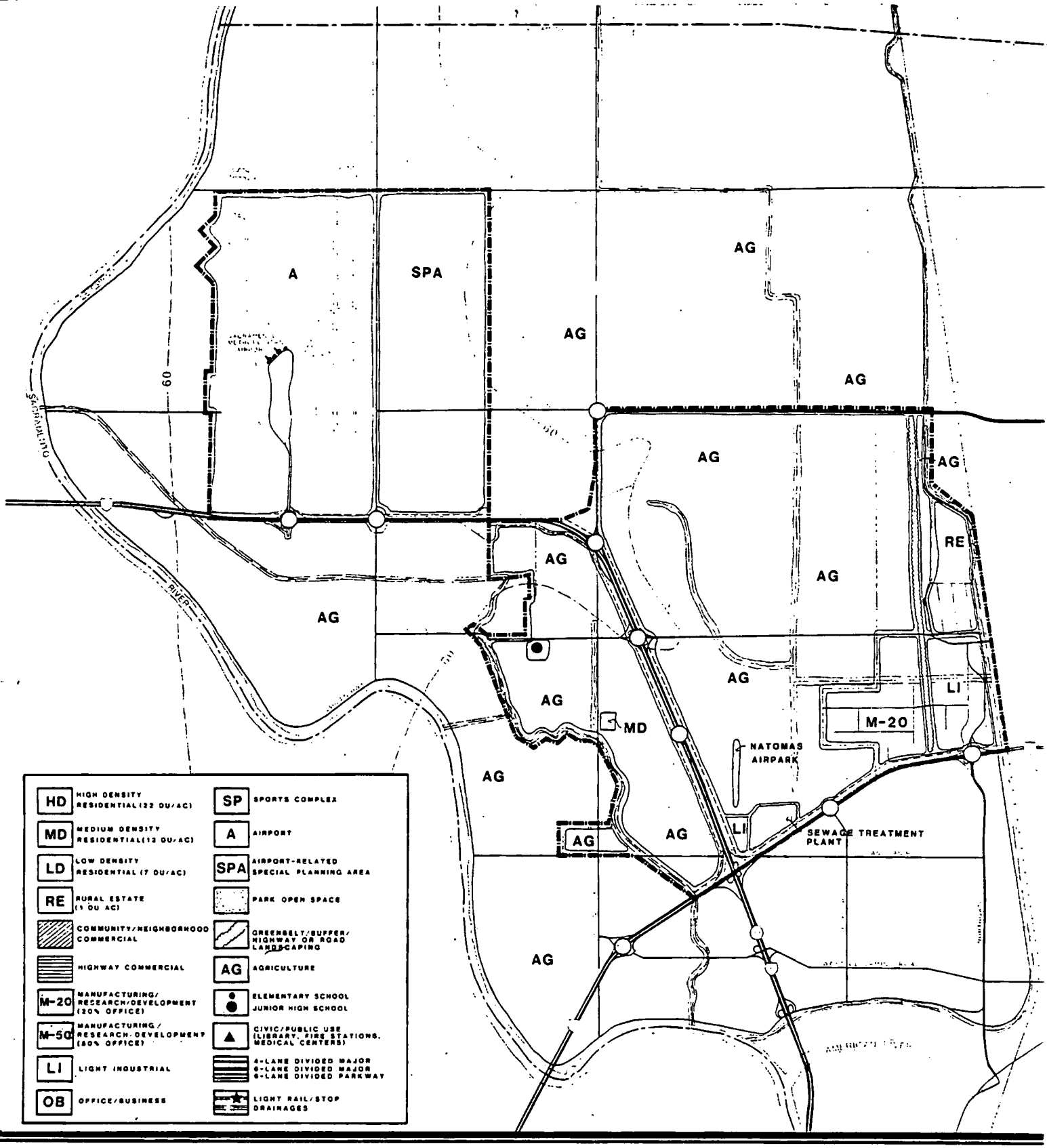


EXHIBIT A-21
ALTERNATIVE A (NO PROJECT)

Source: City of Sactamento

0 3200 6400 Ft.

is Sacramento County's intent to allow industrial development of this area which would be related to the purpose and function of Sacramento Metropolitan Airport. Such development would be limited to that which either requires airport services or directly supports the development and/or function of the airport.

Approximately 744 dwelling units, with a residential population of 1,613 persons, would be developed in this alternative. In addition to the Airport Special Planning Area, 275 acres would remain designated light industrial, and 350 acres would be designated M-20 resulting in a non-agricultural employee population of 26,000 in the County portion of the Study Area.

Alternative B

Alternative B would direct urbanization of the North Natomas area to that portion of the Study Area east of Interstate 5 (I-5). Except for the existing mobile home park, the Study Area west of I-5 would remain designated "agricultural" in this alternative (see Exhibit A-23). A portion of the Study Area south of Elkhorn Boulevard also would remain designated "agriculture". In total, approximately 3,630 acres within the Study Area would remain designated agricultural in this alternative. Under this alternative, no development would occur west of I-5, thus reducing potential conflicts with airport landing and takeoff patterns at Metro Airport.

Alternative B would consist of 839 acres of M-20 uses, 320 acres of light industrial uses, 250 acres of airport-related industrial uses (SPA), 80 acres of office/business uses, and 105 acres of commercial uses. The estimated total employment of the Study Area would be 41,370 persons. A total of 1,900 acres would be allocated to residential uses including low density (1,000 acres), medium density (600 acres), and high density (300 acres). An estimated 20,800 housing units would be constructed with an estimated total population of the Study Area of 41,766 persons.

The two other major uses in this alternative would be the Metro Airport (2,900 acres) and a sports complex (200 acres).

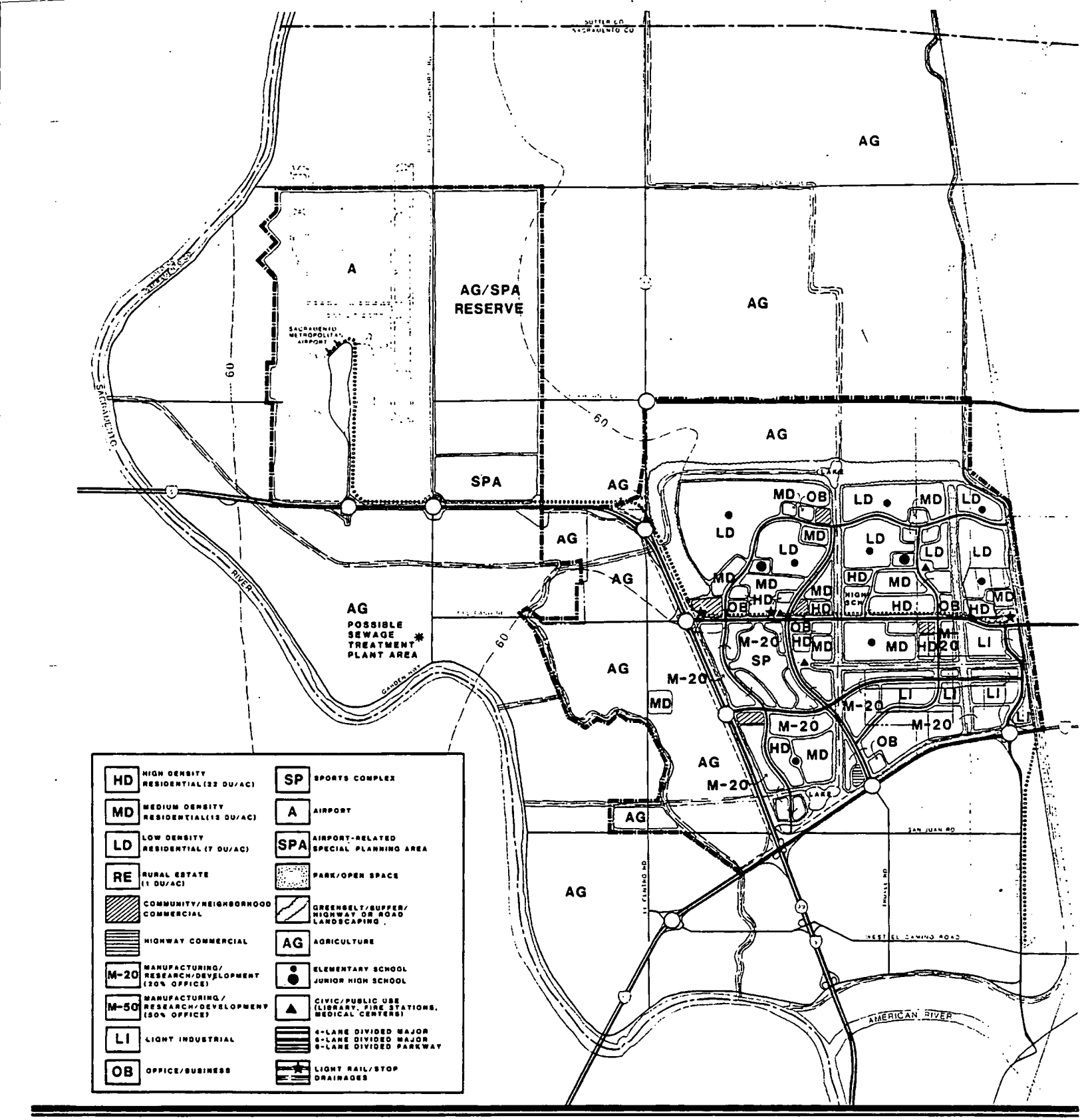


EXHIBIT A-23
ALTERNATIVE B

0 3200 6400 Ft.

Source: City of Sacramento

Alternative D

Alternative D would commit nearly all of the area east and west of I-5 to urbanization (see Exhibit A-25).

This alternative would consist of 455 acres of M-50 uses, 850 acres of M-20 uses, 545 acres of light industrial uses, 500 acres of airport-related industrial uses, 170 acres of office/business uses, and 260 acres of commercial uses. The estimated total employment of the Study Area would be 77,525 persons. A total of 2,877 acres would be allocated to residential uses including low density (1,400 acres), medium density (843 acres), and high density (634 acres). An estimated 33,864 housing units would be constructed with an estimated total population of the Study Area of 65,792 persons.

Alternative D also allocates 2,900 acres to Metro Airport and 200 acres to a sports complex.

Alternative E (Composite Alternative)

Alternative E incorporates all five land use applications on file with the City for the North Natomas Study Area and proposes land uses for the area not covered by those applications. Those additional land use assumptions were developed by City staff and the planning team and include a transportation system and public facilities. Exhibit A-26 shows the land uses designated throughout the Study Area under Alternative E, and Exhibit A-27 shows the location of the five applications within the Study Area. The applications are described below and illustrated on the following pages.

Gateway Point (P83-424)

The Gateway Point project applicants propose to amend the 1974 City General Plan from the present designation of Agricultural/Urban Reserve to 850 acres of industrial, 140 acres of commercial, 110 acres of open space, 140 acres of residential, and 170 acres of public/quasi-public sports and recreation facility (including a stadium and arena). The project application also includes designation of a Planned Unit Development and Schematic Plan for a 1,620-acre planned unit development to be known as Gateway Point Sports Recreation and Corporate Center PUD and the rezoning (phase 1 only) of 481 acres of Agriculture (A) to: 401 acres of Manufacturing, Research, and Development-Planned Unit Development (MRD-PUD), 55.5 acres of Shopping Center Commercial-Planned Unit Development (S-C-PUD), 2.5 acres of Highway Commercial-Planned Unit Development (H-C-PUD), 5 acres of Limited

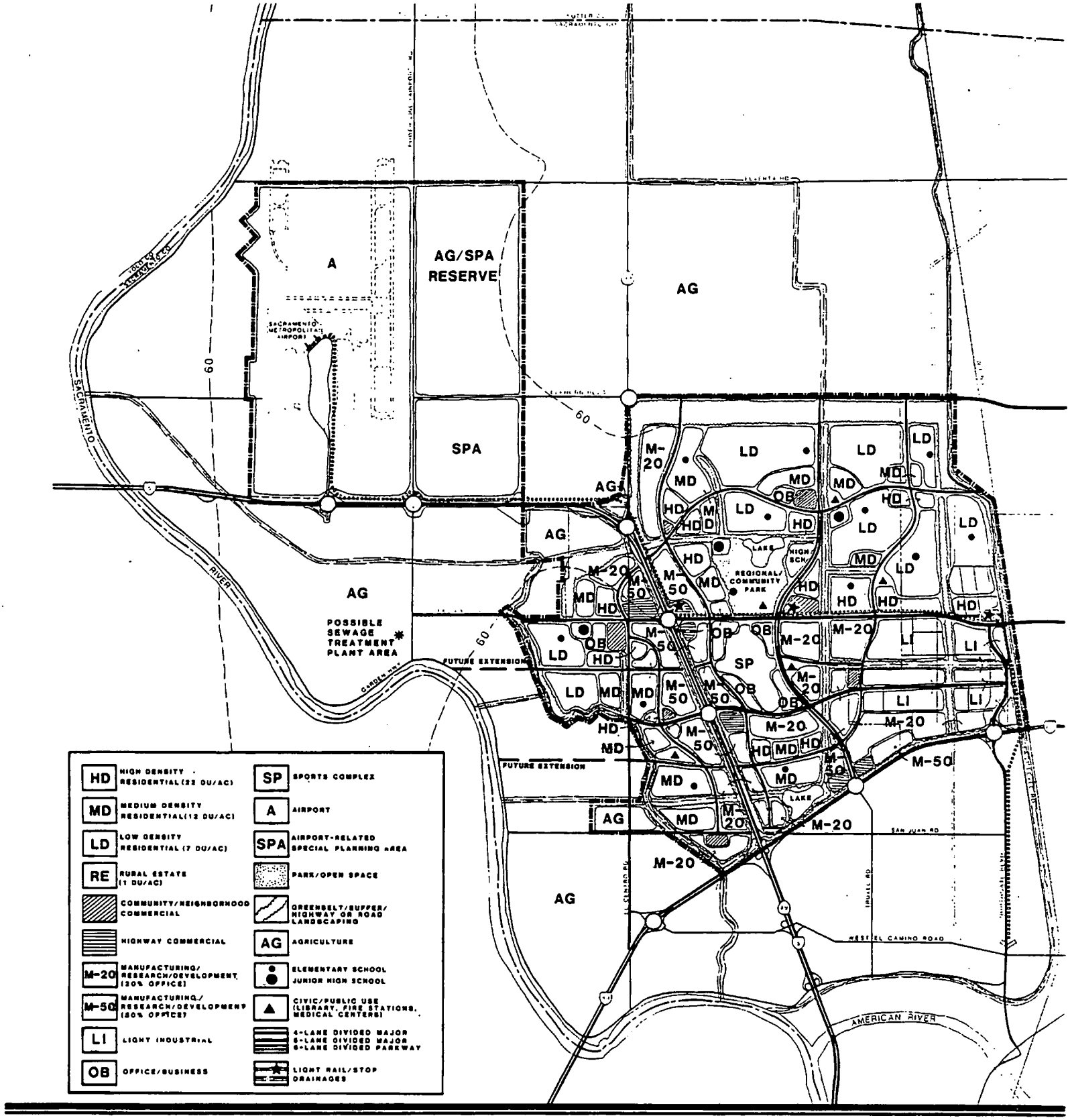


EXHIBIT A-25
ALTERNATIVE D

Source: The City of Sacramento

0 3200 6400 Ft.

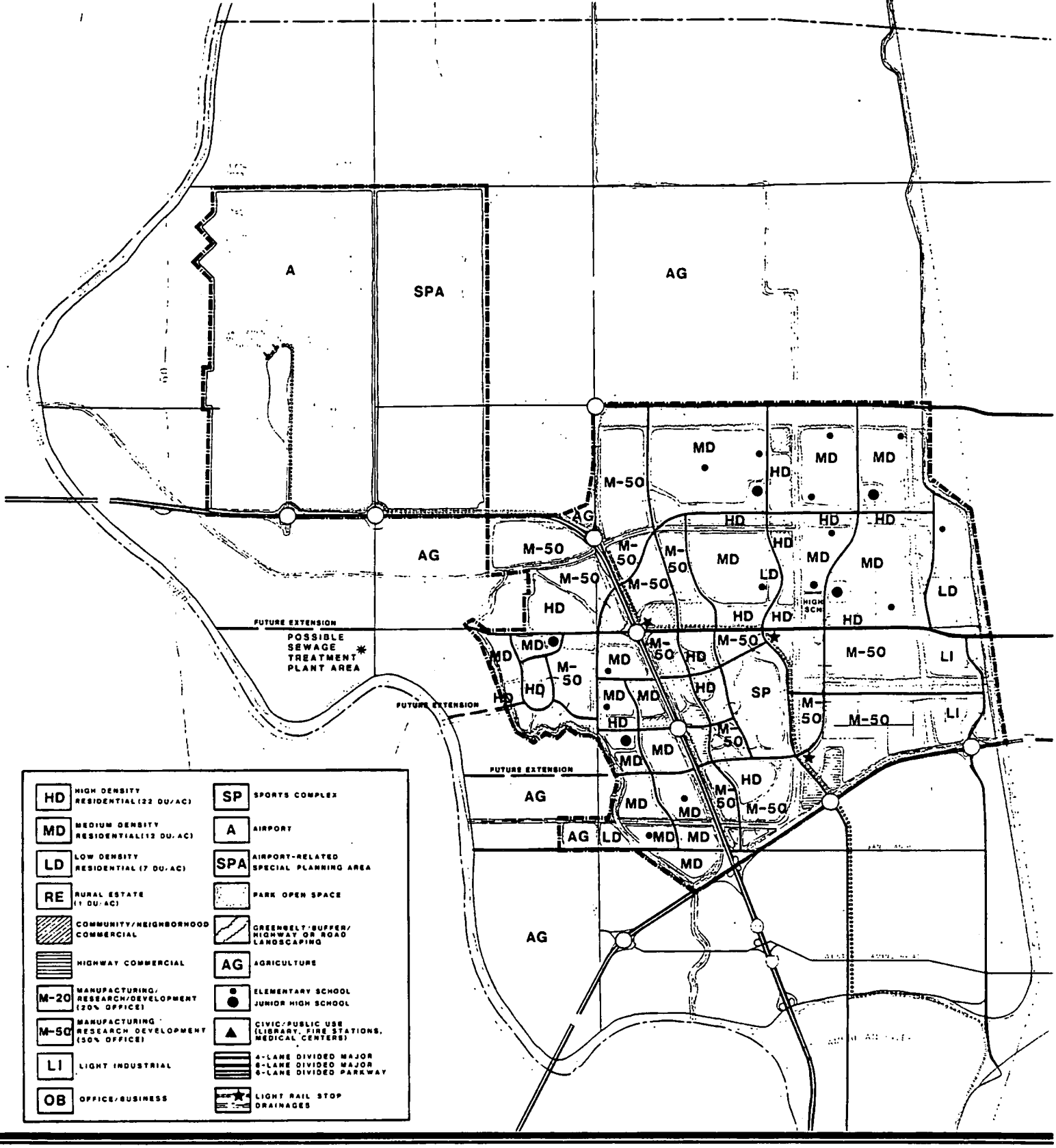


EXHIBIT A-26
ALTERNATIVE E (COMPOSITE ALTERNATIVE)

0 3200 6400 Ft.

Source: The City of Sacramento

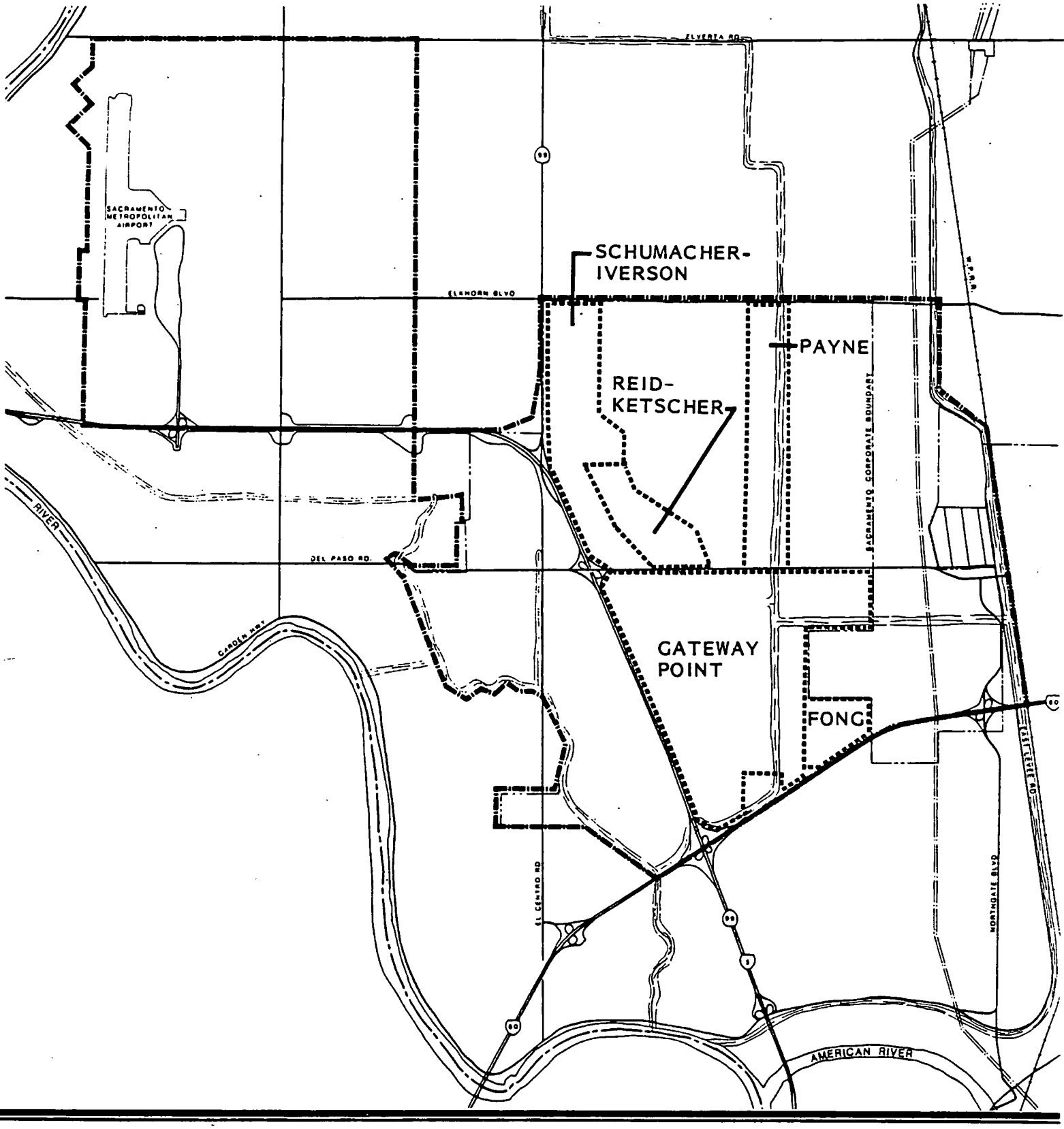


EXHIBIT A-27
LOCATION OF DEVELOPMENT APPLICATIONS

Commercial-Planned Unit Development (C-1-PUD), and 17 acres of Open Space Planned Unit Development (O-PUD). A Special Use Permit to construct an 18,000-seat sports arena, associated parking, and roadways also is requested. Exhibit A-29 summarizes the land uses requested for Gateway Point, Exhibit A-30 illustrates this application, and Exhibit A-31 compares the application, as filed, with the land uses envisaged by all alternatives.

Fong Ranch (P84-013)

The Fong Ranch project applicants have requested an amendment from the 1974 General Plan designation of Agriculture/Urban Reserve to 95 acres of Industrial and 23 acres of Commercial land uses. It also is proposed to rezone 118 acres of Agriculture (A) to 95 acres of Manufacturing, Research, and Development (MRD), 18 acres of Highway Commercial (HC), and 5 acres of General Commercial (C-2). Exhibit A-32 summarizes the Fong application, Exhibit A-33 illustrates the location of proposed land uses, and Exhibit A-34 compares the uses as proposed by this application with those designated by the five alternatives.

Schumacher-Iversen (P84-032)

The Schumacher-Iversen project applicants have requested an amendment from the 1974 General Plan designation of Permanent Agriculture to 480 acres of Industrial, 30 acres of Commercial, and 44 acres of Open Space. It also is proposed to rezone 554 acres of Agriculture (A) to: 480 acres of Manufacturing, Research, and Development (MRD), 30 acres of General Commercial (C-2), and 44 acres of Open Space (O). Exhibit A-35 summarizes this application, Exhibit A-36 illustrates it, and Exhibit A-37 compares the application, as proposed, with the land uses designated by Alternatives A through E.

Payne (P84-036)

The Payne project applicants have requested an amendment from the 1974 General Plan designation of Permanent Agriculture to 13 acres of Industrial, 31 acres of Commercial, 27 acres of Open Space, and 283 acres of Residential. It also is proposed to rezone 323 acres of Agriculture (A) to 13 acres of Manufacturing, Research, and Development (MRD), 31 acres of General Commercial (C-2), 48 acres of Single Family Residential (R-1), 204

EXHIBIT A-29

Proposed Development Program -- Gateway Point Application

LAND USE

Major Employers	Total Area (acres)		Square Feet Proposed	Employees Per 1,000 Square Feet	Total Employment
Manufacturing, Research and Development	809.5		17,066,450	3.3	56,319
Light Industrial	40.5		607,500	2.0	1,215
General Commercial	140.0			3.3	
Shopping Commercial			695,000	3.3	2,294
Highway Commercial			617,500	4.0	2,470
Neighborhood Commercial			437,500	3.0	1,444
EMPLOYMENT TOTAL	990.0		19,423,950		63,742

Residential	Total Area (acres)	Units Per Acre	Total Units	Persons Per Unit	Total Population
Low Density	-	7	0	2.55	-
Medium Density	-	12	0	-	-
High Density	-	22	0	1.54	-
High Density 2/	140	22	3,080	2.00	6,160
RESIDENTIAL TOTAL	140		3,080		6,160

Other Uses	Total Area (acres)
Parks/Open Space (Greenbelt)	110
Sports Complex (Stadium/Arena)	170
TOTAL APPLICATION	1,410

1/ Total acres. Excludes major roadways, buffers, and drainage canals.

2/ Timeshare condominiums; Gateway Point only.

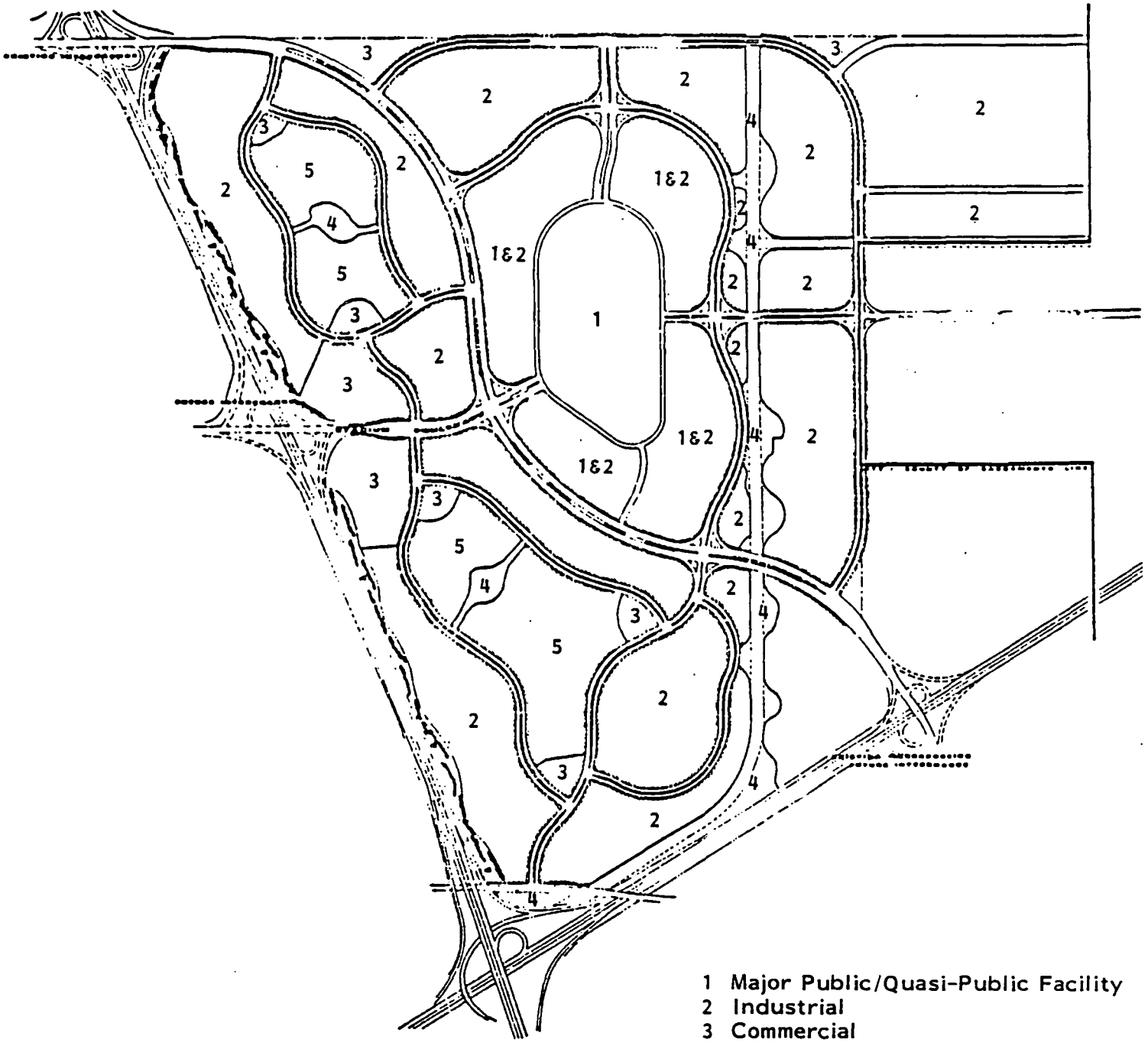


EXHIBIT A-30
GATEWAY POINT CONCEPTUAL PLAN

Source: The Spink Corporation

No Scale

EXHIBIT A-31

Comparison of Gateway Point Application with Alternatives

LAND USE	REQUESTED BY APPLICATION	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E
Major Employers:	(net acres)	(net acres)	(net acres)	(net acres)	(net acres)	(net acres)
MRD	809.5	-	-	-	-	-
M-50	-	-	-	94	135	860
M-20	-	-	492	147	429	-
Light Industrial	40.5	30	-	-	65	-
SPA	-	-	-	-	-	-
Office/Business	-	-	42	92	117	-
General Commercial	140.0	-	-	-	-	-
Community Commercial	-	-	35	43	59	120
Highway Commercial	-	-	-	-	-	-
Sports Complex	170.0	-	200	200	200	200
TOTAL	1,160.0	30	769	576	1,005	1,180
Residential:						
Rural Estate	-	-	-	-	-	-
Low Density	-	-	-	-	-	-
Medium Density	-	-	265	147	105	-
High Density	140.0	-	112	75	50	149
TOTAL	140.0	0	337	222	155	149
Civic/Public:	(gross acres)	(gross acres)	(gross acres)	(gross acres)	(gross acres)	(gross acres)
Elementary School	-	-	-	-	-	-
Junior High School	-	-	-	-	-	-
Senior High School	-	-	-	40	-	-
Other Civic Uses	-	-	-	41	-	-
Airport	-	-	-	-	-	-
TOTAL	0	0	0	81	-	0
Open Space:						
Agriculture	-	1,298	-	-	-	-
Other Open Space	110	82	264	531	250	81
TOTAL	110	1,380	264	531	250	81
TOTAL ALTERNATIVE	1,410	1,410	1,410	1,410	1,410	1,410

EXHIBIT A-32

Proposed Development Program -- Fong Ranch Application

LAND USE Major Employers	Total Area (acres)		Square Feet Proposed	Employees Per 1,000 Square Feet	Total Employment
Manufacturing, Research and Development	95		1,350,000	3.3	4,455
Light Industrial				2.0	
General Commercial	5		52,300	3.3	173
Shopping Commercial				3.3	
Highway Commercial	18		390,000	4.0	1,560
Neighborhood Commercial				3.0	
EMPLOYMENT TOTAL	118		1,792,300		6,188
Residential	**Total Area (acres)**	**Units Per Acre**	**Total Units**	**Persons Per Unit**	**Total Population**
Low Density	-	7	0	2.55	-
Medium Density	-	12	0	-	-
High Density	-	22	0	1.54	-
High Density 2/	-	22	0	2.00	-
RESIDENTIAL TOTAL	-		0		-
Other Uses	**Total Area (acres)**				
Parks/Open Space (Greenbelt)	-				
Sports Complex (Stadium/Arena)	-				
TOTAL APPLICATION	118				

1/ Total acres. Excludes major roadways, buffers, and drainage canals.

2/ Timeshare condominiums; Gateway Point only.

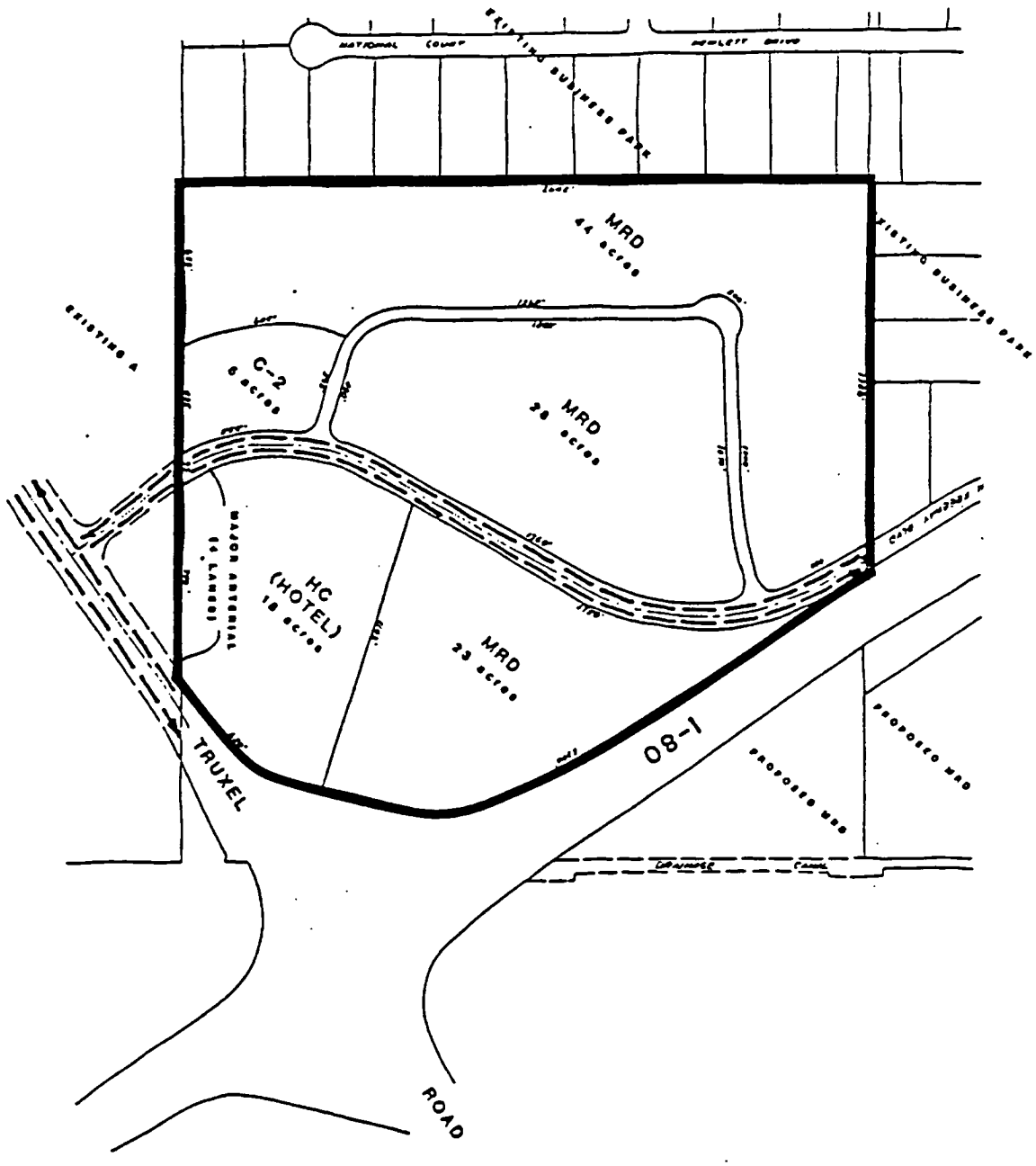


EXHIBIT A-33
FONG RANCH CONCEPTUAL PLAN

Source: George S. Nolte and Associates

No Scale

EXHIBIT A-34

Comparison of Fong Ranch Application with Alternatives

LAND USE	REQUESTED BY APPLICATION	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E
Major Employers:	(net acres)	(net acres)	(net acres)	(net acres)	(net acres)	(net acres)
MRD	95	-	-	-	-	-
M-50	-	-	-	60	32	76
M-20	-	-	96	20	60	-
Light Industrial	-	-	-	-	-	-
SPA	-	-	-	-	-	-
Office/Business	-	-	15	-	-	-
General Commercial	5	-	-	-	-	-
Community Commercial	-	-	-	-	16	36
Highway Commercial	18	-	-	-	-	-
Sports Complex	-	-	-	-	-	-
TOTAL	118	0	111	100	108	112
Residential:						
Rural Estate	-	-	-	-	-	-
Low Density	-	-	-	-	-	-
Medium Density	-	-	-	-	-	-
High Density	-	-	-	-	-	-
TOTAL	0	0	0	0	0	0
Civic/Public:	(gross acres)	(gross acres)	(gross acres)	(gross acres)	(gross acres)	(gross acres)
Elementary School	-	-	-	-	-	-
Junior High School	-	-	-	-	-	-
Senior High School	-	-	-	-	-	-
Other Civic Uses	-	-	-	-	-	-
Airport	-	-	-	-	-	-
TOTAL	0	0	0	0	0	0
Open Space:						
Agriculture	-	118	-	-	-	-
Other Open Space	-	-	7	18	10	6
TOTAL	0	118	7	118	10	6
TOTAL ALTERNATIVE	118	118	118	118	118	118

EXHIBIT A-35

Proposed Development Program -- Schumacher-Iverson Application

LAND USE

Major Employers	Total Area (acres)		Square Feet Proposed	Employees Per 1,000 Square Feet	Total Employment
Manufacturing, Research and Development	480		7,362,000	3.3	24,295
Light Industrial				2.0	
General Commercial	30		305,000	3.3	1,007
Shopping Commercial				3.3	
Highway Commercial				4.0	
Neighborhood Commercial				3.0	
EMPLOYMENT TOTAL	510		7,667,000		25,302

Residential	Total Area (acres)	Units Per Acre	Total Units	Persons Per Unit	Total Population
Low Density	-	7	0	2.55	-
Medium Density	-	12	0	-	-
High Density	-	22	0	1.54	-
High Density 2/	-	22	0	2.00	-
RESIDENTIAL TOTAL	-		0		-

Other Uses	Total Area (acres)
Parks/Open Space (Greenbelt)	44
Sports Complex (Stadium/Arena)	
TOTAL APPLICATION	554

1/ Total acres. Excludes major roadways, buffers, and drainage canals.

2/ Timeshare condominiums; Gateway Point only.

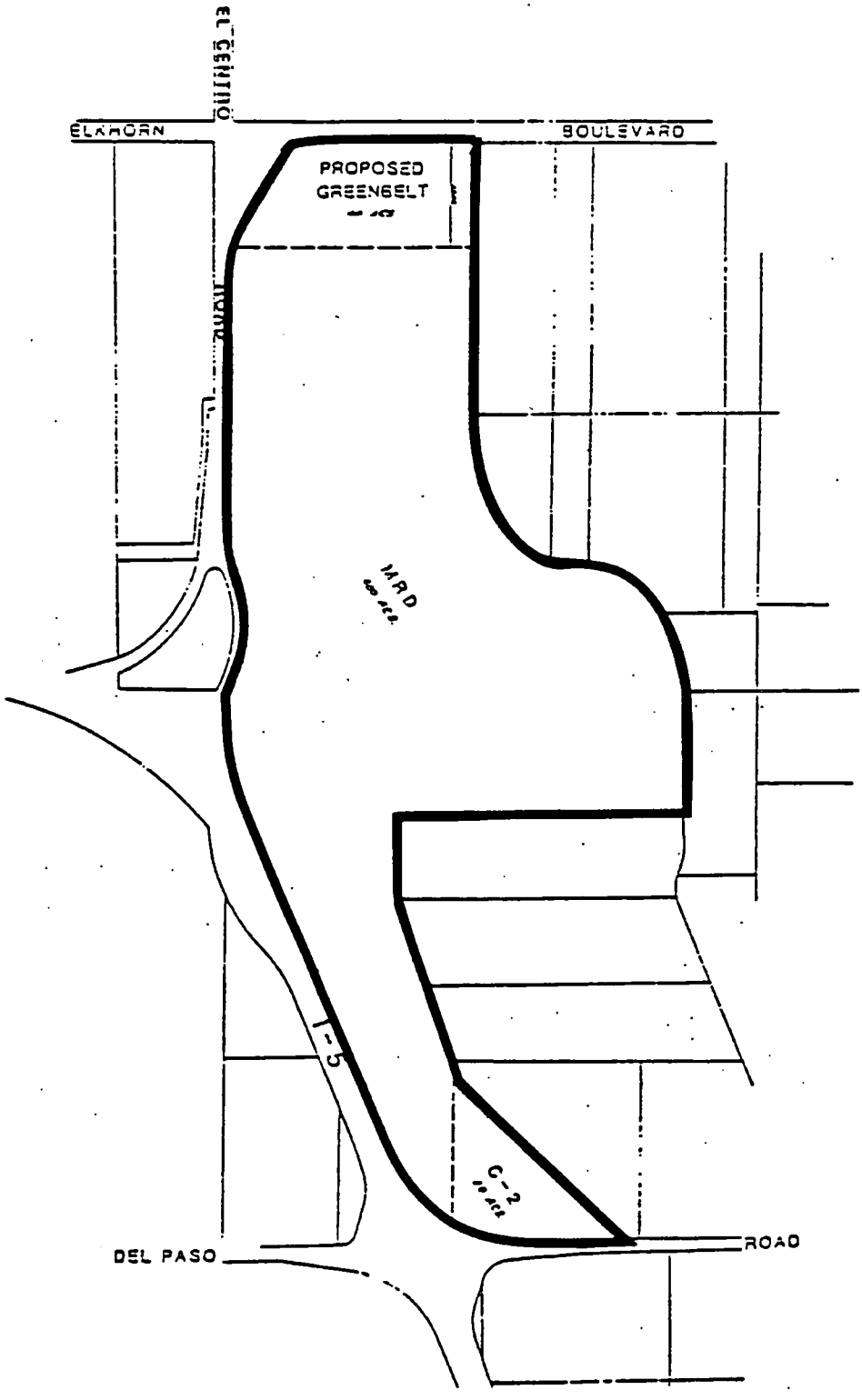


EXHIBIT A-36
SCHUMACHER – IVERSON CONCEPTUAL PLAN

Source: George S. Nolte and Associates

No Scale

EXHIBIT A-37

Comparison of Schumacher-Iverson Application with Alternatives

LAND USE	REQUESTED BY APPLICATION	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E
Major Employers:	(net acres)	(net acres)	(net acres)	(net acres)	(net acres)	(net acres)
MRD	480	-	-	-	-	-
M-50	-	-	-	-	-	350
M-20	-	-	-	36	154	-
Light Industrial	-	-	-	153	-	-
SPA	-	-	-	-	-	-
Office/Business	-	-	-	-	-	-
General Commercial	30	-	-	-	-	-
Community Commercial	-	-	15	-	4	19
Highway Commercial	-	-	-	-	-	-
Sports Complex	-	-	-	-	-	-
TOTAL	510	0	15	189	158	369
Residential:						
Rural Estate	-	-	-	-	-	-
Low Density	-	-	180	52	-	-
Medium Density	-	-	-	85	105	-
High Density	-	-	-	-	60	18
TOTAL	0	0	180	137	165	18
Civic/Public:	(gross acres)	(gross acres)	(gross acres)	(gross acres)	(gross acres)	(gross acres)
Elementary School	-	-	-	-	-	-
Junior High School	-	-	-	-	-	-
Senior High School	-	-	-	-	-	-
Other Civic Uses	-	-	-	-	-	-
Airport	-	-	-	-	-	-
TOTAL	0	0	0	0	0	0
Open Space:						
Agriculture	-	554	150	-	-	-
Other Open Space	44	-	209	228	231	187
TOTAL	44	554	359	228	231	187
TOTAL ALTERNATIVE	554	554	554	554	554	554

acres of Multiple Residential (R-3), and 27 acres of Open Space (O). Exhibit A-39 summarizes the Payne application, Exhibit A-40 illustrates these land uses, and Exhibit A-41 compares the application, as proposed, with all alternatives.

Reid-Ketscher (P84-037)

The Reid-Ketscher project applicants propose to amend the 1974 General Plan designation of Permanent Agriculture to 173 acres of Industrial, 79 acres of Commercial, and 5 acres of Residential. It also is proposed to rezone 257 acres of Agriculture (A) to 173 acres of Manufacturing, Research, and Development (MRD), 79 acres of General Commercial (C-2), and 5 acres of Multiple Residential (R-3). Exhibit A-42 summarizes this application, Exhibit A-43 illustrates it, and Exhibit A-44 compares the application, as proposed, with Alternatives A through E.

Alternative E would consist of 2,050 acres of M-50 uses, 230 acres of light industrial uses, 2,000 acres of airport-related industrial uses, and 330 acres of commercial uses. The estimated total employment of the Study Area would be 117,750 jobs. A total of 3,036 acres would be allocated to residential uses including low density (276 acres), medium density (1,990 acres), and high density (770 acres). An estimated 42,752 housing units would be constructed with an estimated total population of the Study Area of 76,626 persons.

The two other major uses in this alternative would be Metro Airport (2,900 acres) and a sports complex (200 acres) consisting of a 60,000-seat stadium and the proposed 18,000-seat arena.

Sports Complex

Alternatives B, C, D, and E each include development of a sports complex as part of the land use plan. In order to understand the economic implications of a sports complex, the City contracted with Economics Research Associates (ERA) to conduct an overall economic evaluation of the potential for new sports facilities in Sacramento. The report entitled "Economic Analysis of an Arena and/or Stadium for Sacramento, California" is incorporated by reference into this EIR.

EXHIBIT A-39

Proposed Development Program -- Payne Application

LAND USE Major Employers	Total Area (acres)		Square Feet Proposed	Employees Per 1,000 Square Feet	Total Employment
Manufacturing, Research and Development	13		130,700	3.3	431
Light Industrial				2.0	
General Commercial	31		610,000	3.3	2,013
Shopping Commercial				3.3	
Highway Commercial				4.0	
Neighborhood Commercial				3.0	
EMPLOYMENT TOTAL	44		740,700		2,444
Residential	**Total Area (acres)**	**Units Per Acre**	**Total Units**	**Persons Per Unit**	**Total Population**
Low Density	48	7	301	2.55	768
Medium Density		12		-	
High Density	204	22	4,092	1.54	6,302
High Density 2/		22		2.00	
RESIDENTIAL TOTAL	252		4,393		7,070
Other Uses	**Total Area (acres)**				
Parks/Open Space (Greenbelt)	27				
Sports Complex (Stadium/Arena)					
TOTAL APPLICATION	323				

1/ Total acres. Excludes major roadways, buffers, and drainage canals.

2/ Timeshare condominiums; Gateway Point only.

NOTE: PROPOSED PUBLIC RIGHT-OF-WAYS HAVE NOT BEEN EXCLUDED FROM THE ACREAGES SHOWN.

EXHIBIT A-40
PAYNE PROPERTY CONCEPTUAL PLAN

Source: George S. Nolte and Associates

No Scale

EXHIBIT A-41

Comparison of Payne Application with Alternatives

LAND USE	REQUESTED BY APPLICATION	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E
Major Employers:	(net acres)	(net acres)	(net acres)	(net acres)	(net acres)	(net acres)
MRD	13	-	-	-	-	-
M-50	-	-	-	-	-	-
M-20	-	-	-	-	-	-
Light Industrial	-	-	-	-	-	-
SPA	-	-	-	-	-	-
Office/Business	-	-	28	-	-	-
General Commercial	31	-	-	-	-	-
Community Commercial	-	-	10	50	40	35
Highway Commercial	-	-	-	-	-	-
Sports Complex	-	-	-	-	-	-
TOTAL	44	0	38	50	40	35
Residential:						
Rural Estate	-	-	-	-	-	-
Low Density	48	-	14	70	60	25
Medium Density	-	-	54	-	28	-
High Density	204	-	18	18	50	129
TOTAL	252	0	86	88	138	154
Civic/Public:	(gross acres)	(gross acres)	(gross acres)	(gross acres)	(gross acres)	(gross acres)
Elementary School	-	-	-	-	-	-
Junior High School	-	-	-	-	-	-
Senior High School	-	-	-	-	20	-
Other Civic Uses	-	-	-	5	-	-
Airport	-	-	-	-	-	-
TOTAL	0	0	0	5	20	0
Open Space:						
Agriculture	-	323	90	-	-	-
Other Open Space	27	-	109	180	125	134
TOTAL	27	323	199	180	125	134
TOTAL ALTERNATIVE	323	323	323	323	323	323

EXHIBIT A-42

Proposed Development Program -- Reid-Ketscher Application

LAND USE Major Employers	Total Area (acres)		Square Feet Proposed	Employees Per 1,000 Square Feet	Total Employment
Manufacturing, Research and Development	173		2,317,000	3.3	7,646
Light Industrial				2.0	
General Commercial	79		828,000	3.3	2,732
Shopping Commercial				3.3	
Highway Commercial				4.0	
Neighborhood Commercial				3.0	
EMPLOYMENT TOTAL	252		3,145,000		10,378
Residential	**Total Area (acres)**	**Units Per Acre**	**Total Units**	**Persons Per Unit**	**Total Population**
Low Density	-	7	0	2.55	
Medium Density	-	12	0	-	
High Density	5	22	66	1.54	102
High Density 2/		22		2.00	
RESIDENTIAL TOTAL	5		66		
Other Uses	**Total Area (acres)**				
Parks/Open Space (Greenbelt)					
Sports Complex (Stadium/Arena)					
TOTAL APPLICATION	257				

1/ Total acres. Excludes major roadways, buffers, and drainage canals.

2/ Timeshare condominiums; Gateway Point only.

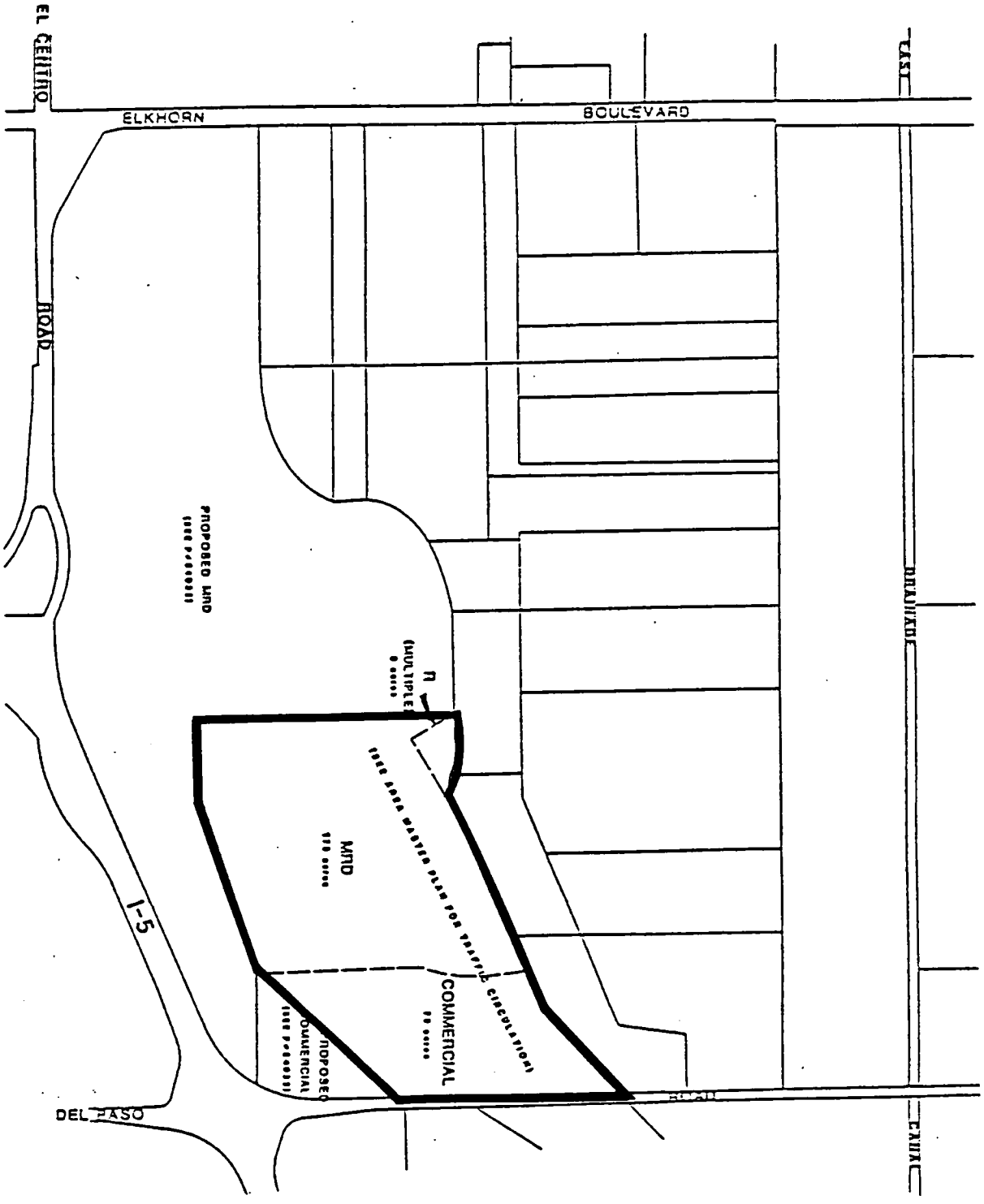


EXHIBIT A-43
REID-KETSCHER PROPERTY CONCEPTUAL PLAN

Source: George S. Nolte and Associates

No Scale

EXHIBIT A-44

Comparison of Reid-Ketscher Application with Alternatives

LAND USE	REQUESTED BY APPLICATION	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E
Major Employers:	(net acres)	(net acres)	(net acres)	(net acres)	(net acres)	(net acres)
MRD	173	-	-	-	-	-
M-50	-	-	-	-	26	152
M-20	-	-	-	28	1	-
Light Industrial	-	-	-	10	-	-
SPA	-	-	-	-	-	-
Office/Business	-	-	20	-	10	-
General Commercial	79	-	-	-	-	-
Community Commercial	-	-	-	-	3	55
Highway Commercial	-	-	-	-	-	-
Sports Complex	-	-	-	-	-	-
TOTAL	252	0	20	38	40	207
Residential:						
Rural Estate	-	-	-	-	-	-
Low Density	-	-	130	46	-	-
Medium Density	-	-	41	102	49	-
High Density	5	-	40	1	75	4
TOTAL	5	0	221	149	124	4
Civic/Public:	(gross acres)	(gross acres)	(gross acres)	(gross acres)	(gross acres)	(gross acres)
Elementary School	-	-	-	-	-	-
Junior High School	-	-	-	-	-	-
Senior High School	-	-	-	-	-	-
Other Civic Uses	-	-	-	-	-	-
Airport	-	-	-	-	-	-
TOTAL	0	0	0	0	0	0
Open Space:						
Agriculture	-	257	-	-	-	-
Other Open Space	-	-	26	70	93	46
TOTAL	0	257	26	70	93	46
TOTAL ALTERNATIVE	257	257	257	257	257	257

In order to complete the economic analysis, ERA developed prototype facilities for both an arena and stadium. The basic program for use in that analysis included a 60,000-seat open stadium and an 18,000-seat indoor arena. The stadium would be capable of staging professional baseball, football, and soccer while the arena would be capable of staging professional basketball and hockey, conventions, circuses, and other events.

The program which was developed also provided a general estimate of land requirements. The largest land use for the program is parking. It was assumed that all patrons to events would arrive by automobile. Based upon this assumption, it is estimated that a stadium would require approximately 132 acres, if all parking were provided on site, and an arena would require approximately 58 acres, if all parking were provided on site. If both facilities are developed together, there could be a total savings of 25 to 50 acres depending on the degree of simultaneous events and the ability to reduce the parking requirements for one or the other of the facilities.

For the purpose of this EIR it is assumed that the sports complex included in Alternatives B, C, D, and E would consist of the same facilities (a 60,000-seat open stadium and an 18,000-seat indoor arena) considered in the economic analysis prepared by ERA.

Phasing

In order to analyze the impacts of the five alternatives it was necessary to develop a land use phasing program for each alternative. Exhibits A-46 through A-50 show the phasing of land uses for each five-year period between 1985 and 2005 plus development which may occur after 2005. This information was developed by McDonald & Associates and is based on the expected absorption of each land use type throughout the entire Sacramento region. It must be recognized, however, that the phasing of the land uses within the Study Area is based primarily on maintenance of a job/housing balance during each phase. In some cases other factors affecting phasing, such as availability of infrastructure and market absorption, were overridden in order to achieve the City and County's jobs/housing balance objective.

It also should be noted that in some cases the total amount of land use proposed in an alternative may exceed the market absorption between 1985 and the year 2005. This occurs primarily for the SPA in Alternatives A and E and for the M-50 and Community Commercial land uses in Alternatives C through E.

EXHIBIT A-46

1985 to 2005 Phasing of Land Uses

Alternative A
(net acres)

	M-50	M-20	Light Indust.	SPA	Office/ Bus.	Comm-unity Comm.	Highway Comm.	Sports Complex	Rural Estate	Low Density	Medium Density	High Density	Total Jobs	Total DUs	Jobs/ Housing Balance
SUBTOTAL															
85/86-89/90	0	86	26	150	0	0	0	0	0	0	0	0	3,850	0	0%
SUBTOTAL															
90/91-94/95	0	121	36	200	0	0	0	0	0	0	0	0	5,350	0	0%
SUBTOTAL															
95/96-99/00	0	103	31	100	0	0	0	0	0	0	0	0	4,210	0	0%
SUBTOTAL															
00/01-04/05	0	33	10	50	0	0	0	0	0	0	0	0	1,440	0	0%
EXISTING	0	7	172	0	0	0	0	0	300	0	37	0	3,650	744	24%
1985to2005	0	343	103	500	0	0	0	0	0	0	0	0	14,850	0	0%
AFTER 2005	0	0	0	1,500	0	0	0	0	0	0	0	0	7,500	0	0%
GRAND TOTAL	0	350	275	2,000	0	0	0	0	300	0	37	0	26,000	744	3%

NOTE: (1) Phasing of land uses is based primarily on maintenance of a jobs/housing balance during each phase. Other factors affecting project phasing, such as availability of infrastructure and market absorption may have been overriden by the jobs/housing balance objective.

Source: McDonald & Associates, January, 1985.

EXHIBIT A-47

1985 to 2005 Phasing of Land Uses

Alternative B

(net acres)

	M-50	M-20	Light Indust.	SPA	Office/ Bus.	Comm-unity Comm.	Highway Comm.	Sports Complex	Rural Estate	Low Density	Medium Density	High Density	Total Jobs	Total DUs	Jobs/ Housing Balance
SUBTOTAL															
85/86-89/90	0	166	30	50	16	18	3	100	0	200	108	60	7,832	4,016	62%
SUBTOTAL															
90/91-94/95	0	208	37	63	20	23	4	100	0	250	138	75	9,705	5,056	63%
SUBTOTAL															
95/96-99/00	0	248	44	74	24	26	4	0	0	300	168	90	10,918	6,096	67%
SUBTOTAL															
00/01-04/05	0	210	37	63	20	23	4	0	0	250	149	75	9,265	5,188	67%
EXISTING	0	7	172	0	0	0	0	0	300	0	37	0	3,650	744	24%
1985to2005	0	832	148	250	80	90	15	200	0	1,000	563	300	37,720	20,356	65%
AFTER 2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
GRAND TOTAL	0	839	320	250	80	90	15	200	0	1,000	600	300	41,370	20,800	60%

NOTE: (1) Phasing of land uses is based primarily on maintenance of a jobs/housing balance during each phase. Other factors affecting project phasing, such as availability of infrastructure and market absorption may have been overriden by the jobs/housing balance objective.

Source: McDonald & Associates, January, 1985

EXHIBIT A-48

1985 to 2005 Phasing of Land Uses

Alternative C

(net acres)

	M-50	M-20	Light Indust.	SPA	Office/ Bus.	Comm-unity Comm.	Highway Comm.	Sports Complex	Rural Estate	Low Density	Medium Density	High Density	Total Jobs	Total DUs	Jobs/ Housing Balance
SUBTOTAL															
85/86-89/90	60	180	65	150	31	20	13	100	20	410	280	81	13,345	8,032	72%
SUBTOTAL															
90/91-94/95	60	180	78	200	31	25	16	100	20	410	306	81	14,095	8,344	71%
SUBTOTAL															
95/96-99/00	60	219	96	100	36	30	19	0	20	455	326	90	15,140	9,097	72%
SUBTOTAL															
00/01-04/05	18	110	64	50	18	20	12	0	14	243	172	48	7,590	4,835	76%
EXISTING	0	7	172	0	0	0	0	0	300	0	37	0	3,650	744	24%
1985to2005	198	689	303	500	116	95	60	200	74	1,518	1,084	300	50,170	30,308	72%
AFTER 2005	10	37	25	0	6	5	3	0	0	0	0	0	2,630	0	0%
GRAND TOTAL	208	733	500	500	122	100	63	200	374	1,518	1,121	300	56,450	31,052	66%

NOTE: (1) Phasing of land uses is based primarily on maintenance of a jobs/housing balance during each phase. Other factors affecting project phasing, such as availability of infrastructure and market absorption may have been overriden by the jobs/housing balance objective.

Source: McDonald & Associates, January, 1985

EXHIBIT A-49

1985 to 2005 Phasing of Land Uses

Alternative D

(net acres)

	M-50	M-20	Light Indust.	SPA	Office/ Bus.	Comm-unity Comm.	Highway Comm.	Sports Complex	Rural Estate	Low Density	Medium Density	High Density	Total Jobs	Total DUs	Jobs/ Housing Balance
SUBTOTAL															
85/86-89/90	114	213	75	150	43	28	24	100	0	350	180	135	18,187	7,580	50%
SUBTOTAL															
90/91-94/95	114	213	93	200	43	35	30	100	0	350	201	159	19,197	8,360	52%
SUBTOTAL															
95/96-99/00	150	280	123	100	84	50	36	0	0	490	306	245	25,314	12,492	59%
SUBTOTAL															
00/01-04/05	68	100	82	50	0	27	27	0	0	210	119	95	9,573	4,988	63%
EXISTING	0	7	172	0	0	0	0	0	300	0	37	0	3,650	744	24%
1985to2005	446	806	373	500	170	140	117	200	0	1,400	806	634	72,270	33,420	55%
AFTER 2005	9	37	0	0	0	0	3	0	0	0	0	0	1,605	0	0%
GRAND TOTAL	455	850	545	500	170	140	120	200	0	1,400	843	634	77,525	33,864	52%

NOTE: (1) Phasing of land uses is based primarily on maintenance of a jobs/housing balance during each phase. Other factors affecting project phasing, such as availability of infrastructure and market absorption may have been overriden by the jobs/housing balance objective.

Source: McDonald & Associates, January, 1985

EXHIBIT A-50

1985 to 2005 Phasing of Land Uses

Alternative E

(net acres)

	M-50	M-20	Light Indust.	SPA	Office/ Bus.	Comm- unity Comm.	Highway Comm.	Sports Complex	Rural Estate	Low Density	Medium Density	High Density	Total Jobs	Total DUs	Jobs/ Housing Balance
SUBTOTAL															
85/86-89/90	550	0	25	150	0	50	30	100	0	97	690	270	28,904	14,899	62%
SUBTOTAL															
90/91-94/95	550	0	25	200	0	55	28	100	0	97	690	270	29,244	14,899	61%
SUBTOTAL															
95/96-99/00	25	0	0	100	0	20	34	0	0	41	290	114	3,245	6,275	232%
SUBTOTAL															
00/01-04/05	20	0	8	50	0	10	18	0	0	41	283	116	2,141	6,235	349%
EXISTING	0	7	172	0	0	0	0	0	300	0	37	0	3,650	744	24%
1985to2005	1,145	0	58	500	0	135	110	200	0	276	1,953	770	63,535	42,308	80%
AFTER 2005	905	0	0	1,500	0	85	0	0	0	0	0	0	50,775	0	0%
GRAND TOTAL	2,050	0	230	2,000	0	220	110	200	0	276	1,990	770	117,750	42,752	44%

NOTE: (1) Phasing of land uses is based primarily on maintenance of a jobs/housing balance during each phase. Other factors affecting project phasing, such as availability of infrastructure and market absorption may have been overriden by the jobs/housing balance objective.

Source: McDonald & Associates, January, 1985

EIR REQUIREMENT

By letter dated Stepember 14, 1984, the Environmental Coordinator of the City of Sacramento determined that there was substantial evidence that the North Natomas Community Plan and land use alternatives may cause a significant overall effect on the environment. As a result, the Environmental Coordinator identified the following areas of environmental concern to be addressed in this Draft EIR: population, housing and employment, land use, transportation, air quality, noise, public facilities and services, energy, aesthetics, hydrology and water quality, geology and soils, vegetation and wildlife, agricultural lands, cultural resources, market factors, and fiscal considerations.

This EIR has been prepared pursuant to the California Environmental Quality Act of 1969 (CEQA), as amended, and subsequent guidelines promulgated to implement this statute.

REPORT SCOPE AND ORGANIZATION

The issues of concern initially identified by the City's Environmental Coordinator and issues raised at a series of meetings (listed below) provided the basis for the scope of the EIR. This scoping process included the following meetings and actions:

- June 21, 1984 meeting of the Joint City Planning Commission and County Policy Planning Commission to discuss EIR scoping.

- August 1, 1984 the Sacramento City Planning and Development Department distributed the Notice of Preparation (NOP) for the Community Plan EIR. The review period was set for August 1, 1984 to August 31, 1984.

- August 30, 1984 meeting of the Joint City Planning Commission and County Policy Planning Commission to discuss the NOP and EIR scoping. The public hearing was continued.

- October 4, 1984 meeting of the Joint City Planning Commission and County Policy Planning Commission for continued discussion of the NOP and EIR scope.

- October 15, 1984 meeting of the Joint City Planning Commission and County Policy Planning Commission for continued discussion of the NOP and EIR scope. At this meeting, Commissioners voted to close the public hearing and the NOP review period for scoping of issues for the North Natomas Community Plan EIR.

One result of this process was to expand the scope of the EIR to examine two additional alternatives (Alternatives B and D). A copy of the Notice of Preparation and a synopsis of each of the scoping meetings are included in Appendix A-1.

As provided for in the State CEQA Guidelines, the focus of the EIR is limited to specific issues and concerns identified as possibly significant by the City's Enivronmental Coordinator.

Section A of this report -- Project Description -- provides a description of the project location, describes the objectives of the City in proposing the project, and describes the alternatives being considered for the Community Plan along with the No Project Alternative.

Section B -- Summary of Findings -- provides a summary of impacts and mitigation measures. This section presents a summary of the environmental impacts of the five Community Plan alternatives, identifies the level of significance of those impacts, and lists mitigation measures for adverse impacts identified. The CEQA-mandated impact sections are included in Section B of the report.

Sections C through Q provide a detailed description of the environmental setting and analyze in depth the impacts of the five alternative Community Plans. A list of appropriate mitigation measures to overcome and/or reduce adverse impacts follows each discussion of environmental impacts. Each mitigation section identifies which mitigation measures should be incorporated into each of the five Community Plan alternatives. In instances where mitigation measures are identified as being appropriate for Alternative E, these measures also would be appropriate for the five individual land use applications.

Section R -- References -- lists documents and persons consulted in preparing this EIR.

A separate Technical Appendix which contains supplementary information supporting the main body of this EIR has been prepared. Copies of the Technical Appendix are available for review at the City Planning Department.

B. SUMMARY OF FINDINGS

This section contains a brief description of the Draft North Natomas Community Plan, a brief description of the four Community Plan Alternatives, a summary of project impacts and mitigation measures, and a number of impact sections required by the California Environmental Quality Act.

SUMMARY PROJECT DESCRIPTION AND ALTERNATIVES

Draft Community Plan (Alternative C)

The Draft Community Plan (Alternative C) proposes 208 acres of Manufacturing, Research, and Development with a maximum of 50 percent offices (M-50), 733 acres of Manufacturing, Research, and Development with a maximum of 20 percent offices (M-20), 500 acres of light industrial uses, 500 acres of airport-related industrial uses, 122 acres of office/business uses, and 163 acres of commercial uses. The estimated total employment of the Study Area would be 56,450 jobs. A total of 3,313 acres would be allocated to residential uses including rural estate (374 acres), low density (1,518 acres), medium density (1,121 acres), and high density (300 acres). An estimated 31,052 housing units would be developed in the Study Area with an estimated total population of 63,907 persons.

The two other major uses in the Study Area would be the Metropolitan Airport (2,900 acres) and a privately-developed sports complex (200 acres) consisting of a 60,000-seat open stadium and an 18,000-seat indoor arena.

Alternative A (No Project)

Under this alternative, the predominant land use would be agricultural; approximately 7,341 acres of the 14,300-acre Study Area would remain designated "agriculture". The second most prominent land use would be Metro Airport -- occupying approximately 2,900 acres. The lands immediately east of the Metro Airport between Power Line Road and Lone Tree Road (approximately 2,000 acres) in Sacramento County jurisdiction would remain designated a Special Planning Area which permits only airport-related land uses.

In this alternative 744 dwelling units would be provided, housing a residential population of 1,613 persons. In addition to the Airport Special Planning Area, 275 acres would remain designated light industrial, and 350

acres would be designated M-20, resulting in a non-agricultural employee population of 26,000, including 16,000 employees in the County Northgate portion of the North Natomas Study Area and 10,000 employees in the SPA.

Alternative B

Alternative B would direct urbanization of North Natomas to the portion of the Study Area located east of Interstate 5 (I-5). Except for the existing mobile home park, the Study Area west of I-5 would remain designated "agriculture" in this alternative. A portion of the Study Area south of Elkhorn Boulevard also would remain designated "agriculture". In total, approximately 3,630 acres within the Study Area would remain designated "agriculture" under this alternative.

Alternative B would consist of 839 acres of M-20 uses, 320 acres of light industrial uses, 250 acres of airport-related industrial uses (SPA), 80 acres of office/business uses, and 105 acres of commercial uses. The estimated total employment of the Study Area would be 41,370 persons. A total of 1,900 acres would be allocated to residential uses including low density (1,000 acres), medium density (600 acres), and high density (300 acres). An estimated 20,800 housing units would be constructed with an estimated total population of 41,766 persons living in the Study Area.

The two other major uses in this alternative would be Metro Airport (2,900 acres) and a sports complex (200 acres).

Alternative D

Alternative D would commit nearly all of the area east and west of I-5 to urbanization. This alternative would consist of 455 acres of M-50 uses, 850 acres of M-20 uses, 545 acres of light industrial uses, 500 acres of airport-related industrial uses, 170 acres of office/business uses, and 260 acres of commercial uses. A total of 2,877 acres would be allocated to residential uses including low density (1,400 acres), medium density (843 acres), and high density (634 acres). An estimated 33,864 housing units would be constructed with an estimated total population of 65,972 persons in the Study Area. Alternative D also allocates 2,900 acres to Metro Airport and 200 acres to a sports complex. It should be noted that, due to the large quantity of employment-generating land uses proposed by this alternative, not all uses would be built-out within the 20-year timeframe of the Plan.

Alternative E (Composite Alternative)

Alternative E incorporates all five land use applications on file with the City for the North Natomas Study Area and proposes land uses for the area not covered by those applications. The five individual applications are Gateway Point (P83-424), Fong Ranch (P84-013), Schumacher-Iverson (P84-032), Payne (P84-036), and Reid-Ketscher (P84-037).

Alternative E would consist of 2,050 acres of M-50 uses, 230 acres of light industrial uses, 2,000 acres of airport-related industrial uses, and 330 acres of commercial uses. The estimated total employment of the Study Area would be 117,750 jobs. A total of 3,306 acres would be allocated to residential uses including low density (276 acres), medium density (1,990 acres), and high density (770 acres). An estimated 42,752 housing units would be constructed with an estimated total population of 76,626 persons living in the Study Area.

The two other major uses in this alternative would be Metro Airport (2,900 acres) and a sports complex (200 acres), consisting of a 60,000-seat stadium and the proposed 18,000-seat arena. As with Alternative D, due to the large quantity of employment-generating land uses proposed by this alternative, not all uses would be built-out within the 20-year timeframe of the Plan.

SUMMARY OF IMPACTS AND MITIGATION MEASURES

The summary table beginning on page B-4 presents a summary of the environmental impacts of the five Community Plan alternatives, identifies the level of significance of those impacts, and lists mitigation measures for adverse impacts identified. For detailed discussions of these impacts and mitigation measures, refer to the appropriate sections of the text following this section.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A (No Project Alternative)	Alternative B	Alternative C (Draft Community Plan)	Alternative D	Alternative E (Composite Alternative)
PROJECT DESCRIPTION	Assumes Study Area would be developed in conformance with the 1974 City General Plan and the 1982 County General Plan. 7,341 acres would remain designated agricultural, and 2,000 acres would remain designated SPA. In addition, there would be 275 acres of light industrial and 350 acres of M-20 use. Estimated employment is 26,000 jobs. Residential population would be 1,613 people in 744 dwelling units.	Would direct urbanization to that portion of the Study Area east of I-5. Would consist of 839 acres of M-20, 320 acres of light industrial use, 250 acres of SPA, 80 acres of office/business use, and 105 acres of commercial uses. Estimated employment would be 41,370 persons. 1,900 acres allotted to residential use including low density (1,000 acres), medium density (600 acres) and high density (300 acres) for 20,800 housing units with a population of 41,766 persons. Includes a sports complex consisting of a 60,000-seat stadium and an 18,000-seat arena.	Would consist of 208 acres of M-50, 733 acres of M-20, 500 acres of light industrial uses, 500 acres of SPA, 122 acres of office/business, and 163 acres of commercial uses. Estimated employment would be 56,450 jobs. 3,313 acres allotted to residential use would include rural estate (374 acres), low density (1,518 acres), medium density (1,121 acres), and high density (300 acres) for 31,052 housing units and a population of 63,907 people. Includes same sports complex as Alternative B.	Would consist of 455 acres of M-50, 850 acres of M-20, 545 acres of light industrial use, 500 acres of SPA, 170 acres of office/business uses, and 260 acres of commercial uses. Estimated employment would be 77,525 jobs. 2,877 acres allocated to residential use including low density (1,400 acres), medium density (843 acres), and high density (634 acres) for 33,864 housing units and a population of 65,792 people. Includes same sports complex as in Alternative B.	Incorporates the five land use applications on file with the City for North Natomas: Gateway Point, Fong Ranch, Schumacher-Iverson, Payne, and Reid-Ketscher. Would consist of 2,050 acres of M-50, 230 acres of light industrial uses, 2,000 acres of SPA, and 330 acres of commercial uses. Estimated employment would be 117,750 jobs. 3,036 acres allocated for residential use including low density (276 acres), medium density (1,990 acres), and high density (770 acres) for 42,752 units and a population of 76,625 people. Includes the same sports complex as in Alternative B.
GROWTH INDUCING IMPACTS	• Impact: Development would have significant growth inducing impacts. The actual level of development permitted would contribute substantially to growth inducing impacts. In this alternative there would be a significant housing demand created by employment-generating development (especially SPA) and	• Impact: Most immediate pressure for unplanned project-induced growth would occur on unincorporated Sacramento County lands north and south of North Natomas together with eastern Yolo and southern Sutter Counties. Surplus of jobs in relation to housing in North Natomas in all alternatives would create	• Impact: Growth inducing impact similar to Alternative B. Major difference would be development west of I-5 which would place greater pressure on unincorporated land between Study Area boundary and Sacramento River.	• Impact: Growth inducing impact similar to Alternative C. Would have some increased development pressure because of greater surplus of jobs over housing compared with Alternatives B and C.	• Impact: Growth inducing impact similar to Alternative D. Of all alternatives, this one would have the largest unmet demand for housing generated by North Natomas jobs. Also, this alternative would result in a ballooning of jobs after year 2005 with no new housing when the City's existing urban limit would have been built out.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
GROWTH INDUCING IMPACTS Continued	lack of areas designated for housing. Although this alternative would retain most but not all of North Natomas in agricultural use, the demand for housing would put pressure on open areas for residential development.	pressures for proportionately more residential development and service commercial uses in nearby areas. Significant growth inducing pressure on incorporated lands west of I-5.			
	Significance:	**Significance:**	**Significance:**	**Significance:**	**Significance:**
	Significant adverse impact.	Significant adverse impact.	Significant adverse impact.	Significant adverse impact.	Significant adverse impact.
	Mitigation:	**Mitigation:**	**Mitigation:**	**Mitigation:**	**Mitigation:**
	Ensure that there is uniform implementation of Community Plan policies by both the City and County. Tie job creation to housing availability. Delay employment-generating development until adequate numbers of affordable housing units are built. Designate lands both north and south as permanent agriculture. Ensure permanency through mechanisms such as transfer of development rights as discussed in Agricultural Lands section.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
CUMULATIVE IMPACTS	● **Impact:** Alternative A represents "base case" conditions -- planning growth which would occur throughout the region and assuming employment-generating development envisaged in North Natomas in conformance with current zoning.	● **Impact:** Regionwide cumulative impacts due to net increment of growth attributable to opening North Natomas. Increment would be 60,800 people, 25,000 housing units, and 25,000 jobs. The major effect would be to reduce employment opportunities in other communities from the number of jobs which would be created without significant development in the Study Area. Also, there would be the continued transformation of agricultural lands to urban uses. Other cumulative impacts would include an increase in ozone levels by approximately 3-4% and those related to the significant expansion of public services.	● **Impact:** In addition to impacts described for Alternative B, this alternative would result in cumulative transportation impacts on I-5 between North Natomas and downtown Sacramento and to some extent would affect I-80 and Business 80.	● **Impacts:** Similar to the other alternatives, as a larger population is accommodated in North Natomas, population growth would be diverted away from other communities, primarily South Natomas, North Sacramento, the Highway 50 Corridor, North Highlands, South Sacramento, Airport-Meadowview, Laguna, Vineyards/Elk Grove, downtown Sacramento, and Placer and Yolo Counties.	● **Impacts:** Cumulative impacts would be similar to other alternatives. In Alternative E, since employment growth continues after 2005, the cumulative employment impacts on other communities in the year 2005 would be less for Alternative E than for Alternatives B, C, or D.
	Significance: Not applicable.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.
	Mitigation: None required.	**Mitigation:** Implementation of mitigation measures would reduce but would not eliminate adverse cumulative impacts.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
POPULATION	**Impact:** No new residential construction is envisaged by this alternative so there would not be an influx of new residents to North Natomas. There would be a small increase in population over 1980 US Census counts (probably due to occupancy of completed but vacant housing units) with few changes in population thereafter.	**Impact:** Approximately 41,766 people would live in North Natomas at buildout for 14% of population growth citywide between 1980 and 2005. Combined with South Natomas and North Sacramento, these three communities would have 30% of all City residents within northern Sacramento.	**Impact:** Approximately 63,907 people would live in North Natomas at buildout for 21% of population growth citywide between 1980 and 2005. Combined with South Natomas and North Sacramento, one-third of all Sacramento residents would live in this three-community area in 2005.	**Impact:** Approximately 65,792 people would live in North Natomas at buildout for 22% of population growth citywide between 1980 and 2005. Combined with South Natomas and North Sacramento, one-third of all city residents would live in northern Sacramento.	**Impact:** Approximately 76,626 people would live in North Natomas at buildout for 25% of population growth citywide between 1980 and 2005. Combined with South Natomas and North Sacramento, 34% of the City's year 2005 population would live in these three communities.
	Significance: Not significant per se but significant adverse impact in view of significant expansion of employment opportunities without commensurate expansion of housing stock.	**Significance:** Population increase not significant per se because growth is expected to continue in the City although the net effect would be to shift population concentration to the north.	**Significance:** Same as Alternative B. Total residential population would grow significantly with existing conditions and in view of no growth planned in North Natomas prior to 1995 at the earliest.	**Significance:** Same as Alternative C.	**Significance:** Same as Alternative C.
	Mitigation: No mitigation measures are required in terms of population per se since there would be no change from existing conditions.	**Mitigation:** Measures (below) to balance housing and jobs either would increase housing, thus expanding population, or would decrease jobs (not affecting residential population) or a combination.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B. In providing housing for the substantial number of employees envisaged, however, there could be a significantly increased residential population living in North Natomas at buildout.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
HOUSING	● **Impact:** No new housing units would be developed in North Natomas. This alternative would contribute to the City's need for an expanded housing supply to accommodate population growth. Moreover, 26,000 jobs would be created while only 744 housing units would be available which means that new employees would have to find housing elsewhere in the region.	● **Impact:** 20,800 housing units would be provided or 9% of the City's housing supply expected by year 2005 whereas 41,370 jobs would be created in North Natomas for an imbalance in jobs to dwelling units available in the community for employees. As a result, North Natomas employees would require housing elsewhere in the region.	● **Impact:** 31,052 housing units would be provided or 13% of the City's anticipated 2005 housing stock whereas 56,450 jobs would be created in North Natomas for a communitywide jobs-housing imbalance. As a result, North Natomas employees would require housing elsewhere in the region.	● **Impact:** 33,864 housing units would be provided or 14% of the City's expected housing supply in 2005 whereas 77,525 jobs would be created in North Natomas for a significant shortfall in units in the community to accommodate new employees. As a result North Natomas employees would require housing elsewhere in the region.	● **Impact:** 42,752 housing units would be provided or 17% of the City's expected 2005 housing stock whereas 117,750 jobs would be provided at buildout (approximately 63,535 of which would be provided by 2005). Housing would be inadequate to accommodate new employees by 2005, and there would be a severe imbalance of jobs to housing at buildout of employment-generating land uses. As a result, North Natomas employees would require housing elsewhere in the region.
	Significance: Significant adverse impact.	**Significance:** Same as Alternative A.	**Significance:** Same as Alternative A.	**Significance:** Same as Alternative A.	**Significance:** Same as Alternative A.
	Mitigation: This impact cannot be mitigated unless the number of jobs is reduced substantially and unless this alternative is changed significantly to provide for housing development.	**Mitigation:** This impact cannot be mitigated without providing housing units for at least 80% of new employees within North Natomas. In addition, housing development should be phased in conjunction with job creation in order to prevent temporary imbalances which would exacerbate housing demand impacts.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
HOUSING Continued	● **Impact:**	● **Impact:**	● **Impact:**	● **Impact:**	● **Impact:**
	Since no new housing would be provided, affordability of on-site housing would be moot. The housing demand created by job-generating growth would intensify pressures to open North Natomas agricultural land for further development.	Due to the mix of housing types proposed and the estimated salaries of jobs to be created, only persons employed in crafts or professional/technical categories would have sufficient incomes to buy North Natomas housing and most single-wage households could not afford to rent in the community.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
	Significance:	**Significance:**	**Significance:**	**Significance:**	**Significance:**
	Significant adverse impact.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
	Mitigation:	**Mitigation:**	**Mitigation:**	**Mitigation:**	**Mitigation:**
	This impact cannot be mitigated unless the alternative was revised substantially to reduce employment-generation or to redesignate employment generating land uses adequate to develop sufficient housing units affordable to North Natomas employees to meet the housing demand created in the community.	Increase the total number of housing units and the proportion of unit types which would be affordable by North Natomas employees; increase housing densities and housing types appropriate for families; require that at least 10% of units be affordable to low and moderate income households; monitor rates of housing construction and job creation.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
EMPLOYMENT	• Impact: 26,000 jobs would be provided in primarily light industrial and airport-related industrial labor categories (14,850 of which would be new jobs provided by 2005). Agricultural employment would decline. 8,400 to 10,500 high technology jobs could be created by buildout. None of the new jobs would be in sectors presently concentrated in Sacramento. **Significance:** In terms of expanding the area's employment base per se, increased job opportunities would represent a beneficial result of development. **Mitigation:** Preference in hiring should be given to existing Sacramento residents with emphasis on persons living in North Sacramento. Job training and placement programs should target occupations to be provided in North Natomas	• Impact: 41,370 total jobs would be provided in North Natomas at buildout (37,720 new jobs by 2005). Some agricultural jobs would be maintained. 25,170 high technology jobs could be created (61% of all North Natomas jobs). None of the new jobs would be in sectors presently concentrated in Sacramento. **Significance:** Same as Alternative A. **Mitigation:** Same as Alternative A.	• Impact: 56,450 jobs would be provided in North Natomas at buildout (50,170 new jobs by 2005). Few agricultural jobs would be maintained. 31,350 high technology jobs could be created (56% of all North Natomas jobs). None of the new jobs would be in sectors presently concentrated in Sacramento. **Significance:** Same as Alternative A. **Mitigation:** Same as Alternative A.	• Impact: 77,525 jobs would be provided in North Natomas at buildout (72,270 new jobs by 2005). Agricultural employment virtually would be eliminated. 45,975 high technology jobs could be created (59% of all North Natomas jobs). None of the new jobs would be in sectors presently concentrated in Sacramento. **Significance:** Same as Alternative A. **Mitigation:** Same as Alternative A.	• Impact: 117,750 jobs would be provided at buildout (63,535 new jobs by 2005). Agricultural employment virtually would be eliminated. 92,250 high technology jobs could be created (70% of all North Natomas jobs). None of the new jobs would be in sectors presently concentrated in Sacramento. **Significance:** Same as Alternative A. **Mitigation:** Same as Alternative A.

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
EMPLOYMENT Continued	so that unemployed, underemployed, and persons just entering the workforce can be hired for these new jobs.				
LAND USE	• Impact: Incorporated North Natomas would continue in agricultural use, in conformance with the City's Growth Policy to make a contribution to the preservation of agricultural lands and to support continued agricultural production in the area.	• Impact: Agricultural lands east of I-5 would be converted to urban use, contrary to the City's General Plan finding that Natomas north of I-5 would not be needed for urbanization within the next 20 years and contrary to the City's Growth Policy which states that agricultural land use in North Natomas should be viewed as a long-term use rather than simply a holding zone for urban development.	• Impact: The majority of agricultural lands both east and west of I-5 would be developed with urban uses, contrary to the City's Growth Policy.	• Impact: Except for small remnants of agricultural land, the Study Area would be converted to urban uses, contrary to the City's Growth Policy.	• Impact: Virtually the entire Study Area would be transformed from productive agricultural use to urban use, thus eliminating the City's contribution to agricultural land preservation and this significant sector of the region's economy.
	Significance: Beneficial impact.	Significance: Significant adverse impact.	Significance: Significant adverse impact.	Significance: Significant adverse impact.	Significance: Significant adverse impact.
	Mitigation: None required.	Mitigation: The City would have to reverse its Growth Policy recommendations about retaining agricultural uses in North Natomas prior to approving this alternative	Mitigation: Same as Alternative B.	Mitigation: Same as Alternative B.	Mitigation: Same as Alternative B.

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
LAND USE Continued		as the Community Plan. The loss of agricultural lands, however, would be irrevocable and could not be mitigated.			
	• Impact:	• Impact:	• Impact:	• Impact:	• Impact:
	Adoption of Alternative A would divert urbanization away from City lands but would allow industrial development on County lands. This would be consistent with adopted public policies. (Development on unincorporated land still would conflict with the ultimate intent of the County's agricultural preservation policy.)	Adoption of the Community Plan would commit North Natomas to urbanization prior to 1995, contrary to the existing Growth Policy to divert urban development away from North Natomas until at least 1995. Urbanization prior to 1995 would be premature unless landowners in the City's portion of the Study Area show a compelling community need to convert the area to urban use and show that other areas more suitable for development do not exist.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
	Significance:	Significance:	Significance:	Significance:	Significance:
	Potentially significant cumulative impact on the supply of agricultural land in the County but insignificant in terms of consistency with public policies.	Significant Adverse Impact.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
LAND USE Continued	**Mitigation:** None technically required. (Industrial land use designations in County should be changed to agriculture, however, if the intent of agricultural lands' preservation is to be realized.)	**Mitigation:** Owners of land in the City portion of the Study Area would have to present evidence of a compelling need to allow urban development and show that no other suitable areas exist for development, and the City would have to amend its Growth Policy to allow urbanization to proceed prior to 1995.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.
	● **Impact:** Presence of developed uses on County lands could exert pressures to convert agricultural land in City to developed use. This would result from urban-rural conflicts and from divided jurisdiction in the area with developed areas in the County and undeveloped uses in the City.	● **Impact:** Similar to Alternative A. These impacts would occur on lands within and outside of the Study Area but primarily lands north and south of Elkhorn Boulevard, since I-5 would help to buffer lands west of I-5 from urban-rural conflicts.	● **Impact:** Agricultural lands within the Study Area and both north and west of its boundaries would be vulnerable to conversion to urban development and would be affected adversely by urban-rural conflicts.	● **Impact:** Same as Alternative C.	● **Impact:** Same as Alternative C.
	Significance: Potentially significant impact.	**Significance:** Potentially significant impact.	**Significance:** Significant adverse impact.	**Significance:** Same as Alternative C.	**Significance:** Same as Alternative C.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
LAND USE Continued	**Mitigation:** The unincorporated portions of the Study Area should be annexed by the City, or a mechanism should be established to ensure that the City and County implement this Community Plan uniformly.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A. Such mitigation could somewhat reduce the significance of impacts but would not eliminate these impacts.	**Mitigation:** Same as Alternative C.	**Mitigation:** Same as Alternative C.
	• **Impact:** Employment opportunities primarily would be in light industrial and airport-related industrial occupations, similar to existing jobs, in addition to maintenance of agricultural employment.	• **Impact:** This mixed-use community would provide a variety of job opportunities, but employment-generation, such as in office categories, while significant would not make North Natomas a rival of downtown.	• **Impact:** Development could result in up to 5,500,000 square feet of offices plus other employment-generating land uses. Combined with employment-generating uses to be built in South Natomas, northern Sacramento would become a major new focus for jobs within the region.	• **Impact:** Employment-generating development could include up to 19,300,000 square feet of offices alone which means North Natomas would be a major new employment center rivaling and diminishing the importance of downtown.	• **Impact:** Employment-generating development could include up to 16,100,000 square feet of offices. This area, combined with other employment-generating land uses, would focus employment opportunities in northern Sacramento and would diminish the influence of downtown significantly as the major retail, trade, and financial center of the region.
	Significance: Less than significant.	**Significance:** Less than significant impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.
	Mitigation: None required.	**Mitigation:** None required.	**Mitigation:** The only way to ensure the dominance of downtown would be to reduce the employment-generating land	**Mitigation:** Same as Alternative C.	**Mitigation:** Same as Alternative D.

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
LAND USE Continued			uses in North Natomas or to redesignate land uses allowing office development to uses which would not compete with retail, trade, and financial uses which are appropriate to locate in downtown.		
	• Impact: Allowing more industrial development in North Natomas could attract some businesses away from existing communities or divert other businesses from locating in older communities where their presence could help to revitalize those areas and would provide needed jobs. Airport-industrial development would not be expected to divert employment-generating opportunities from existing communities.	• Impact: Opening North Natomas to development at this time would dilute City efforts to direct growth to the urban area which existed in 1981, thus adversely affecting efforts to confine the extent of urbanization and to channel development and redevelopment onto vacant lands or infill parcels in existing communities.	• Impact: Same as Alternative B. The amount of development envisaged under this alternative would divert efforts to build out existing communities and, in particular, to revitalize older neighborhoods where investment in both employment-generating and residential land uses is needed.	• Impact: Same as Alternatives B and C. The magnitude of growth would produce a new focus for development efforts which would substantially affect public programs, such as redevelopment activities, to attract private investment to the City's existing communities in any significant way.	• Impact: Same as Alternatives B, C, and D. Because of the scope of development envisaged and the prolonged buildout period, especially of employment-generating land uses, the focus of new development would be shifted to northern Sacramento, thus severely limiting the City's ability to realize its revitalization goals in other communities.
	Significance: Potentially significant impact.	Significance: Significant adverse impact.	Significance: Significant adverse impact.	Significance: Significant adverse impact.	Significance: Significant adverse impact.
	Mitigation: None recommended. Short of rezoning unincorporated	Mitigation: If North Natomas is opened for development at this	Mitigation: Same as Alternative B.	Mitigation: Same as Alternative B.	Mitigation: Same as Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
LAND USE Continued	lands which now allow light industrial and airport-related industrial development to agriculture or non-employment-generating uses, this potential impact cannot be avoided.	time, there are no mitigation measures available aside from a much more aggressive and substantially better funded redevelopment program to dramatically improve incentives for infill development and revitalization of existing communities, including renewed efforts to channel high technology industrial and related development to the City's designated area for these uses -- Delta Shores Village.			
TRAFFIC AND CIRCULATION					
	● **Impact:** LOS D-F occurs at several locations on regional freeway system.	● **Impact:** Similar to Alternative A.	● **Impact:** Similar to Alternative A.	● **Impact:** Similar to Alternative A.	● **Impact:** Similar to Alternative A.
	Significance: Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.
	Mitigation: None. Impact not related to North Natomas development.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
TRAFFIC AND CIRCULATION Continued		• Impact: LOS on Truxel between San Juan and North Loop Road ranges from D to F. Significance: Potentially significant impact. Mitigation: Reduce land use densities.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.
	• Impact: LOS on Elkhorn at East Levee ranges from E to F. Significance: Potentially significant impact. Mitigation: Widen Elkhorn Boulevard to 4 lanes from Watt to East Levee.	• Impact: Similar to Alternative A. Significance: Potentially significant impact. Mitigation: Same as Alternative A.	• Impact: Similar to Alternative A. Significance: Potentially significant impact. Mitigation: Same as Alternative A.	• Impact: Similar to Alternative A. Significance: Potentially significant impact. Mitigation: Same as Alternative A.	• Impact: Similar to Alternative A. Significance: Potentially significant impact. Mitigation: Same as Alternative A.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
TRAFFIC AND CIRCULATION Continued		• **Impact:** LOS C-D occurs on I-5 crossing the American River. **Significance:** Less than significant impact. **Mitigation:** None required.	• **Impact:** LOS E-F occurs on I-5 crossing the American River. **Significance:** Potentially significant impact. **Mitigation:** Widen I-5 or create a new river crossing or reduce land use densities.	• **Impact:** LOS F occurs on I-5 from I-80 into the Central City. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative C.	• **Impact:** Same as Alternative D. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative C.
				• **Impact:** LOS D-F occurs on I-80 between I-5 and Norwood. **Significance:** Potentially significant impact. **Mitigation:** Widen I-80 to 8 lanes.	• **Impact:** LOS F occurs on I-80 between I-5 and Norwood. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative D.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
TRAFFIC AND CIRCULATION Continued			• **Impact:** LOS D-F occurs on East Loop Road. **Significance:** Potentially significant impact. **Mitigation:** Widen to 6 lanes.	• **Impact:** LOS D occurs on Northgate Boulevard between I-80 and North Market Boulevard. **Significance:** Potentially significant impact. **Mitigation:** Widen to 6 lanes. • **Impact:** LOS E occurs on North Market Boulevard between East Loop and I-5. **Significance:** Potentially significant impact.	• **Impact:** LOS D-E occurs between I-80 and Del Paso Road. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative D.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
TRAFFIC AND CIRCULATION Continued				**Mitigation:** Reduce land use densities.	• **Impact:** LOS D-E occurs on Del Paso Road between West Loop and East Commerce. **Significance:** Potentially significant impact. **Mitigation:** Reduce land use densities. • **Impact:** LOS F occurs on East Commerce between Del Paso and North Loop. **Significance:** Potentially significant impact. **Mitigation:** Reduce land use densities.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
AIR QUALITY	• Impact: Direct emissions primarily would result from continued agricultural operations.	• Impact: Increase in direct emissions as a result of residential and industrial development.	• Impact: Similar to Alternative B.	• Impact: Similar to Alternative B.	• Impact: Similar to Alternative B.
	Significance: Less than significant.	Significance: Potentially significant.	Significance: Similar to Alternative B.	Significance: Similar to Alternative B.	Significance: Similar to Alternative B.
	Mitigation: None required.	Mitigation: Implement requirements of Air Quality Plan for new developments.	Mitigation: Similar to Alternative B.	Mitigation: Similar to Alternative B.	Mitigation: Similar to Alternative B.
		• Impact: Would result in a decrease in direct emissions (primarily carbon monoxide and total suspended particulates) related to agricultural operations.	• Impact: Similar to Alternative B.	• Impact: Similar to Alternative B.	• Impact: Similar to Alternative B.
		Significance: Beneficial impact.	Significance: Similar to Alternative B.	Significance: Similar to Alternative B.	Significance: Similar to Alternative B.
		Mitigation: None required.	Mitigation: None required.	Mitigation: None Required.	Mitigation: None required.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
AIR QUALITY Continued		• **Impact:** Development related traffic would result in additional vehicular emissions not just to Study Area but to the entire transportation system. Emissions in tons/day of NO_x would be 3.6 and ROG would be 3.3. **Significance:** Potentially significant impact. **Mitigation:** Implement transportation control measures such as incentives for ride-sharing, transit, and bicycle use.	• **Impact:** Similar to Alternative B. Emissions in tons/day for NO_x would be 4.5 and for ROG would be 4.2. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	• **Impact:** Similar to Alternative B. Emissions in tons/day for NO_x would be 5.6 and for ROG would be 5.6. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	• **Impact:** Similar to Alternative B. Emissions in tons/day of NO_x would be 7.2 and for ROG would be 6.9. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.
	• **Impact:** Predicted levels of carbon monoxide concentrations at busiest intersections would be below State and Federal standards. **Significance:** Less than significant. **Mitigation:** None required.	• **Impact:** Similar to Alternative A. **Significance:** Similar to Alternative A. **Mitigation:** None required.	• **Impact:** Similar to Alternative A. **Significance:** Similar to Alternative A. **Mitigation:** None required.	• **Impact:** Similar to Alternative A. **Significance:** Similar to Alternative A. **Mitigation:** None required.	• **Impact:** Similar to Alternative A. **Significance:** Similar to Alternative A. **Mitigation:** None required.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
AIR QUALITY Continued		• **Impact:** Net increase in regional emissions of carbon monoxide, oxides of nitrogen, sulfur oxides, and reactive organic gases over Alternative A. Most significant changes would be in reactive organic gases (2.4 tons/day) and oxides of nitrogen (1.0 tons/day).	• **Impact:** Similar to Alternative B. Increase over Alternative A for reactive organic gases is 3.0 tons/day and for oxides of nitrogen is 1.0 tons/day.	• **Impact:** Similar to Alternative B. Increase over Alternative A for reactive organic gases is 3.5 tons/day and for oxides of nitrogen is 1.2 tons/day.	• **Impact:** Similar to Alternative B. Increase over Alternative A for reactive organic gases is 3.7 tons/day and for oxides of nitrogen is 1.4 tons/day.
		Significance: Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.
		Mitigation: See mitigation measure Page B-24.	**Mitigation:** See mitigation measure on page B-24.	**Mitigation:** See mitigation measure on page B-24.	**Mitigation:** See mitigation measure on page B-24.
		• **Impact:** Increase in ozone levels in Sacramento area by roughly 3-4%, thereby delaying attainment of the ozone standard.	• **Impact:** Similar to Alternative B.	• **Impact:** Similar to Alternative B.	• **Impact:** Similar to Alternative B.
		Significance: Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
AIR QUALITY Continued		**Mitigation:** See mitigation measure below.	**Mitigation:** See mitigation measure below.	**Mitigation:** See mitigation measure below.	**Mitigation:** See mitigation measure below.
	• **Impact:** Consistent with Regional Air Quality Plan.	• **Impact:** Inconsistent with Regional Air Quality Plan.	• **Impact:** Same as Alternative B.	• **Impact:** Same as Alternative B.	• **Impact:** Same as Alternative B.
	Significance: Less than significant.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.
	Mitigation: None required.	**Mitigation:** Implement land use measures which would reduce number of vehicle trips. Such measures include mixed land uses which provide housing within walking distance of employment centers and development of housing with prices compatible with the salary structure of major local employers.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
NOISE			• **Impact:** Some residential land uses designated west of I-5 would be in an area where aircraft noise would exceed 60 dB CNEL. **Significance:** Significant adverse impact. **Mitigation:** Residential uses should not be allowed west of I-5.	• **Impact:** Same as Alternative C. **Significance:** Significant adverse impact. **Mitigation:** Same as Alternative C.	• **Impact:** Same as Alternative C. **Significance:** Significant adverse impact. **Mitigation:** Same as Alternative C.
	• **Impact:** Land uses along major roads would be exposed to noise levels in excess of those deemed satisfactory by the City. **Significance:** Potentially significant impact. **Mitigation:** Detailed acoustical analyses should be required for any land uses potentially incompatible with outdoor noise limits specified by the City's Noise Element.	• **Impact:** Same as Alternative A. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	• **Impact:** Same as Alternative A. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	• **Impact:** Same as Alternative A. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	• **Impact:** Same as Alternative A. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
NOISE Continued	• **Impact:** Industrial uses adjacent to roads could be designed to be compatible with future noise levels. **Significance:** Less than significant impact. **Mitigation:** Detailed acoustical analyses should be required for any land uses potentially incompatible with outdoor noise limits specified by City's Noise Element.	• **Impact:** Similar to Alternative A. **Significance:** Less than significant. **Mitigation:** Same as Alternative A.	• **Impact:** Similar to Alternative A. **Significance:** Less than significant. **Mitigation:** Same as Alternative A.	• **Impact:** Same as Alternative A. **Significance:** Less than significant. **Mitigation:** Same as Alternative A.	• **Impact:** Same as Alternative A. **Significance:** Less than significant. **Mitigation:** Same as Alternative A.
		• **Impact:** Residential uses adjacent to roads could be designed to achieve an acceptable interior noise level. **Significance:** Less than significant impact. **Mitigation:** Detailed acoustical analyses should be required for any land uses potentially incompatible with outdoor noise limits specified by the City's Noise Element.	• **Impact:** Similar to Alternative B. **Significance:** Less than significant. **Mitigation:** Same as Alternative B.	• **Impact:** Similar to Alternative B. **Significance:** Less than significant. **Mitigation:** Same as Alternative B.	• **Impact:** Similar to Alternative B. **Significance:** Less than significant. **Mitigation:** Same as Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
NOISE Continued		• Impact: In some residential areas, especially along I-5, it would be difficult to achieve an appropriate outdoor noise level. Significance: Potentially significant impact. Mitigation: Detailed acoustical analysis should be required for any land uses potentially incompatible with outdoor noise limits specified by the City's Noise Element.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.
		• Impact: Compared with Alternative A would result in average noise levels of 1 dB higher along I-5 between Garden Highway and West El Camino. Significance: Less than significant. Mitigation: None required.	• Impact: Compared with Alternative A would result in average noise levels of 2 dB higher along I-5 between Garden Highway and West El Camino. Significance: Less than significant. Mitigation: None required.	• Impact: Similar to Alternative C. Significance: Less than significant. Mitigation: None required.	• Impact: Compared with Alternative A would result in average noise levels 3 dB higher along I-5 between Garden Highway and West El Camino. Significance: Less than significant. Mitigation: None required.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
STADIUM NOISE		• **Impact:** Residential uses within the 40 dBA contour of the stadium would result in annoyance to those residents. **Significance:** Potentially significant impact. **Mitigation:** Residential uses should not be permitted within the 40 dBA contour of the stadium.	• **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	• **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	• **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.
PUBLIC FACILITIES	• **Impact:**	• **Impact:**	• **Impact:**	• **Impact:**	• **Impact:**
WATER	Water consumption would be 7.2 mgd for industrial and commercial uses and 1.4 mgd for residential and school uses. **Significance:** Less than significant. **Mitigation:** Incorporate water conservation policies into Community Plan.	Water consumption would be 5.5 mgd for industrial and commercial uses and 15.7 mgd for residential and school uses. **Significance:** Less than significant. **Mitigation:** Same as Alternative A.	Water consumption would be 7.6 mgd for industrial and commercial uses and 25.4 mgd for residential and school uses. **Significance:** Less than significant. **Mitigation:** Same as Alternative A.	Water consumption would be 9.8 mgd for industrial and commercial uses and 23.7 mgd for residential and school uses. **Significance:** Less than significant. **Mitigation:** Same as Alternative A.	Water consumption would be 16.0 mgd for industrial and commercial uses and 25.5 mgd for residential and school uses. **Significance:** Less than significant. **Mitigation:** Same as Alternative A.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
WATER Continued		• Impact: Would require expansion of existing water treatment plant and construction of a water delivery system. Significance: Potentially significant impact. Mitigation: Implement recommended water delivery system.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.
SEWAGE	• Impact: Average daily dry weather sewage flow would be 7.4 mgd. Significance: Potentially significant impact. Mitigation: See mitigation measure on Page B-30.	• Impact: Average daily dry weather sewage flow would be 10.4 mgd. Significance: Potentially significant impact. Mitigation: See mitigation measure on page B-30.	• Impact: Average daily dry weather sewage flow would be 14.2 mgd. Significance: Potentially significant impact. Mitigation: See mitigation Measure on Page B-30.	• Impact: Average daily dry weather sewage flow would be 15.7 mgd. Significance: Potentially significant impact. Mitigation: See mitigation measure on Page B-30.	• Impact: Average daily dry weather sewage flow would be 18.9 mgd. Significance: Potentially significant impact. Mitigation: See mitigation measure on Page B-30.
	• Impact: Sewage would be conveyed to existing regional treatment plant which would require expansion.	• Impact: Similar to Alternative A.	• Impact: Similar to Alternative A.	• Impact: Similar to Alternative A.	• Impact: Similar to Alternative A.

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
SEWAGE Continued	**Significance:** Potentially significant impact. **Mitigation:** Incorporate proposed sewage treatment plan into Community Plan.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.
	● **Impact:** Would require a change in the EPA grant conditions related to the Natomas Interceptor System. **Significance:** Potentially significant impact. **Mitigation:** Sacramento Regional County Sanitation District should apply to the EPA for a change in grant conditions related to the Natomas Interceptor System.	● **Impact:** Similar to Alternative A. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	● **Impact:** Similar as Alternative A. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	● **Impact:** Similar as Alternative A. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	● **Impact:** Similar to Alternative E. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.
POLICE	● **Impact:** Would require 3 additional sworn personnel for City police department and 15 for sheriff's department.	● **Impact:** Would require 63 additional sworn personnel for City police department and 15 for sheriff's department. Sports complex would	● **Impact:** Would require 94 additional sworn personnel for City police department and 17 for sheriff's department. Sports complex would	● **Impact:** Would require 100 additional sworn personnel for City police department and 18 for sheriff's department. Sports complex would	● **Impact:** Would require 113 additional sworn personnel for City police department and 24 for sheriff's department. Sports complex would

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
POLICE Continued		require additional police services.	require additional police services.	require additional police services.	require additional police services.
	Significance:	**Significance:**	**Significance:**	**Significance:**	**Significance:**
	Potentially significant impact.	Potentially significant impact.	Potentially significant impact.	Potentially significant impact.	Potentially significant impact.
	Mitigation:	**Mitigation:**	**Mitigation:**	**Mitigation:**	**Mitigation:**
	Reorganized City/County boundaries could allow more efficient deployment of police personnel.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
FIRE	• **Impact:**	• **Impact:**	• **Impact:**	• **Impact:**	• **Impact:**
	Would require relocation of Station 3 and a new station at the northeast corner of the SPA on Elverta Road.	Would require relocation of Station 3 and a new fire station near the Del Paso Road and El Centro Road intersection.	Would require relocation of Station 3 and two new fire stations: one at Del Paso and El Centro Roads and one at Elkhorn and Ernst.	Similar to Alternative C.	Relocation of Station 3 and three new fire stations: Del Paso/El Centro Roads, Elkhorn/Ernst, and the northeast corner of the SPA on Elverta.
	Significance:	**Significance:**	**Significance:**	**Significance:**	**Significance:**
	Potentially significant impact.	Potentially significant impact.	Potentially significant impact.	Potentially significant impact.	Potentially significant impact.
	Mitigation:	**Mitigation:**	**Mitigation:**	**Mitigation:**	**Mitigation:**
	Community Plan should include specific locations for new and relocated fire stations. Policies which tie the construction of new fire facilities to the phasing of development should be included.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
SOLID WASTE	● **Impact:** Development would generate approximately 162 tons per day of solid waste. **Significance:** Potentially significant impact. **Mitigation:** Incorporate policies in the Community Plan aimed at reducing solid waste.	● **Impact:** Development would generate approximately 229 tons per day of solid waste. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	● **Impact:** Development would generate approximately 329 tons per day of solid waste. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	● **Impact:** Development would generate approximately 388 tons per day of solid waste. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	● **Impact:** Development would generate approximately 569 tons per day of solid waste. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.
	● **Impact:** Industrial development likely would use hazardous materials and would generate hazardous wastes. **Significance:** Potentially significant impact. **Mitigation:** In the absence of a comprehensive countywide plan, Hazardous Substance Management Plans should be required of all appropriate industries to be located in the Study Area.	● **Impact:** Similar to Alternative A. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	● **Impact:** Similar to Alternative A. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	● **Impact:** Similar to Alternative A. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	● **Impact:** Similar as Alternative A. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
SCHOOLS	• Impact: Would generate 254 K-8 students and require one junior high school and generate 33 grade 9-12 students. Significance: Potentially significant impact. Mitigation: Incorporate appropriate number of elementary, junior high, and senior high school sites into the Community Plan based on expected student enrollment.	• Impact: Would generate 6,874 K-8 students and require 8 elementary and 2 junior high schools; would generate 836 students in grades 9-12 and require 1 high school. Significance: Potentially significant impact. Mitigation: Same as Alternative A.	• Impact: Would generate 10,344 K-8 students and require 12 elementary and 2 junior high schools; would generate 1,281 students in grades 9-12 and require 1 high school. Significance: Potentially significant impact. Mitigation: Same as Alternative A.	• Impact: Would generate 10,952 K-8 students and require 13 elementary and 3 junior high schools; would generate 1,266 students in grades 9-12 and require 1 high school. Significance: Potentially significant impact. Mitigation: Same as Alternative A.	• Impact: Would generate 12,260 K-8 students would require 14 elementary and 5 junior high schools; would generate 969 students in grades 9-12 and require 1 high school. Significance: Potentially significant impact. Mitigation: Same as Alternative A.
PARKS	• Impact: Would require 16 acres of neighborhood, community, and regional parks. Significance: Potentially significant impact.	• Impact: Would require 416 acres of neighborhood, community, and regional parks. Significance: Potentially significant impact.	• Impact: Would require 640 acres of neighborhood, community, and regional parks. Significance: Potentially significant impact.	• Impact: Would require 645 acres of neighborhood, community, and regional parks. Significance: Potentially significant impact.	• Impact: Would require 765 acres of neighborhood, community, and regional parks. Significance: Potentially significant impact.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
PARKS Continued	**Mitigation:** Community Plan should include adequate park acreages and locations to meet the City's standards.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.
		● **Impact:** Greenbelts, buffers, drainages, etc. would require significant amount of maintenance to prevent areas from becoming unattractive visually. **Significance:** Potentially significant impact. **Mitigation:** Programs to establish and maintain greenbelts, buffers, and drainages should be included in the Community Plan.	● **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	● **Impact:** Similar as Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	● **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.
LIBRARY	● **Impact:** Proposed South Natomas Branch Library could serve North Natomas population. **Significance:** Less than significant.	● **Impact:** Would require an 8,000- to 10,000-square foot branch library. **Significance:** Less than significant.	● **Impact:** Would require a 12,000-square foot branch library. **Significance:** Less than significant.	● **Impact:** Similar to Alternative C. **Significance:** Less than significant.	● **Impact:** Library may need to be 14,000 to 16,000 square feet in size. **Significance:** Less than significant.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
LIBRARY Continued	**Mitigation:** None required.	**Mitigation:** Include policies in the Community Plan regarding the specific location and timing of library construction.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.
PUBLIC HEALTH AND SAFETY SOIL CONTAMINATION		● **Impact:** Chlorinated pesticides and chlorophenoxy herbicides have been detected in the soil of Natomas Air Park. Materials detected either have been or currently are registered for agricultural use.	● **Impact:** Similar to Alternative B.	● **Impact:** Similar to Alternative B.	● **Impact:** Similar to Alternative B.
		Significance: Potentially significant impact.	**Significance:** Potentially significant impact.	**Significance:** Potentially significant impact.	**Significance:** Potentially significant impact.
		Mitigation: Additional soil analysis should be completed at Natomas Air Park.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.
		● **Impact:** It is unlikely that harmful levels of thiobencarb (Bolero) exist in the surface soil of rice fields. Adequate data, however, are not available at this time.	● **Impact:** Similar to Alternative B.	● **Impact:** Similar to Alternative B.	● **Impact:** Similar to Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
SOIL CONTAMINATION Continued		**Significance:** Potentially significant impact. **Mitigation:** The level of thiobencarb in the surface soil of a typical rice field should be assessed to determine if levels are acceptable.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.
MOSQUITOES		• **Impact:** Residents who participate in outdoor evening activities may be driven indoors by persistent and aggressive mosquitoes. **Significance:** Significant adverse impact. **Mitigation:** See mitigation measure on page B-37.	• **Impact:** Similar to Alternative B. **Significance:** Significant adverse impact. **Mitigation:** Same as Alternative B.	• **Impact:** Similar to Alternative B. **Significance:** Significant adverse impact. **Mitigation:** Same as Alternative B.	• **Impact:** Similar to Alternative B. **Significance:** Significant adverse impact. **Mitigation:** Same as Alternative B.
		• **Impact:** There would be an increase in the number of service calls to the SYMAD.	• **Impact:** Similar to Alternative B.	• **Impact:** Similar to Alternative B.	• **Impact:** Similar to Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
MOSQUITOES Continued		**Significance:** Potentially significant impact. **Mitigation:** See mitigation measure below.	**Significance:** Potentially significant impact. **Mitigation:** See mitigation measure below.	**Significance:** Potentially significant impact. **Mitigation:** See mitigation measure below.	**Significance:** Potentially significant impact. **Mitigation:** See mitigation measure below.
		● **Impact:** The open air stadium may expose attendees to high levels of mosquito nuisance and hazards. **Significance:** Potentially significant impact. **Mitigation:** The SYMAD should implement a specific mosquito abatement program in order to provide urban standards of mosquito control in the Study Area. Additional revenues for the District would be necessary to pay for the increased control costs.	● **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	● **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	● **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.
FISCAL	See Volume 2 for a discussion of Fiscal Impacts.				

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
SOILS AND GEOLOGY	● Impact: Surface soils covering over 55% of the Study Area have a high shrink-swell potential.	● Impact: Similar as Alternative A.	● Impact: Similar to Alternative A.	● Impact: Similar to Alternative A.	● Impact: Similar to Alternative A.
	Significance: Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.
	Mitigation: Standard geotechnical engineering methods available to mitigate expansive soils.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.
	● Impact: Subsurface soil conditions which may affect development in the Study Area include settlement, lateral spreading, quick conditions, and failure of levees.	● Impact: Similar to Alternative A.	● Impact: Similar to Alternative A.	● Impact: Similar to Alternative A.	● Impact: Similar as Alternative A.
	Significance: Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.
	Mitigation: Site-specific design level soil investigation and engineering for foundation	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
SOILS AND GEOLOGY Continued	pavements and slabs by a geotechnical engineer.				
	• Impact:	• Impact:	• Impact:	• Impact:	• Impact:
	High year around water table may result in flow of water into excavations for foundations and utilities.	Similar to Alternative A.	Similar to Alternative A.	Similar to Alternative A.	Similar to Alternative A.
	Significance:	Significance:	Significance:	Significance:	Significance:
	Less than significant impact.	Less than significant impact.	Less than significant impact.	Less than significant impact.	Less than significant impact.
	Mitigation:	Mitigation:	Mitigation:	Mitigation:	Mitigation:
	Well designed dewatering and drainage systems would be necessary to control seepage and surface water ponding.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
	• Impact:	• Impact:	• Impact:	• Impact:	• Impact:
	Impacts related to seismicity within the Study Area which may affect development include ground shaking, liquefaction, lurching, and failure of levees.	Similar to Alternative A.	Similar to Alternative A.	Similar to Alternative A.	Similar to Alternative A.
	Significance:	Significance:	Significance:	Significance:	Significance:
	Less than significant impact.	Less than significant impact.	Less than significant impact.	Less than significant impact.	Less than significant impact.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
SOILS AND GEOLOGY Continued	**Mitigation:** Structural design to UBC or better. Geotechnical investigation to identify existence and location of potential subsurface liqueflable soils.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.
AGRICULTURAL LANDS	• **Impact:** Would result in conversion of 4,100 acres of productive agricultural land. **Significance:** Significant adverse impact. **Mitigation:** See mitigation measure on Page B-42.	• **Impact:** Would result in conversion of 6,700 acres of productive agricultural land. **Significance:** Significant adverse impact. **Mitigation:** See mitigation measure on page B-42.	• **Impact:** Would result in conversion of 9,630 acres of productive agricultural land. **Significance:** Significant adverse impact. **Mitigation:** See mitigation measure on Page B-42.	• **Impact:** Same as Alternative C. **Significance:** Significant adverse impact. **Mitigation:** See mitigation measure on Page B-42.	• **Impact:** Would result in conversion of 11,240 acres of productive agricultural land. **Significance:** Significant adverse impact. **Mitigation:** See mitigation measure on Page B-42.
	• **Impact:** Would result in loss of rice, wheat, and sugar beet production from northwest quadrant of Study Area. **Significance:** Significant adverse impact.	• **Impact:** Would result in loss of rice, corn, wheat, tomato, and sugar beet production primarily in northeast and southeast quadrants. **Significance:** Significant adverse impact.	• **Impact:** Would result in loss of rice, corn, wheat, tomato, and sugar beet production in all portions of the Study Area. **Significance:** Significant adverse impact.	• **Impact:** Similar to Alternative C. **Significance:** Significant adverse impact.	• **Impact:** Similar to Alternative C. **Significance:** Significant adverse impact.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
AGRICULTURAL LANDS Continued	**Mitigation:** See mitigation measure on Page B-42.	**Mitigation:** See mitigation measure on Page B-42.	**Mitigation:** See mitigation measure on Page B-42.	**Mitigation:** See mitigation measure on Page B-42.	**Mitigation:** See mitigation measure on Page B-42.
	• **Impact:** Could create operational conflict for 7,500 acres of agricultural land, although the level of conflicts would be relatively low.	• **Impact:** Could create operational conflicts with 8,800 acres of agricultural lands in Analysis Area. Impacts on agricultural land west of I-5 may not be significant.	• **Impact:** Could create operational conflicts with remaining agricultural land in Analysis Area. Would be significant due to land use configurations and extent of perimeter area.	• **Impact:** Similar to Alternative C.	• **Impact:** Similar to Alternative C.
	Significance: Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.
	Mitigation: See mitigation measure on Page B-42.	**Mitigation:** See mitigation measure on Page B-42.	**Mitigation:** See mitigation measure on Page B-42.	**Mitigation:** See mitigation measure on Page B-42.	**Mitigation:** See mitigation measure on Page B-42.
	• **Impact:** Total potential agricultural value loss is $2.4 million.	• **Impact:** Total potential agricultural value loss is $4.6 million.	• **Impact:** Total potential agricultural value loss is $6.4 million.	• **Impact:** Similar to Alternative C.	• **Impact:** Total potential agricultural value loss is $7.4 million.
	Significance: Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
AGRICULTURAL LANDS Continued	**Mitigation:** Implement a specific agricultural preservation strategy as part of the Community Plan. Such a strategy would result in establishment of a permanent, exclusive agricultural district. Strategy would use "transfer of development rights" to allow compensation of landowners in areas where land use restrictions are applied.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.
HYDROLOGY AND WATER QUALITY		• **Impact:** Actual increase in post-development peak flows could be higher than those projected in the Dewante and Stowell report due to use of the 0.26 cfs/acre figure to determine pre-development flows. **Significance:** Potentially significant impact. **Mitigation:** Validate the estimated peak flows and runoff volumes for the 100-year design rainstorm by applying	• **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	• **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	• **Impact:** Same as Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
HYDROLOGY AND WATER QUALITY Continued		a single unified methodology to the computations for all acres in watershed.			
			• **Impact:** In the event of a pump failure during a 100-year, 24-hour storm, ponding to a depth of two feet would occur over 1,100 acres in the southwest area. This area is designated for residential development. **Significance:** Potentially significant impact. **Mitigation:** Provisions should be made for back-up power supply to operate pumps in the event that the main power supply fails.	• **Impact:** Similar to Alternative C. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative C.	• **Impact:** Similar to Alternative C. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative C.
		• **Impact:** Alteration of local groundwater flow patterns in the vicinity of new canal segments. Lowering of groundwater levels due to canal excavation would reduce existing adverse	• **Impact:** Similar to Alternative B.	• **Impact:** Similar to Alternative B.	• **Impact:** Similar to Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
HYDROLOGY AND WATER QUALITY Continued		Impact of Sacramento River seepage on soils in Study Area.			
		Significance:	**Significance:**	**Significance:**	**Significance:**
		Potentially significant impact.	Potentially significant impact.	Potentially significant impact.	Potentially significant impact.
		Mitigation	**Mitigation:**	**Mitigation:**	**Mitigation:**
		A groundwater pumping program may need to be established to lower groundwater levels in order to protect foundations and underground storage containers.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
		● **Impact:**	● **Impact:**	● **Impact:**	● **Impact:**
		Urban point-source pollution of drainage waters would increase significantly in proportion to the area and density of development. Under this Alternative Fisherman's Lake may not receive significant increase in urban pollutants.	Urban point-source pollution of drainage water would increase significantly in proportion to the area and density of development. Fisherman's Lake would receive significant increase in urban pollutants. Agricultural non-point pollution of drainage would be reduced significantly.	Similar to Alternative C.	Similar to Alternative C.
		Significance:	**Significance:**	**Significance:**	**Significance:**
		Potentially significant impact.	Potentially significant impact.	Potentially significant impact.	Potentially significant impact.

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
HYDROLOGY AND WATER QUALITY Continued		**Mitigation:** Measures include use of grease/oil traps and siting industrial uses away from drainage canals.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.
		• **Impact:** Surface water contamination by hazardous chemicals used in manufacturing and industrial processes could have significant impact on quality of stormwater.	• **Impact:** Similar to Alternative B.	• **Impact:** Similar to Alternative B.	• **Impact:** Would have the highest potential for water quality impacts due to surface water contamination because of total area devoted to industrial use and proximity to drainageways.
		Significance: Potentially significant impact.	**Significance:** Potentially significant impact.	**Significance:** Potentially significant impact.	**Significance:** Potentially significant impact.
		Mitigation: See mitigation measure on Page B-46.	**Mitigation:** See mitigation measure on Page B-46.	**Mitigation:** See mitigation measure on Page B-46.	**Mitigation:** See mitigation measure on Page B-46.
		• **Impact:** Infiltration of chemicals could result in severe impacts on groundwater quality. Contaminants would move downward through upper portion of soil profile and then migrate laterally in the direction of local hydraulic gradient.	• **Impact:** Similar to Alternative B.	• **Impact:** Similar to Alternative B.	• **Impact:** Similar to Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
HYDROLOGY AND WATER QUALITY Continued		**Significance:** Potentially significant impact. **Mitigation:** Local and regional impacts on surface and groundwater quality resulting from on-site storage and disposal of toxic substances can be reduced but not eliminated if current standards are met. Other measures include clustering industrial uses away from residential areas, performing a thorough geotechnical investigation of underlying aquifer, and installing groundwater monitoring wells.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.
VEGETATION AND WILDLIFE		• **Impact:** Loss of riparian and wetland habitat bordering drainage canals. Habitat along Fisherman's Lake, however, probably would be protected. **Significance:** Significant adverse impact.	• **Impact:** Extensive loss of riparian and wetland habitat bordering drainage canals, especially along Fisherman's Lake. **Significance:** Significant adverse impact.	• **Impact:** Similar to Alternative C. **Significance:** Significant adverse impact.	• **Impact:** Similar to Alternative C. **Significance:** Significant adverse impact.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
VEGETATION AND WILDLIFE Continued		**Mitigation:** Careful design and implementation of the drainage plan could mitigate impacts on riparian and wetland habitats.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.
	● **Impact:** Loss of some seasonal wetland habitat provided by rice fields.	● **Impact:** Conversion of agricultural lands east of I-5 would result in loss of seasonal wetland habitat provided by rice fields.	● **Impact:** Conversion of agricultural lands east and west of I-5 would result in loss of seasonal wetland habitat provided by rice fields.	● **Impact:** Similar to Alternative C.	● **Impact:** Similar to Alternative C.
	Significance: Potentially significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.	**Significance:** Significant adverse impact.
	Mitigation: Only available mitigation for the loss of rice fields would be acquisition of compensation lands or easements.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.	**Mitigation:** Same as Alternative A.
		● **Impact:** Loss of wetland habitat for the giant garter snake. Loss would be minimized with protection of Fisherman's Lake.	● **Impact:** Loss of wetland habitat, especially along Fisherman's Lake, for the giant garter snake.	● **Impact:** Similar to Alternative C.	● **Impact:** Similar to Alternative C.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
VEGETATION AND WILDLIFE Continued		**Significance:** Significant adverse impact. **Mitigation:** Restoration of wetland habitat in new or improved drainage canals could mitigate impacts on giant garter snake habitat.	**Significance:** Significant adverse impact. **Mitigation:** Same as Alternative B.	**Significance:** Significant adverse impact. **Mitigation:** Same as Alternative B.	**Significance:** Significant adverse impact. **Mitigation:** Same as Alternative B.
		● **Impact:** Loss of some riparian nesting habitat of Swainson's hawk. **Significance:** Potentially significant impact. **Mitigation** Impacts on Swainson's hawk could be mitigated to some extent by preserving and restoring stands of riparian trees.	● **Impact:** Loss of riparian nesting habitat, especially along Fisherman's Lake, of Swainson's hawk. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	● **Impact:** Similar to Alternative C. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	● **Impact:** Similar to Alternative C. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
VEGETATION AND WILDLIFE Continued	• Impact: Loss of agricultural and open space in the airport and SPA would result in loss of foraging area by Swainson's hawk.	• Impact: Loss of foraging area for Swainson's hawk. Alternative, however, would preserve agricultural lands nearest to the Sacramento River, the most likely to be used for foraging by Swainson's hawk.	• Impact: Loss of agricultural and open space for foraging by Swainson's hawk.	• Impact: Similar to Alternative C.	• Impact: Similar to Alternative C.
	Significance: Less than significant.	Significance: Potentially significant impact.	Significance: Potentially significant impact.	Significance: Potentially significant impact.	Significance: Potentially significant impact.
	Mitigation: Impacts on Swainson's hawk could be mitigated to some extent by preserving and restoring stands of riparian trees.	Mitigation: Same as Alternative A.	Mitigation: Same as Alternative A.	Mitigation: Same as Alternative A.	Mitigation: Same as Alternative A.
	• Impact: Loss of habitat for other sensitive species of animals and possibly plants.	• Impact: Similar to Alternative A.	• Impact: Similar to Alternative A.	• Impact: Similar to Alternative A.	• Impact: Similar to Alternative A.
	Significance: Potentially significant impact.	Significance: Potentially significant impact.	Significance: Potentially significant impact.	Significance: Potentially significant impact.	Significance: Potentially significant impact.
	Mitigation: Measures to protect riparian and wetland habitats,	Mitigation: Same as Alternative A.	Mitigation: Same as Alternative A.	Mitigation: Same as Alternative A.	Mitigation: Same as Alternative A.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
VEGETATION AND WILDLIFE Continued	seasonal wetlands, and threatened and endangered species also could mitigate impacts to sensitive species of animals and plants.				
ARCHAEOLOGICAL AND HISTORIC RESOURCES					
	● **Impact:** Continued agricultural activities could result in site disturbance of one known archaeological site.	● **Impact:** One pre-historic archaeological site has been identified in Study Area. Construction activities could result in its total destruction.	● **Impact:** Similar to Alternative B.	● **Impact:** Similar to Alternative B.	● **Impact:** Similar to Alternative B.
	Significance: Potentially significant impact.	**Significance:** Potentially significant impact.	**Significance:** Potentially significant impact.	**Significance:** Potentially significant impact.	**Significance:** Potentially significant impact.
	Mitigation: None.	**Mitigation:** A subsurface archaeological test program should be instigated prior to development in the vicinity of the recorded archaeological site.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.
	● **Impact:** Reasonable potential for occurrence of archaeological resources throughout the Study Area.	● **Impact:** Similar to Alternative A.	● **Impact:** Similar to Alternative A.	● **Impact:** Similar to Alternative A.	● **Impact:** Similar to Alternative A.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
ARCHAEOLOGICAL AND HISTORIC RESOURCES Continued	**Significance:** Potentially significant impact. **Mitigation:** Unsurveyed parcels should have comprehensive field reconnaissance completed prior to development proposals. In the event that archaeological remains are encountered during subsurface work, all land alteration work in the area should be halted and a qualified archaeologist should be consulted.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.
VISUAL AND AESTHETIC CONSIDERATIONS	• **Impact:** Would intensify development in areas where urbanization already has occurred. Remaining lands in agricultural uses largely would be unaffected visually by new development. **Significance:** Less than significant.	• **Impact:** Study area east of I-5 would be transformed visually by development replacing flat, open farmland. **Significance:** Significant adverse impact.	• **Impact:** Entire Study Area would be converted to urban use. Urbanization would contrast with the area's present visual quality and with agricultural lands remaining outside the Study Area. **Significance:** Significant adverse impact.	• **Impact:** Similar to Alternative C. **Significance:** Significant adverse impact.	• **Impact:** Similar to Alternative C. **Significance:** Significant adverse impact.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
VISUAL AND AESTHETICS Continued	**Mitigation:** None required.	**Mitigation:** Community Plan should provide specific design guidelines for industrial land uses.	**Mitigation:** No development should occur west of I-5. The Community Plan should provide specific guidelines for individual land uses.	**Mitigation:** Same as Alternative C.	**Mitigation:** Same as Alternative C.
	• **Impact:** Development in SPA and Northgate Industrial Park would be of similar scale to existing development. Development would be highly visible due to flat topography.	• **Impact:** Office, business, and high technology industrial parks on prime sites probably would regard visibility as an asset and should be expected to result in good quality development visually.	• **Impact:** Similar to Alternative B.	• **Impact:** Similar to Alternative B.	• **Impact:** Similar to Alternative B.
	Significance: Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.	**Significance:** Less than significant impact.
	Mitigation: Design review should be required of all projects in North Natomas.	**Mitigation:** Design review should be required of all projects in North Natomas.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.	**Mitigation:** Same as Alternative B.
	• **Impact:** No new residential construction, so no impact on existing residential neighborhood.	• **Impact:** Approximately two-thirds of all housing units would be medium and high density housing, suggesting a highly urbanized character of the Study Area.	• **Impact:** Similar to Alternative B.	• **Impact:** Approximately three-quarters of all housing units would be medium and high density, suggesting a highly urbanized character of the Study Area.	• **Impact:** Approximately 95% of units would be medium and high density, thereby resulting in the most highly urbanized character of the five alternatives.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
VISUAL AND AESTHETICS Continued	**Significance:** Less than significant impact. **Mitigation:** None required.	**Significance:** Less than significant. **Mitigation:** None required. ● **Impact:** The scale of the sports complex which would result from its function would not be consistent with the scale of other uses proposed in North Natomas. **Significance:** Potentially significant impact. **Mitigation:** Visual impacts can be reduced by developing extensive landscaped areas around the facilities. Consideration should be given to designing these facilities partially below grade.	**Significance:** Less than significant impact. **Mitigation:** None required. ● **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	**Significance:** Less than significant impact. **Mitigation:** None required. ● **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	**Significance:** Less than significant. **Mitigation:** None required. ● **Impact:** Similar to Alternative B. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
VISUAL AND AESTHETICS Continued		• Impact: 20-year buildout period would result in visual impacts due to the area's incomplete appearance until sufficient, coordinated development produces an identifiable community image for North Natomas. Significance: Potentially significant. Mitigation: Require developers to install landscaping prior to beginning construction in order to shield views of site preparation and incomplete buildings.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.	• Impact: Similar to Alternative B. Significance: Potentially significant impact. Mitigation: Same as Alternative B.
ELECTRICAL FACILITIES	• Impact: Electrical demand would be approximately 245 MW. Significance: Potentially significant impact. Mitigation: See mitigation measure on Page B-55.	• Impact: Electrical demand would be approximately 249 MW. Significance Potentially significant impact. Mitigation: See mitigation measure on Page B-55.	• Impact: Electrical demand would be approximately 369 MW. Significance: Potentially significant impact. Mitigation: See mitigation measure on Page B-55.	• Impact: Electrical demand would be approximately 450 MW. Significance: Potentially significant impact. Mitigation: See mitigation measure on Page B-55.	• Impact: Electrical demand would be approximately 670 MW. Significance: Potentially significant impact. Mitigation: See mitigation measure on Page B-55.

Summary of Environmental Impacts and Mitigation Measures for the North Natomas Community Plan Alternatives

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
ELECTRIC FACILITIES Continued	• **Impact:** 69 kV alternative would require 10-14 neighborhood substations; 115 kV alternative would require 5-8 neighborhood substations. Both may require one bulk substation. **Significance:** Potentially significant impact. **Mitigation** City should work with SMUD to determine preferred electric system alternative and integrate it into the Community Plan.	• **Impact:** 69 kV alternative would require 11-15 neighborhood substations; 115 kV alternative would require 6-9 neighborhood substations. Both would require one new bulk substation. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	• **Impact:** 69 kV alternative would require 15-19 neighborhood substations; 115 kV alternative would require 8-11 neighborhood substations. Both would require one new bulk substation. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	• **Impact:** 69 kV alternative would require 17-23 neighborhood substations; 115 kV alternative would require 9-13 neighborhood substations. Both would require one new bulk substation. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.	• **Impact** 69 kV alternative would require 24-33 neighborhood substations; 115 kV alternative would require 12-17 neighborhood substations. Both may require two bulk substations. **Significance:** Potentially significant impact. **Mitigation:** Same as Alternative A.
	• **Impact:** Both 69 kV and 115 kV alternatives consistent with City and SMUD location criteria. Major visual impact would result from location of overhead lines. Lines generally would only affect industrial use.	• **Impact:** Most significant visual impact of overhead lines (69 or 115 kV) would be along Del Paso Road.	• **Impact:** Overhead lines would be parallel to Del Paso Road, proposed as the "main street" of North Natomas. Overhead lines also would be visible from the sports complex and the regional/community park. Lines would be adjacent to I-5.	• **Impact:** Visual impact of overhead lines somewhat reduced compared with Alternative C due to the presence of additional industrial and commercial use instead of residential use.	• **Impact:** Would require the most intensive electrical system involving the largest number of overhead lines and resulting in the most extensive visual impacts.

Impact Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
ELECTRICAL FACILITIES Continued	**Significance:** Less than significant impact. **Mitigation:** Judicious pole siting and coordination of landscaping activities for lines and community development plans.	**Significance:** Potentially significant impact. **Mitigation:** Consideration should be given to installing some lines underground. First preference should be given to Del Paso Road. Siting of electric lines near residential areas should be avoided. Coordinate landscaping activities with community development plans.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B. ● **Impact:** Bulk substation located in an area designated for medium density residential use near an elementary school site. **Significance:** Potentially significant impact. **Mitigation:** Bulk substation should be located east of the existing transmission line corridor where light industrial uses are designated.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.	**Significance:** Potentially significant impact. **Mitigation:** Same as Alternative B.

GROWTH INDUCING IMPACTS

Growth inducing impacts result when development occurs in areas not planned to receive growth or when planned development proceeds more rapidly than desired by public policies and/or public service agencies.

The growth inducing consequences of development in North Natomas have regional implications beyond the policies of individual jurisdictions and beyond the amount of growth nearby areas are planned to receive as a result of natural expansion or in anticipation of growth pressures from other areas.

Sacramento County has been the historic focus of growth within the region, although its planning documents do not address the implications of County policies beyond its boundaries. City documents recognize that local policies influence the County and the region, and other counties similarly recognize that growth outside of their jurisdictions inevitably would affect them. While this means that jurisdictions such as Sutter and Yolo Counties can attempt to plan their futures with respect to growth pressures induced by surrounding jurisdictions, it also means that they ultimately are responding or reacting to activities largely outside of their control. In addition, the total amount of growth projected for the region can exceed what any individual jurisdiction can absorb without major disruptions or without conflicting with their own goals and policies. Without coordination and comprehensive planning on a regional basis, the burden of accommodating growth can be disproportionate or can be transferred to other jurisdictions unwittingly. [1]

Development in North Natomas would have significant growth inducing impacts. Foremost among the factors responsible for growth inducing impacts would be the opening of this area to development *per se*. The actual level of development permitted there also would contribute substantially to ensuing growth inducing impacts.

The continuing attractiveness of North Natomas for development -- which has caused the present reevaluation of existing policies for the area -- will remain no matter how much growth is accepted under the Community Plan alternative selected by the City. Moreover, North Natomas' attractiveness will extend to surrounding lands. Consequently, even if little to moderate development is permitted in North Natomas, pressures will remain to allow more growth. If a higher level of growth is adopted, North Natomas would become such a major focus of development in the metropolitan area that

further growth would be attracted to outlying lands in this area, diverting growth from other parts of the region (primarily the southern areas).

The most immediate pressures for unplanned project induced growth would occur on unincorporated Sacramento County lands north and west of North Natomas, together with eastern Yolo and southern Sutter Counties. All three counties have policies to preserve agricultural land and to direct future growth to established urban areas. Although strict adherence to these policies could minimize conversions of agricultural lands to urban uses, Sacramento County's record of approving development applications throughout the unincorporated area suggests that growth induced by development activity in North Natomas would remove the barriers which presently are helping to prevent development of farther distant agricultural lands. Conversion also would introduce urban rural conflicts into areas which previously had been free of these problems. These pressures would make it difficult for Sutter and Yolo Counties to continue their agricultural preservation policies in their unincorporated areas nearest to North Natomas.

Opening North Natomas would stimulate both residential and non-residential growth, but the surplus of jobs in relation to housing in North Natomas under all alternatives would create pressures for proportionately more residential development and service commercial uses in nearby areas than for additional employment generating uses. While growth induced by development in North Natomas theoretically could be attracted to the vicinity of existing communities, the abundance of open, easily developable agricultural land suggests that new development would not necessarily be directed to those communities.

Since areas of Sacramento, Sutter, and Yolo Counties are especially vulnerable to growth pressures from development in North Natomas [2], this analysis focuses qualitatively on the types and extent of anticipated impacts on these areas.

Sacramento County

Unincorporated Sacramento County territory surrounds the North Natomas Study Area on the west towards the Sacramento River and Yolo County and on the north as far as the Sutter County line. The predominant use is agricultural, although some residential development has been built along the Sacramento River.

Use and operation of the Sacramento Metropolitan Airport (within the Study Area) would influence uses on these unincorporated lands. The airport expects that lands it purchases under overflight zones would remain in agricultural use and that it would own land exposed to noise levels of 65 decibels CNEL or higher. [3]

Pressures for growth inevitably would occur in Sacramento County outside of the North Natomas Study Area because of good regional access [4], because public utilities and services extended to the Study Area would be available to extend farther, and because new uses in North Natomas would attract other development to the area, creating demands for housing and, thus, for some ancillary business and commercial services.

As unincorporated lands nearest to the Study Area are developed and fewer agricultural operations remain, it would become difficult to maintain airport-owned lands in agricultural production. With fewer or no agricultural operations in the area, it would be less likely that the airport could find farmers to lease and use these lands. This is because the enclave of remaining airport-owned agricultural land would be separated from farmers' other lands and operations, making it costly and potentially cumbersome to farm the leased lands. In the long-term, therefore, it is probable that the undeveloped land owned by the airport would remain as unproductive open space surrounded by development.

Since the airport land acquisition program is expected to confine noise levels of 65 decibels CNEL within this facility, development could proceed on adjacent lands as long as the proposed uses and construction techniques take the relative amount of noise exposure into account. Industrial, commercial, and office development could be built in the areas nearest to the airport, therefore, without being exposed to excessively high noise levels with residential development occurring farther away from the airport. [5] Much of the unincorporated land outside of the Study Area, however, is free of constraints imposed by airport operations and could be suitable for residential or non-residential development with or without mitigation measures to reduce the effects of aircraft noise.

The extent to which persons employed in the Study Area also live there would influence what types of housing are in demand and, thus, which are likely to be built in unincorporated Sacramento County and within other nearby jurisdictions. These lands could be seen as desirable locations for country living or rural estates, development of which also is expected by Sutter County in the vicinity of East Nicolaus, due to this rural community's proximity to South Placer County and North Natomas, reasonably priced land,

and the attractiveness of this type of residential development. [6] A substantial amount of very low density housing development could be accommodated in unincorporated areas outside of the Study Area, and this type of housing would appeal to families with upper middle to upper incomes. It is more likely, however, that rural estate development would occur farther away from North Natomas, perhaps outside Sacramento County entirely.

The recently adopted Airport-Meadowview Community Plan designated 85 acres for very low density rural estates in the southeast corner of that community. [7] To the extent that high technology development in North Natomas is expected to divert growth away from or substantially diminish high technology development in Delta Shores Village, the already uncertain market for rural estate residential development in the Airport-Meadowview community also would be reduced and/or shifted to the north. In addition, housing serving affluent employees of high technology firms located along the US 50 corridor is only beginning to be developed, such as the Gold River project on the American River, suggesting that the existing market for this type of development would grow and might be satisfied on outlying unincorporated lands.

Low density, large-lot residential use over a given geographic area would minimize the actual amount of development compared with higher density residential or non-residential development. This would result in a smaller residential population requiring public services and facilities.

This type of residential development can be seen as rural in character, especially, for instance, when homeowners stable horses or grow vegetables on their property. The rural, quasi-agricultural appearance and relatively small population, however, does not change the fact that such development replaces productive agricultural use of land or that as extensive rather than intensive development it represents an inefficient use of land resources.

The housing demand created by employment-generating development in the Study Area would be varied because different income levels, household sizes, and other factors would influence the types of housing needed to accommodate new employees. Consequently, a mix of housing types and densities would be required to satisfy this demand. This would result in a larger population needing more services and facilities than if Sacramento County lands were developed uniformly for rural residential use. Higher density single family and multi-unit housing would tend to be developed nearer to major transportation corridors and employment centers, and these concentrations of

residents in turn could stimulate development of commercial services and facilities. It is anticipated, therefore, that unincorporated Sacramento County lands closest to the Study Area would tend to be developed at densities more characteristic of suburban areas than typical of rural estates.

Sacramento County's 1978 inventory of vacant land assumed residential development on lands south of Del Paso Road in both North and South Natomas. Opening the Study Area for development most likely would prompt the opening of remaining unincorporated lands so that the County's housing demand projections could be met.

Since the County had identified North and South Natomas as a development area with up to 18,144 housing units, this growth technically could be considered planned development rather than growth induced by the proposed project. Continued agricultural production on incorporated lands, in conformance with City policies, however, would not stimulate development in the County the way conversion of agricultural lands to urban uses would. Consequently, any development which occurs on unincorporated County lands outside the Study Area following adoption of a North Natomas Community Plan must be regarded as growth induced by the proposed project.

Removing or diminishing the growth inducing pressures on Sacramento County lands outside of the Study Area would not necessarily prevent growth from occurring there, as long as the County continues to approve development wherever it is proposed. The only way to reduce the potential for development on surrounding unincorporated lands would be to select Alternative A which would retain most but not all of North Natomas in agricultural use, although this could prompt the County to open its territory to development.

Ensuring that there would be a realistic balance between job creation and housing availability in North Natomas could help reduce the magnitude of subsequent growth inducing developoment per se on unincorporated Sacramento County lands. Unless the County takes steps to ensure uniform implementation of North Natomas Community Plan policies, however, its propensity to approve development could undercut attempts to balance jobs and housing. If the adopted Community Plan, for instance, ties approval of employment-generating development to housing availability, such as by delaying the former until housing is built, the County might open nearby lands to employment-generating uses. In this way, the County would receive the benefits from revenue from these uses, and the delays to development

would be sidestepped without addressing the housing demand which precipitated those actions.

Sutter County

Ninety-seven (97) percent of Sutter County land is in agricultural use, and continued agricultural productivity is the principal objective of the County Plan which recommends confining future development to existing urban areas and rural communities.

Seven unincorporated rural communities are located in southern Sutter County [8], and the cities of Yuba City and Live Oak, together with several other developed communities, are located farther to the north. The population of Sutter County grew by 25 percent between 1970 and 1980 [9], and continued growth is expected in the future, the majority which would occur in the Yuba City urban area. The County expects the southern rural communities to experience spillover growth pressures from development in North Natomas [10] but estimates that less than 200 additional housing units could be accommodated within the existing boundaries of these communities. It is likely that development in North Natomas would increase pressures both to expand these rural communities and to convert intervening agricultural lands to urban use, contrary to County policy, rather than to direct growth farther north to the other urban areas of Sutter County.

Existing environmental constraints dictate recommended residential densities. Minimum parcel sizes of 2.5 acres per unit necessary to accommodate septic systems would mean that residential densities would be low, consisting of large lot rural estates, unless public service facilities were built to permit urban densities. Development of public service facilities would enable the County to concentrate and confine growth and to allow higher densities within developed areas. Their installation, however, would constitute another growth inducement because the availability of such facilities not only would allow growth to occur but also would permit development at urban densities. Then once in place, the existence of these facilities would permit further growth, even if that meant eventually expanding the facilities' capacities to accommodate additional development.

In anticipating growth pressures from development in Sacramento and Placer Counties, the Sutter County General Plan reports that "it will be much better to provide for [growth] in areas having already been affected by residential subdivision and away from intensive agricultural areas". [11] The capacity of rural communities in southern Sutter County is not adequate,

however, to accommodate the magnitude of development which could be induced directly and indirectly by urban expansion in North Natomas due to the policy constraints and environmental conditions mentioned above. Since southern Sutter County is not the sole area in the probable path of growth induced development, it is conceivable that adherence to its agricultural preservation policies could be successful in blunting development pressures and in retaining productive agricultural lands. Because public policies are flexible and can be changed, however, as is being considered in North Natomas itself, existing policies alone cannot be expected to divert growth away from agricultural lands.

Southern Sutter County would be highly vulnerable to growth induced development due to accessibility, especially when planned Highway 99 improvements are complete. (Regional access to southern Sutter County would be less congested, for instance, than I-80 would be to Yolo County.) In addition, open agricultural lands are easy to develop, making them susceptible to urban and suburban sprawl.

While planners involved with the North Natomas Community Planning Study have attempted to tie housing production to employment-generating development through phasing, provision of housing would not keep pace with demand unless an unusually high percentage of North Natomas workers lived in the community (1.2 North Natomas workers per Study Area household). During the 20-year buildout period for the Study Area, therefore, there would be a steady, unmet demand for housing generated by Study Area jobs. This demand for housing would induce growth and would be most accute if Alternatives A or E were adopted. This is because no new housing would be built under Alternative A. Adoption of Alternative E would result in an additional ballooning of jobs after the year 2005, following 20 years when housing production lags behind job creation and during which time the City's existing urban boundary would have been built out.

Southern Sutter County is expected to experience great pressure to accommodate housing development, at least following buildout of northern Sacramento County, if not before then. It would be more desirable than east Yolo County for residential development. East Yolo County communities nearest to North Natomas predominantly are developed with industrial uses which would detract from residential development potential. In addition, the Sacramento River, if not a barrier to growth, still represents a constraint for commuters who live and work on opposite sides of the river. While river-related commerce prompted urbanization in eastern Yolo County, making it a part of the metropolitan area, population growth and concomitant

increases in vehicular traffic would congest the bridge links between Yolo and Sacramento Counties.

Finally, development of North Natomas would shift the focus of regional growth north, suggesting that southern Sutter County would become a more prominent location for future development than areas where growth previously has occurred. Initial freeway and airport development in northern Sacramento County helped open the way for this trend -- making North Natomas desirable for development at the same time. The magnitude of development in North Natomas under Alternatives B, C, D, and E, however, would realize and actually surpass the development potential initially created by freeway and airport construction.

Growth inducing impacts on southern Sutter County could not be averted by that jurisdiction acting alone. Such impacts probably could be reduced but could not be avoided entirely if development is allowed to proceed in the Study Area, either by the City or County of Sacramento. Two measures primarily would diminish these growth inducing impacts:

- Confine development in North Natomas south of Del Paso Road and east of I-5 and uniformly redesignate all City and County lands north and west of these roads to classifications which would provide permanent agricultural uses. [12]

- Tie job creation to housing availability throughout the buildout period of the Study Area by delaying employment-generating development until adequate numbers of housing units are built in the community which are affordable to persons employed there.

Alternative A would conform with the former but not the latter measure. None of the other alternatives could accomplish these goals without substantial revisions.

Yolo County

Approximately 94 percent of Yolo County is designated for agricultural use [13], and the County's General Plan includes a policy to vigorously conserve and preserve agricultural land uses, especially in areas presently farmed, with prime soils, and outside areas planned for urbanization. [14]

The County has three incorporated cities (Davis, Winters, and Woodland), together with several small towns. The highly urbanized East Yolo area,

which includes the communities of Bryte, Broderick, West Sacramento, and Southport, is located just west of metropolitan Sacramento, across the Sacramento River.

The County expects that the population of its major urban areas will grow by approximately 30,000 people between the years 1980 and 2000. Half of this increase is anticipated to occur in East Yolo County. The remaining population increase is expected to take place in Davis and Woodland with less growth occurring in Winters. [15]

Housing for the increased population is expected to be provided with single family home development in prescribed areas in Southport, on scattered lots in Bryte and Broderick, and in Davis, Woodland, and Winters. [16] Approximately 200 to 300 single family units are anticipated to be built in both Woodland and in Winters. The remainder of new housing will consist of duplexes and moderate density multi-unit apartments and condominiums. Existing urban areas will expand, but growth is limited to areas contiguous to development and within designated urban boundaries. [17] The General Plan calls for redevelopment and intensification of land uses within existing urban areas in order to accommodate future growth without expanding beyond prescribed urban boundaries. If urbanization occurs in all areas designated for eventual urban use by the Plan, approximately 6,000 acres of agricultural and open space land -- about one percent of the County's total area -- would be converted to urban use. [18]

I-80 provides direct access to East Yolo County from North Natomas (as well as to Davis farther west), and I-5 provides direct access between North Natomas and Woodland. Productive agricultural lands are located between the Sacramento River and these urban areas. Little vacant land remains in the areas of East Yolo County nearest to North Natomas which could be developed for residential uses. Approximately 260 acres of potentially developable land are located in Broderick, although an estimated 3,000 acres are located in Southport, most of which are vacant. [19] Buildout of Southport under current planning policies could add 13,000 housing units in this area, assuming access restrictions are removed, resulting in a total population of 35,000 people in Southport. [20]

Southport also is planned to be a major focus of employment generating development, and a maximum of 20,000 new industrial use jobs could be created there, as well as secondary support service jobs in West Sacramento and throughout the region. [21] Pressures for housing would increase, therefore, as Yolo County employees seek homes in convenient proximity to their jobs. [22]

If employment generating development projected by Yolo County occurs in Southport, this could result in a jobs-to-housing imbalance, thus not providing a housing surplus to accommodate people who are employed elsewhere in the region, such as in North Natomas.

Employment generating land uses are not confined to Southport. Several office, warehousing, and commercial projects have been developed in East Yolo County recently, including the corporate headquarters of Raley's supermarket chain and offices of the California Truckers Association and Associated General Contractors of Caifornia, among other projects. [23]

Among the County's goals and objectives for the East Yolo area is to allow residential, commercial, and industrial development only in accord with the needs of the community, not as a result of development pressures. [24]

The demand for additional housing created by opening North Natomas for significant industrial and commercial development inevitably would result in development pressures on Yolo County. The magnitude of these development pressures in Yolo County would depend upon the extent to which other jurisdictions adhere to adopted policies on confining urban development and preserving agricultural lands. The limited amount of growth which southern Sutter County could accept in conformance with the General Plan ultimately would divert North Natomas housing demands to other areas.

Since little area is available within the East Yolo communities of Broderick and Bryte to accommodate additional housing development (because employment generating development in Southport and East Yolo County will intensify the local housing demand), and because only a moderate amount of new housing is expected to be built in Woodland and farther distant Yolo County communities, development pressures are expected on outlying lands outside urban boundaries or on agricultural lands.

This means that the lack of conformance with agricultural preservation policies in Sacramento and Sutter Counties would exert pressures on Yolo County to open its agricultural lands to development, contrary to its policies. If all jurisdictions -- Sacramento, Sutter, and Yolo Counties -- adhered to their agricultural policies, the demand for housing still would intensify the pressures to convert the lands these policies were adopted to protect.

Nevertheless, growth inducements on Yolo County as a result of opening North Natomas would be expected to be subsidiary to those expected in northern

Sacramento and southern Sutter Counties, at least insofar as pressures for residential development are concerned. While Yolo County planners cite employment generating development comparable to what they anticipate will occur in North Natomas, North Natomas would be expected to attract different types of industrial and commercial development than those uses which would locate in Yolo County. Availability of North Natomas for development, therefore, would not be expected to divert industrial and commercial uses away from Yolo County. Neither would industrial and commercial development in North Natomas be expected to stimulate a significant amount of growth in these sectors in Yolo County.

In order to mitigate the potential for growth inducing impacts, an adequate supply of affordable dwelling units must be built in North Natomas to house people who will be employed in the community.

Other Growth Inducements

Independent of the North Natomas planning effort, the Department of Transportation (Caltrans) is planning construction projects along approximately 13 miles of Highway 99 from I-5 north to Sutter County. [25] These projects include reconstruction of the I-5/Highway 99 interchange, a four-lane freeway from I-5 to just north of Elkhorn Boulevard, a new Elkhorn/Highway 99 interchange, and a four-lane expressway from Elkhorn Boulevard to Elverta Road. Construction is planned to begin in late 1985 and is scheduled for completion by late 1987. [26] A subsequent phase would extend the four-lane expressway north into Sutter County, design of which began in January, 1985, to be followed by construction at a later time. These projects would improve access to and through North Natomas from other parts of the region.

Highway 99 currently serves as an inter-city transportation link between the Sacramento metropolitan area and the Yuba City-Marysville urban area. It also serves as a farm-to-market access road essential to agricultural activities along this corridor. [27] The improvements are proposed in order to upgrade a two-lane, rural highway to a four-lane freeway which can handle existing and predicted traffic volumes safely. [28]

Caltrans prepared an environmental impact statement (EIS) on the proposed improvements to Highway 99 in 1975. This EIS identified impacts on land use, including agricultural land conversion and urbanization, as a result of these highway improvements. This report reached the following conclusions: [29]

- In many cases, urban development has been accelerated in rural communities adjoining urban areas particularly after the construction or improvement of a highway. This project involves such a facility; consequently, it will involve the risk of affecting local plans.

- With faster and safer access to urban employment centers, land speculators and developers are likely to be motivated by high profit margins normally associated with converting agricultural land to urban uses.

- By providing faster and safer access via freeway facilities, political pressures would be brought on planners and County Boards of Supervisors to rezone land from permanent agriculture to urban-type uses. This would be contrary to the current goals and objectives of both Sacramento and Sutter Counties' Planning Departments.

- The proposed project could encourage urban growth along county roads near Route 99, particularly where interchanges are proposed. Impacts which could result if such urbanization does occur are that agricultural land along county roads quite likely would be removed from production. This would make access to the remaining land more difficult. If urbanization became more extensive, it could increase the value of surrounding agricultural land to the point that it would become difficult to retain it for agricultural purposes.

- It is possible that scattered urbanization could occur in this agricultural region resulting in a mosaic of developed and undeveloped areas. Service with rapid transit, water, fire and police protection, and garbage collection would be difficult and expensive.

- The better transportation facility that the proposed project would provide could promote residential, commercial, and industrial development of land now used exclusively for agriculture. The more rapid movement of goods, raw materials, and commuting employees would be encouraging factors for industry to locate in the surrounding area.

- The proposed project, by encouraging growth (including urbanization and industrialization), could encourage other projects related to such growth. The overall effect of this, should it occur, would be to change the environment from a rural, agricultural, sparsely populated region to one of an urban nature. This change probably would take a number of years.

The EIS concluded that "strict administration of land use policies by the governing bodies concerned could eliminate or reduce urbanization in the area of the proposed project". [30] It also reported the project's beneficial effects for the airport-related industrial SPA: "an improved highway facility would tend to complement the planned use". [31]

Caltrans' EIS identified the potential for land use conversions and urbanization as unavoidable adverse impacts of the proposed Highway 99 project but relied on faithful implementation of local plans and zoning to mitigate these impacts and prevent the project from accelerating urban growth in this agriculturally oriented area. [32] Caltrans conceded, however, that

> "Because of the better transportation facility the proposed project would provide, urbanization would creep into the areas adjacent to the proposed project. This would be a possibility if local agencies controlling land use allowed it to happen". [33]

The magnitude of growth which could be induced by this project was not quantified or otherwise estimated by this EIS, however, because local government adherence to planning policies and zoning could not be predicted reliably. [34]

With improved access from North Natomas, Sutter County would become competitive with Yolo County and probably would surpasses Yolo County as a desirable location for housing development to accommodate Study Area employees. Although this project is being planned and will be implemented independent of development in North Natomas, the growth inducing impacts of opening the Study Area would exacerbate those attributed to this Caltrans' project. The only way to reduce the contribution of North Natomas development towards these growth inducing impacts would be to institute the mitigation measures recommended on page B-64 for Sutter County.

Sacramento County and the Joint City-County Planning Commission have recommended home-to-work commute distances which are as follows:

Commute Distance (One-Way Trip)	County General Plan Standard	City-County Planning Commission Standard
• 6 miles or less	60%	80 %
• 6-8 miles	20 %	20 %
• 8 miles or more	20 %	0 %

(Percentages refer to the proportion of all employees commuting to and from the job site.)

Florin Road in southern Sacramento, Watt Avenue in North Highlands, the Sutter County line to the north, and the Southport area of East Yolo County all are located within eight miles of the I-5/I-80 interchange. Pleasant Grove in Sutter County is approximately 17 miles from this interchange, and Woodland in Yolo County is approximately 14 miles from that point. Driving distances to selected communities in the region are summarized below.

	I-5/I-80 Interchange	I-5/99 Interchange
Downtown Sacramento	5 miles	8 miles
Broderick	5 miles	8 miles
Southport	6 miles	9 miles
Woodland	14 miles	11 miles
Pleasant Grove	17 miles	14 miles
East Nicolaus	20 miles	16 miles
Nicolaus	22 miles	18 miles
Trowbridge	23 miles	19 miles
Rio Linda	9 miles	6 miles
Roseville	22 miles	18 miles

Growth induced in many of these outlying communities due to development in North Natomas would not conform with the commute distances recommended by the County General Plan and Joint City-County Planning Commission. In order to achieve these standards, areas closest to North Natomas would have to accommodate employment generated housing demands of the Study Area. Due to the limited capacity of these nearby communities, conformance to these standards would provide an impetus to convert easily developable agricultural lands to urban uses. This impact could be averted by balancing housing and jobs within the Study Area.

Implementation of any alternative in North Natomas would have growth inducing consequences related to land use planning, specifically those

efforts of the City and, by consequence, those of neighboring juridictions. This is because the City spent several years studying its options to confine growth of the next decade within the year 1981 urban boundary before determining that planned growth could be accommodated without opening North Natomas to development, at least until after 1995. [35]

Development in North Natomas during the next 20 years would not confine growth within Sacramento's 1981 urban area. Growth induced by North Natomas -- primarily housing development needed to accommodate Study Area employees -- would not be directed to other City communities within the 1981 boundary. As such, this growth would be unplanned -- by the City as well as the surrounding juridictions which would receive this induced growth.

Planning for a realistic jobs-housing balance in North Natomas could mitigate growth inducing impacts somewhat but would not be adequate to correct the longer-term consequences of opening North Natomas to development and thereby shifting the focus of future growth in the region to northern Sacramento.

In short, plans for North Natomas cannot be considered in a vacuum -- isolated from a citywide perspective for Sacramento decisionmakers and separate from regional considerations of other jurisdictions.

In order to mitigate these ramifications, planning for North Natomas by the City must be accompanied by new strategies for growth elsewhere in Sacramento. In 1982, for instance, the City adopted a Growth Policy with a view of Sacramento for the next 20 years based on specific assumptions -- no development in North Natomas, confining growth to the existing urban area, promoting infill, higher densities, and urban reuse, etc. If these policies are to have validity and meaning between now and the year 2005, new strategies will be needed to recognize the new set of circumstances created by development in North Natomas. Otherwise, the policies will be ignored. [36]

Opening North Natomas to development similarly would force neighboring jurisdictions to rethink how they will handle the growth induced in their areas by decisions made in Sacramento. If Sacramento appears unprepared to address growth trends by overhauling its current strategies (which would be made irrelevant by development in North Natomas), these nearby jurisdictions would not be able to plan adequately for short- or long-term contingencies. Instead, they would be placed in positions of having to react to and accept the consequences of Sacramento's actions.

The prospect for comprehensive regional planning to coordinate among jurisdictions depends entirely on how the City approaches the responsibilities it would create by opening North Natomas to development at this time. If the City accepts its responsibility to address these consequences in a regional context, comprehensive planning could proceed. If the City ignores or delays making the adjustments to its policies which opening North Natomas would make necessary, it would be some time before genuine regional planning could proceed and have any effect.

Because the planning process is proceeding in North Natomas, it seems unlikely that the City would delay implementing the selected alternative until it reassesses citywide ramifications and cooperates with a regional planning effort to address the areawide consequences of its actions. This is a serious impact because it departs from the signals the City sent to surrounding jurisdictions when it adopted the 10-year Growth Policy.

CUMULATIVE IMPACTS

Cumulative impacts can occur in two ways:

- When the effects of a proposed action, which may be insignificant in themselves, are combined with prevailing conditions and produce significant adverse impacts.

- When individual effects from implementing a proposed project are taken together and result in significant adverse impacts.

Development on the scale which is envisaged in North Natomas by all five alternatives would result in cumulative impacts both short- and long-term in nature and both directly and indirectly attributable to the community planning process itself and subsequent specific development projects. One of the purposes of areawide planning in advance of development is to anticipate potential individual and cumulative impacts as much as possible and to incorporate measures directly into the plan to reduce or avoid probable adverse impacts altogether.

There are two general areas of impact categories which are regional in nature and which constitute the major potential for cumulative impacts. They include (1) the shift in growth to northern Sacramento in terms of population, housing, jobs, and land use, and (2) the interrelated topics of transportation, air quality, and noise.

Regional analyses of these topics have been conducted for these subjects. These analyses are presented beginning in Section C and are summarized here. The City's report, 1983-2005 Regional Economy and Land Demand, Sacramento SMSA, describes the assumptions, outlines the course of study, and presents technical data which went into and resulted from the regional analyses of land use, population, housing, and employment. Where appropriate, information from that report is included in this EIR. That report is available for review at the City of Sacramento Planning Department and is incorporated in this EIR by reference.

These regional analyses expand upon and substitute for previous approaches used in EIRs to assess cumulative impacts of individual development projects or planning programs. In the past it has been customary to analyze existing conditions plus planned growth (such as projected by General Plans) and projects which have been approved but not yet built (or approved and under construction). These considerations often have been limited to the jurisdiction of the lead agency and, thus, somewhat restrict the overall scope of cumulative impact evaluations. Efforts to assess the broad range of cumulative impacts to which one project would contribute in combination with other planned and reasonably foreseeable growth are extremely valuable but can become hypothetical or speculative, depending on the assumptions made for the analyses and the basis on which "reasonably foreseeable" growth is anticipated. The recent appellate court opinion on San Franciscans for Reasonable Growth versus The City and County of San Francisco provided guidance on what "reasonably foreseeable" projects contribute to and should be assessed in cumulative impact analyses. [37]

Because of the wide regional implications of the North Natomas community planning process, an evaluation of cumulative impacts in the context of an extensive, all-encompassing list of individual development projects would prove to be of little practical or meaningful use. This is for several principal reasons:

- The 20-year planning period over which North Natomas and regional growth would occur.

- The influence that North Natomas development would have on the amount and distribution of other regional growth.

- The sheer number of projects -- approved, proposed, or reasonably anticipated -- throughout the region which must be taken into account.

For these reasons a regional approach was taken in analyzing North Natomas from the outset of the City's and County's joint planning process.

The most profound cumulative effects from opening North Natomas to development would involve the amount of growth which would occur throughout the region during the next 20 years and how development (and its attendant population) would be distributed. Exhibits B-75, B-76, and B-77 compare the expected 1984 to 2005 growth in population, housing, and jobs for City and County communities and elsewhere in the SMSA with all North Natomas alternatives.

- Alternative A represents "base case" conditions -- planned growth which would occur throughout the region -- assuming employment-generating development envisaged in North Natomas in conformance with current zoning (buildout of the Airport SPA and Northgate industrial area only).

- A net increment of additional growth in the SMSA attributable to opening North Natomas has been projected as follows:

  -- Population 60,800 people
  -- Housing 25,000 units
  -- Employment 25,000 jobs

- The difference between conditions under Alternative A and those under Alternatives B through E represent additional growth which would be stimulated regionally by opening North Natomas and Exhibits B-75 through B-77 show how this growth would be distributed with implementation of each alternative.

As the population, housing supply, or availability of jobs in North Natomas increases [38] from Alternative B to Alternative E, the distribution of incremental growth expected to be generated elsewhere in the metropolitan area either would remain constant or decline but would not increase.

Population

Exhibit B-75 shows that as a larger population is accommodated in North Natomas (from the smallest increase under Alternative B to the greatest increase under Alternative E), population growth would be diverted primarily from South Natomas, North Sacramento, the Highway 50 Corridor, and North Highlands in northern Sacramento and from the South Sacramento, Airport-Meadowview, Laguna, and Vineyards/Elk Grove areas of southern Sacramento, as

EXHIBIT B-75

1984-2005 Cumulative Population Impacts

City of Sacramento 3/	Alternative A 1/	Alternative B	Alternative C	Alternative D 2/	Alternative E 2/
North Natomas	0	40,153	62,294	64,178	75,012
South Natomas	46,246	46,260	42,608	41,390	40,782
North Sacramento	29,208	31,651	29,217	27,999	27,391
East Sacramento	*1,217*	*1,217*	*1,217*	*1,217*	*1,217*
Central City	*9,736*	*9,739*	*8,522*	*8,278*	*7,304*
East Broadway	*3,408*	*3,409*	*3,409*	*3,409*	*2,922*
South Sacramento	*48,680*	*48,694*	*43,825*	*42,608*	*38,955*
Airport-Meadowview	*23,123*	*23,130*	*21,912*	*21,426*	*20,695*
Land Park	*1,704*	*1,704*	*1,704*	*1,704*	*1,704*
Pocket	*23,853*	*23,860*	*23,860*	*23,860*	*23,860*
Sacramento County					
Highway 50 Corridor	24,340	24,347	23,130	23,130	21,912
Fair Oaks	12,657	12,661	12,661	12,661	12,661
Carmichael	24,097	24,104	24,104	24,104	24,104
Folsom	26,774	26,782	26,782	26,782	26,782
North Highlands	42,108	42,121	42,121	41,390	40,173
Arden Arcade	4,868	4,869	4,869	4,869	4,869
Laguna	*46,246*	*46,260*	*43,825*	*42,608*	*38,955*
Vineyards	*21,906*	*21,912*	*19,478*	*18,260*	*14,608*
Placer County	*146,040*	*150,952*	*148,518*	*148,518*	*146,083*
Yolo County	*53,548*	*58,433*	*55,999*	*55,999*	*53,564*

Source: McDonald & Associates, January, 1985

Note: Communities in northern Sacramento are in bold face; communities elsewhere in the region are in *italics*.

1/ Without North Natomas.

2/ Does not represent full build-out of Plan by year 2005.

3/ "City" includes some County areas in South Sacramento and Arden/Arcade.

EXHIBIT B-76

1984-2005 Cumulative Housing Impacts

City of Sacramento 3/	Alternative A 1/	Alternative B	Alternative C	Alternative D 2/	Alternative E 2/
North Natomas	0	20,000	30,000	33,100	42,000
South Natomas	19,000	19,000	17,500	17,000	16,750
North Sacramento	12,000	13,000	12,000	11,500	11,250
East Sacramento	*500*	*500*	*500*	*500*	*500*
Central City	*4,000*	*4,000*	*3,500*	*3,400*	*3,000*
East Broadway	*1,400*	*1,400*	*1,400*	*1,400*	*1,400*
South Sacramento	*20,000*	*20,000*	*18,000*	*17,500*	*16,000*
Airport-Meadowview	*9,500*	*9,500*	*9,000*	*8,800*	*8,500*
Land Park	*700*	*700*	*700*	*700*	*700*
Pocket	*9,800*	*9,800*	*9,800*	*9,800*	*9,800*
Sacramento County					
Highway 50 Corridor	10,000	10,000	9,500	9,500	9,000
Fair Oaks	5,200	5,200	5,200	5,200	5,200
Carmichael	9,900	9,900	9,900	9,900	9,900
Folsom	11,000	11,000	11,000	11,000	11,000
North Highlands	17,300	17,300	17,300	17,000	16,500
Arden Arcade	2,000	2,000	2,000	2,000	2,000
Laguna	*19,000*	*19,000*	*18,000*	*17,500*	*16,000*
Vineyards	*9,000*	*9,000*	*8,000*	*7,500*	*6,000*
Placer County	*60,000*	*62,000*	*61,000*	*61,000*	*60,000*
Yolo County	*22,000*	*24,000*	*23,000*	*23,000*	*22,000*

Source: McDonald & Associates, January, 1985

Note: Communities in northern Sacramento are in bold face; communities elsewhere in the region are in *italics*.

1/ Without North Natomas.

2/ Does not represent full build-out of Plan by year 2005.

3/ "City" includes some County areas in South Sacramento and Arden/Arcade.

EXHIBIT B-77

1984-2005 Cumulative Employment Impacts

City of Sacramento 3/	Alternative A 1/	Alternative B	Alternative C	Alternative D 2/	Alternative E 2/
North Natomas	14,750	39,669	54,595	71,090	58,330
South Natomas	21,060	22,733	22,933	22,207	22,867
North Sacramento	16,630	9,333	8,680	6,633	8,853
East Sacramento	*3,943*	*3,843*	*3,843*	*3,843*	*3,843*
Central City	*46,433*	*45,933*	*43,100*	*38,100*	*39,167*
East Broadway	*7,472*	*7,072*	*7,072*	*6,705*	*6,905*
South Sacramento	*9,447*	*9,067*	*7,183*	*5,667*	*6,667*
Airport-Meadowview	*11,613*	*12,533*	*12,533*	*11,875*	*11,875*
Land Park	*188*	*188*	*188*	*188*	*223*
Pocket	*4,812*	*4,667*	*4,667*	*3,833*	*3,983*
Sacramento County					
Highway 50 Corridor	23,663	26,333	25,600	23,750	24,750
Fair Oaks	1,238	1,310	1,300	1,200	1,200
Carmichael	6,443	6,333	6,333	6,083	6,083
Folsom	16,678	18,678	18,400	17,000	18,000
North Highlands	13,352	11,667	10,883	9,167	11,167
Arden Arcade	5,425	5,425	5,167	5,167	5,167
Laguna	*15,712*	*16,227*	*14,233*	*12,917*	*14,700*
Vineyards	*13,240*	*11,683*	*11,100*	*9,250*	*10,250*
Placer County	*27,615*	*28,100*	*27,767*	*26,933*	*27,333*
Yolo County	*14,883*	*13m933*	*13,200*	*11,533*	*13,867*

Source: McDonald & Associates, January, 1985

Note: Communities in northern Sacramento are in bold face; communites elsewhere in the region are in *italics*.

1/ Without North Natomas.

2/ Does not represent full build-out of Plan by 2005.

3/ "City" includes some County areas in South Sacramento and Arden/Arcade.

well as downtown Sacramento, Placer County, and Yolo County. Population growth would remain constant in East Sacramento, Pocket, Land Park, Fair Oaks, Carmichael, Folsom, and Arden Arcade under all Alternatives B through E. (Alternative A assumes no new residential construction which means that population growth would be negligible if it occurred at all.)

Housing

Exhibit B-76 shows that housing development would be identical to expected population growth in all communities evaluated. This means that the lower levels of housing construction in North Natomas would result in more housing development elsewhere in the region. As more housing is provided in North Natomas, individual communities would experience the same or somewhat less development with any difference diverted to North Natomas' expanding housing supply.

Employment

Job creation throughout the metropolitan area would fluctuate depending on the Community Plan alternative selected for North Natomas. Exhibit B-77 shows the differences between expected growth (Alternative A) and Alternatives B, C, D, and E. Employment would increase in four communities -- South Natomas, Airport-Meadowview, the Highway 50 Corridor, and Folsom -- no matter which Community Plan alternative (including Alternative E) is selected for North Natomas. While there would be more jobs in these communities by 2005 under all alternatives, compared with base case conditions, Alternatives B, C, or D would yield more jobs in these communities than Alternative E, even though there would be a net increase in employment with Alternative E versus Alternative A. [39]

The major effect of opening North Natomas to development would be to reduce employment opportunities in other communities from the number of jobs which would be created without significant development in the Study Area (Alternative A). The most substantial differences between employment potential and the diversion of jobs would occur in the North Sacramento, downtown Sacramento, South Sacramento, and the Vineyards areas. In other communities, employment creation potential would be affected but less dramatically. As an example, under Alternative A (without opening North Natomas to urbanization), North Sacramento would receive 16,630 new jobs by 2005. Assuming North Natomas is available for urbanization under Alternative D, the projected increase in jobs is decreased from 16,630 to

only 6,633 jobs by 2005 -- a decrease of 9,997 jobs or approximately 60 percent fewer jobs than under Alternative A.

Land Use

The land use implications of urbanization in North Natomas would result from the direct loss of agricultural land within the Study Area itself and the areas where growth inducing pressures would occur. While development in North Natomas would result in the elimination of up to 11,145 acres of productive agricultural land, the cumulative effect of development in the Study Area would be the transformation of other agricultural lands to urban uses. The number of jobs created in North Natomas in Alternatives A through E would influence the extent to which land demands grow for housing and other purposes.

There also would be indirect impacts which would accentuate the cumulative effects of development in North Natomas. As development proceeds in the Study Area and is stimulated in outlying areas through conversion of agricultural lands, yet other agricultural land would come within the "urban shadow". Agricultural lands in the shadow of urbanization are withdrawn from production due to urban-rural conflicts and/or as landowners prepare to convert their property to non-agricultural use in order to receive the financial benefits which result from urban land values. The probability of growth inducing impacts, discussed above, resulting in "skip" or "leap-frog" development on agricultural lands outside the Study Area increases the likelihood of cumulative impacts on the supply of the best quality, productive agricultural land. A shrinking concentration of agricultural land within an area also would make it more difficult for farmers to continue their operations because fewer support services would remain and because the potential for land use conflicts would increase.

A diminishing supply of productive land within a regional context has several cumulative consequences. Decreased agricultural production would reduce that industry's contribution to the area's economy. From the standpoint of the region's economy, this loss would be off-set by increased production in other sectors. The incremental loss to the agricultural economy in Sacramento, however, would contribute to a cumulative decline in this sector regionally.

In an agricultural context, however, the conversion of high quality, economically viable, and productive farmland is of profound importance. Either the potential for food and fiber production is irrevocably diminished

due to urbanization on the best agricultural lands, or poorer quality lands must be brought into production to compensate for lands lost to development. Bringing poorer quality land into agricultural production has attendant economic and, often, environmental costs. The latter impacts result from greater use of chemical fertilizers, pesticides, herbicides, water for irrigation, measures to stabilize soil, etc., and, ultimately, affect the economy in the form of higher costs which must be passed onto the consumers. Improved production and increased revenues from some, newly expanding sectors of the community's economy, therefore, would not necessarily balance or substantially off-set the total costs to the community from the cumulative loss of the best agricultural lands.

Another factor in these cumulative impacts which constitutes a land use issue is the effect on farmers themselves. Agriculture in California is an industry and represents businesses, just as in other sectors of the economy, but agriculture also represents a way of life for farmers which is distinctly different from that of other enterprises. The very foundation of that life, unlike other means of production, is the land itself. It is germane to note that farmers in the region know the capability of their lands in such a way, for instance, that they can produce yields above those rated for local soil types. Consequently, agriculturalists' knowledge and experience can result in production on good quality farmland which ordinarily would be expected only from the highest quality, prime lands. Conversion of these lands would make their reservoir of experience moot.

Because new areas throughout the state are being brought into agricultural production, the total amount of productive land is not decreasing statistically. This is because the amount of land added exceeds the acreage lost to urbanization. The newly productive areas generally are of poorer quality agriculturally, however, than the lands withdrawn from production -- the highest quality lands remain the most vulnerable to conversion. Nevertheless, in addition to this balance sheet and the economic consequences mentioned above, the skills of individual farmers are not necessarily transferable to these new conditions. The knowledge and experience farmers now apply to their current operations must be relearned for the new conditions, a process which takes time and money.

Agriculture is a difficult and expensive business to get into initially. Few people are entering agriculture due to the high start-up costs, whereas farm operations more typically pass from generation to generation in families or are in the domain of corporate enterprises. This is an obstacle, therefore, to farmers ceasing operations in the urban shadow and readily moving and adapting to new terrain, new growing conditions, or new

crops. As a result, agricultural land conversions are far more disruptive than just the loss of countable number of acres or estimated agricultural income to the regional economy.

The magnitude of these trends and impacts results from the cumulative effects of individual actions taken by separate jurisdictions over the course of time. Because the impacts are not felt immediately by the non-farming population and because the incremental effects of individual actions appear small to decisionmakers, the ultimate result may not be appreciated. When urban or suburban officials make decisions affecting agricultural lands, these persons have varied constituencies which are larger than the agricultural constituency. In this way, decisions which can result in the creation of a large number of urban-type jobs and the loss of a comparatively few rural jobs are viewed in an altogether different context of getting the maximum employment potential for the urban constituents who are the majority.

The long-term results of these decisions, therefore, are not totally without residual consequences, even in consideration of the immediate short-term benefits to the urban population. Besides gradually transforming an area's economy and potentially affecting consumers, there would be tangible, identifiable cumulative impacts on the region from opening North Natomas to development. These include traffic, air quality, and noise concerns.

Transportation

The Study Area is so large and the land uses designated by Alternatives B through E would be sufficiently varied that much of the traffic generated by development would be confined within North Natomas. It was found that many of the adverse traffic conditions identified on the regional transportation network by the year 2005 would result even without development occurring in North Natomas. These conditions would be exacerbated, however, by traffic generated by development in the Study Area under Alternatives C, D, or E. Cumulative traffic impacts primarily would affect I-5 between North Natomas and downtown Sacramento and to some extent would affect I-80 and Business 80. As congestion increases on the I-5 link to downtown Sacramento due to North Natomas traffic, especially during the peak commute periods, some traffic would be expected to be diverted to Business 80 in order to avoid congestion. Eventually the impact of this shift in use would result in increased traffic congestion on Business 80.

Air Quality

Although development within the Study Area itself cannot necessarily be considered totally new or unplanned, since it would divert growth which otherwise would have occurred elsewhere in the region, development in North Natomas would induce substantial secondary growth. Emissions from secondary growth would affect regional air quality and would constitute cumulative air quality impacts. Implementation of Alternatives B, C, D, or E would result in net increases in carbon monoxide, oxides of nitrogen, sulfur oxides, and reactive organic gases, the most significant of which would be reactive organic gases (ROG) and oxides of nitrogen (NO_x) because they are ozone precursors. Alternatives B through E would increase ozone levels by approximately three to four percent. The cumulative impact of this increase would be to delay attainment (or contribute to continued violation) of the ozone standard.

Noise

Noise generated with development in the Study Area would be masked by noise of traffic on I-80 and, therefore, would not be heard in existing areas outside of North Natomas. As noted above, future increased traffic volumes on the regional transportation network would result from growth elsewhere in the metropolitan area. Development of Alternatives B through E, however, would result in cumulative traffic increases on I-5 between Garden Highway and West El Camino which would increase noise levels by 1 dB (Alternative B) to 3 dB (Alternative E). While these increases would not be significant alone, they would tend to aggravate an existing noise problem.

Public Facilities

The magnitude of development envisaged by Alternatives B through E would require significant expansions of and investments in public facilities needed to serve the Study Area and in more public service personnel to serve the area's employee and residential population upon buildout. Development of such a large area at the densities proposed by these alternatives would require major expansions to water treatment and sewage treatment plants, together with installation of new water distribution and sewage transmission mains throughout the Study Area. In addition to building new public facilities, public agencies, such as the police and fire departments, would have to hire additional personnel to provide services to North Natomas. These requirements would have cumulative impacts when viewed in conjunction

with increased needs for public facilities and services resulting from major amounts of planned growth elsewhere in the City, such as in South Natomas and Delta Shores.

The following cumulative impacts also have been identified:

- Continued urbanization within the watershed of the Sacramento River would cause a significant increase in river flows in general and a critical increase in the duration of higher magnitude flood discharges in particular. (A flood routing study would be required, however, to evaluate the integrated effect of cumulative floodplain development, including in North Natomas, on the timing and magnitude of flood peaks in relation to channel capacity.)

- Cumulative point-source discharges of drainage containing urban pollutants from a developed North Natomas Study Area, together with discharges of other urban runoff into the Sacramento River from development in the watershed, would produce significant adverse water quality impacts due to an increase in the total pollutant load affecting the river.

- Continued cumulative losses of biotic resources as a result of urbanization would result from decreased agricultural lands used by wildlife (seasonal wetlands in rice fields, riparian habitat in irrigation and drainage canals, etc.) and would contribute to the incremental decline in the number and diversity of plant and animal species.

The net effect of opening North Natomas would be to produce significant cumulative impacts due to the scale and magnitude of development which would replace environmental resources and contribute incrementally to environmental degradation. Considering the environmental assets of the Sacramento region and the value which is placed on these assets by the community -- as articulated in public planning documents -- these cumulative effects would constitute significant adverse impacts.

RELATIONSHIP BETWEEN SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The long-term cumulative effects of a diminishing supply of productive agricultural land are discussed above. The net effect of all alternatives

would be to commit North Natomas to development within the next 20 years and, therefore, to convert the agricultural productivity of the land and resources to developed, urban means of production. The significance of this transformation does not involve a judgment about whether the value of agricultural productivity is more or less than that which occurs when development proceeds. Rather, the issue is the extent to which urbanization would narrow the range of beneficial uses of the environment.

In this context, prime agricultural land is a finite resource. Prime agricultural land is irreplaceable, and once development takes place it is assumed to be the permanent use of land. As discussed previously, agricultural production can occur on other lands, but once the prime farmlands are lost, this resource is gone forever after which the society must rely on less than prime lands for the production of food and fiber.

The types of uses proposed within the Study Area would not be dependent on the particular land resources present in North Natomas the way agriculture is inseparable from land resources. Housing and employment-generating development, for all intents and purposes, can be built on many lands, regardless of their agricultural capability.

The geographical location of North Natomas makes it a desirable location for some types of development, such as for high technology or airport-related industries. The location combined with the easy developability of open agricultural land gives development value to "prime" Study Area sites. It is not essential, however, for these uses to be developed on those sites, only preferable from a developer's perspective.

Other lands could be developed for these uses. For example, Delta Shores Village was the City's designated location for development of high technology industry, and communities throughout the existing urban area have been designated to receive residential development.

The existence in Sacramento of other lands suitable for the types of development proposed in the Study Area has special significance for North Natomas. This is because the City's adopted Growth Policy specifically requires landowners in North Natomas to show that other more suitable areas for development do not exist before development in the Study Area would be considered.

Prior to a decision being made on the adoption of a Community Plan for North Natomas, therefore, evidence must be provided which shows that other suitable lands do not exist for the types of land uses proposed for North

Natomas. This information would be based upon the economic studies prepared for the Sacramento SMSA by the City of Sacramento and McDonald & Associates.

The economic analysis prepared as part of the community planning process indicates that, considering only market demand, there is a demand for a substantial amount of land in the Study Area for urban uses. The economic analysis, however, qualifies this market demand by stating that it is virtually certain that considerations other than market forces would limit the total land consumption in the Study Area to significantly less than the market demand. Such other considerations would include the agricultural productivity of the Study Area.

The analyses prepared for this EIR indicate that long-term agricultural productivity would be sacrificed for immediate short-term benefits from conversion of the Study Area. The net result, therefore, to allow urban development would be the permanent, long-term transformation of the Study Area.

UNAVOIDABLE AND IRREVERSIBLE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The unavoidable impacts which would occur, based upon the scale and magnitude of urbanization of the North Natomas Study Area are listed below. These impacts are significant and incapable of mitigation to less than significant levels.

Alternatives A, B, C, D, and E would have significant growth inducing impacts due to the surplus of jobs in relation to housing in North Natomas.

Alternatives B, C, D, and E would produce significant cumulative impacts due to the scale and magnitude of development which would replace environmental resources and contribute incrementally to environmental degradation.

Alternatives A, B, C, D, and E would produce a jobs-housing imbalance in North Natomas, resulting in North Natomas employees requiring housing elsewhere in the region.

Alternatives A, B, C, D, and E would result in a significant number of persons who could not afford to purchase homes or rent in the community.

Alternatives B, C, D, and E would convert significant amounts of agricultural land to urban uses, contrary to the City's Growth Policy.

Alternatives B, C, D, and E would result in the adoption of a Community Plan which would commit North Natomas to urbanization prior to 1995, contrary to the existing Growth Policy.

Alternatives A, B, C, D, and E would result in significant pressure to convert additional agricultural land, especially to the north and west of the Study Area.

Alternatives C, D, and E would result in a significant amount of employment-generating land uses making North Natomas a major new focus for jobs in the region. Alternatives D and E would diminish the importance of downtown Sacramento as the major employment center in the region.

Alternatives B, C, D, and E would dilute City efforts to direct growth to the urban area which was existing in 1981.

Alternatives A, B, C, D, and E would result in significant traffic generation which would add to traffic volumes experienced on the local and regional road system and which would require an expansion of that system.

Alternatives B, C, D, and E would result in a significant net increase in regional emissions of carbon monoxide, oxides of nitrogen, sulfur oxides, and reactive organic gases.

Alternatives B, C, D, and E would increase ozone levels in the Sacramento area by roughly three to four percent.

Alternatives B, C, D, and E would be inconsistent with the Regional Air Quality Plan.

Alternatives C, D, and E would designate residential uses west of I-5 in an area where aircraft noise would exceed 60 CNEL.

Alternatives B, C, D, and E would locate residential use in areas where residents who participate in outdoor evening activities may be driven indoors by persistent and aggressive mosquitoes.

Alternatives A, B, C, D, and E would result in the conversion of a significant amount of productive agricultural land.

Alternatives A, B, C, D, and E would result in the loss of a significant amount of agricultural productivity.

Alternatives A, B, C, D, and E would create operational conflicts for surrounding agricultural land.

Alternatives B, C, D, and E would result in the loss of a significant amount of riparian and wetland habitat bordering drainage canals.

Alternatives B, C, D, and E would result in the loss of a significant amount of seasonal wetland habitat provided by rice fields.

Alternatives B, C, D, and E would result in the loss of a significant amount of agricultural land and open space for foraging by Swainson's hawk.

Alternatives B, C, D, and E would convert the Study Area to urban uses which would contrast with the area's present visual quality and with agricultural lands remaining outside the Study Area.

1 When one county plans to accommodate a certain amount of regional growth, the balance of growth must occur somewhere else in the region, although that remaining growth may exceed the capacity or planned level of growth of other jurisdictions.

2 Sutter County also is vulnerable to spillover growth from development in South Placer County. Sutter County General Plan, July, 1983, Land Use, Conservation, and Open Space Element, page 23.

3 Community Noise Equivalent Level (CNEL). Noise impacts are discussed in Section G; environmental noise concepts and terminology are described in Appendix G-1. As discussed in the noise analysis, the County Department of Airports opposes development west of I-5. If development is permitted in North Natomas west of I-5 (Alternatives C, D, and E), this would hinder the Department of Airports' efforts to halt urban encroachment which would affect landing and take-off patterns. In the absence of a permanent ban on development, opening of North Natomas west of I-5 would set a precedent for further development farther west of I-5.

4 In addition to existing access, improvements are proposed along the Highway 99 corridor from I-5 to a point just north of the Sutter County line, as discussed below under the heading "Other Growth Inducements".

5 The Airport Industrial SPA established at Metro Airport is almost entirely within the 65 dB CNEL contour, thus demonstrating the compatibility of this use with a noisy environment.

6 Sutter County General Plan, op. cit., page 23.

7 Airport-Meadowview Community Plan Draft EIR, prepared for the City of Sacramento by Nichols-Berman, October, 1983, page C-22. That Plan's density was 1 to 4 units per acre. In the rural communities of southern Sutter County, as discussed below, recommended residential lot size is 1 unit per 2.5 to 5 acres. The Airport Meadowview EIR found, however, that the proposed low density, large lot area probably would not be able to compete with other high income neighborhoods in Sacramento. Development in North Natomas, therefore, could open up opportunities for rural estate living on nearby unincorporated lands.

8 These are Nicolaus, East Nicolaus, Robbins, Trowbridge, Rio Oso, Pleasant Grove, and Riego.

9 1970 population of 41,935 people countywide, and 1980 population of 52,246 people. Sutter County General Plan, op. cit., Inventory, page 21. Fifty-eight (58) percent of the County's population resided in the unincorporated area in 1980 where the population increased by 20 percent between 1970 and 1980 (from 25,304 to 30,407 people).

10 Pleasant Grove and Riego already are "blatant examples of strip development occurring in a prime agricultural area", although these areas developed prior to the County's current agricultural preservation policies. Sutter County General Plan, op. cit., page 32.

11 Ibid., Land Use, Conservation, and Open Space Element, page 23.

12 Metro Airport would remain as a non-agriculutral enclave, although airport lands not developed for airport facilities could continue in agricultural use.

13 General Plan, Yolo County, July, 1983, EIR page 37.

14 Ibid., page 14.

15 Ibid., EIR page 3.

16 Ibid.

17 Ibid., EIR page 5.

18 Ibid., EIR page 7. The timeframe for urbanization of these 6,000 acres of agricultural land is not defined in the General Plan EIR. Since the Plan anticipates that an additional 30,000 people would move into the County's four major urban areas within the next 20 years (by approximately 2003), it is assumed that this urbanization also would occur during the 20-year planning period.

19 East Yolo General Plan, December, 1976, Land Use Element, page 8.

20 Southport Area Plan, August, 1982, page IV-5. A 30,000-unit capacity exists in the Southport area if there were unrestricted access. Consequently, the Plan provides a limit of 13,121 units with 35,000 residents at buildout while the Plan also would result in the creation of an estimated (probable maximum) 20,000 new industrial jobs.

21 Ibid., page VIII-2.

22 Ibid.

23 Letter to Steve Jenkins, Project Coordinator-North Natomas Planning Studies from Edward Crowley, Yolo County Community Development Agency, October 12, 1984.

24 East Yolo General Plan, op. cit., Land Use Element, page 90.

25 Nichols-Berman conversation with Joe Heller, Caltrans, Marysville office, November 16, 1984.

26 An at-grade intersection would be provided at Elverta Road (as well as at Riego Road in Sutter County). Ibid. Expansion to a six-lane facility, as warranted, is provided within the median area. Environmental Reevaluation for Highway Route 99, Caltrans, December, 1983.

27 Final Environmental Impact Statement, 99 in Sacramento and Sutter Counties from Interstate 5 to State Route 70, California Department of Transportation, District 03, 1975, page 15.

28 Ibid., page 7.

29 Ibid., pages 16-18 and 39. The Environmental Reevaluation completed in December, 1983 provided no additional information affecting these conclusions.

30 Ibid., page 18.

31 Ibid., page 16.

32 Ibid., page 71. "Full compliance with the intent of State law and with local planning and zoning ordinances could completely mitigate the potential impacts on local and regional planning." Ibid., page 72.

33 Ibid.

34 The EIS assumed that the projected year 1990 regional population would be accommodated through growth of existing population centers and that "no specific shifts in population centers are anticipated to occur as a result of the proposed project", Ibid., page 37. More development is anticipated in Pleasant Grove, however, as a result of the proposed project. Ibid., page 39.

35 Growth Policy Conclusions and Recommendations, Accelerated General Plan Update, Planning Department, City of Sacramento, March, 1982.

36 Simply reaffirming the strategies developed several years ago during the General Plan updating process would not be sufficient to give them credence, if the City opens North Natomas for development now. By ignoring the very foundation of the General Plan update -- specifically, its Growth Policy -- the City would gravely tarnish the other elements of its planning strategy, thus requiring more constructive efforts to restore credibility to remaining policies the

City wishes to implement.

37 San Franciscans for Reasonable Growth v. City and County of San Francisco, 151 Cal. App. 3rd 61 (1984).

38 An exception to the general relationship between increased growth in North Natomas and how much incremental growth can be expected elsewhere involves job generation under Alternative E. While a substantial number of new jobs would be created under Alternative E, buildout of these uses and, thus, ultimate job generation, would occur after the year 2005.

39 In Land Park there would be a small increase in jobs under Alternative E while employment under Alternatives B, C, and D would be identical to that under "base case" conditions.

C. POPULATION, EMPLOYMENT, AND HOUSING -- THE SETTING, IMPACTS, AND MITIGATION MEASURES

This section summarizes relevant public policies related primarily to the provision of land for urban development and to "balance" the creation of jobs with the availability of housing. This section also reviews US Census data, presents a demographic profile of the Study Area, and discusses trends projected for the City, County, and SMSA through the year 2005.

POPULATION -- THE SETTING

US Census statistics and recent forecasts enable a comparison of North Natomas with other nearby communities, the City, the County, and the SMSA as a whole. Data for selected topics from the 1980 Census are summarized in Exhibit C-2 and are described below. [1]

1980 US Census

Sacramento County is part of the larger Sacramento SMSA (Sacrameto, Yolo, and Placer Counties) where a total of 1,014,002 persons live. As of the 1980 US Census, 783,381 people lived in Sacramento County, representing more than three-quarters (77 percent) of people living within the entire region (SMSA).

Sacramento County

Sacramento County encompasses the incorporated communities of Folsom, Galt, Isleton, and Sacramento. It also has a large urban population living in the unincorporated County area such that the "numerous unincorporated communities are, in effect, moderate sized cities". [2]

Sacramento County is similar statistically to the region (SMSA) in terms of racial and ethnic composition, median age, education, housing (owner versus renter occupancy, home values, and rents), persons per household, unemployment, and income levels, as shown in Exhibit C-2.

Of the ± 14,300-acre North Natomas Study Area, approximately 6,552 acres (46 percent) are unincorporated County lands and 7,778 acres (54 percent) are within the City of Sacramento's jurisdiction. [3] The demographic characteristics of the incorporated and unincorporated areas differ and are

EXHIBIT C-2

1980 Population, Housing, and Employment Profile [1]

	SMSA [2]	County	City [3]	North Natomas [4]	South Natomas [5]	North Sacramento [6]	Three-Community Subtotal [7]
Population (total)	1,014,022	783,381	275,741	1,520	6,304	36,866	44,690
Race (percent)							
• White	82.5%	80.8%	67.6%	87.0%	84.8%	68.3%	71.3%
• Black	6.0	7.5	13.4	2.0	0.4	19.8	16.4
• Other	11.5	11.7	19.0	11.0	14.8	12.1	12.3
Median Age (years)	29.7	29.8	31.5	40.1	38.9	29.7	36.2
Persons Per Household (pph)	2.41	2.42	2.39	2.53	2.38	2.33	2.41
School (persons over 25 years old) [8]							
• High School Graduates	77.4%	78.0%	71.6%	69.0%	70.0%	57.3%	65.4%
• 1-3 Years College	23.7	24.5	22.3	10.0	20.0	15.4	15.1
• 4-+ Years College	19.7	19.2	18.7	3.0	21.0	8.7	10.9
Total Civilian Employed (persons)	437,230	338,891	113,333	689	2,426	11,759	14,874
• Women in Labor Force	40.2%	40.8%	40.6%	37.9%	41.1%	36.0%	38.3%
• Total Unemployment	9.0	9.0	10.3	8.9	8.6	19.4	12.3
Workers/Family							
• None	14.1%	14.9%	20.0%	17.0%	29.0%	28.0%	25.0%
• One	33.5	33.7	34.0	30.0	32.0	37.0	33.0
• Two or More	52.4	52.0	46.0	53.0	39.0	35.0	42.0
Income (1980 dollars)							
• Household Median	$17,318	$17,390	$14,604	$19,381	$14,817	$11,524	$15,241
• Family Median	20,994	20,949	18,844	22,491	19,000	13,499	18,330
Families Below Poverty Level (percent)	8.7%	8.9%	11.7%	5.7%	7.9%	20.8%	11.5%
Housing							
• Total Units	421,321	323,702	123,284	755	2,819	15,824	19,398
• Owner-Occupied	55.6%	55.9%	52.0%	67.0%	65.0%	48.4%	
• Renter-Occupied	35.5	36.7	40.0	13.0	30.0	40.6	
• Vacant	8.9	7.4	8.0	20.0	5.0	11.0	
Median Home Value (1980 dollars)	$64,800	$63,300	$56,800	$91,350	$49,850	$38,400	$59,867
Median Monthly Rent (1980 dollars)	215	215	179	157	183	165	168

1/ US Census, 1980 Neighborhood Statistical Program.

2/ Standard Metropolitan Statistical Area (SMSA). Includes Placer, Sacramento, and Yolo Counties. (El Dorado was added to the SMSA following the 1980 Census.)

3/ The City of Sacramento covers 76 Neighborhood Statistical Areas (NSAs) of which the three communities of North Natomas, South Natomas, and North Sacramento represent 18 NSAs. (Fourteen of those NSAs are located within the North Sacramento Community Plan Area.) Considerable variation exists between individual NSAs and between the City-designated Community Plan areas. Data summarized in this exhibit show general characteristics representing median or average conditions.

4/ NSAs 45 and 46 within the City of Sacramento and Census Tracts (CTs) 70.02 and 71 within unincorporated Sacramento County lands.

5/ NSAs 44 and 54.

6/ Fourteen (14) NSAs: Arden-Arcade (05), Del Paso Heights (20), East Del Paso Heights (22), Glenwood Park (34), Hagginwood (36), Noralto (43), North Norwood (47), Robla 1-4 (56-59), Strawberry Manor (67), and Woodlake 1-2 (75-76).

7/ Subtotal of North Natomas (City and County combined), South Natomas, and North Sacramento in order to allow comparison with the City of Sacramento as a whole.

8/ Numbers given for high school graduates represent the percentages of all persons 25 years or older who have graduated from high school. The next line shows the percent of high school graduates 25 years or older who have attended 1 to 3 years of college (not the percent of all persons 25 years or older). The third line also relates to high school graduates who have 4 or more years of college. Thus, these three lines do not add.

summarized in Exhibit C-4. The Study Area is discussed below, however, as one community.

City of Sacramento

The City of Sacramento's population in 1980 was 275,741 persons. One-third (35 percent) of all Sacramento County residents lived within the City; more than one-quarter (27 percent) of the total population of the SMSA was located within the City. For planning purposes, the City has been divided into 11 communities, including the North Natomas Study Area and the two contiguous communities of South Natomas and North Sacramento.

North Natomas Study Area

As of 1980, 1,520 people lived in the combined City-County portion of North Natomas. [4] As can be seen from Exhibit C-4, approximately 87 percent of North Natomas residents are white, representing a less racially and ethnically diverse population than the City as a whole (68 percent white). The average age of North Natomas residents is substantially older than the median age citywide -- 40.1 years compared with 31.5 citywide.

North Natomas residents have completed slightly less formal education than Sacramentans as a whole. Sixty-nine (69) percent of North Natomas residents aged 16 or older have completed high school while 72 percent of residents over 16 throughout the City have completed high school. On a citywide basis slightly more high school graduates have continued on to college than North Natomas residents: nearly one-quarter (22 percent) of all North Natomas residents have completed one to three years of college, identical to citywide achievement, while 15 percent of North Natomas residents completed four or more years of college compared with 19 percent of residents citywide who completed four or more years of college.

Median income of households and families in North Natomas is somewhat higher than that citywide. Household income in North Natomas ($19,381 per year) is higher than median household income throughout Sacramento ($14,604). Median family income in North Natomas also is higher ($22,491) than citywide ($18,844). Less than six percent (5.7 percent) of families in North Natomas are below the poverty level, half the rate of the approximately 12 percent of all families living in Sacramento who have incomes below the poverty level.

EXHIBIT C-4

Incorporated and Unincorporated North Natomas -- Demographic Summary [1/]

	Unincorporated County			Incorporated City			City-County Study Area Combined
	CT 70.02	CT 71	Subtotal	NSA 45	NSA 46	Subtotal	
Population (total)	502	386	888	323	309	632	1,520
Race (percent)							
• White	87.0%	84.0%	86.0%	87.6%	93.5%	90.5%	87.0%
• Black	1.0	3.0	2.0	0.9	1.9	1.4	2.0
• Other	12.0	13.0	12.0	11.5	4.5	8.1	11.0
Median Age (years)	40.3	34.3	37.3	32.1	54.3	43.2	40.1
Persons Per Household	2.50	2.74	2.60	3.02	2.01	2.42	2.53
School (percent over 25 years old)							
• High School Graduates	86.6	80.6	83.0	39.5	60.5	52.2	69.0
• 1-3 Years College	29.4	37.9	30.0	6.8	11.4	9.6	22.0
• 4-+ Years College	26.1	23.7	25.0	0.0	4.1	2.5	15.0
Total Civilian Employed	221	212	433	109	147	256	689
• Women in Labor Force	35.2%	38.7%	36.9%	39.5%	39.8%	39.6%	37.9%
• Total Unemployed	10.5	7.8	9.2	0.0	14.0	9.4	8.9
Workers/Family							
• Families (total)	130	80	210	74	117	191	401
• None	9.0%	0.0%	5.0%	24.0%	32.0%	29.0%	17.0%
• One	52.0	6.0	35.0	16.0	29.0	24.0	30.0
• Two or More	39.0	94.0	60.0	60.0	39.0	47.0	53.0
Income (1980 dollars)							
• Household Median	$21,875	$22,208	$22,208	$14,688	$18,750	$16,719	$19,381
• Family Median	22,500	30,483	26,492	14,688	22,292	18,490	22,419
Families Below Poverty Level (percent)	2.3%	25.0%	11.0%	0.0%	0.0%	0.0%	5.7%
Housing							
• Total Units	309	172	481	112	162	274	755
• Owner-Occupied	55.0%	57.0%	56.0%	87.0%	84.0%	85.0%	67.0%
• Renter-Occupied	10.0	24.0	15.0	9.0	11.0	10.0	13.0
• Vacant	35.0	19.0	29.0	4.0	5.0	5.0	20.0
Median Home Value (1980 dollars)	$122,900	$156,300	$139,600	$51,600	$34,100	$43,100	$91,350
Median Monthly Rent (1980 dollars)	165	145	155	200	118	159	157

1/ Source: 1980 US Census.

South Natomas and North Sacramento Communities

The South Natomas and North Sacramento communities differ substantially not only from each other but also compared with North Natomas and the City as a whole. The 1980 population of South Natomas was 6,304 persons and of North Sacramento was 36,866 persons. [5] Taken as a whole, nearly 16 percent of the City's population resides in the three-community area of North Natomas, South Natomas, and North Sacramento.

North Sacramento is more diverse than either North or South Natomas, with a racial and ethnic composition similar to citywide characteristics. While 68 percent of North Sacramento's residents are white (identical to the citywide proportion of whites in the population), approximately 20 percent of North Sacramento residents are black, and 12 percent are Asians and other ethnic groups. This compares with 13 and 19 percent, respectively, throughout the City.

The South Natomas population is less similar to the City's racial and ethnic composition. It's residents are predominantly white (85 percent) while less than one percent are black. Asians and other ethnic groups account for approximately 15 percent of South Natomas residents.

The median age of North Sacramento residents is slightly younger (29.7 years) and that of South Natomas residents is substantially older (38.9 years) than the City's median age of 31.5 years.

Persons living in both South Natomas and North Sacramento have completed less formal education than achieved citywide. In North Sacramento 57 percent of residents 25 years or older have graduated from high school of whom 15 percent have continued for one to three years of college and of whom 9 percent have completed four or more years of college. In South Natomas 70 percent of residents 25 years or older graduated from high school of whom 21 percent have completed one to three years of college and of whom 21 percent completed four or more years of college. Citywide the figures are 72, 22, and 19 percent, respectively.

Both household and family income in North Sacramento are below the citywide median, whereas the incomes of South Natomas residents are more comparable to those earned in the City as whole. Median household income in North Sacramento is $11,524 and family income is $13,499 per year. In South Natomas median household income is $14,817, and family income is $19,000 per year.

1983 "Existing Conditions"

As noted in the Project Description (Section A) of this EIR, the North Natomas Community Plan is being prepared for the 1985 to 2005 timeframe. In order to provide a reasonable basis for allocating 20 years of regional growth to smaller sub-areas such as North Natomas, it is necessary to define a benchmark time or "existing conditions" against which the analysis contained in this EIR will be evaluated. At the time the North Natomas Community Planning Study was begun in January, 1984, the year 1983 was defined as the "existing conditions" benchmark for this EIR.

Exhibit C-7 presents the 1983 "existing conditions" data for the various planning areas within the Sacramento SMSA. [6] The 1983 estimate of total employment in the region by the State Employment Development Department was used as the employment base. In making the 1983 estimate, staff of the Sacramento City and County Planning Departments also compiled information on existing land uses, vacant land, and overall development potential for the major planning areas within the SMSA. The specific methodology used to compile the information contained in Exhibit C-7 is contained in the following documents which are incorporated into this EIR by reference and are available for inspection at the City of Sacramento Planing Department:

- North Natomas Community Plan Background Report, June, 1984.
- 1983-2005 Regional Economy and Land Demand (Sacramento SMSA), March, 1985.

1984-2005 Population Forecasts

Both the City and County of Sacramento anticipate continued growth within the region. Projections related to the amount of population growth and where such growth is expected to occur vary according to the focus on the City, County, or the metropolitan area (SMSA). In addition, population levels projected by public agencies differ depending upon the planning period for the various documents which address this future growth.

Year 1984-2005 growth forecasts for population, housing, employment, and land use demand for the SMSA prepared by McDonald & Associates in January, 1985, however, have been used exclusively for the purpose of this EIR.

EXHIBIT C-7

Sacramento SMSA Growth Allocations -- 1983 Existing Conditions
North Natomas Community Plan Alternatives EIR

Planning Area	HIGH-GROWTH MFG.	OTHER MFG./ INDUSTRIAL	COMM-ERCIAL (Sq. Ft.)	OFFICE (Sq. Ft.)	SPA	SPORTS COMPLEX	DWELLING UNITS	POPULATION	EMPLOYMENT
CITY OF SACRAMENTO									
North Natomas	7	172	0	0			744	1,613	3,690
South Natomas	0	14	228,800	14,100			5,788	15,329	1,471
North Sacramento	7	1,254	914,800	60,900			14,993	37,840	30,117
Arden Arcade (see County)									
East Sacramento	0	317	2,090,000	1,260,600			15,485	35,191	20,992
Central City	0	985	3,520,800	8,800,800			18,273	31,005	66,640
East Broadway	1	800	1,908,400	273,000			18,657	44,545	26,492
South Sacramento (City/Co.)	1	1,362	2,916,000	120,900			31,234	83,791	42,261
Airport/Meadowview	1	37	359,800	120,600			10,063	31,681	2,997
Land Park	0	192	2,072,000	24,900			14,664	34,615	14,283
Pocket	0	0	340,000	92,100			11,403	27,609	2,007
SUBTOTAL (CITY)	16	5,132	14,350,600	10,767,900	0	0	141,304	343,219	210,950
COUNTY OF SACRAMENTO									
Laguna	0	0	0	0			1,142	3,124	0
Vineyards/Elk Grove	0	266	0	0			6,494	19,294	5,320
H50 Corridor/Rancho Cordova	31	1,384	326,800	1,263,000			30,497	84,100	34,758
Fair Oaks	0	0	1,695,600	189,900			26,802	71,388	9,111
Carmichael	0	165	5,993,000	1,980,000			42,886	116,822	39,855
Folsom	30	90	326,800	2,400			4,502	13,350	4,642
North Highlands	0	615	1,110,800	360,000			27,315	80,319	19,060
Arden Arcade (inc. City)	0	43	5,310,000	3,939,000			46,694	110,359	40,540
SUBTOTAL (COUNTY)	61	2,563	14,763,000	7,734,300	0	0	186,332	498,756	153,286
OTHER SMSA									
Placer County	48	1,000	522,800	399,900			50,000	130,000	25,867
Yolo County	0	660	1,340,000	1,230,000			46,000	119,600	24,000
SUBTOTAL (OTHER)	48	1,660	1,862,800	1,629,900	0	0	96,000	249,600	49,867
SMSA 1983 TOTAL	125	9,355	30,976,400	20,132,100	0	0	423,636	1,091,575	414,103

Source: City of Sacramento Planning Department and Sacramento County Planning and Community Development Department. Compiled by McDonald & Associates. January 15, 1985.

Exhibit C-9 contains the population and employment estimates for the Sacramento SMSA prepared by McDonald & Associates. [7]

Both population and employment data are shown in Exhibit C-9 because the population forecasts used in this EIR were derived from employment forecasts in accordance with the following methodology. The 1983 estimate of total employment in the region by the State Employment Development Department was used as the employment base. A sustained growth rate of 2.5 percent then was applied to this base to get employment forecasts through the year 2005. The 2.5 percent rate of employment growth is a composite judgment of McDonald & Associates. It is based on two existing estimates of areawide growth: (1) the Department of Finance implied population growth rate of 2.0 percent and (2) the Center for Continuing Study of the California Economy 10-year implied employment growth rate of 2.9 percent. McDonald & Associates concurs with this general conclusion and with the conclusion about the economic sectors which will experience higher rates of growth. While a 2.9 percent rate of employment growth may be reasonable for the 10-year period 1981 to 1991, it appears too optimistic to assume that such a high rate of growth could be sustained over the 20-year period analyzed in this report. Therefore, a modified rate of 2.5 percent was used to forecast employment growth.

The employment forecast implicitly assumed that North Natomas is available for urban uses. Further, the population estimates derived from employment estimates (discussed subsequently) are higher than the California Department of Finance (DOF) population estimates. Thus, insofar as the DOF estimates can be considered a baseline, the employment forecasts imply a conclusion that the urbanization of North Natomas does have the potential to increase regional economic growth. Exhibit C-9 shows population and employment projections for the SMSA both "with" and "without" the North Natomas Study Area being available for urbanization.

The employment forecasts were converted into population estimates, using a two-step method. First, the employment estimate was divided by the labor force participation rate. The labor force participation rate is defined as the number of wage and salaried employees divided by the working age population (ages 18 to 64). Calculations using the civilian labor force rather than wage and salaried employees yielded identical trends. Using wage and salaried employees, however, allows for simple conversion between population and employment estimates.

The population figures derived by the process described above give population forecasts for the work force population. Total population was

EXHIBIT C-9

Sacramento SMSA Population and Employment Forecasts With and Without North Natomas
North Natomas Community Plan Alternatives EIR

Year	Without North Natomas		With North Natomas	
	Population	Employment	Population	Employment
1983	1,086,600	423,100	1,086,600	423,100
1985	1,107,200	442,700	1,109,300	444,500
1990	1,207,800	496,400	1,220,300	502,900
1995	1,367,200	557,100	1,396,100	569,000
2000	1,515,600	671,600	1,559,800	693,800
2005	1,676,600	703,400	1,737,400	720,400

Source: McDonald & Associates, January, 1985.

calculated by dividing the working age population estimates by the proportion of working age to total population, projected for each five-year increment between 1985 and 2005 by the Department of Finance.

The labor force participation rate was determined according to historic labor force participation trends. It appears that labor force participation was increasing steadily throughout the 1970s, although the recent recession caused a dip in this trend. It was assumed, however, that as the recession ends, the participation rate will recover and continue to grow slowly through the rest of the 1980s. At this point, labor force participation can be expected to reach a plateau, and it is this plateau -- 65 percent -- which was used in this analysis.

As Exhibit C-9 shows, employment in the Sacramento SMSA in the year 2005 is estimated to total over 700,000 jobs or about a 40 percent increase over the base year employment level. While it is clear that employment is increasing at a constant rate over this period, population increases at an increasing rate up through 1995 at which time the population growth rate begins to flatten out. This is due to the Department of Finance projections of the proportion of workers in the population over time. This proportion rises until the mid-1990s. Then its growth begins to slow and eventually decline after 2005.

Because this EIR evaluates both the option of no new urban development within with Study Area beyond what already has been approved by the County (Alternative A), as well as full scale urbanization of the area (Alternatives B through E), it is necessary to differentiate between growth allocation forecasts which assume that the Study Area is <u>not</u> available for urbanization (Alternative A) and those which do (Alternatives B through E). McDonald & Associates indicates that there would be a 50-50 percent "increment/siphon" effect if North Natomas were opened to urbanziation. For example, of the jobs which might be created in the Study Area, 50 percent would be new jobs drawn to the region by the mere fact that North Natomas was available for development. The remaining 50 percent of the jobs would be "siphoned" away from other areas within the region. The increased increment in SMSA growth due to the opening of the Study Area to urbanization can be seen by comparing the SMSA 1984-2005 growth forecasts for each of the Community Plan Alternatives (A-E) from Exhibits C-11 through C-15 which are summarized as follows:

EXHIBIT C-11

Sacramento SMSA Growth Allocations -- 1984 to 2005 Incremental Development Forecast
North Natomas Community Plan Alternatives EIR

Alternative A
(net acres)

Planning Area	HIGH-GROWTH MANUF.	OTHER MANUF./ INDUSTRIAL	COMMER-CIAL (Sq. Ft.)	OFFICE (Sq. Ft.)	SPA	SPORTS COMPLEX	DWELLING UNITS	POPULATION	EMPLOYMENT
CITY OF SACRAMENTO									
North Natomas	45	330	0	1,155,000	500	0	0	0	14,750
South Natomas	35	25	832,000	4,500,000			19,000	46,246	21,060
North Sacramento	0	400	526,000	1,800,000			12,000	29,208	16,630
Arden Arcade (see County)									
East Sacramento	0	25	22,000	1,000,000			500	1,217	3,943
Central City	0	80	300,000	13,000,000			4,000	9,736	46,433
East Broadway	0	250	61,000	650,000			1,400	3,408	7,472
South Sacramento (City/Co.)	0	200	876,000	320,000			20,000	48,680	9,447
Airport Meadowview	100	10	416,000	1,600,000			9,500	23,123	11,613
Land Park	0	0	31,000	10,000			700	1,704	188
Pocket	0	0	429,000	800,000			9,800	23,853	4,812
SUBTOTAL (CITY)	180	1,320	3,493,000	24,835,000	500	0	76,900	187,175	136,348
COUNTY OF SACRAMENTO									
Laguna	75	200	809,000	1,400,000			19,000	46,246	15,712
Vineyards/Elk Grove	0	250	383,000	1,900,000			9,000	21,906	13,248
50 Corridor/Rancho Cordova	70	320	426,000	3,700,000			10,000	24,340	23,663
Fair Oaks	0	0	221,000	40,000			5,200	12,657	1,238
Carmichael	0	0	422,000	1,300,000			9,900	24,097	6,443
Folsom	50	50	469,000	3,400,000			11,000	26,774	16,678
North Highlands	0	300	737,000	1,100,000			17,300	42,108	13,352
Arden Arcade (inc. City)	0	0	85,000	1,500,000			2,000	4,868	5,425
SUBTOTAL (COUNTY)	195	1,120	3,552,000	14,340,000	0	0	83,400	202,996	95,760
OTHER SMSA									
Placer County	50	160	2,483,000	3,000,000			60,000	146,040	27,615
Yolo County	0	300	910,000	1,300,000			22,000	53,548	14,883
SUBTOTAL (OTHER)	50	460	3,393,000	4,300,000	0	0	82,000	199,588	42,498
SMSA 1984-2005 TOTALS	425	2,900	10,438,000	43,475,000	500	0	242,300	589,758	274,607
SMSA 1984-2005 FORECAST (1)	425	2,900	10,454,400	43,527,330	500	0	242,300	590,000	280,300

NOTE: (1) SMSA 1984-2005 totals may not equal 1984-2005 forecasts due to independent rounding.

Source: McDonald & Associates

15-Jan-85

EXHIBIT C-12

Sacramento SMSA Growth Allocations -- 1984 to 2005 Incremental Development Forecast
North Natomas Community Plan Alternatives EIR

Alternative B
(net acres)

Planning Area	HIGH-GROWTH MANUF.	OTHER MANUF./ INDUSTRIAL	COMMER-CIAL (Sq. Ft.)	OFFICE (Sq. Ft.)	SPA	SPORTS COMPLEX	DWELLING UNITS	POPULATION	EMPLOYMENT
CITY OF SACRAMENTO									
North Natomas	280	612	911,250	4,088,700	250	200	20,000	40,153	39,669
South Natomas	35	100	800,000	4,600,000			19,000	46,260	22,733
North Sacramento	0	200	400,000	1,000,000			13,000	31,651	9,333
Arden Arcade (see County)									
East Sacramento	0	20	22,000	1,000,000			500	1,217	3,843
Central City	0	80	200,000	13,000,000			4,000	9,739	45,933
East Broadway	0	230	61,000	650,000			1,400	3,409	7,072
South Sacramento (City/Co.)	0	200	800,000	320,000			20,000	48,694	9,067
Airport Meadowview	125	10	400,000	1,600,000			9,500	23,130	12,533
Land Park	0	0	31,000	10,000			700	1,704	188
Pocket	0	0	400,000	800,000			9,800	23,860	4,667
SUBTOTAL (CITY)	440	1,452	4,025,250	27,068,700	250	200	97,900	229,817	155,039
COUNTY OF SACRAMENTO									
Laguna	100	228	600,000	1,400,000			19,000	46,260	16,227
Vineyards/Elk Grove	0	180	350,000	1,900,000			9,000	21,912	11,683
50 Corridor/Rancho Cordova	100	400	400,000	3,700,000			10,000	24,347	26,333
Fair Oaks	0	0	222,000	60,000			5,200	12,661	1,310
Carmichael	0	0	400,000	1,300,000			9,900	24,104	6,333
Folsom	100	50	469,000	3,400,000			11,000	26,782	18,678
North Highlands	0	250	600,000	1,100,000			17,300	42,121	11,667
Arden Arcade (inc. City)	0	0	85,000	1,500,000			2,000	4,869	5,425
SUBTOTAL (COUNTY)	300	1,108	3,126,000	14,360,000	0	0	83,400	203,055	97,657
OTHER SMSA									
Placer County	50	180	2,500,000	3,000,000			62,000	150,952	28,100
Yolo County	10	260	800,000	1,300,000			24,000	58,433	13,933
SUBTOTAL (OTHER)	60	440	3,300,000	4,300,000	0	0	86,000	209,386	42,033
SMSA 1984-2005 TOTALS	800	3,000	10,451,250	45,728,700	250	200	267,300	642,259	294,729
SMSA 1984-2005 FORECAST (1)	800	3,000	10,454,400	45,738,000	500	200	267,300	650,800	305,300

NOTE: (1) SMSA 1984-2005 totals may not equal 1984-2005 forecasts due to independent rounding.

Source: McDonald & Associates

15-Jan-85

EXHIBIT C-13

Sacramento SMSA Growth Allocations -- 1984 to 2005 Incremental Development Forecast
North Natomas Community Plan Alternatives EIR

Alternative C
(net acres)

Planning Area	HIGH-GROWTH MANUF.	OTHER MANUF./ INDUSTRIAL	COMMER-CIAL (Sq. Ft.)	OFFICE (Sq. Ft.)	SPA	SPORTS COMPLEX	DWELLING UNITS	POPULATION	EMPLOYMENT
CITY OF SACRAMENTO									
North Natomas	290	721	1,260,000	6,055,500	500	200	30,000	62,294	54,595
South Natomas	35	110	800,000	4,600,000			17,500	42,608	22,933
North Sacramento	0	189	380,000	900,000			12,000	29,217	8,680
Arden Arcade (see County)									
East Sacramento	0	20	22,000	1,000,000			500	1,217	3,843
Central City	0	80	300,000	12,000,000			3,500	8,522	43,100
East Broadway	0	230	61,000	650,000			1,400	3,409	7,072
South Sacramento (City/Co.)	0	180	550,000	250,000			18,000	43,825	7,183
Airport Meadowview	125	10	400,000	1,600,000			9,000	21,912	12,533
Land Park	0	0	31,000	10,000			700	1,704	188
Pocket	0	0	400,000	800,000			9,800	23,860	4,667
SUBTOTAL (CITY)	450	1,540	4,204,000	27,865,500	500	200	102,400	238,568	164,795
COUNTY OF SACRAMENTO									
Laguna	90	190	500,000	1,300,000			18,000	43,825	14,233
Vineyards/Elk Grove	0	180	300,000	1,800,000			8,000	19,478	11,100
50 Corridor/Rancho Cordova	100	380	400,000	3,600,000			9,500	23,130	25,600
Fair Oaks	0	0	220,000	60,000			5,200	12,661	1,300
Carmichael	0	0	400,000	1,300,000			9,900	24,104	6,333
Folsom	100	50	480,000	3,300,000			11,000	26,782	18,400
North Highlands	0	240	550,000	1,000,000			17,300	42,121	10,883
Arden Arcade (inc. City)	0	0	100,000	1,400,000			2,000	4,869	5,167
SUBTOTAL (COUNTY)	290	1,040	2,950,000	13,760,000	0	0	80,900	196,969	93,017
OTHER SMSA									
Placer County	50	180	2,500,000	2,900,000			61,000	148,518	27,767
Yolo County	10	240	800,000	1,200,000			23,000	55,999	13,200
SUBTOTAL (OTHER)	60	420	3,300,000	4,100,000	0	0	84,000	204,516	40,967
SMSA 1984-2005 TOTALS	800	3,000	10,454,000	45,725,500	500	200	267,300	640,053	298,778
SMSA 1984-2005 FORECAST (1)	800	3,000	10,454,400	45,738,000	500	200	267,300	650,800	305,300

NOTE: (1) SMSA 1984-2005 totals may not equal 1984-2005 forecasts due to independent rounding.

Source: McDonald & Associates

15-Jan-85

EXHIBIT C-14

Sacramento SMSA Growth Allocations -- 1984 to 2005 Incremental Development Forecast
North Natomas Community Plan Alternatives EIR

Alternative D
(net acres)

Planning Area	HIGH-GROWTH MANUF.	OTHER MANUF./ INDUSTRIAL	COMMER-CIAL (Sq. Ft.)	OFFICE (Sq. Ft.)	SPA	SPORTS COMPLEX	DWELLING UNITS	POPULATION	EMPLOYMENT
CITY OF SACRAMENTO									
North Natomas	300	973	2,049,750	9,372,000	500	200	33,100	64,178	71,090
South Natomas	35	107	800,000	4,400,000			17,000	41,390	22,207
North Sacramento	0	140	300,000	700,000			11,500	27,999	6,633
Arden Arcade (see County)									
East Sacramento	0	20	22,000	1,000,000			500	1,217	3,843
Central City	0	80	300,000	10,500,000			3,400	8,278	38,100
East Broadway	0	220	61,000	600,000			1,400	3,409	6,705
South Sacramento (City/Co.)	0	150	400,000	200,000			17,500	42,608	5,667
Airport Meadowview	120	10	375,000	1,500,000			8,800	21,426	11,875
Land Park	0	0	31,000	10,000			700	1,704	188
Pocket	0	0	300,000	700,000			9,800	23,860	3,833
SUBTOTAL (CITY)	455	1,700	4,638,750	28,982,000	500	200	103,700	236,070	170,142
COUNTY OF SACRAMENTO									
Laguna	90	170	450,000	1,100,000			17,500	42,608	12,917
Vineyards/Elk Grove	0	150	250,000	1,500,000			7,500	18,260	9,250
50 Corridor/Rancho Cordova	100	350	350,000	3,300,000			9,500	23,130	23,750
Fair Oaks	0	0	200,000	60,000			5,200	12,661	1,200
Carmichael	0	0	350,000	1,300,000			9,900	24,104	6,083
Folsom	100	50	400,000	3,000,000			11,000	26,782	17,000
North Highlands	0	200	500,000	800,000			17,000	41,390	9,167
Arden Arcade (inc. City)	0	0	100,000	1,400,000			2,000	4,869	5,167
SUBTOTAL (COUNTY)	290	920	2,600,000	12,460,000	0	0	79,600	193,804	84,533
OTHER SMSA									
Placer County	50	180	2,400,000	2,800,000			61,000	148,518	26,933
Yolo County	5	200	800,000	1,000,000			23,000	55,999	11,533
SUBTOTAL	55	380	3,200,000	3,800,000	0	0	84,000	204,516	38,467
SMSA 1984-2005 TOTALS	800	3,000	10,438,750	45,242,000	500	200	267,300	634,389	293,142
SMSA 1984-2005 FORECAST (1)	800	3,000	10,454,400	45,738,000	500	200	267,300	650,800	305,300

NOTE: (1) SMSA 1984-2005 totals may not equal 1984-2005 forecasts due to independent rounding.

Source: McDonald & Associates

15-Jan-85

EXHIBIT C-15

Sacramento SMSA Growth Allocations -- 1984 to 2005 Incremental Development Forecast
North Natomas Community Plan Alternatives EIR

Alternative E
(net acres)

Planning Area	HIGH-GROWTH MANUF.	OTHER MANUF./ INDUSTRIAL	COMMER-CIAL (Sq. Ft.)	OFFICE (Sq. Ft.)	SPA	SPORTS COMPLEX	DWELLING UNITS	POPULATION	EMPLOYMENT
CITY OF SACRAMENTO									
North Natomas	300	324	1,957,500	9,438,000	500	200	42,000	75,012	58,330
South Natomas	35	140	800,000	4,400,000			16,750	40,782	22,867
North Sacramento	0	246	320,000	700,000			11,250	27,391	8,853
Arden Arcade (see County)									
East Sacramento	0	20	22,000	1,000,000			500	1,217	3,843
Central City	0	100	300,000	10,700,000			3,000	7,304	39,167
East Broadway	0	230	61,000	600,000			1,200	2,922	6,905
South Sacramento (City/Co.)	0	200	400,000	200,000			16,000	38,955	6,667
Airport Meadowview	120	10	375,000	1,500,000			8,500	20,695	11,875
Land Park	0	0	38,000	10,000			700	1,704	223
Pocket	0	0	330,000	700,000			9,800	23,860	3,983
SUBTOTAL (CITY)	455	1,270	4,603,500	29,248,000	500	200	109,700	239,842	162,713
COUNTY OF SACRAMENTO									
Laguna	90	230	500,000	1,200,000			16,000	38,955	14,700
Vineyards/Elk Grove	0	200	250,000	1,500,000			6,000	14,608	10,250
50 Corridor/Rancho Cordova	100	400	350,000	3,300,000			9,000	21,912	24,750
Fair Oaks	0	0	200,000	60,000			5,200	12,661	1,200
Carmichael	0	0	350,000	1,300,000			9,900	24,104	6,083
Folsom	100	100	400,000	3,000,000			11,000	26,782	18,000
North Highlands	0	300	500,000	800,000			16,500	40,173	11,167
Arden Arcade (inc. City)	0	0	100,000	1,400,000			2,000	4,869	5,167
SUBTOTAL (COUNTY)	290	1,230	2,650,000	12,560,000	0	0	75,600	184,065	91,317
OTHER SMSA									
Placer County	50	200	2,400,000	2,800,000			60,000	146,083	27,333
Yolo County	5	300	800,000	1,100,000			22,000	53,564	13,867
SUBTOTAL (OTHER)	55	500	3,200,000	3,900,000	0	0	82,000	199,647	41,200
SMSA 1984-2005 TOTALS	800	3,000	10,453,500	45,708,000	500	200	267,300	623,554	295,230
SMSA 1984-2005 FORECAST (1)	800	3,000	10,454,400	45,738,000	500	200	267,300	650,800	305,300

NOTE: (1) SMSA 1984-2005 totals may not equal 1984-2005 forecasts due to independent rounding.

Source: McDonald & Associates

15-Jan-85

	Population	Employment	Dwelling Units
Alternative A (without urbanization)	590,000	280,300	242,300
Alternatives B-E (with urbanization)	650,800	305,300	267,300
Increased SMSA growth due to urbanization of North Natomas	60,800	25,000	25,000
Percent Increase due to urbanization in North Natomas	10.3%	8.9%	10.3%

Exhibit C-17 presents selected population data from Exhibits C-7 and C-11 through C-15 for Alternatives A through E and provides a comparison of 1983 existing conditions with year 2005 projections.

POPULATION -- THE IMPACTS

The estimated residential population upon buildout of North Natomas as shown in Exhibit C-18 ranges from 1,613 people (Alternative A) to 76,626 people (Alternative E). Exhibit C-19 shows population growth in five-year intervals between 1985 and 2005 according to each alternative. Because each alternative is deficient in providing the number of dwelling units necessary to house the projected workforce in North Natomas, all of the proposed residential units would be built-out by the year 2005.

Alternative A

Alternative A envisages a residential population of approximately 1,613 persons in North Natomas -- 5.8 percent larger than the 1980 population of 1,520 people. The 1,613-person figure is the estimated 1983 population which was used by the City to indicate that no additional residential growth would occur in North Natomas under Alternative A. Even with the expansion of residentially designated land (from 65 to 337 acres), more housing units already exist within the Study Area (755 units) than are contemplated by this alternative (744 units). This 93-person increase could be achieved by reducing the existing vacancy rate (153 units) or by an increasing the

EXHIBIT C-17

Comparison of 1983 and 2005 Population for All Alternatives

Geographic Area	1983 Existing Conditions	1983 Existing Conditions Plus 1984 to 2005 Incremental Development				
		Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
North Natomas	1,613	1,613	41,766	63,907	65,791	76,625
South Natomas	15,329	61,575	61,589	57,937	56,719	56,111
North Sacramento	37,840	67,048	69,491	67,057	65,839	65,231
Balance of City	288,437	400,158	400,190	392,886	390,939	385,094
TOTAL CITY OF SACRAMENTO	343,219	530,394	573,036	581,787	579,288	583,061
TOTAL COUNTY OF SACRAMENTO	498,756	701,752	701,811	695,725	692,560	682,821
TOTAL OTHER SMSA	249,600	449,188	458,986	454,116	454,116	449,247
TOTAL SMSA	1,091,575	1,681,334	1,733,833	1,731,628	1,725,964	1,715,129

Source: McDonald & Associates

EXHIBIT C-18

Projected North Natomas Population by Alternative 1/

Alternative	Rural Estates (2.55 pph)	Low Density (2.55 pph)	Medium Density (1.91 pph)	High Density (1.54 pph)	Total
Alternative A					
• Units	300	-	444	-	744
• Population	765	-	848	-	1,613
Alternative B					
• Units	-	7,000	7,200	6,600	20,800
• Population	-	17,850	13,752	10,164	41,766
Alternative C					
• Units	374	10,626	13,452	6,600	31,052
• Population	954	27,096	25,693	10,164	63,907
Alternative D					
• Units	-	9.800	10,116	13,948	33,864
• Population	-	24,990	19,322	21,480	65,792
Alternative E					
• Units	-	1,932	23,800	16,940	42,752
• Population	-	4,927	45,611	26,088	76,626

1/ North Natomas Draft Community Plan, The SWA Group, December, 1984, page 19. Represents maximum holding capacity (existing plus new development). PPH refers to the number of persons per household.

EXHIBIT C-19

North Natomas Population Growth Between 1985 and 2005 1/

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Existing (1983) 2/	1,613	848	1,613	848	848
1985-1990	0	8,078	16,532	14,947	26,295
1990-1995	0	10,167	17,127	16,240	26,693
1995-2000	0	12,255	18,694	24,061	11,241
2000-2005	0	10,419	9,942	9,694	11,148
New 1995-2005	**0**	**22,674**	**28,636**	**33,755**	**22,389**
New 1985-2005	**0**	**40,918**	**62,294**	**64,944**	**75,777**
Cumulative at Year 2005 (Existing and New)	1,613	41,766	63,907	65,792	76,625

1/ McDonald & Associates phasing program (Exhibits A-46 to A-50 in the Section A Project Description). Note: numbers rounded internally. Because each of the alternatives is deficient in housing, the phasing programs assume that all residential units would be built-out by 2005 even though some of the employment-generating land uses would be built-out at some time after year 2005.

2/ Alternative A assumes no additional growth, although a 93-person population increase from the 1980 US Census (1,520 people) has been assumed. Alternative C would retain 300 rural estates (765 residents) and 444 medium density units (848 residents) while also expanding these land uses. Alternatives B, D, and E eliminate the rural estate land use classification and transfer those units and their residents to low density residential areas. The existing units would not be lost, and their residents would not be displaced, but for the purposes of calculating the total number of housing units and the resulting population from Alternatives B, D, and E, both are included in low density residential land uses.

average number of persons per household (pph). [8] If population density were to increase within the existing occupied housing stock, this could lead to overcrowding, particularly in multi-family units and mobile homes. Due to the sizable proportion of single family homes within the Study Area, however, it is more likely that an increased population would be accommodated there, suggesting somewhat larger families. [9]

If the Study Area's population grows under Alternative A, the 93-person increase in new residents would be too small to produce any significant changes in the racial and ethnic composition or income levels in North Natomas. If this population increase results from larger families, the greater number of children would reduce the area's median age but not measurably.

Buildout of the existing Golden West Mobile Estates with 152 or more mobile home sites, as envisaged by its owners, could more than accommodate the 93-person growth projected by Alternative A. [10] This mobile home park currently represents a concentration of older residents in North Natomas. [11] Additional development and further population growth would likely contribute to an older median age. Median income would remain near present levels or, possibly, could decline somewhat if these new residents are older, retired persons living on fixed incomes.

An analysis of US Census housing data suggests that the high vacancy rate in North Natomas is due to completion of new housing units which were not occupied at the time of the Census. If all 755 housing units were occupied, therefore, and assuming the prevailing household density of 2.53 pph, the population of North Natomas could be 1,910 persons, a 26 percent increase over the 1980 population and an 18 percent increase over the community's population envisaged under Alternative A. A small population increase in North Natomas from 1,520 to 1,613 or 1,910 people would not measurably affect the nearby communities of South Natomas or North Sacramento, the City, or the region as a whole.

Alternatives B, C, D, and E

Alternatives B through E would produce substantial population increases within North Natomas and would affect City and regional growth. For the purposes of comparison, growth in North Natomas alone would be nearly equivalent to (Alternative C) or greater than (Alternatives D and E) the city's population growth between 1960 and 1970 when the "sizable growth increase over 65,000 persons was due chiefly to the City's annexation of the

greater north Sacramento area". [12] Between 1980 and 2005 (due to residential buildout of North Natomas), Sacramento's population could grow by over 100 percent, and development under Alternatives B through E could account for 14 to 25 percent of all growth in the City during that period (Exhibit C-22.

Implementation of Alternatives B through E also would establish North Natomas' dominance in northern Sacramento and similarly would increase the North Natomas-South Natomas-North Sacramento area in proportion to the City as a whole. Currently, less than one percent of Sacramentans live in North Natomas, 2.3 percent live in South Natomas, and 13.4 percent live in North Sacramento for a three-community total of 16 percent of City residents. Future growth in North Natomas could result in up to 13 percent of all Sacramentans living in the Study Area. Moreover, the three-community northern Sacramento area could account for up to one-third of the City's total population. These relationships are shown in Exhibit C-23.

Approximately 67 percent of population growth throughout Sacramento in recent years has resulted from immigration -- new people moving to the area -- while the remaining 33 percent population increase represented natural growth. By the year 2005, however, McDonald & Associates expects only 46 percent of the County's population growth to represent immigration while 54 percent would result from natural growth (Exhibit C-24). This means that implementation of Alternatives B through E could result in anywhere from 18,513 to 34,549 new residents moving to North Natomas. [13]

The magnitude of growth expected to occur under these alternatives and the probability that nearly half of new residents moving to North Natomas would come from outside of Sacramento suggests that development of the Study Area would divert some projected population increases away from communities elsewhere in the Sacramento region where growth previously was expected to occur. [14] McDonald & Associates indicates that of the jobs which might be created in the Study Area, 50 percent would be new jobs drawn to the area by the mere fact that North Natomas was available for development, and the remaining 50 percent would be siphoned away from other areas within the region. Less new growth to be accommodated in other of the City's communities might reduce some impacts on those areas -- impacts from absorbing the population increases those communities were scheduled to receive. This also could dilute the City's recent efforts to plan for growth in these areas through the preparation of community plans. Those plans generally recommend ways to use new growth to stimulate and revitalize neighborhoods in Sacramento in order to benefit existing residents while also accommodating new residents. The extent to which much of the City's

EXHIBIT C-22

Comparison of 1984-2005 Growth in North Natomas with City of Sacramento

	Alternative B	Alternative C	Alternative D	Alternative E
North Natomas Population 1/				
• Year 2005	41,766	63,907	65,792	76,626
City Population: 2/				
• Year 2005	573,036	581,787	579,288	583,061
• Year 1980	275,741	275,741	275,741	275,741
1980-2005 Increase Citywide	297,295	306,046 3/	303,547 3/	307,320
Percent Increase City Population	108.0%	111.0% 3/	110.0% 3/	112.0%
North Natomas Population Percent City Growth	14.1%	20.9%	21.7%	24.9%

1/ This number is from Exhibit C-7 plus Exhibits C-11 through C-15.

2/ The year 2005 number is from Exhibits C-11 through C-15.

3/ The reason the numbers showing City population under Alternative D are lower than those shown for Alternative C is because regional forecasts (Exhibits C-11 through C-15) prepared by McDonald & Associates indicated that significant regional growth shifts would take place under Alternatives D or E.

Source: Nichols • Berman and City of Sacramento Planning Department

EXHIBIT C-23

Regional North Natomas Population Context 1/
(Year 2005)

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
North Natomas	1,613	41,766	63,907	65,792	76,626
South Natomas	61,575	61,589	57,937	56,719	56,111
North Sacramento	67,048	69,491	67,057	65,839	65,231
Three-Community Total	**130,236**	**172,846**	**188,901**	**188,350**	**197,968**
Citywide Total	530,394	573,036	581,787	579,288 2/	583,061 2/
SMSA	1,681,344	1,733,833	1,731,628	1,725,964 2/	1,715,129 2/
North Natomas Percent of Three-Community Population	1.2%	24.2%	33.8%	34.9%	38.7%
North Natomas Percent of City	0.3%	7.3%	11.0%	11.4%	13.2%
Three-Community ercent of City	**24.6%**	**30.2%**	**32.5%**	**32.5%**	**34.0%**
Three-Community Percent of SMSA	7.8%	10.0%	10.9%	10.9%	11.5%
City Percent of SMSA	31.6%	33.1%	33.6%	33.6%	34.0%

1/ 2005 Dwelling Unit, Population, and Employment Forecasts, North Natomas Community Plan EIR, McDonald & Associates, op. cit.

/ The reason that Alternatives D and E are less than Alternative C is because Alternatives D and E would not reach full buildout by year 2005.

EXHIBIT C-24

Composition of Population Change
North Natomas Community Plan Alternatives EIR

	Births	Deaths	Natural Increase	Net In-Migration	Percent In-Migration	Total Population Increase
Sacramento County						
1977-78	11,016	5,558	5,458	12,342	69%	17,800
1978-79	11,932	5,616	6,316	15,384	71%	21,700
1979-80	12,735	5,879	6,856	14,444	68%	21,300
1980-81	13,227	5,882	7,345	11,055	60%	18,400
1981-82	14,029	6,160	7,869	16,631	68%	24,500
1982-83	14,261	6,166	8,095	12,405	61%	20,500
1983-84	14,340	6,136	8,204	6,869	46%	15,100
Sacramento SMSA						
1981-82	17,583	3,007	9,576	20,024	68%	29,600
1982-83	17,918	8,022	9,896	15,104	60%	25,000
1983-84	18,075	8,025	10,050	10,050	50%	20,100

Source: State of California Department of Finance, Population Research Unit, and McDonald & Associates.

total growth occurs in North Natomas and outside previously designated growth areas could thwart citywide and community planning efforts to channel growth.

Because 60 to 95 percent of new North Natomas housing would consist of medium to high density units accommodating 1.54 to 1.91 persons per household (pph), a relatively small proportion of families would live in the community at buildout. [15] Instead, the low household density of most units suggests a population consisting predominantly of single people with and without dependent children and couples without children. [16] The overall household size at buildout would range from approximately 1.79 pph (Alternative E) to 2.17 pph (Alternative A) [17], significantly smaller than the City's current average of 2.39 pph. [18]

The small proportion of families and the low household population density suggest that median household income could be at or below the citywide median. This could be expected for several reasons. Family income generally tends to be higher than household income, and smaller household size would result in fewer workers per household. In addition, incomes of renters tend to be lower and grow more slowly than incomes of homeowners. With the high number of medium to high density units proposed, it is assumed that a large proportion of units would be rental housing, although a large percentage also could be owner-occupied condominiums or townhouses (Exhibit C-26). [19] Rental housing of the type proposed suggests that the residential population would be transient, resulting in much mobility of people moving into and out of the community, as opposed to a stable community composed of many long-term residents. [20]

EXHIBIT C-26

Owner-Renter Occupancy

RENTAL UNITS	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Total Units	744	20,800	31,052	33,864	42,752
• 6% Vacant	45	1,248	1,863	2,032	2,565
• 94% Occupied	699	19,552	29,189	31,832	40,187
Medium Density	444	7,200	13,452	10,116	23,800
• 6% Vacant	27	432	807	607	1,428
• 94% Occupied	417	6,768	12,645	9,509	22,372
Occupied Rental 1/	209	3,384	6,323	4,755	11,186
Occupied Owner 1/	208	3,384	6,322	4,754	11,186
High Density	-	6,600	6,600	13,948	16,940
• 6% Vacant	-	396	396	837	1,016
• 94% Occupied	-	6,204	6,204	12,111	15,924
Total Occupied Rental Units	**209**	**9,588**	**12,527**	**17,866**	**27,110**
Percent of Total Units	28.1%	46.1%	40.3%	52.8%	63.4%
OWNER-OCCUPIED UNITS					
Rural Estate	300	-	374	-	-
• 6% Vacant	18	-	22	-	-
• 94% Occupied	282	-	352	-	-
Low Density	-	7,200	10,626	9,800	1,932
• 6% Vacant	-	420	638	588	116
• 94% Occupied	-	6,580	9,988	9,212	1,816
Medium Density Occupied	208	3,384	6,322	4,754	11,186
Total Owner-Occupied Units	**490** 2/	**9,964**	**16,662**	**13,966**	**13,002**
Percent of Total Units	65.9%	47.9%	53.7%	41.2%	30.4%
Percent of Rental Units Citywide	40.0%	40.0%	40.0%	40.0%	40.0%
Percent of Owner-Occupied Units Citywide	52.0%	52.0%	52.0%	52.0%	52.0%
Vacancy Rate 3/	8.0%	8.0%	8.0%	8.0%	8.0%
Comparison of Alternative with City Proportion	More Owner Occupied	Fewer Owner Occupied	Similar Owner Occupancy	Fewer Owner Occupied	Fewer Owner Occupied
	±13.9% More	± 4.1% Less	± 1.7% More	±10.8% Less	±21.6% Less

EXHIBIT C-26 — CONTINUED

Owner-Renter Occupancy -- Footnotes

1/ Assumes 50 percent of medium density units are owner-occupied townhouses and/or condominiums and 50 percent of rental units. Also assumes that all rural estate and low density units are owner-occupied and that all high density units are renter-occupied.

2/ There currently are 541 year around single family homes in North Natomas. In addition, mobile homes which are designated as medium density housing are assumed to be owner-occupied (even though sites may be leased). Throughout North Natomas, 67 percent of units presently are owner-occupied, 13 percent are renter-occupied, and 20 percent are vacant. The calculations for Alternative A, however, have been computed in the same manner as for other alternatives in order to allow for comparison.

3/ A 6 percent vacancy rate generally is considered necessary to allow choice and mobility in housing. The prevailing vacancy rate citywide, however, at the time of the US Census in 1980 was 8 percent.

Source: Nichols • Berman

EMPLOYMENT -- THE SETTING

1980 Census

City and County of Sacramento

Approximately 408,500 jobs were provided within the Sacramento region in 1980, of which 130,600 jobs were located in the City of Sacramento. [21] The major local employment opportunities are concentrated in the areas of government, military, and food processing. [22] Government employment accounts for 34 percent of Sacramento area jobs compared with 17 percent statewide; manufacturing jobs account for 7 percent of local jobs compared with 20 percent statewide. [23] The City historically captures 32 percent of jobs created regionally. [24]

North Natomas Study Area

In North Natomas 17 percent of families have no workers (20 percent citywide), 20 percent of families have one worker (34 percent citywide), and 53 percent of families there have two or more workers (46 percent citywide). As of the 1980 US Census, the unemployment rate was 8.9 percent in North Natomas and 10.3 percent citywide.

Throughout Sacramento as a whole, approximately 2 percent of employed residents age 16 or older have agricultural occupations. Most residents either are in professional and administrative (26 percent) or administrative support (36 percent) occupations with another 15 percent of residents in service positions. Twelve (12) percent of employed persons fill operator, fabricator, and laborer jobs, and 10 percent work in craft and repair jobs.

Of employed North Natomas residents age 16 and older included in the 1980 US Census sample, approximately 5 percent worked in agricultural occupations, although another 13 percent worked in operator, fabricator, and labor occupations. Twenty-five (25) percent were employed in professional and managerial jobs, 25 percent were in administrative support positions, 14 percent had service occupations, and 18 percent worked in craft and repair jobs. All persons age 16 or over in the labor force were in the civilian labor force.

As of 1980, 4 percent of the residents of North Natomas worked at home. Of those who worked away from home, 87 percent commuted by private vehicle or

public transit while 2 percent walked to work and 7 percent traveled to work by "other means", such as by bicycle. [25] The average travel time to work is approximately 15 minutes. [26] Based on average commute time, it is assumed that, in addition to North Natomas residents who work at home, those who walk or use "other means" of transportation probably work within the Study Area. Approximately 85 employed North Natomas residents, therefore, are assumed to work within the community. [27] Since approximately 5 percent of North Natomas residents in the workforce are employed in agricultural occupations, 34 of the 85 North Natomas residents who work in the Study Area are assumed to have agriculturally related jobs. [28] If another 26 residents work at home, the remaining 25 residents who work in North Natomas are assumed to be employed at the airports or existing industrial sites within the Study Area.

A number of employment-generating land uses exist within the Study Area in addition to agriculture, including industrial development and two airports. As of 1979, approximately 726 jobs were provided within the Study Area. [29] By 1983 an estimated 3,690 jobs existed in North Natomas. [30] Based upon numbers alone, there theoretically were more than enough jobs provided in North Natomas to employ local residents who are in the workforce, constituting in fact an oversupply of jobs in relation to available housing in the Study Area. In practice, however, the majority of employed residents commute out and locally employed workers commute into North Natomas for their jobs.

South Natomas and North Sacramento Communities

In 1980 28 percent of North Sacramento families had no workers, 37 percent had one worker, and 35 percent had two or more workers. In South Natomas 29 percent of families had no workers, 32 percent had one worker, and 39 percent had two or more workers. North Sacramento's overall unemployment rate in 1980 was 19.4 percent, and South Natomas' unemployment rate was 8.6 percent. [31]

North Sacramento's high unemployment rate is reflected in low median incomes and a large concentration of families living below the poverty level. Twenty-one (21) percent of all North Sacramento families had incomes below the poverty line while in South Natomas 8 percent of families were living below the poverty line.

1983 Existing Conditions and 1984-2005 Employment Forecasts

Exhibit C-31 presents selected employment data from Exhibits C-7 and C-11 through C-15 for Alternatives A through E and provides a comparison of 1983 existing conditions with year 2005 projections.

In recent years, approximately 67 percent of all new jobs have been filled by immigrants moving to the area, with the balance (33 percent) filled by existing residents of Sacramento. By the year 2005, McDonald & Associates expects that only 46 percent of the County's growth would represent immigration and 54 percent would result from natural increase.

Under the draft South Natomas Community Plan, approximately 25,949 to 68,116 jobs could be provided upon buildout of employment-generating uses. [32] In North Sacramento, an estimated 18,740 to 46,000 jobs could be provided in all sectors by the year 2000; approximately 36,750 to 46,747 jobs could be provided by the year 2005. [33]

EMPLOYMENT -- THE IMPACTS

It should be noted that the employee density assumptions used in this EIR differ from the assumptions used in the preparation of the Draft Community Plan. In reviewing employee density numbers used in various studies in the Sacramento region, it became evident to City staff members that a range of density numbers has been used in the past. [34] In developing the Draft Community Plan, employee density factors were used which tend toward the lower end of the range. In preparing this EIR, the economic consultants, McDonald & Associates, determined that factors toward the upper end of the range would be more appropriate for use in this EIR and other Community Plan reports. As a result, total employment for Alternative C is increased in this EIR over employment projections shown in the North Natomas Draft Community Plan report. The employee density factors used to prepare this EIR are provided in Exhibit C-32.

Employment opportunities provided within the Study Area would increase substantially under all alternatives. Proposed employment generating uses would not be built-out by the year 2005 under any alternative but Alternative B. Alternative C would be 98 or 99 percent build-out by 2005. The following discussion, therefore, differentiates between jobs available by year 2005 and upon buildout of North Natomas.

EXHIBIT C-31

Comparison of 1983 and 2005 Employment for All Alternatives

Georgaphic Area	1983 Existing Conditions	1983 Existing Conditions Plus 1984 to 2005 Incremental Development				
		Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
North Natomas	3,690	18,440	43,359	58,285	74,780	62,020
South Natomas	1,471	22,531	24,204	24,204	23,678	24,338
North Sacramento	30,117	46,747	39,450	38,797	36,750	38,970
Balance of City	175,672	259,580	258,975	254,258	245,883	248,335
TOTAL CITY OF SACRAMENTO	210,950	347,298	365,988	375,744	381,091	373,663
TOTAL COUNTY OF SACRAMENTO	153,286	249,046	250,943	246,303	237,819	244,603
TOTAL OTHER MSA	49,867	92,365	91,900	90,834	88,334	91,067
TOTAL SMSA	414,103	688,709	708,831	712,881	707,244	709,333

Source: McDonald & Associates

EXHIBIT C-32

Employment Density Factors -- North Natomas Community Plan Alternatives EIR

Land Use	Jobs/Net Acre	Building Square Feet/Employee	Average Building Square Feet Yield/ Net Acre
M-50	45	350	15,750
M-20	30	425	12,750
Light Industrial	20	550	11,000
SPA	5	2,200	11,000
Office/Business	55	300	16,500
Highway Commercial	30	225	6,750
Community/Neighborhood Commercial	30	300	9,000
Sports Complex	5	NA	NA

Source: City of Sacramento Planning Department

Alternative A

Under Alternative A employment would increase to approximately 18,440 jobs by 2005 and 26,000 jobs upon buildout due primarily to industrial development, including airport-related industry and airport expansion. Approximately 5,500 light industrial jobs, 10,000 airport-related industrial jobs, and 10,500 manufacturing jobs would be provided of which up to 2,100 jobs could be office jobs. Expansion of Metro Airport would increase airport employment over current levels, and jobs at the Natomas Air Park would remain. [35] Agricultural employment, however, would decline. [36]

Employment characteristics of North Natomas residents would not be expected to change appreciably, since the number of people living in the Study Area would not increase significantly. North Natomas' residents potentially could be hired for newly created positions within the Study Area which could help to reduce unemployment among local residents and thereby could help increase median incomes somewhat. The proportion of new jobs in skilled versus semi- or un-skilled occupations, however, would influence the extent to which incomes would rise.

The significant increase in employment opportunities theoretically could permit all North Natomas residents in the labor force to work in the community, but there still would be a substantial influx of jobholders commuting into North Natomas for employment. The result would be an imbalance between jobs and housing within North Natomas, since no additional housing would be provided locally. The North Sacramento community, however, currently has a large unemployed population (19.4 percent overall in 1980) who potentially could benefit from the surplus of North Natomas jobs. [37] In addition, future housing development in North Sacramento could help accommodate people who work at North Natomas jobs.

Expanded employment over present job opportunities in North Natomas under Alternative A essentially would continue industrial encroachment onto agricultural lands, extending employment-generating land uses onto outlying areas farther distant from workers' homes and historical business and industrial cores.

In deference to the City's Growth Policy which concludes that construction of Interstates 5 and 80 "may have determined the future of North Natomas years ago" [38], initial development of the Metro Airport in North Natomas and its inevitable expansion make future growth inescapable, such as envisaged by the County's 2,000-acre airport-related industrial Special Planning Area. Airport-related industrial use already has been designated

by the County, so this land-extensive use is accepted by Alternative A as a fait accompli, the way existing industrial development in the Northgate portion of North Natomas also is recognized, although the latter generally would be concentrated nearer to the urbanized North Sacramento and South Natomas communities. The light industrial development assumed by Alternative A would consist of more labor-intensive uses such that the 625-acre area designated for light industrial and manufacturing uses would represent 31 percent of the 2,000-acre airport industrial area but would employ 60 percent more employees at buildout (16,000 jobs) than development near the airport would employ (10,000 jobs).

Approximately 7,500 airport-related industrial jobs (SPA) would not be created until after the year 2005. Only one-quarter of the SPA (500 acres) is expected to be developed by 2005, generating 2,500 of the anticipated 10,000 SPA jobs at buildout of that area.

Drop shipment warehousing, maintenance and repair, and other services which historically have needed good access to airports often have been developed in airport-related industrial zones. There gradually has been less demand, however, for many of the services which initially were located near airports which in turn reduces the amount of land needed for these uses. [39] For instance, many industries now ship their products directly to merchandisers and buyers thus eliminating or substantially reducing interim warehousing needs. Other industries no longer use warehouses off-site of their businesses or no longer use off-site services but instead provide warehouse space or have those services performed "in-plant", thus decreasing the need for outside providers who had been located near airports. [40] Some light industrial, warehousing, and airport-related services, however, always will need to be located near airports but not to the degree that they have in the past before changes in manufacturing, assembly, distribution, and service industries.

Even though the majority of the airport-related industrial area would not be built out until after 2005 and the demand for such land may never be as great as anticipated by the County, this area and light industrial lands in the Northgate portion of North Natomas would provide employment opportunities already accounted for in forecasts of future jobs within the region rather than expanding employment over projections. By providing these jobs away from existing concentrations of industrial development, however, these land uses are likely to stimulate pressures for additional development not contemplated by Alternative A -- such as offices near the airport and residential development on open farmlands.

The significance of this potential development pressure is that the South Natomas community probably would not have a sufficient supply of housing to accommodate people employed there. [41] North and South Natomas combined would provide more jobs than housing, making it necessary for new employees to live outside these communities. Employment opportunities in North Sacramento could expand to as many as 46,000 jobs by the year 2005. [42] If all North Sacramento residents who were unemployed in 1980 were employed, the remaining new jobs would generate a demand for ± 3,375 to 12,971 additional housing units. [43] Based upon the City's vacant land survey, another 13,092 units could be developed in North Sacramento. If only 3,375 units were needed as a result of expanded employment in North Sacramento, another 9,762 units could be accommodated in this community, thus helping to fill the housing demands created in North and South Natomas. Development of 12,971 units, however, would leave an estimated buildout capacity of only 121 additional units which could be constructed in North Sacramento. This means that other communities in Sacramento would have to absorb the housing demands resulting from job creation in these three northern Sacramento communities. It is more likely, however, that pressures would grow to convert remaining agricultural lands in and around North Natomas for residential development.

Alternatives B Through E

Employment-generating development envisaged by Alternatives B through E would create approximately 37,720 to 72,270 new jobs by the year 2005 and would provide a total of 41,370 to 117,750 jobs by buildout but virtually would eliminate agricultural jobs within the Study Area. [44] These new jobs would represent from 24 (Alternative B) to 43 percent (Alternative D) of all new jobs anticipated to be created citywide by the year 2005 (155,038 to 170,141 new jobs citywide) (Exhibit C-36).

The year 2005 projection of 155,038 to 170,141 new jobs in Sacramento out of 589,759 to 642,258 new jobs regionally means that the City would not continue to capture jobs at its historical rate of 32 percent of regional jobs [45] but that the capture rate would decline to approximately 26 percent of all new jobs. [46]

Expansion of high technology jobs within the region has been one element of projected employment increases with 28,800 high technology jobs anticipated by the year 2000 regionally, of which approximately 9,200 could be provided within the City. [47] Under Alternatives B through E approximately 25,170 to 92,250 jobs could be created -- 56 to 78 percent of all North Natomas

EXHIBIT C-36

North Natomas Job Creation

	Alternative B	Alternative C	Alternative D	Alternative E 1/
Existing Jobs	3,650	3,650	3,650	3,650
1985-1990	7,832	13,345	18,187	28,900-28,904
1990-1995	9,705	14,095	19,197	29,240-29,244
1995-2000	10,918	15,140	25,314	3,245
2000-2005	9,265	7,590	9,573	2,141-2,150
1985-2005	**37,720**	**50,170**	**72,270**	**63,534-63,535**
Post-2005	0	2,630	1,605	50,775
New Jobs	**37,720**	**52,800**	**73,875**	**114,310**
Total Jobs	41,370	56,450	77,525	117,750-117,960
Existing Jobs Citywide	210,950	210,950	210,950	210,950
New Jobs Citywide 1983-2005	155,038	164,794	170,141	162,713
North Natomas Percent of New Jobs Citywide	24%	30%	43%	39%
Total Jobs Citywide 2005	365,988	375,744	381,091	373,663
North Natomas Percent of Citywide Jobs	11%	14%	20%	18%

1/ Includes 7 acres M-20 existing (168 high technology and 42 office employees).

Source: McDonald & Associates

jobs. [48] If up to 50 percent of M-50 and 20 percent of M-20 lands are developed for office use, the remaining M-20 and M-50 lands could generate 20,136 to 46,125 high technology jobs, 52 to 89 percent of high technology jobs projected to be available regionally by year 2000 and considerably more high technology jobs than anticipated to be provided in the City by the year 2000 (Exhibits C-38 and C-39).

Approval has been given by the City for the 700-acre Delta Shores Village project, located on the southern boundary of Sacramento near the town of Freeport. This area was designated by the City's Growth Policy to be the focus of public and private efforts to stimulate development of high technology industries. As initially proposed, Delta Shores Village would have created 12,287 high technology jobs -- or 133 percent of the estimated 9,200 jobs to be created in this sector in Sacramento by the year 2000. As ultimately approved by the City, approximately 320 acres were designated for MRD use which, if developed, could result in 8,700 non-office high technology jobs. [49] Assuming Delta Shores Village is developed as approved, additional high technology development in North Natomas would create ever greater employment in this sector than projected by the City. This also supports the assumption that 20 to 50 percent of this area probably would be developed with offices.

If 20,136 to 92,250 high technology jobs are created in North Natomas [50], not only would this amount substantially exceed employment projections for this sector, but also probably would affect other City and regional employment calculations.

None of the new jobs envisaged by Alternatives B through E, with the possible exception of light industrial jobs, would be provided in the sectors where jobs currently are concentrated in Sacramento: government, military, and food processing. [51]

Job Characteristics

A distinguishing characteristic of the high technology workforce as studied in Silicon Valley has been the separate tiers of highly paid top level research and development (R&D) scientists, engineers, and management personnel and lower paid clerical and production workers. [52] Approximately half of high technology employees have been involved in production -- fabrication and assembly -- compared with ± 70 to 80 percent of employees in production in other California industries. [53] With the development of high technology facilities outside of Silicon Valley, including the export of

EXHIBIT C-38

High Technology Employment

	Alternative B	Alternative C	Alternative D	Alternative E
Total Employment	41,370	56,450	77,525	117,750
Total M-50/M-20 Employment	25,170	31,350	45,975	92,250
Percent of North Natomas Jobs	61%	56%	59%	78%
M-50 High Tech	-	4,680	10,238	46,125
M-50 Office	-	4,680	10,237	46,125
M-20 High Tech	20,136	17,592	20,400	-
M-20 Office	5,034	4,398	5,100	-
Total High Tech	**20,136**	**22,272**	**30,638**	**46,125**
High Technology Percent of North Natomas Jobs	49%	40%	40%	39%
Total M-50/M-20 Office Jobs	**5,034**	**9,078**	**15,337**	**46,125** 1/
Office (OB)	4,400	6,710	9,350	-
M-20/M-50 Office	5,034	9,078	15,337	46,125
Total Office	**9,434**	**15,788**	**24,687**	**46,125**
Office Jobs Percent of North Natomas Jobs	23%	28%	32%	39%

1/ Does not include 7 existing acres designated M-20 (168 high technology and 42 office workers).

EXHIBIT C-39

High Technology Employment -- Regional Context -- By Phase

	Alternative B	Alternative C	Alternative D	Alternative E
Existing				
M-20	160	160	168	168
1985-1990				
M-50	-	1,350	2,565	12,375
M-20	3,984	4,320	5,112	-
Subtotal	3,984	5,670	7,677	12,375
1990-1995				
M-50	-	1,350	2,565	12,375
M-20	4,992	4,320	5,112	-
Subtotal	4,992	5,670	7,677	12,375
1995-2000				
M-50	-	1,350	3,375	563
M-20	5,952	5,256	6,720	-
Subtotal	5,952	6,606	10,095	563
1985-2000	**15,096**	**18,114**	**25,617**	**25,481**
Percent High Technology Jobs Regionally (28,800 by Year 2000)	53%	63%	89%	89%
Percent High Technology Jobs Citywide (9,200 by Year 2000)	164%	197%	279%	277%
2000-2005				
M-50	-	405	1,530	450
M-20	5,040	2,640	2,400	-
Subtotal	5,040	3,045	3,930	450
1985-2005	**19,968**	**20,991**	**29,379**	**25,763**
Post-2005				
M-50	-	225	203	20,363
M-20	-	888	888	-
Subtotal	-	1,113	1,091	20,363
Total High Technology Jobs at Buildout	**20,136**	**22,272**	**30,638**	**46,125-46,294**

labor-intensive jobs overseas, this proportion of employees could be maintained throughout a company overall, but it is expected that within individual facilities these proportions could vary dramatically, with a larger number of high level personnel at corporate headquarters and a larger proportion of low level personnel at separate manufacturing, fabrication, and assembly facilities. [54]

Approximately 25 to 30 percent of jobs on M-20 and M-50 lands, respectively, are expected to be in professional and technical labor categories. [55] Combined with other administrative (clerical positions), 40 to 50 percent of workers at M-20 and M-50 developments would be in non-production occupations while 43 percent (M-50) to 50 percent (M-20) of employees would hold craft and operative positions more typical of fabrication and assembly production jobs. Thirty-five (35) percent of high technology jobs historically have consisted of research, development and administrative positions. Up to 40 to 50 percent of M-20 and M-50 employees in these categories would be expected to reflect potential office development on those lands, not a dramatic departure from past trends in high technology employment. This conclusion is supported by the continued proportion of production jobs (43 to 50 percent) expected in North Natomas high technology development.

In 1980 average salaries in high technology jobs in the Sacramento SMSA ranged from $12,000 to $18,000. [56] The lowest salaries were paid to clerical, service, and operator employees [57] with the highest wages paid to professional, technical, and managerial workers. [58] Currently, assemblers earn an average of $12,000 annually, secretaries make $16,000 annually, machinists typically earn $27,000, and computer technicians make $29,700. [59]

High technology industry has tended to rely on women to fill production jobs, and more than 75 percent of assembler jobs in Silicon Valley are held by women. Women comprise 55 percent of the total workforce there, holding 95 percent of unskilled positions available. Men fill 90 percent of the technical, professional, managerial, and skilled crafts positions. [60]

Employment projections prepared for this EIR suggest that more men than women would work in high technology sector jobs -- 58 to 42 percent in M-50 developments and 61 to 39 percent in M-20 developments. Unlike the Silicon Valley employment patterns, however, men are expected to outnumber women in M-50 and M-20 production jobs. Men also would hold more professional and technical jobs but by less (4 to 5 percent) than men's total dominance in all high technology sector jobs (16 to 21 percent). Nevertheless, the

largest concentrations of women employees would be in clerical jobs (see Exhibit C-42).

If the maximum amount of M-20, M-50, and OB land is developed with offices, approximately 9,434 to 46,125 office jobs could be created (Exhibit C-38). Other jobs would include light industry (4,600 to 10,900 jobs), airport-related industry (1,250 to 10,000 jobs), and commercial service jobs (3,150 to 9,900 jobs) for a total of 16,200 to 71,625 non-high technology sector jobs. [61]

North Natomas worker and household income levels of would depend upon a variety of factors:

- The type and number of jobs available and filled by community residents.
- The number of wage earners per household.
- Increased incomes for female employees, especially in view of the expectation that second wage earners will represent a growing proportion of the workforce in the future.

The future household incomes of North Natomas residents cannot be estimated, however, without making generalized assumptions, including those relating to changes in real income in relation to inflation. In addition, household income for both high technology and non-high technology jobs may prove to be different than the average salaries indicated in Exhibit C-43. One reason for this difference could be that households have sources of income other than wages and salaries. [62]

Under Alternative A, more than half of all employees (15,3909 jobs or 59 percent) would work in low-paying labor categories with average earnings of less than $20,000 annually while 41 percent (± 10,610) of employees would hold professional, technical, and craft jobs which typically have annual salaries of $20,000 or more.

Under Alternatives B, C, and D, 61 percent of employees would hold jobs usually paid less than $20,000 per year while 39 percent of workers would be expected to earn $20,000 or more annually. Approximately 57 percent of employees under Alternative E would earn less than $20,000 annually while 43 percent could earn more than $20,000 annually (see Exhibit C-44).

EXHIBIT C-42

Employment by Sex in High Technology Jobs

	Percent Male	Percent Female	Percent Category
M-50			
• Professional/Technical	17.7	12.3	30.0
• Clerical	4.6	15.4	20.0
Subtotal	22.3	27.7	50.0
• Crafts	14.0	1.1	15.1
• Operatives	18.2	9.7	27.9
Subtotal	32.2	10.8	43.0
• Other	3.5	3.5	7.0
Total M-50	**58.0**	**42.0**	**100.0**
M-20			
• Professional/Technical	14.8	10.3	25.1
• Clerical	3.5	11.5	15.0
Subtotal	18.3	21.8	40.1
• Crafts	15.8	1.2	17.0
• Operatives	21.4	11.5	32.9
Subtotal	37.2	12.7	49.9
• Other	5.0	5.0	10.0
Total M-20	**60.5**	**39.5**	**100.0**

Source: McDonald & Associates

EXHIBIT C-43

Typical Household Incomes in Two-Worker Families

Labor Categories	One Income (100 percent)	Second Income (60 percent)	Combined Income (160 percent)
Assembler (operatives)	$12,000	$7,200	$19,200
Cook (service)	14,900	8,940	23,840
Secretary (clerical)	16,000	9,600	25,600
Retail sales (sales)	16,800	10,080	26,880
Executive Secretary (clerical)	18,200	10,920	29,120
Accountant (professional)	23,200	13,920	37,120
Electrician (craft)	26,700	16,020	42,720
Machinist craft)	27,000	16,200	43,200
Computer Programmer (professional/technical)	29,700	17,820	47,520
Lawyer	34,000	20,400	54,400

Source: McDonald & Associates and Nichols • Berman

EXHIBIT C-44

Breakdown of North Natomas Jobs by Labor Category

Alternative A	M-50	M-20	Light Industrial	SPA	Office/ Business	Community Commercial	Highway Commercial	Total (without sports complex)	Percent
Professional/Technical ($23,200-$34,000)	-	2,625	1,100	2,000	-	-	-	5,725	22%
Sales ($16,800)	-	-	-	500	-	-	-	500	2%
Clerical ($16,000-$18,200)	-	1,575	660	1,200	-	-	-	3,435	13%
Craft ($26,000-$27,000)	-	1,785	1,100	2,000	-	-	-	4,885	19%
Operatives ($12,000-$19,300)	-	3,465	2,090	3,300	-	-	-	8,855	34%
Services ($14,900)	-	-	-	500	-	-	-	500	2%
Other (NA)	-	1,050	550	500	-	-	-	2,100	8%
Total Alternative A	-	**10,500**	**5,500**	**10,000**	-	-	-	**26,000**	**100%**
Alternative B									
Professional/Technical	-	6,293	1,200	250	1,144	486	59	9,512	24%
Sales	-	-	-	63	1,364	648	131	2,206	5%
Clerical	-	3,775	768	150	1,716	432	50	6,891	17%
Craft	-	4,279	1,280	250	-	216	26	6,051	15%
Operatives	-	8,306	2,432	413	-	216	26	11,393	28%
Service	-	-	-	62	-	594	140	796	2%
Other	-	2,517	640	62	176	108	18	3,521	9%
Total Alternative B	-	**25,170**	**6,400**	**1,250**	**3,400**	**2,700**	**450**	**40,370**	**100%**
Alternative C									
Professional/Technical	2,808	5,498	2,000	500	1,745	540	246	13,337	24%
Sales	-	-	-	125	2,080	720	548	3,473	6%
Clerical	1,872	3,298	1,200	300	2,617	480	208	9,975	18%
Craft	1,404	3,738	2,000	500	-	240	133	8,045	15%
Operatives	2,621	7,257	3,800	825	-	240	113	14,856	27%
Services	-	-	-	125	-	660	586	1,371	2%
Other	655	2,199	1,000	125	268	120	76	4,443	8%
Total Alternative C	**9,360**	**21,990**	**10,000**	**2,500**	**6,710**	**3,000**	**1,890**	**55,450**	**100%**
Alternative D									
Professional/Technical	6,143	6,375	2,180	500	2,431	756	468	18,853	25%
Sales	-	-	-	125	2,898	1,008	1,044	5,075	6%
Clerical	4,095	3,825	1,308	300	3,647	672	396	14,243	19%
Craft	3,071	4,335	2,180	500	-	336	216	10,638	14%
Operatives	5,733	8,415	4,142	825	-	336	216	19,667	26%
Services	-	-	-	125	-	924	1,116	2,165	3%
Other	1,433	2,550	1,090	125	374	168	144	5,884	7%
Total Alternative D	**20,475**	**25,500**	**10,900**	**2,500**	**9,350**	**4,200**	**3,600**	**76,525**	**100%**
Alternative E									
Professional Technical	27,675	-	920	2,000	-	1,188	429	32,212	28%
Sales	-	-	-	500	-	1,584	957	3,041	3%
Clerical	18,450	-	552	1,200	-	1,056	363	21,621	19%
Craft	13,838	-	920	2,000	-	528	198	17,484	15%
Operatives	25,830	-	1,748	3,300	-	528	198	31,604	27%
Services	-	-	-	500	-	1,452	1,023	2,975	3%
Other	6,457	-	460	500	-	264	132	7,813	5%
Total Alternative E	**92,250**	-	**4,600**	**10,000**	-	**6,600**	**3,300**	**116,750**	**100%**

Notes

- Sports' complex employment would be 1,000 jobs for Alternatives B through E. Labor categories for these jobs have not been specified, however.
- McDonald & Associates assumed the following proportions of jobs in the labor categories examined for each of the land uses given above:

Professional/Technical	30%	25%	20%	20%	26%	18%	13%
Sales	-	-	-	5%	31%	24%	29%
Clerical	20%	15%	12%	12%	39%	16%	11%
Craft and Kindred	15%	17%	20%	20%	-	8%	6%
Operatives	28%	33%	38%	33%	-	8%	6%
Services	-	-	-	5%	-	22%	31%
Others	7%	10%	10%	5%	4%	4%	4%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

- Source: Employment Development Department and McDonald & Associat

Average annual salaries for typical job categories expected in North Natomas range from $12,000 (electronic assembler) to $34,000 (lawyer). Household incomes would depend on the numbers of workers and sources of income other than salaries (see Exhibit C-43).

Exhibit C-46 summarizes the proportion of immigrants, unemployed, first-time employed, and currently employed persons expected to be hired for new jobs in North Natomas according to labor category.

Alternative E and Five Individual Applications

Alternative E consists of five (5) land use applications received by the City covering ± 2,657 acres together with another ± 11,638 acres for which land use assumptions were developed by the City. The five applications and City assumptions are compared in Exhibit C-47.

The five applications cover ± 19 percent of the 14,300-acre Study Area. If implemented, these five projects would generate 70 percent of all new jobs created in North Natomas under Alternative E but only would provide 19 percent of all new housing units to be built. The remaining portion of the Study Area would create 30 percent of all new jobs in North Natomas but would provide 81 percent of all new housing units within the entire Study Area.

Of the five land use applications taken individually, all but the Payne project would result in an excess of new jobs compared with housing units to be provided (see Exhibit C-48). Provision of ± 34,738 housing units on lands not covered by the five applications could accommodate the persons employed in businesses developed outside of the five-application area, assuming that more than one worker per household was employed in North Natomas.

EXHIBIT C-46

Distribution of Employment by Occupation and Employees

Occupation	Immigrants	Unemployed	First-Time Employed	Currently Employed
Professional/ Technical/ Managerial	40%	5%	5%	50%
Clerical	10%	20%	15%	55%
Sales	10%	15%	25%	40%
Services	5%	25%	35%	35%
Operatives/ Crafts/ Kindred	20%	10%	10%	60%
Other	20%	20%	20%	40%

Sources: State of California Employment Development Department (two references); "Migration and Housing Demand in South Placer County", Anna Marie Roberts; McDonald & Associates

EXHIBIT C-47

Summary Comparison of Alternative E by Application

Land Use	Gateway Point Application			Fong Application			Schumacher-Iverson Application			Reid-Ketcher Application			Payne Application			Five Application Subtotal			Remaining Study Area			Total Alternative E		
	Acres	Jobs		Acres	Jobs		Acres	Jobs		Acres	Jobs		Acres	Jobs		Acres	Jobs		Acres	Jobs		Acres	Jobs	
Major Employers																								
M-50	850	38,250		95	4,275		480	21,600		173	7,785		13	585		1,611	72,495		439	19,755		2,050	92,250	
M-20	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
Light Industrial	-	-		-	-		-	-		-	-		-	-		-	-		230	4,600		230	4,600	
SPA	-	-		-	-		-	-		-	-		-	-		-	-		2,000	10,000		2,000	10,000	
Office/Business	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
Commercial Commercial	105	3,150		5	150		-	-		79	2,370		31	930		220	6,600		-	-		220	6,600	
Highway Commercial	35	1,050		18	540		30	900		-	-		-	-		83	2,490		27	810		110	3,300	
Sports Complex	170	850		-	-		-	-		-	-		-	-		170	850		30	150		200	1,000	
Employment Subtotal	1,160	43,300		118	4,965		510	22,500		252	10,155		44	1,515		2,084	82,935		2,726	35,315		4,810	117,750	
Residential		**Units**	**Population**		**Units**	**Population**		**Units**	**Population**		**Units**	**Population**		**Units**	**Population**		**Units**	**Population**		**Units**	**Population**		**Units**	**Population**	
Rural Estate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Low Density	-	-	-	-	-	-	-	-	-	-	-	-	48	336	857	48	336	857	228	1,596	4,070	276	1,932	4,927
Medium Density	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,950	23,880	45,611	1,950	23,880	45,611
High Density	140	3,080	4,783	-	-	-	-	-	-	5	110	169	204	4,488	6,912	349	7,678	11,826	421	9,262	14,263	770	16,940	26,088
Residential Subtotal	140	3,080	4,783	-	-	-	-	-	-	5	110	169	252	4,824	7,769	392	8,014	12,681	2,639	34,738	63,944	3,036	42,752	76,626
Civic/Public																								
Elementary School	-			-	-	-	-			-			-			-			84			84		
Junior High School	-			-	-	-	-			-			-			-			100			100		
Senior High School	-			-	-	-	-			-			-			-			40			40		
Other Civic Uses	-			-	-	-	-			-			-			-			-			-		
Airport	-			-	-	-	-			-			-			-			2,900			2,900		
Civic/Public Subtotal	-			-	-	-	-			-			-			-			3,124			3,124		
Open Space																								
Parks	-			-			-			-			-			-			-			-		
Greenbelts	110			-			44			-			27			181			169			350		
Buffers/Drainages	-			-			-			-			-			-			500			500		
Agriculture	-			-			-			-			-			-			80			80		
Agriculture/SPA	-			-			-			-			-			-			-			-		
Roads	-			-			-			-			-			-			2,400			2,400		
Open Space Subtotal	110			-			-			-			27			181			3,149			3,330		
Total Acreage	1,410			118			554			257			323			2,657			11,638			14,300		

EXHIBIT C-48

Five Applications Jobs-Housing Balance -- Alternative E

	Gateway Point	Fong	Schumacher-Iverson	Reid-Ketscher	Payne	Five-Application Subtotal	Remaining Study Area	Total Alternative E
Total Jobs Proposed	43,300	4,965	22,500	10,155	1,515	82,435	35,315	117,750
Housing Units Required at WPH Rates:								
• 1.200 WPH	36,083	4,138	18,750	8,463	1,263	68,697	29,429	98,125
Proposed Housing (all units)	3,080	0	0	110	4,824	8,014	34,738	42,752
Percent of Demand Met at WPH Rates:								
• 1.200 WPH	9%	-	-	1%	382%	12%	118%	44%

The cumulative effect of all job creation throughout the Study Area, however, would be a significant imbalance between employment opportunities and the local housing supply at buildout of the Composite Alternative. These relationships are summarized as follows:

Application/Area Covered	Percent of All Jobs	Percent of All Units
Gateway Point Application	36.8%	7.2%
Fong Application	4.2	0.0
Schumacher-Iverson Application	19.1	0.0
Reid-Ketscher Application	8.6	0.3
Payne Application	1.3	11.3
Subtotal	70.0	18.8
Remaining Lands in Study Area	30.0	81.2
TOTAL	100%	100%

Construction Employment

Development of light industrial and airport-related (SPA) land uses under Alternative A and development of both residential and employment-generating land uses under Alternatives B through E would create construction jobs throughout the buildout period of North Natomas. Construction employment for all five alternatives is estimated in Exhibit C-50.

HOUSING -- THE SETTING

1980 Census

City and County of Sacramento

The 323,702 housing units provided throughout Sacramento County in 1980 accounted for three-quarters (77 percent) of the region's housing supply. The City's 1980 housing stock consisted of 123,284 units, representing 38 percent of the County's housing supply.[63] Compared with 35 percent of the

EXHIBIT C-50

Construction Employment

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Total Value of Construction 1/	$571,510.0	$2,559,427.5	$3,699,027.5	$4,489,352.4	$4,595,164.6
Share of Value to Labor	36%	36%	36%	36%	36%
Average Construction Worker Salary	$31,000	$31,000	$31,000	$31,000	$31,000
Person-Years of Construction Employment	6,637	29,722	42,956	52,134	53,363

1/ In thousands.

Source: Construction Industry Research Board and McDonald & Associates

County's population residing in the City of Sacramento, the City supplies a higher proportion of the County's housing stock.

North Natomas Study Area

A total of 755 housing units existed in North Natomas in 1980 (0.6 percent of the City's housing supply of 123,284 units). Sixty-seven (67) percent of existing housing units in the North Natomas Study Area are owner-occupied, and 13 percent provide rental housing. The City as a whole has a much larger proportion of rental housing units than North Natomas: 52 percent of units citywide are owner-occupied and 40 percent are rented. Twenty (20) percent of housing units in North Natomas are vacant while the vacancy rate citywide is 8 percent. [64] Three-quarters (75 percent) of the year-round housing stock consists of single family units, 18 percent of all units are mobile homes, and the remaining 7 percent of housing is provided in multi-unit buildings containing two or more attached dwelling units.

Median home values in North Natomas are higher ($91,350) than those citywide ($56,800), but rents are lower than throughout the City ($157 and $179 per month, respectively). North Natomas housing units have more than the average number of persons per household (pph) throughout the City (approximately 2.53 pph in North Natomas compared with 2.39 pph citywide).

Slightly more than half (54 percent) of housing units in North Natomas were constructed between 1970 and 1980, another 22 percent were built in the decade between 1960 and 1970, and 24 percent were built before 1960 (including 8 percent of units constructed prior to 1949). All rental housing was built after 1960.

Residency patterns indicate that occupants of 79 percent of units moved into their homes between 1970 and 1980, 15 percent have lived in their homes 10 or more years (having moved in between 1960 and 1970), and 6 percent have lived in their homes since 1960 or earlier.

US Census statistics for the City [65] portion of North Natomas suggest that 70 percent of rental units were built as owner-occupied housing and only were rented within the past 10 years. The remaining 30 percent of rental units appear to have been occupied by their tenants for 10 to 15 years. For owner-occupied housing units located within incorporated North Natomas, 86 percent of persons appear from US Census data to have lived in their homes since they originally were built, resulting in considerable stability in the

community not only among owner-occupants but also reflected in the rental population.

While median incomes of North Natomas residents are higher than those citywide, ranging from 19 to 33 percent higher for family and household median incomes, respectively, median home values are 61 percent greater in North Natomas than citywide. (Median rents, however, are 14 percent lower in North Natomas than citywide.) The highest home values in the Study Area ($156,300) are found within the County. Forty (40) percent of all housing units within one County census tract were built between 1970 and 1980 (10 percent between 1979 and 1980). Fifty-six (56) percent of housing units in the other unincorporated statistical area were built between 1970 and 1980 (43 percent between 1979 and 1980) where median home value is $122,900. The recent construction of the majority of units within the County helps to explain their values, and median incomes in these two areas also are higher than those in the City NSAs. [66]

New construction of higher value homes within the County, therefore, seems to have resulted in a residential population with higher overall incomes. [67] The long tenancy of other residents which has given such stability to North Natomas can be interpreted to mean either that they choose to remain in their homes, thus making affordability moot, or, conversely, that they are unable to find affordable housing elsewhere, thus forcing them to remain in North Natomas. The correlation between when homes were built and how long residents have lived in their homes suggests that residents who bought their homes probably have paid off (or nearly paid off) their mortgages which, together with the long tenancy of renters, indicates that residents choose to remain in North Natomas. [68] In addition, median home values, while lower in incorporated North Natomas than citywide, are not so low as to suggest that owners could not sell if they put their homes up for sale or that sales prices would be too low to enable these people to afford housing elsewhere once their homes were purchased.

South Natomas and North Sacramento Communities

As of 1980 there were 15,824 housing units in North Sacramento of which 48 percent were owner-occupied, 41 percent were rental units, and 11 percent were vacant. Of South Natomas' 2,819 housing units, 65 percent were owner-occupied, 30 percent were rental units, and 5 percent were vacant. Altogether, the three communities (including North Natomas) provide 15 percent of the city's existing housing stock. [69]

Median housing values in 1980 were $38,400 in North Sacramento in 1980 and $49,850 in South Natomas.[70] Median rents were $165 per month in North Sacramento and $183 per month in South Natomas. The average number of persons per household in North Sacramento was 2.33 pph and in South Natomas was 2.38 compared with the citywide average of 2.39 pph.

1983 Existing Conditions and 1984-2005 Dwelling Unit Forecasts

Exhibit C-54 presents selected dwelling unit data from Exhibits C-7 and C-11 through C-15 for Alternatives A through E and provides a comparison of 1983 existing conditions with year 2005 projections.

Housing Supply

Sacramento County has analyzed its ability to accommodate projected growth. The County's 1979 Housing Element (contained in its 1983 General Plan) reports that sufficient land was included within each of the County's urban areas which are designated in its previous 1973 General Plan to accommodate all urban growth anticipated by the year 1990.[71]

As of 1978 there were approximately 33,700 vacant acres within the County's urban areas which, if developed to planned residential densities, could accommodate 169,000 units and, if developed at 85 percent of planned densities, could support 144,000 units.[72]

Of these anticipated needs, the County expected that 19,140 new housing units would be required in unincorporated areas to accommodate projected growth by 1985[73], leaving 124,860 to 149,860 units which could be developed countywide on vacant lands within existing urban areas between 1985 and 1990.[74] The County's land inventory and estimate of capacity to accommodate housing development assumes that 1,930 vacant acres south of Del Paso Road would be available for construction of 18,144 housing units.[75] These 18,144 units represent 11 to 13 percent of the 144,000 to 169,000 housing units which potentially could be built on vacant lands in Sacramento County, and the 1,930-acre area south of Del Paso Road accounts for less than 6 percent of the vacant land within urban areas countywide which is available for housing development.

Projected population growth and the attendant need for increased housing for Sacramento City residents, combined with the City's policy to direct new growth to the existing urban area of Sacramento, prompted the City to

EXHIBIT C-54

Comparison of 1983 and 2005 Housing Units for All Alternatives

Geographic Area	1983 Existing Conditions	1983 Existing Conditions Plus 1984 to 2005 Incremental Development				
		Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
North Natomas	744	744	20,744	30,744	33,844	42,744
South Natomas	5,788	24,788	24,788	23,288	22,788	22,538
North Sacramento	14,993	26,993	27,993	26,993	26,493	26,243
Balance of City	119,779	165,679	165,679	162,679	161,879	159,479
TOTAL CITY OF SACRAMENTO	141,304	218,204	239,204	243,704	245,004	251,004
TOTAL COUNTY OF SACRAMENTO	186,332	269,732	269,732	267,232	265,932	261,932
TOTAL OTHER SMSA	96,000	178,000	182,000	180,000	180,000	178,000
TOTAL SMSA	423,636	665,936	690,936	690,936	690,936	690,936

Source: McDonald & Associates

conduct an inventory of its land to determine whether and where this growth could be accommodated. This study concluded that as of May, 1980 there were more than 20,300 acres of vacant land in the City, half of which were designated for residential use (± 10,070 acres) and nearly one-quarter of which were designated for office, commercial, and industrial use (± 4,440 acres). [76] One-third (35 percent) of all vacant residential land (3,534 acres) and more than one-quarter (27 percent) of vacant non-residential land in Sacramento are located in the South Natomas and North Sacramento communities. [77] These areas are summarized in Exhibit C-56.

The City vacant land study included an inventory of existing housing units, together with new construction on the basis of tentative and final subdivision map approvals, and estimated how much additional housing could be accommodated within each of the City's communities. These findings for the City's lands within North Natomas, South Natomas, North Sacramento, and Sacramento as a whole are summarized in Exhibit C-57. Exhibit C-57 indicates that the total housing supply in the three-community North Natomas-South Natomas-North Sacramento area within the City's 1970 boundaries could be doubled (increased by 98 percent) with buildout of existing vacant residential lands. The potential for new housing in the South Natomas and North Sacramento communities could amount to as much as 43 percent of all development which could occur citywide on vacant residential lands -- accommodating up to 28,500 units of a potential 66,317 units which could be built citywide within Sacramento's existing urban area. [78] If these vacant residential lands were built-out at the densities assumed in 1981 by the City's survey, these two communities would provide a quarter (26 percent) of Sacramento's total housing supply upon buildout. [79] Even without building out the total residential potential in South Natomas according to its revised (draft) Community Plan, these two communities would contribute substantially to the City's need for additional housing units by the year 1995. [80]

In this context, the City's Housing Element discusses where and when communities are expected to experience growth and states: [81]

> All communities except Meadowview are projected to increase in population between 1980 and 1985. The most rapidly growing areas will be South Natomas, Pocket, and the southerly half of South Sacramento. ... The balance of communities are either fully urbanized and without substantial growth potential or are designated for post-1985 growth. North Sacramento is an example of the latter. Present growth and planned higher densities in South Natomas also preclude the need for

EXHIBIT C-56

City of Sacramento Vacant Lands Survey [1]

	North Natomas [2]		South Natomas		North Sacramento		Three-Community Subtotal		City Total
	Acres	% of City	Acres	% of City	Acres	% of City	Acres	% of City	Acres
Vacant Residential Land	48.30 [3]	0.5	1,650.30	16.4	1,835.40	18.2	3,534.00	35.1	10,070.90
Vacant Non-Residential Land									
• Office	-	-	40.00	22.5	0.68	0.4	40.68	22.9	177.48
• Commercial	-	-	82.20	11.8	188.65	27.1	270.85	38.9	696.65
• Heavy Commercial/ Industrial	-	-	33.60	1.0	867.85	24.31	901.45	25.3	3,565.25
Non-Residential Subtotal	0.0	0.0	155.80	3.4	1,057.18	23.8	1,212.98	27.3	4,439.38
Total Vacant Land	48.30 [3]	0.3	1,806.1	12.5	2,892.58	19.9	4,746.98	32.7	14,510.28

1/ The Amount of Vacant Land, General Plan Update, Technical Report #1, August, 1981, Tables 2, 7, and 8.

2/ City area only (not County lands within the planning area).

3/ Note that this study was conducted prior to the adoption of the City's growth policy which redesignated all of North Natomas for "agriculture".

EXHIBIT C-57

Existing and Potential Housing Units -- City of Sacramento 1/

Housing Units:	North Natomas 2/	South Natomas 9/	North Sacramento	3-Community Total	City Total
Built (1980 US Census)	274	2,819	15,824	18,917	123,284
Pending Construction:					
• With Tentative Map	-	5,085	138	5,223	11,252
• With Final Map	-	2,675	2,298	4,973	17,071
Housing Subtotal (1)	**274**	**10,579**	**18,260**	**29,113**	**151,607**
Potential New Housing Development:					
Nonconstrained Lands	-	11,669	3,548	15,267	43,744
Moderately or Significantly Constrained Lands	257 3/	3,739	9,494	13,490	22,573
Potential Additional Housing Subtotal: (2)	**257**	**15,408**	**13,092**	**28,757**	**66,317**
Total Potential Housing Supply (1) + (2) = (3)	531	25,987 4/	31,352	57,870	217,924
Adjustment to Conform with City Policies (4)	-257 5/	-67 6/	-	-324 7/	-324 8/
Total Housing Units Upon Buildout (3) - (4)	**274**	**25,920**	**31,352**	**57,546**	**217,600**

1/ The Amount of Vacant Land, op. cit., Tables 3, 4, and 5.

2/ City land only, not including unincorporated County land where there were 481 units in 1980 and an estimated County-calculated capacity to accommodate an additional 18,144 units upon buildout of North and South Natomas south of Del Paso Road.

3/ The vacant lands survey was completed prior to the adoption of the City's Growth Policy, thus before redesignation of all incorporated North Natomas as "agriculture".

4/ There was a theoretical capacity to provide this much housing in South Natomas when the vacant lands survey was prepared prior to the recent revisions to the area's community plan.

5/ Assumes no further development would occur in incorporated North Natomas at least until 1995, consistent with the City's Growth Policy, even though single family housing units are permitted on lands zoned "A" for agricultural uses.

6/ Since the recently revised South Natomas Community Plan designates residential land uses accommodating 25,920 units, the maximum number of units which could have been built is reduced for consistency with that plan.

7/ Reduction in the three-community subtotal to reflect North and South Natomas. See Footnotes 5 and 6, above.

EXHIBIT C-57 — CONTINUED

Existing and Potential Housing Units -- Footnotes

8/ Assumes that the reduction in potential new housing sites, due to City policies for North and South Natomas, would not be replaced elsewhere in the City. Although potential additional housing subtotal (2) represents maximum possible development of vacant residential lands throughout Sacramento within the 1970 urban limit, it probably would be possible to supply 324 units at other locations in the City without too much difficulty.

9/ According to the South Natomas Community Plan EIR, 4,436 units existed in the City's and 146 units existed in the County's South Natomas jurisdiction in 1980 for a total of 4,582 units. Another approximately 2,918 units were built by 1984 for an estimated total of 7,500 units in South Natomas. (McDonald & Associates has estimated that there were 5,788 units in South Natomas as of 1983.) Although the South Natomas EIR overestimated the number of units in 1980 as counted by the US Census, its 1984 estimate and the McDonald & Associates estimate for 1983 fall well within the total number of units approved for construction by the City as of May, 1980.

additional residential expansion well into the future for North Natomas" (emphasis added). [82]

Housing Affordability

The County's Housing Element reports that in 1978 approximately 34,808 households within the County were low income households. [83] It concludes that the unincorporated County does not house its fair share of low income households while the City does. [84] In order to house its fair share, the County would need to accommodate an estimated 50,126 low income households by 1985. [85]

The County addresses housing affordability for low income persons as well as for moderate income households. Its Housing Element reports, for instance, that the median price for new housing increased by 74 percent between 1970 and 1975 while median household income increased by only 28 percent during the same period with net purchasing power of families decreasing by 3.7 percent. [86] On the basis of these trends, the Housing Element states that, if new housing prices continue to accelerate at their current rates and if the rate of increase for personal income is maintained, "more families, particularly moderate income families, will be excluded from the new housing market". [87]

The City's Housing Element echoes this concern, reporting that "the average cost of a newly constructed home in 1980 is beyond the reach of the average income family, especially those just entering the housing market". [88] The City's Element concludes, "it is clear ... that both low and moderate income households in Sacramento are and will continue to encounter serious housing affordability problems". [89]

In October, 1984 the Board of the Sacramento Area Council of Governments (SACOG) adopted a 1984 Regional Housing Needs Allocation Plan. This plan projected growth (in terms of households) between 1983 and 1990 and allocated housing needs to individual jurisdictions on the basis of the following household income categories:

- Very Low Income — 0 - 50 percent of median family income
- Low Income — 51- 80 percent of median income
- Moderate Income — 81-120 percent of median family income
- Above Moderate Income — Above 120 percent of median family income

The regional housing needs allocation for the City and County of Sacramento are shown in Exhibit C-61.

HOUSING -- THE IMPACTS

Under Alternative A, 744 housing units would be provided in North Natomas at buildout based on densities of one unit per acre in areas designated for rural estates (300 acres) and 12 units per acre in areas designated for medium density residential development (37 acres). According to these assumptions, 300 single family rural estate units and 444 medium density units would be provided within North Natomas. Residential land use would account for 337 acres or 2.4 percent of the entire Study Area with 40 percent of the housing in North Natomas (300 one-acre, rural estate units) occupying 89 percent of all land designated for residential land use (355 acres total). [90]

As of the 1980 US Census, 755 housing units were counted in the Study Area, including 541 single family dwellings, 55 units provided in multi-unit buildings, and 129 mobile homes or trailers [91], and another 30 seasonal (not year-around) units. An additional 152 or more mobile home sites are contemplated for the existing Golden West Mobile Estates which could increase the North Natomas housing supply to more than 900 units if built.

For the purposes of this EIR it has been assumed that this alternative retains all 755 existing housing units and also that the existing densities of single family, multiple unit, and mobile home housing would remain in tact.

The total number of units which exist in North Natomas is only slightly higher (1.5 percent) than envisaged by Alternative A (744 units). In contrast with this alternative which calls for 40 percent low and 60 percent medium density housing development, however, the actual development pattern is 75 percent of units built at low densities (541 existing single family units) and 25 percent of multi-unit housing and mobile homes (184 units total) at higher residential densities. [92] The overall density of existing single family, multi-unit, and mobile home development combined is 12 units

EXHIBIT C-61

Regional Housing Needs Allocation by Jurisdiction

Income Category	1983	% of 1983 Total	1990	% of 1990 Total	1983-1990 Increase	% of Increase
Unincorporated Sacramento County						
Very Low	45,941	24.0%	65,541	26.9%	19,600	37.8%
Low	36,370	19.0%	46,088	18.9%	9,718	18.8%
Moderate	44,218	23.1%	53,959	22.2%	9,741	18.8%
Above Moderate	64,892	33.9%	77,632	31.9%	12,740	24.6%
Total	191,421	100.0%	243,220	100.0%	51,799	100.0%
City of Sacramento						
Very Low	44,012	36.8%	48,696	33.4%	4,684	17.8%
Low	22,724	19.0%	27,640	19.0%	4,916	18.7%
Moderate	23,202	19.4%	29,645	20.3%	6,443	24.5%
Above Moderate	29,661	24.8%	39,868	27.3%	10,207	38.8%
Total	119,599	100.0%	145,849	100.0%	26,250	100.0%

Source: 1984 Regional Housing Needs Allocation Plan, Sacramento Area Council of Governments, October, 1984.

per acre which is roughly equivalent to the permitted density for duplex and townhouse development in the R-1A and R-2 zoning districts of the City. 93

Housing values would keep pace with general increases in real estate values, if there is no additional residential development in North Natomas. If substantial improvements were made to the existing housing units in the Study Area, these changes probably would not be reflected either in increased property tax revenues and in home prices until housing units are sold due to the tax structure established by Proposition 13. Since there appears to be little transience among North Natomas residents once they have moved into their homes, increased home values are not likely to materialize soon.

Since no additional housing would be developed under Alternative A, the question of affordability focuses on resale prices of existing units. 94 The most recently built housing in North Natomas probably would be affordable to people with upper middle incomes and higher, if offered for sale in the future, although older units probably would be affordable to more people due to lower home values. (In addition, the resale prices of existing units tend to be lower than housing prices for new units due to higher land, materials, labor, and financing costs.) If the length of tenancy continues to be as long as it presently is, few housing units would be offered for sale or rent, thus limiting the availability of units which could influence cost. If demand exceeds supply, however, prices could increase.

Since no additional housing units would be built under Alternative A, North Natomas would not contribute to the City's or County's need to expand the housing supply in order to accommodate projected population growth. The City had not counted on North Natomas to provide housing after it decided to divert such growth away from North Natomas at least until 1995. This alternative, however, would mean that some of the 18,144 additional units the County planned to be developed in North and South Natomas south of Del Paso Road would not be built. 95

Alternative A

In the context of housing alone, the net effect of Alternative A essentially would be to reaffirm the City's agricultural policy enacted in the accelerated General Plan update Growth Policy: no additional residential development within incorporated North Natomas would enable the City to adhere to its policies, at least until 1995. Growth within unincorporated

North Natomas, however -- given the County's propensity to approve "new development or urban density in all areas of the metropolitan region" [96] -- could exert pressure on the City to abandon its agricultural policy in the Study Area and to permit development to occur. [97] If the Plan is implemented uniformly by the City and County in both incorporated and unincorporated land in North Natomas, some of the pressures which inevitably would arise to permit development could be reduced, at least for the effective period of the Community Plan. This is because residential uses generally would be confined to existing developed areas, primarily confined to the community boundary adjacent to North Sacramento [98], leaving the majority of the Study Area in agricultural production.

This is not to say that Alternative A would remove development pressures from North Natomas altogether. In fact, future non-residential growth in South Natomas probably would intensify pressures to open North Natomas for residential development, even with the proposed provision of 25,920 housing units in South Natomas. Due to the close proximity of undeveloped agricultural lands in North Natomas and due to the depressed community image of large areas of North Sacramento, North Natomas would be particularly vulnerable to development pressures, especially for low density and rural estate (or ranchette) development which would be affordable by and desirable to highly paid professional, administrative, and management personnel employed in South Natomas.

Alternatives B Through E

Alternatives B through E would result in the development of approximately 20,000 to 42,000 new housing units in North Natomas during the next 20 years.

Between 1985 and 1995 approximately 9,072 (Alternative B) and 29,798 (Alternative E) units could be added to the City's housing stock -- representing from 17 to 54 percent of the projected need citywide for new housing (55,027 units). Upon buildout of North Natomas under one of these alternatives, approximately 20,800 to 42,752 units would be provided in the community. This means that under Alternatives B through E North Natomas would accommodate from 9 to 17 percent of the City's total housing supply by the the year 2005 (Exhibit C-64). In terms of housing growth, residential development in North Natomas would represent from nearly one-fifth (18 percent) to one-third (34 percent) of all new units expected to be built throughout the City of Sacramento between 1980 and 2005. During the same period, housing production in the combined three-community area of

EXHIBIT C-64

Regional Housing Context Year 2005

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
North Natomas	744	20,800	31,052	33,864	42,752
South Natomas	24,788	24,788	23,288	22,788	22,538
North Sacramento	26,993	27,993	26,993	26,493	26,243
Three-Community Total	**52,525**	**73,581**	**81,333**	**83,145**	**91,533**
Citywide Total	218,204	239,204	243,704	245,004	251,004
SMSA	665,936	690,936	690,936	690,936	690,936
North Natomas Percent of Three-Community Units	1.4%	28.3%	38.2%	40.7%	46.7%
North Natomas Percent of City	0.3%	8.7%	12.7%	13.8%	17.0%
Three-Community Percent of City	**24.1%**	**30.8%**	**33.4%**	**33.9%**	**36.5%**
Three-Community Percent of SMSA	7.9%	10.7%	11.8%	12.0%	13.3%
City Percent of SMSA	32.8%	34.6%	35.3%	35.5%	36.3%
Citywide Housing Increase 1980-2005 (123,284 units in 1980)	94,920	115,920	120,420	121,729	127,720
North Natomas Percent of City Increase 1985-2005	1.0%	18.0%	26.0%	28.0%	34.0%

Source: Nichols • Berman based on McDonald & Associates' data.

North Natomas, South Natomas, and North Sacramento would account for two-thirds (64 percent) to nearly three-quarters (72 percent) of all housing development citywide.[99] The opening of North Natomas to development combined with growth in South Natomas and North Sacramento would increase the prominence of northern Sacramento in the City. Housing production in North Natomas under Alternatives B through E, therefore, would emphasize northern Sacramento as a major residential area of the City and deemphasize other areas where residential development had been designated.

One of the City's strategies to accommodate the 1995 population within Sacramento's existing urban area is to increase residential densities. Development under Alternatives B through E would commit land outside the City's urban boundary to development. Sixty-five (65) to 95 percent of the new housing (13,800 to 40,800 units) would be built at medium to high densities. The remaining 5 to 34 percent of new housing (1,932 to 11,000 units) would be built at densities of approximately 1 to 7 units per acre. While the low density housing (7 units per acre) would be less intense relative to the majority of new units in North Natomas, it would be more intense than typical single family neighborhoods in Sacramento where 3 to 5 units are built per acre.

The proportion of low density to medium and high density units suggests that most units probably would be rental housing unless a substantial number of higher density units were owner-occupied townhouses or condominiums (Exhibit C-26).[100]

The number of housing units envisaged by Alternatives B through E would accommodate 39 to 66 percent of workers employed in the new jobs to be created in North Natomas, assuming that jobholders wished to live in the same community where they work, and depending on the number of workers per unit and the timing as to when the units would be available (Exhibit C-66).

Currently there is an average of 1.064 workers per house hold (wph) throughout the City [101], although the number of workers per household is expected to increase to 1.178 wph in the future.[102] The North Natomas Community Plan assumes that there would be 1.2 wph in North Natomas by the year 2005, although this rate does not conform with the present or projected rates used in the City General Plan updating studies. Even if North Natomas had an average of 1.2 wph, however, it cannot be assured that all employed North Natomas residents actually would work in North Natomas. It is likely that a much lower number, possibly only 1.0 wph, would be employed in North Natomas with the other workers per household employed elsewhere in the region. This means that the number of units proposed by Alternatives B

EXHIBIT C-66

Jobs-Housing Balance
(Year 2005)

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Employees	26,000	41,370	56,450	77,525	117,750
Units Required at					
• 1.200 WPH	21,667	34,475	47,042	64,604	98,125
Proposed Housing Units	744	20,800	31,052	33,864	42,752
Percent North Natomas Employees Housed in Community at 1.2 WPH:					
• 1.200 WPH	3%	60%	66%	52%	44%
Occupied Housing Units (6 percent vacancy)	699	19,552	29,189	31,832	40,187
Percent of North Natomas Employees Housed in Community at 1.2 WPH:					
• 1.200 WPH	3%	57%	62%	49%	41%
Dwelling Units for North Natomas Employees Living Elsewhere:					
• 1.200 WPH	20,923	13,675	15,990	30,740	55,373
Dwelling Units Increase Citywide (1985-2005) (Exhibit C-64)	76,900	97,900	102,400	103,700	109,700
Non-North Natomas Units Added	94,920	95,120	89,368	87,856	84,968
Percent New Units Needed Off-Site for North Natomas Employees					
• 1.200 WPH	22%	15%	18%	35%	65%

Note: WPH refers to the average number of workers per household.

through E would house fewer North Natomas workers, resulting in a poorer jobs-housing balance than calculated for the alternatives. In addition to these considerations, a six percent vacancy rate would reduce the number of occupied units further (see Exhibit C-66).

Between 34,475 and 98,125 housing units would be needed to accommodate 41,370 to 117,750 employees under Alternatives B through E. The remaining new workers employed in North Natomas would have to live elsewhere, requiring 13,675 to 55,373 housing units.

If 46 percent of persons employed in new North Natomas jobs were immigrants, as projected for the year 2005 by McDonald & Associates, it could be assumed that only they would require housing because the remaining 54 percent of job holders already live in the region. If this were to occur, Exhibit C-68 indicates that Alternatives B through D could accommodate the housing requirements of new employees. Housing proposed under Alternative E would accommodate 92 percent of immigrants, thus the number of units would be inadequate to meet the demand created in North Natomas for housing.

These conclusions do not account, however, for natural population increase (54 percent of the total increase) which coupled with an overall decline in household size would contribute to the need for additional housing within Sacramento. Job creation alone, therefore, would not be solely responsible for generating housing needs in the City or the region.

Although an estimated 76,900 to 109,7000 additional housing units are projected to be built in the City of Sacramento by the year 2005[103], City plans call for the need to accommodate growth through 1995 and identifies a capacity to build a maximum of 66,317 units within the 1981 boundaries (Exhibit C-57).[104] In order to meet projected housing demands by year 2005, another 31,583 to 43,383 units would need to be built. Opening North Natomas to residential development would accommodate 18 to 34 percent of the anticipated housing increase citywide by year 2005. Another 631 to 10,783 more housing units would be required by the year 2005 after buildout of existing residential lands (66,317 units) and development of North Natomas (20,800 to 42,752 units) (Exhibit C-69). Since the City's General Plan and Growth Policy are effective only until 1995, it is not known where these additional units would be accommodated. The 13,675 to 55,373 persons employed but unable to live in North Natomas (Exhibit C-66), however, could account for most if not all of these units.

EXHIBIT C-68

Housing Demands Created by Immigrants

	Alternative B	Alternative C	Alternative D	Alternative E
Jobs at Buildout	41,370	56,450	77,525	117,750
Existing Jobs 1/	3,650	3,650	3,650	3,650
New Employees	37,720	52,800	73,875	114,100
Immigrants (46 percent)	17,351	24,288	33,983	52,486
Housing Required at the WPH Rate:				
• 1.200 WPH	14,459	20,240	28,319	43,738
Proposed Units	20,800	31,052	33,864	42,752
Less Six Percent Vacancy	1,248	1,863	2,032	2,565
Occupied Units	19,552	29,189	31,832	40,187
Surplus (Deficit) Number of Units 2/	5,093	8,949	3,513	(3,551)

1/ Assumes all persons presently employed in North Natomas have housing.

2/ Assumes there would be 1.2 North Natomas workers per North Natomas household, whereas even if there are 1.2 workers per North Natomas household, these residents would not necessarily be employed in North Natomas. These estimated surpluses, therefore, are "best case" projections.

EXHIBIT C-69

Citywide Housing Development 1984-2005

	Alternative B	Alternative C	Alternative D	Alternative E
Dwelling Units Citywide (2005)	239,204	243,704	245,004	251,004
1984-2005 Increase	97,900	102,400	103,700	109,700
Buildout of 1970 City Boundaries (66,317 units by 1995)	31,583	36,083	37,383	43,383
Buildout of North Natomas (2005)	20,800	31,052	33,864	42,752
Remaining Units Citywide by Year 2005	10,783	5,031	3,519	631

Source: McDonald & Associates, 1984-2005 Growth Forecasts.

Phasing

The anticipated phasing of housing development in relation to job creation in North Natomas is summarized in Exhibit C-71. This exhibit shows the number of units to be provided in North Natomas, those required to accommodate North Natomas employees, and the number of units which would need to be built elsewhere in the region to house North Natomas workers. The unmet housing demand generated by development in North Natomas would account for 12 to 32 percent of the 66,317-unit capacity of Sacramento to accommodate new housing within its 1981 boundaries.

These additional housing units technically are not projected to be provided in the City, at least by 1995. Because North Natomas was not planned to be developed, however, when the City prepared its vacant lands survey and projected the capacity to accommodate new housing, vacant residential lands still would be available for further housing development with housing growth before 1995 in North Natomas. The additional demand for housing created by development of employment-generating uses in South Natomas and North Sacramento which would result in provision of more jobs than housing would increase the need for housing citywide. Job creation in these three communities would mean either that the City would have to expand its urban area after 1995 or that housing development would occur outside the City within the County or elsewhere in the region, thus involving major policy changes for the City.

The significant amount of new development anticipated in northern Sacramento, both residential and non-residential, suggests that further growth pressures would be concentrated here unless the City had active programs to channel additional growth to other areas of Sacramento. These pressures inevitably would make nearby agricultural areas highly vulnerable to development, beginning with the farmland remaining in the Study Area and extending to agricultural lands between I-5 and the Sacramento River initially, then potentially followed by pressures to convert productive agricultural lands north of the Study Area to urban use.[105]

The stability (or long-term tenancy) of residents in North Natomas in the past suggests that there would be little turnover of housing units under Alternative A at least in the immediate future. Housing values may increase through appreciation and/or improvements, but there would not be an influx of new residents to the community for whom housing affordability would be a serious concern.

EXHIBIT C-71

Phasing of Housing Development and Job Creation

Alternative B	Jobs/Housing	1.200 WPH
Existing Jobs	3,650	
Existing Units	744	
Units Required		3,042
% DUs in North Natomas		25%
# Needed Elsewhere		2,298
1985-1990		
New Jobs	7,832	
New Units	4,016	
Units Required		6,527
% DUs in North Natomas		62%
# Needed Elsewhere		2,511
1990-1995		
New Jobs	9,705	
New Units	5,056	
Units Required		8,088
% DUs in North Natomas		63%
# Needed Elsewhere		3,032
1995-2000		
New Jobs	10,918	
New Units	6,069	
Units Required		9,098
% DUs in North Natomas		67%
# Needed Elsewhere		3,029
2000-2005		
New Jobs	9,265	
New Units	5,188	
Units Required		7,721
% DUs in North Natomas		67%
# Needed Elsewhere		2,533
Cumulative		
Jobs	41,370	
Units	20,800	
Units Required		34,475
% DUs in North Natomas		60%
# Needed Elsewhere		13,675

Summary 1985-1995

Alternative B		
Total Jobs	21,187	
Total Units	9,816	
Units Required		17,657
# Off-Site		7,841
% of City Capacity (66,317 units within 1970 boundaries)		12%

EXHIBIT C-71 — CONTINUED

Phasing of Housing Development and Job Creation

Alternative E	Jobs/Housing	1.200 WPH
(existing same as B)		
1985-1990		
New Jobs	28,904	
New Units	14,899	
Units Required		24,087
% DUs in North Natomas		62%
# Needed Elsewhere		9,188
1990-1995		
New Jobs	29,244	
New Units	14,899	
Units Required		24,370
% DUs in North Natomas		61%
# Needed Elsewhere		9,471
1995-2000		
New Jobs	3,245	
New Units	6,275	
Units Required		2,704
% DUs in North Natomas		232%
# Needed Elsewhere		0
2000-2005		
New Jobs	2,141	
New Units	6,235	
Units Required		1,784
% DUs in North Natomas		350%
# Needed Elsewhere		0
Post-2005		
New Jobs	50,775	
New Units	0	
Units Required		42,313
% DUs in North Natomas		0%
# Needed Elsewhere		42,313
Cumulative		
Jobs	117,750	
Units	42,752	
Units Required		98,125
% DUs in North Natomas		44%
# Needed Elsewhere		55,373

Summary 1985-1995

Alternative E		
Total Jobs	61,798	
Total Units	30,542	
Units Required		51,499
# Off-Site		20,957
% City Capacity		32%

EXHIBIT C-71 — CONTINUED

Phasing of Housing Development and Job Creation

Alternative D	Jobs/Housing	1.200 WPH
(existing same as B)		
1985-1990		
New Jobs	18,187	
New Units	7,580	
Units Required		15,156
% DUs in North Natomas		50%
# Needed Elsewhere		7,576
1990-1995		
New Jobs	19,187	
New Units	8,360	
Units Required		15,998
% DUs in North Natomas		52%
# Needed Elsewhere		7,638
1995-2000		
New Jobs	25,314	
New Units	12,492	
Units Required		21,095
% DUs in North Natomas		59%
# Needed Elsewhere		8,603
2000-2005		
New Jobs	9,573	
New Units	4,988	
Units Required		7,978
% DUs in North Natomas		63%
Post-2005		
New Jobs	1,605	
New Units	0	
Units Required		1,338
% DUs in North Natomas	0	0%
# Needed Elsewhere		1,338
Cumulative		
Jobs	77,525	
Units	33,864	
Units Required		64,604
% DUs in North Natomas		52%
# Needed Elsewhere		30,740

Summary 1985-1995

Alternative D		
Total Jobs	41,034	
Total Units	16,684	
Units Required		34,196
# Off-Site		17,512
% City Capacity		26%

EXHIBIT C-71 — CONTINUED

Phasing of Housing Development and Job Creation

Alternative C	Jobs/Housing	1.200 WPH
(existing same as B)		
1985-1990		
New Jobs	13,345	
New Units	8,032	
Units Required		11,121
% DUs in North Natomas		72%
# Needed Elsewhere		3,089
1990-1995		
New Jobs	14,095	
New Units	8,344	
Units Required		11,746
% DUs in North Natomas		71%
# Needed Elsewhere		3,402
1995-2000		
New Jobs	15,140	
New Units	9,097	
Units Required		12,617
% DUs in North Natomas		72%
# Needed Elsewhere		3,520
2000-2005		
New Jobs	7,590	
New Units	4,835	
Units Required		6,325
% DUs in North Natomas		76%
# Needed Elsewhere		1,490
Post-2005		
New Jobs	2,630	
New Units	0	
Units Required		2,191
% DUs in North Natomas		0%
# Needed Elsewhere		2,191
Cumulative		
Jobs	56,450	
Units	31,052	
Units Required		47,042
% DUs in North Natomas		66%
# Needed Elsewhere		15,990

Summary 1985-1995

Alternative C		
Total Jobs	31,090	
Total Units	17,120	
Units Required		25,090
# Off-Site		8,789
% of City Capacity		13%

Housing Affordability

The availability and affordability of housing within the region, however, would affect new employees working in North Natomas under Alternative A, since no new housing would be built in the Study Area. Purchase of a home with the City's 1980 median value of $56,800 would require an annual household income of approximately $24,000, beyond the means of most one households of North Natomas workers (see Exhibits C-76 and C-77). North Natomas would not help fulfill the regional fair share housing allocation SACOG has identified for the City since no new housing would be built under Alternative A.

The estimated market price of new housing units in North Natomas under Alternatives B through E could range from $60,000 (high density) to $125,000 (rural estate unit), requiring an annual household income, respectively, of $24,130 to $50,300 to purchase. Assuming a median household income of $27,300, low, medium, and high density rental housing units would be affordable; only medium and high density housing would be affordable to purchase. [106]

Of the ten labor categories examined for this EIR, only persons employed in craft or professional/technical jobs would earn an income sufficient on one salary to purchase housing in North Natomas (Exhibit C-78). Moreover, with the exception of some lower paid professional and technical employees, most one-wage-earner households could not afford the rents for North Natomas housing units which are estimated to require an annual income of $18,000 to $24,000.

Two income households would be essential for North Natomas employees to live in the Study Area, therefore, for all but the best paid professional and managerial personnel. The combined income of two worker households was calculated at 160 percent of typical salaries developed for this EIR.[107] Two wage earner families in low income jobs generally could afford to rent medium or high density housing in North Natomas but still could not purchase housing in the community. Two income families in mid-salary ranges could rent most housing and could afford to purchase medium and high density units. Only the higher paid professional and technical employees, however, could afford to purchase North Natomas housing on one or two incomes.

If medium and high density units are too small (the average number of persons per household in those units is projected to be 1.54 to 1.91 people), housing opportunities for two income households would be decrease, thus effectively excluding lower paid North Natomas workers from living in

EXHIBIT C-76

North Natomas Housing Affordability Analysis

	Rural Estate	Low Density	Medium Density	High Density
	----------LAND USE----------			
Typical Bldg. Size	2,000 sqft.	1,500 sqft.	1,000 sqft.	1,000 sqft.
DU/Acre	1.0	7.0	12.0	22.0
Market Price of New Unit	$125,000	$75,000	$62,500	$60,000
Monthly Rent	N/A	$600	$500	$450
	----------RENTAL AFFORDABILITY ANALYSIS---------- (Median Household Income: $27,300)			
Annual Income Req'd to Rent	N/A	$24,000	$20,000	$18,000
Affordability to Median Income Renter		Affordable	Affordable	Affordable
	----------PURCHASE AFFORDABILITY ANALYSIS---------- (Median Household Income: $27,300)			
Annual Housing Cost	$15,090	$9,060	$7,540	$7,240
Annual Income Req'd to Purchase New Unit	$50,300	$30,200	$25,130	$24,130
Affordability to Median Income Owner	Not Affordable	Not Affordable	Affordable	Affordable

Assumptions:
1. Loan as a percent of market value = 80%
2. Interest Rate = 13.25%
3. Term of loan = 30 years
4. Percent of value of home insured = 75%
5. Property tax as a percent of market value = 1%
6. Housing Cost as a percent of gross income = 30% (Both for owners and renters)

Source: Sacramento Housing and Redevelopment Agency and McDonald & Associates.

EXHIBIT C-77

Income Required to Purchase a Home in North Natomas

	Rural Estate	Low Density	Medium Density	High Density
Market Value of New Home	$125,000	$75,000	$62,500	$60,000
Debt Service				
• Loan Amount (80 percent of market value)	$100,000	$60,000	$50,000	$48,000
• Interest Rate (percent)	13.25	13.25	13.25	13.25
• Term (years)	30	30	30	30
Annual Payment	$13,510	$8,110	$6,750	$6,480
Insurance Cost				
• 75 percent of value insured	$330	$200	$160	$160
Property Tax				
• At 1 percent of market value of home	$1,250	$750	$630	$600
Total Housing Cost				
• Annual Payment	$13,510	$8,110	$6,750	$6,480
• Insurance Cost	330	200	160	160
• Property Tax	1,250	750	630	600
Total Annual Housing Cost	$15,090	$9,060	$7,540	$7,240
Gross Income Needed to Afford New Home (at housing cost of 30 percent of gross income)	$50,300	$30,200	$25,130	$24,130

Source: McDonald & Associates

EXHIBIT C-78

Standard Job Classifications and Annual Salaries

Occupation	Typical Job Title and Salary		
	MRD-50, MRD-20, LI, SPA	HC, CC	O/B
Professional / Technical	Computer Programmer $29,700	Accountant $23,200	Associate Attorney $34,000
Sales Workers	N/A	Retail Sales Worker $16,800	Retail Sales Worker $16,800
Clerical	Secretary $16,000	Secretary $16,000	Executive Secretary $18,200
Craft and Kindred	Machinist $27,000	Electrician $26,700	N/A
Operatives	Electronic Assembler $12,000	Forklift Operator $19,300	N/A
Service Workers	N/A	Cook $14,900	N/A

Source: Sacramento Annual Business Report, Employment Development Department, and McDonald & Associates

the Study Area. Not only would this result in an economically stratified community, but also it would mean than most if not all lower paid workers' housing would have to be provided elsewhere in the region.

ADOPTED PUBLIC POLICIES

County of Sacramento

The Housing Element of the County General Plan contains goals and policies aimed at ensuring the availability of an adequate supply of affordable housing located near employment centers and/or accessible to major transportation corridors. Among the County's goals are the following: [108]

- To attain a sufficient housing supply to assure existing and future residents of a safe and sanitary dwelling at an affordable price.

- To ensure that a variety of housing alternatives is available which provides a choice of location, price, and type within each community.

The County recommends achieving these goals by implementing the following policies: [109]

- Encourage construction, rehabilitation, and financing of housing which is affordable by low and moderate income persons, including manufactured housing.

- Assure that new residential construction is consistent with adopted growth policies and meets projected growth.

- Encourage increased residential densities near employment centers and along major transportation corridors within the urban area, in conjunction with improved transit systems and service, as a means of increasing the housing supply.

- Promote the construction of affordable, durable, quality housing which efficiently uses land and natural resources.

- Encourage a variety of housing types and prices within each community.

In addition, the County has established policies linking the location of housing and jobs in order to promote a balanced expansion of each. It recommends that: [110]

- Sixty (60) percent of employees live within six miles or less of their jobs (one-way commute distance).

- Twenty (20) percent have commutes of six to eight miles,

- Twenty (20) percent may have commutes of more than eight miles.

City of Sacramento

The City's Housing Element contains goals, among which are two identical to those of the County noted above.[111] City-adopted policies for implementing its housing goals are very similar to the County's and include the following:[112]

- Encourage all possible and innovative measures to provide expanded homeownership and rental opportunities to low and moderate income households.

- Assure that new residential construction is consistent with adopted growth policies and meets projected growth needs.

- Encourage increased residential densities and, thus, housing supply near employment centers, along major transportation corridors with areas designated for urbanization, and in conjunction with improved transit systems and services.

- Promote the construction and maintenance of affordable, durable, quality housing which efficiently uses land and natural resources.

Although the City does not have an adopted policy linking the location of jobs and housing comparable to that adopted by the County, the Joint City-County Planning Commission has recommended home-to-work commute distances for people employed in North Natomas for use by consultants in preparing a Community Plan for the area:

- Eighty (80) percent of employees should have commutes of six miles or less.

- The remaining jobholders (20 percent) should have commutes of no more than eight miles.

The Draft North Natomas Community Plan, however, contains the following policy: [113]

> "The Plan shall provide at least an 80 percent balance of jobs and housing such that at least 60 percent of home-work trips are less than six miles one-way and at least 20 percent are between six and eight miles one-way. In the event that surplus residential capacity does not exist outside of the Study Area, the required balance of jobs and housing shall be provided within the Study Area."

ADOPTED PUBLIC POLICIES -- THE IMPACTS

All alternatives call for mixed use development of North Natomas. All provide some housing, although Alternative A effectively provides no new housing while significantly increasing employment opportunities. Alternatives B through E provide for substantial residential and non-residential development.

A variety of low to high density housing types would be built, providing both rental and home-owner units. Essentially all housing within the community under Alternatives B through E would be newly constructed. The higher costs of new construction generally would result in higher overall costs to rent or buy housing than when there is a mix of new and older units in an area. In addition to household income levels, this would influence housing affordability for future North Natomas residents.

The jobs-housing balance within the Study Area for the five alternatives would range from three (3) percent (Alternative A) to 66 percent (Alternative C) for persons employed in North Natomas and also living there (assuming 1.2 workers per household and that those 1.2 workers per North Natomas household also would be employed in the Study Area). Consequently, none of the alternatives would accommodate housing needs resulting from the projected employment growth generated by development in the Study Area. [114]

In order to confine 80 percent of trips within a six-mile radius (as recommended by the Joint City-County Planning Commission) or 60 percent (as recommended by the Draft Community Plan), other nearby communities would have to provide housing for North Natomas workers. Based on the significant increase in employment-generating land uses recently approved by the City Council (and the resulting decrease in residential capacity), South Natomas would not be able to accommodate any of the housing needs of new employees working in that community. [115] Staff of the City and County Planning

Departments indicate that North Highlands, Rio Linda, and North Sacramento could not accommodate any of the housing demand generated in North Natomas. Even if these communities had adequate capacity to house all North Natomas employees who could not live in the Study Area, however, it is more likely that the North Natomas jobholders would commute to homes in other areas, including locations outside the City and County, such as Southport and Woodland in east Yolo County and north to the Sutter County line from the I-5/I-80 interchange and still be within approximately eight miles of the Study Area.

In short, it is highly unlikely that the affordability and timing of construction of housing units in the Study Area would permit all North Natomas employees to live there. Absent excess residential capacity in surrounding communities, it probably would be that the City-County recommended commute distances would not be realized by the suggested 60 to 80 percent of employees working in North Natomas. If this policy were to be fulfilled for North Natomas, however, without reducing employment-generating development and replacing those land uses with residential uses, the result inevitably would lead to pressures for new residential development of unincorporated Sacramento, Sutter, and, possibly, Yolo County land -- growth effectively induced by development in North Natomas.

All alternatives except Alternative A would provide higher density housing near employment centers, major transportation corridors, and proposed light rail transportation stations. North Natomas would be the new focus for employment generating land uses in the region. Although the magnitude differs between Alternatives A through E, each emphasizes economic growth through provision of a major concentration of industrial, office, and commercial land without adequately providing for the housing needs of future North Natomas employees. Until a more realistic balance is provided between jobs and houisng, City and County policies could not be fulfilled, the demand for housing could exert growth-inducing pressures on urban and rural communities, and the unavailability of an adequate supply of housing could affect affordability and choice of housing type adversely.

POPULATION, EMPLOYMENT, AND HOUSING -- MITIGATION MEASURES

The following measures are recommended to mitigate the significant adverse impacts on the jobs-housing balance which would result from Alternatives B, C, D, or E. No measures are available to mitigate the jobs-housing impacts which would result from Alternative A.

- The adopted Community Plan should achieve a jobs-housing balance within North Natomas by providing an adequate housing supply within the Study Area for every job created there. This can be accomplished by designating more area devoted to residential land uses and less area where employment-generating growth can occur. Alternatively, higher residential densities than proposed should be considered, and lower employment-generating densities should be designated for non-residential uses.

- The City and County should develop a program which requires periodic surveys of the jobs-housing balance in North Natomas in order to monitor the effectiveness of Community Plan programs and their respective policies. Housing affordability should be considered as part of these reviews. Policies should be revised or new programs should be developed and implemented which would ensure the required availability and affordability of dwelling units as jobs are created within the Study Area.

- The Community Plan should better define how phasing of housing would keep pace with job creation. Development of 200 to 300 acres of residential use for every 100 acres of employment-generating use as now recommended would not assure a home for every employee unless the residential densities and employment densities were balanced. Consideration should be given, therefore, to establishing a mechanism to allow the City to tie approval of specific housing and employment-generating development programs together and to base permit granting on total housing unit yield versus job creation. One means for accomplishing this would be by tying the issuance of Building Permits for job creating uses to those for dwelling units. Means to encourage residential and employment-generating developers to coordinate their projects should be established so that projects could proceed in a timely manner rather than being stalled until the jobs-housing balance between development proposals can be achieved. The City must retain ultimate authority, however, to withhold approval of employment-generating development if housing would not be available in North Natomas for jobholders based on the findings of the periodic survey suggested above.

- Both the buildout housing stock and housing units phased during the 20-year development period should provide an adequate mix of housing types to be affordable by North Natomas workers at all times. Consequently, the sizes of units built and the decision to sell or rent completed

units should be determined on the basis of the composition of the North Natomas workforce and, thus, household incomes of North Natomas employees. Recognizing that upper income households are best served by the housing market and since new housing generally is more expensive than older housing, special efforts should be made to encourage development of housing which would be affordable by North Natomas employees to rent to buy. One approach would be to increase the proportion of medium and high density housing in proportion to the total housing stock. Another approach would be to establish worker-built housing programs under which persons who participate in housing construction earn "sweat equity" towards (or covering) downpayments. This latter approach has been used successfully by the Ecumenical Association for Housing in its projects in Marin County which have enabled middle and lower-middle income persons just entering the housing market to purchase their homes.

- Increased housing densities should not be interpreted as support only for apartment construction which would house only a small number of persons per household. Provision should be made for family housing of all income levels expected to hold North Natomas jobs, including condiminiums and townhouses.

- If the private market does not ensure the construction of affordable housing within the Study Area, the City and County should require the provision of at least ten percent of units in all North Natomas housing developments to be affordable to low and/or moderate income households. Such units should be designated as affordable housing (rental or purchase) in perpetuity, and public agency housing officials should administer their rental, sale, or resale to ensure that residents qualify and that the units will remain affordable in the future. Affordable units should be required to be scattered (not concentrated) throughout projects. Alternatively, developers should be required to donate the equivalent in improved, buildable lots plus "in lieu" fees to a non-profit housing development organization or public housing agency for their construction of affordable housing.

- If the private market does not ensure the construction of affordable housing within the Study Area, developers of employment-generating land uses should be required to pay a housing fee to the City or County housing agency based upon the value of their projects and the number of units required by their workforce. The funds collected should be spent on the construction of below market rate housing units in North Natomas and/or to subsidize the rent or mortgage cost of low and moderate

income residents. This fee should be paid in increments beginning with initial construction through and until completion and occupancy of developments, in order to ensure the construction of housing units to be available for persons having low and moderate incomes (rather than delaying housing development and forcing employees to seek housing outside the community).

- The Community Plan should establish incentives for developers in order to encourage their provision of affordable housing above the minimum requirement of ten percent of units within a project. Incentives could include density bonuses or more liberal site coverage requirements which would allow a developer to build more market rate housing in exchange for provision of affordable housing for low and moderate income households. Another incentive might include planned unit development (PUD) zoning which would enable developers of adjacent parcels flexibility in planning and coordinating their projects or to enable mixed use developments which would provide both residential and employment-generating land uses within certain areas.

The following mitigation measures relate to employment impacts which would result from Alternatives A, B, C, D, and E.

- Prior to approval of any development application within the Study Area, the City should prepare and adopt an Economic Opportunity Plan (EOP) for the entire Study Area which is included as part of the Community Plan. Such an EOP should require developers and tenants of employment-generating land uses to create job training and placement programs (or participate in already established programs, such as the Private Industry Council) in order to assist unemployed and underemployed Sacramentans, persons just entering the workforce for the first time, and women and minorities obtain North Natomas jobs or improve their skills and education in order to advance to higher paying North Natomas jobs. Special recruitment and training programs should be established prior to occupancy of employment-generating development by employers so that participants in these programs will be prepared to hold jobs when they are available. Job training, retraining, and placement programs should target a variety of occupations and labor categories to ensure that persons who participate would have a choice of jobs for which to apply and have access to a range of salaries.

- Preference in job training, retraining, and placement should be given to existing Sacramento residents with emphasis on persons living in

North Sacramento where there are extremely high rates of unemployment and little expectation of employment-generating development occurring in the immediate future.

The following measures are recommended to bring Alternatives B, C, D, and E into conformance with adopted General Plan policies of the City and County.

- If the alternative adopted as the North Natomas Community Plan is to result in 60 to 80 percent of North Natomas workers living within six miles of their jobs, as recommended by the Joint City-County Planning Commission and the Draft Community Plan, the number of housing units within the Study Area should be equal to or greater than 80 percent of total employment in the community. Because of the lack of surplus residential capacity in surrounding communities and the size of the Study Area, home-to-work trips of five miles could be confined within North Natomas. Consequently, it should be assumed that the 80 percent jobs-housing balance can be achieved within the Study Area.

- Provision of more housing units also should involve a mix of housing types and costs which takes housing affordability of North Natomas employees into account, a sizeable proportion of whom will hold low-paying industrial, office, and service jobs. Higher paid managers and professional employees are the most mobile in the workforce, and housing developers generally serve the upper income market best which means that these employees would have a greater choice of housing types, costs, and locations. Consequently, the adopted Community Plan should emphasize the housing needs of low and moderate income employees in North Natomas by ensuring that the alternative types, sizes, and costs of housing are built to meet the needs of these groups.

- So as not to exacerbate housing availability and affordability problems in North Natomas and surrounding communities, adequate housing must be built in concert with the construction of employment generating uses. As a result, industrial, office, and commercial project approvals must be conditioned to provide for the phased availability of housing types in accordance with the analyses contained in this EIR.

1 These statistics are calculated in terms of percentages in order to allow comparision and do not always add to 100 percent due to rounding. Dollar amounts are for 1980 dollars.

2 The Sacramento County General Plan, Housing Element, page 6.

3 North Natomas Community Plan Background Report, The SWA Group et al, June, 1984. This area is approximate and adds to 14,330 acres. For planning purposes, however, the City is using a Study Area size of 14,300 acres.

4 McDonald & Associates has estimated that 1,613 people lived in North Natomas by 1983 for a six percent population increase. In order to develop a demographic profile of the community, however, 1980 US Census data were used.

5 Population growth between 1980 and 1983 has resulted in an estimated South Natomas population of 15,329 people (a 143 percent increase) and approximately 37,840 people living in North Sacramento (a 3 percent increase). McDonald & Associates, February 8, 1985.

6 It should be noted, however, that the demographic statistics developed for the 1980 US Census were not updated to reflect 1983 "benchmark" conditions.

7 Background Report, op. cit., pages 108-111, is the source of these data.

8 The existing 20 percent vacancy rate in North Natomas means that approximately 2.53 persons per household reside in occupied units. (1,520 people ÷ 602 occupied units = 2.53 pph. [602 occupied + 153 vacant units = 755 total units.]) A 1,613-person population living in 602 occupied units would result in an average of 2.68 pph compared with the present average of 2.53 pph. (1,613 people: 602 occupied units = 2.53 pph. [602 occupied + 153 vacant units = 755 existing units.]) A vacancy rate of 6 percent would result in 710 occupied units. (A six percent vacancy rate generally is define as adequate to allow choice and mobility in housing.) If these units housed 1,613 people, a density of 2.27 pph would result in North Natomas, well below the citywide average of 2.39 pph.
Assuming 2.0 pph in occupied multi-family units and mobile homes (368 persons), for instance, the remaining 1,240 people living in 541 existing year-around single family housing units would result in a density of 2.29 pph.

10 The minimum number of 152 more mobile homes housing an average of 1.91 pph (the pph figure used by the draft community plan for medium density residential development) would result in an additional population of 290 persons, three times the population growth envisaged by this alternative.

11 Median age in the NSA where the mobile home park is located is 54.3 years old.

12 The 1980 Housing Element of the Sacramento General Plan, page 9.

13 Buildout population (Alternatives B through E) - 1980 population (1,520 people) x 46 percent = immigrants to North Natomas. Based on 1983-84 composition change countywide (54.3 percent natural increase and 45.7 percent immigration) compiled by McDonald & Associates using data from the Population Research Unit of the State of California Department of Finance.

14 McDonald & Associates has determined that development in North Natomas would result in incremental growth throughout the region. Depending,

however, on which alternative is implemented, the proportion of this incremental growth would be shifted among the City's communities, the unincorporated County, and elsewhere in the SMSA.

15 Alternative A @ 444 units = 60% of 744 total units; Alternative B @ 13,800 units = 66% of 20,800 total units; Alternative C @ 20,052 units = 66% of 31,052 total units; Alternative D @ 24,064 units = 71% of 33,864 total units; and Alternative E @ 40,820 units = 96% of 42,752 total units. Uses medium and high density units and reflect a zero (0) percent vacancy rate.

16 While couples without children could be people whose children have grown and no longer live with their parents, it is more likely that new residents would be younger, possibly recently married people who have not yet had (or do not plan to have) children. These probably would be people who have entered the workforce fairly recently which also would mean that starting incomes could be low, even with two workers per household (wph).

17 Alternative A @ 1,613 people ÷ 744 units = 2.17 pph; Alternative B @ 41,766 people ÷ 20,800 units = 2.01 pph; Alternative C @ 63,907 people ÷ 31,052 units = 2.06 pph; Alternative D @ 65,792 people ÷ 33,864 units = 1.94 pph; and Alternative E @ 76,626 people ÷ 42,752 units = 1.79 pph (see Exhibit C-18). Assumes buildout of all units. McDonald & Associates developed higher person per household rates using 94 percent of housing units (occupied plus six percent vacant) but using the maximum populations assumed to live in 100 percent of housing units built. If only 94 percent of units were occupied, there would be a proportionate reduction in North Natomas' population. As a result, the McDonald & Associates' estimates of persons per household (pph) were analyzed but were not used for this EIR.

18 Growth Policy calculations of future housing demands assumed a continued decline in household density to 2.3 pph, still above the average pph within North Natomas under all alternatives.

19 If all rural estate and low density housing were owner-occupied and if all medium and high density units were renter-occupied, 60 percent (Alternative A) to 96 percent (Alternative E) would be rental units (see footnote above). If half of medium density, all rural estates, and all low density units were owner-occupied, and if half of medium density and all high density units were rental housing, between 28 percent (Alternative A) and 63 percent (Alternative E) of occupied units might be rental units.

20 The Gateway Point application in Alternative E provides for 3,080 "timeshare" units. At a rate of 2.0 pph, these units could result in a population of 6,160 people. (Letter to Clif Carstens, City of Sacramento Planning Department, from Ronald Smith, The Spink Corporation, February 18, 1984, page 10.) Timeshare units are proposed to be "oriented to the short-term user". (Gateway Point Sports Recreation and Corporation Center, received by the Sacramento City Planning Department December 13, 1983, page 2.) Little is known about these timeshare units, but for the purpose of this EIR it is assumed that they would be occupied year-around. Nevertheless, they would not be expected to have long-term residents.

21 Sacramento Area Employment and Land Use Projections, McDonald & Associates, January, 1985, page 22. By 1983 employment was estimated to have increased to approximately 414,103 jobs throughout the SMSA of which 210,950 were provided in the City. 2005 Dwelling Unit, Population, and Employment Forecasts, McDonald & Associates, February, 1985.

22 Economic Analysis and Program Assessment, Affordable Housing Study for the City of Sacramento, Questor Associates, 1981, page 17.

23 Growth Policy Conclusions and Recommendations, op. cit., page 4.

24 Within the SMSA. Sacramento Area Employment and Land Use Projections, op. cit., page 20.

25 The 87 percent of workers who commute by private vehicle or public transit include persons driving or riding in cars, trucks, and vans.

26 Based on data for County residents only.

27 The US Census sample is for 650 workers age 16 or older. This figure does not compare either with the total labor force or the numebr of persons employed as of 1980 but is used as a representative sample of North Natomas residents.

28 Five (5) percent of the total labor force (age 16 or older) of 689 persons. See the previous footnote related to US Census sampling differences.

29 Sacramento Area Council of Governments' data for 1979. Among those jobs were 154 County employees working at the Sacramento Metropolitan Airport and another 2 fulltime (plus occasional parttime) employees working at the Natomas Air Park. Other jobs would include airline, car rental agency, restaurant, and service personnel at Metro Airport and industrial and warehousing jobs at sites within the Study Area. Based on the ratio of one agricultural job per 94.8 acres, up to approximately 118 jobs are provided on the Study Area's 11.145 acres of agricultural land. Source of agricultural employment: Agriculture in Sacramento's North Natomas Area: Production, Economic Impacts, and Urban Conversion Issues, Mundie & Associates, January, 1982.

30 McDonald & Associates' estimates of 3,650 jobs (phasing program) and 3,690 jobs (2005 forecasts). The difference between the SACOG and McDonald & Associates' figures is due to new industrial development in North Natomas but also probably represents different counting and estimating techniques.

31 Specific areas in North Sacramento had extremely high rates of unemployment in 1980 including many with over 20 percent of the labor force unemployed. They were Arden-Arcade, 25.1 percent (NSA 05), Hagginwood, 20.8 percent (NSA 36), North Norwood, 30.6 percent (NSA 47), Robla #2, 22.9 percent (NSA 57), Robla #3, 20.4 percent (NSA 58), and Woodlake #2, 22.2 percent (NSA 76).

32 South Natomas Community Plan EIR, Jones & Stokes, Inc., November, 1984, Exhibit F-4. Total direct employment is estimated to be 25,949 jobs within South Natomsa which would generate another 42,167 secondary (indirect and induced) jobs for a total of 68,116 jobs. Another 22,607 person years of construction employment also are estimated to be created.

33 McDonald & Associates' 2005 Forecasats.

34 Memo to Members of the Consultant Team, North Natomas Planning Studies, from Marty Van Duyn, Planning Director, January 23, 1985.

35 Alternative A does not estimate additional jobs to be created by the

proposed doubling of Metro Airport.

36 Land in agricultural production would decline from 11,145 acres to 7,341 acres. Agricultural employment would decline to 77 jobs, 37 percent fewer jobs in agricultural occupations under Alternative A than currently provided. This decline would be expected to represent a permanent loss of some agricultural jobs together with a shift in other agricultural jobs, such as seasonal employment, to other areas outside the City.

37 As noted previously, some areas in North Sacramento have unemployment rates of 20 to 30 percent of the workforce.

38 Growth Policy, op. cit., page 2.

39 Nichols-Berman conversation with Bud Bostwick, San Mateo County Development Association, as cited in CIF Corporation Office Building Environmental Assessment, City of Burlingame, June, 1983.

40 These transformations have been witnessed in the formerly land-extensive light industrial and warehousing areas in the vicinity of the San Francisco International Airport. Readjustments in high technoloigy industry in the Bay Area, such as divisions in locations of operations, have been influential in decreasing demands for airport-related warehousing and service development. Other factors admittedly have contributed to intensification of land use near the San Francisco airport, as well, and reduction in historical uses. Higher costs of housing and higher labor costs, for instance, also have prompted extensive users to move their operations to areas distant from the airport where land and labor costs are lower.

41 According to the Draft South Natoms Community Plan EIR, approximately 25,949 jobs could be provided upon buildout of employment-generating uses. Using the citywide average of 1.064 to 1.178 employees per household, approximately 22,028 to 24,388 housing units would be required to accommodate South Natomas workers, assuming that all persons who work in South Natomas also wish to live there. Of the 25,920 housing units planned to be provided in South Natomas upon buildout of the community, approximately 22,901 units would be newly developed and 2,819 units presently exist (as of the 1980 US Census). According to the South Natomas Community Plan EIR, an estimated 7,500 units existed in 1984. Assuming all 2,819 to 7,500 units were occupied, only 18,220 to 22,901 units could be constructed to meet the 22,028- to 24,388-unit housing need of 25,949 employees.

42 From ± 30,117 jobs in 1983 to 36,750 to 46,747 jobs by 2005, according to McDonald & Associates' forecasts.

43 1980 labor force of 14,580 people x 19.4 percent unemployment = ± 2,829 unemployed and 11,759 employed North Sacramento residents (figures do not account for persons age 16 or older who may have dropped out of the labor force). 6,633 to 16,630 new jobs by the year 2005 + 2,829 unemployed taking new jobs = 3,804 to 13,801 net new jobs to be filled ÷ 1.064 workers/household = 3.575 to 12,971 new units needed to house employees (and their families) holding the new jobs (3.229 to 11,716 new units if workers/household ratio increases to 1.178 wph and 3,179 to 11,501 units if the average wph is 1.2).

44 Approximately 118 agricultural workers currently are employed in North Natomas (1 worker/94.8 acres for 11,145 acres). Agricultural employment is discussed further in the Agricultural Lands section.

45 Sacramento Area Employment and Land Use Projections, op. cit., page 4.

46 The City's boundaries might be expanded to accommodate growth or the new jobs could be provided elsewhere in the region. Annexation to include areas where employment-generating growth is occurring potentially would alter this capture rate.

47 Sacramento Area Employment and Land Use Projections, op. cit. High technology employment in the year 2005 has not been projected.

48 M-20 and M-50 jobs: Alternative B @ 25,170 jobs (61%), Alternative C @ 31,350 jobs (56%), Alternative D @ 45,975 jobs (59%), and Alternative E @ 92,250 jobs (78% of all jobs under this alternative).

49 Another 7,320 office and 1,600 commercial jobs were approved at Delta Shores Village for total employment there of 17,620 jobs.

50 20,136 jobs (Alternative B) assumes that the maximum amount of M-20 and M-50 lands would be developed with offices while the high range (92,250 jobs under Alternative E) assumes that all M-20 and M-50 lands would be developed with high technology industry.

51 Economic Analysis and Program Assessment, op. cit, page 17.

52 Silicon Valley and Beyond: High Technology Growth for the San Francisco Bay Area, Association of Bay Area Governments (ABAG), December, 1981, page 74.

53 Ibid.

54 Among the reasons high technology industries are developing facilities outside of Silicon Valley are that labor costs are lower because housing is both more available and generally more affordable to lower paid production personnel and because land costs less and is available for expansion compared with availability and price of urbanized Silicon Valley.

55 Employment Development Department and McDonald & Associates.

56 Sacramento Area Employment and Land Use Projections, op. cit., page 24. 1980 dollars.

57 Ibid. At a low range of $7-8,000 and a high range of $18-21,000 for an average range of $7,300 to $19,700 per year.

58 Ibid. At a low wage of $10,000 and a high range of $24-29,000 for an average of $26,500 annually.

59 Sacramento Annual Business Report, Employment Development Department, and McDonald & Associates.

60 Silicon Valley and Beyond, op. cit., page 80. In Silicon Valley there is a larger concentration of women in low-wage production jobs than exists nationally.

61 Another 1,000 jobs would be created at the sports complex proposed in Alternatives B through E.

62 This was observed in a survey of employees at the Hewlett-Packard plant in Roseville. One-fourth of the survey respondants indicated that their wages were less than $10,000 per year at Hewlett-Packard, but only one-fourth of those respondants had total household incomes of less than $10,000 annually. Planning for Development in South Placer County, Gruen Gruen + Associates, March, 1981, pages 69-70.

63 By 1983 the number of housing units citywide was projected to have increased by more than 18,000 units to a total of 141,304 units. McDonald & Associates, February 8, 1985.

64 None of the vacant housing units in North Natomas was boarded-up in 1980 which might suggest deteriorated or abandoned structures. Most are awaiting sale or rental. Considering the relatively large amount of new construction in North Natomas during the decade preceding 1980,

it appears that most of these units were recently completed but still unoccupied at the time the 1980 US Census was taken. (A six percent vacancy rate generally is considered necessary in an urban area to allow mobility and choice in housing.)

65 US Census data for the County area within North Natomas do not separate rental and owner-occupied housing either for the year built or for the year residents moved into their homes, although 15 percent of units within the unincorporated area are rented. Consequently, no conclusions can be made about mobility in County housing units.

66 While 59 percent of housing units within the City were constructed between 1970 and 1978, 86 percent of those new units are concentrated in the NSA where the Golden West Mobile Estates site is located. The remaining 14 percent of newly built homes are located in the City NSA adjacent to North Sacramento.

67 Units located in and in the vicinity of Golden West Mobile Estates within the city have a lower median value than homes located in the neighborhood adjacent to North Sacramento due to the large number of mobile homes compared with conventional housing, but median incomes are slightly higher in this portion of the City than in the area bordering North Sacramento.

68 Median mortgage costs in the City NSAs are considerably lower and in the County census tracts are significantly higher than those throughout the City of Sacramento.

69 According to McDonald & Associates, as of 1983 North Sacramento was estimated to have 14,993 housing units, and South Natomas was estimated to have 5,788 units.

70 US Census, op. cit., 1980.

71 The Sacramento County General Plan, Housing Element, op. cit., page 36.

72 Ibid.

73 Ibid., page iii. Estimate assumes a 6 percent vacancy rate.

74 If built, this would result in production of ± 25,000 to ± 30,000 units annually in the County. Development which could occur in urban areas includes housing development which could take place in the City of Sacramento.

75 Ibid., Table 13, page 37 and community area 1, page 9. This "community", as defined by the County, covers the City designated area of South Natomas and the portion of North Natomas south of Del Paso Road.

76 The Amount of Vacant Land, General Plan Update, Technical Report #1, August, 1981, Table 1. The remaining vacant lands are located in North Natomas, amounting to 5,800 acres. Approximately 2,800 acres were designated as urban reserve in the 1974 General Plan and ± 3,000 acres were designated as "permanent agriculture", prior to the "agriculture" designation for the entire community under the current City Growth Policy.

77 Ibid., Table 2.

78 15,408 additional units in South Natomas + 13,092 additional units in North Sacramento + 66,317 additional units citywide = 43 percent.

79 South Natomas @ 25,920 units at buildout + North Sacramento @ 31,352 units = 57,272 units + 217,600 citywide = 26 percent.

80 Growth Policy, op. cit., page 8. Up to 15,341 additional units in South Natomas (the difference between the maximum of 25,920 units and 10,579 existing and approved units) and another 13,092 units in North

Sacramento (28,433 total units) represent 52 percent of the city's maximum housing need of 55,027 units by 1995 and 43 percent of the potential 66,317 units which could be built citywide on vacant residential lands.

81 1980 Housing Element of the Sacramento General Plan, op. cit., page 12.

82 The Element also states: "With respect to the concern expressed by builders that growth controls which limit the amount of residential land available for development adversely affect the cost of housing, it is probably true that the elimination of all land use regulatory constraints would reduce the cost of land through freeing up the supply. The approach taken by Sacramento, though, is to balance this concern with other equally important concerns such as environmental quality, energy conservation, and provision of adequate services. The General Plan policy, in essence, is not to restrict growth but to guide it. The extent of the planned urban area is based upon an analysis of projected land use needs. Enough land areas are included to accommodate all urban growth anticipated until after the year 2000. In addition, it is a policy of the General Plan to re-evaluate and update it every 5 to 7 years to ensure that adequate land continues to be available for development ...". Ibid., page 60.

83 The Sacramento County General Plan, op. cit., Housing Element, page iii.

84 Ibid., page 26.

85 Ibid., page iii.

86 Ibid., page 17.

87 Ibid.

88 1980 Housing Element of the Sacramento General Plan, op. cit., page 40.

89 Ibid., page 54. In spite of these concerns, however, the Sacramento area recently was reported to have the "lowest priced housing among six major metropolitan regions in the state" and "more affordable housing than either the state or nation as a whole". "Sacramento Has Lowest Housing Prices", Sacramento Bee, August 11, 1984 reporting on California Association of Realtors' study.

90 According to the North Natomas Community Plan Background Report, 65 acres presently are designated for residential use, including 50 acres within the City and 15 acres in the County. Provision of 337 acres for residential development would increase residential land use by more than 400 percent over present conditions in the Study Area, although Alternative A is intended to represent no change from existing conditions. Insufficient data exist to explain this inconsistency, but it is acknowledged by the EIR.

91 At the ± 37-acre Golden West Mobile Estates, 152 pads were developed approximately 15 years ago, all of which currently are occupied. This mobile home park is only partially developed -- with mobile homes and common areas occupying approximately half of the land planned for this facility by its owners -- and the owners intend to develop the remaining half with 152 or more mobile home sites. Since all of the common facilities to serve the entire mobile home park upon planned buildout of the 37-acre area have been provided in the presently developed portion, the owners expect that a total of more than 304 mobile home sites would be available upon this park's completion. Nichols-Berman conversation with Ivan Strand, owner, Golden West Mobile

Estates, September 24, 1984. Available US Census statistics do not account for the difference in number of mobile homes counted (129) and those known to be located in the Study Area (± 152). This difference could be due to US Census sampling techniques or an increase in mobile home units since the 1980 US Census count.

92 1980 US Census.

93 A typical single family neighborhood contains 3 to 7 units per acre under R-1 densities while R-1A and R-2 zoning for duplex and townhouse zones "have slightly higher densities of up to 15 units" per acre. The General Plan for Sacramento, op. cit., page 2-5. The General Plan does not contain provisions for rural estate residential use as envisaged by Alternatives A and C. The Zoning Ordinance allows a range from 1/2-acre to 4-acre aprcels, depending on the specific classification.

94 The only additional housing development which might occur would be buildout of the existing mobile home park.

95 Since up to 15,341 units potentially would be built in South Natomas until its residential capacity is reached, 85 percent of the County's expectations would be fulfilled in that community alone. While this leaves ± 2,803 units to be provided elsehwere in the County, this amount only represents two percent of the 144,000 to 169,000 housing units which potentially could be developed on vacant lands countywide.

96 City of Sacramento Sphere of Influence, op. cit., page 75.

97 The expansion of employment generating land uses under Alternative A would exert strong pressures for residential development in North Natomas.

98 This alternative recognizes the existence of the Golden West Mobile Estates which, expanded or not, would continue to be surrounded by agricultural lands. This non-agricultural use could be interpreted in the future to constitute a precedent for other residential development within North Natomas. The immediate proximity of residential use to agricultural operations could cause conflicts, such as complaints by residents about agricultural practices, which could affect agricultural operations adversely.

99 Alternative B @64 percent, Alternatives C and D @ 68 percent, and Alternative E @ 72 percent.

100 All low density units are assumed to be owner-occupied single family homes. If half of the proposed medium and high density housing were townhouses or condominiums, 30 to 66 percent of housing could be owner-occupied, and 28 to 63 percent would provide rental housing. (The 3,080 timeshare units Gateway Center application in Alternative E probably would be rented by investors, although they potentially could be owner-occupied.)

101 More Numbers, More Background, More Information, Accelerated General Plan Update, City of Sacramento Planning Department, February, 1982, page 14.

102 Program Plan and Implementation Strategy, Affordable Housing Study for the City of Sacramento, Questor Associates, March, 1981, and Draft Delta Shores Village EIR, Nichols-Berman, February, 1983.

103 McDonald & Associates forecast of 218,204 to 251,004 total units citywide by year 2005 less 141,304 existing units as of 1983.

104 Including on constrained lands.

105 Low density residential use immediately contiguous to the 49 acres of agricultural land remaining in the planning area virtually acknowledges

that these agriculturaul lands eventually would be developed, probably with additional low density housing. The urban-rural conflicts experienced by agriculturalists due to the proximity of residential populations here and to the north (at medium densities) would require farming operations to be moved back from residential areas, thus reducing the productivity of the remaining agricultural lands and, ultimately, making conversion to urban uses more enticing than continued agricultural use.

106 Calculated by McDonald & Associates for this EIR.

107 While women may have equivalent educational background, training, experience, and job responsibilities, women's salaries still average 60 percent of men's salaries. In addition to historical discrepancies between men's and women's salaries, some businesses which typically employ low-paid clerical workers and operators tap the pool of second wage earners in order to keep their payroll costs down. There is a trend among many businesses in urban areas, for example, to relocate these functions to suburban office and industrial parks and to hire second wage earners just entering (or reentering) the workforce on a part-time or full-time basis.

108 The Sacramento County General Plan, July, 1982, Housing Element, pages iv-v.

109 Ibid.

110 Sacramento County General Plan, Air Quality Goal 2.3.1(L), page 19.

111 1980 Housing Element of the Sacramento General Plan, pages 77-78.

112 Ibid.

113 Draft North Natomas Community Plan, The SWA Group et al, page 13.

114 It may be more realistic to assume that only one person per household would work in North Natomas and that any other workers per household would be employed elsewhere in the region. This would result in 3 to 55 percent of North Natomas employees also living in the community: Alternative A (3 percent), Alternative B (50 percent), Alternative C (55 percent), Alternative D (44 percent), and Alternative E (36 percent).

115 North Natomas employees who live in South Natomas could have commutes in conformance with City-County policy but would force South Natomas employees to look elsewhere for housing. This points out why jobs-housing balances should be provided within individual communities and why an adequate supply of housing should be built as jobs are created. Then, if employees live outside the communities where they work, they will "free" housing near their jobs for other people.

D. LAND USE -- THE SETTING

The land use section describes the existing land uses within North Natomas and discusses adopted public land use policies contained in General Plans which are applicable to the Study Area. The latter policy discussion focuses on two main topics: (1) agricultural preservation and urbanization and (2) the relationship between jobs and housing in urban areas. These topics are the central land use issues addressed by the Community Planning process so that the City can determine whether and when to open North Natomas to development.

EXISTING LAND USES

The existing land use of the Study Area is predominantly agricultural (11,145 acres). Other uses include public and quasi-public use, primarily consisting of Metropolitan Airport lands , industrial development (660 acres), residential development (65 acres), and vacant lands (1,150 acres). [1] Developed uses include Metro Airport, Natomas Air Park, the Natomas Sewer Treatment/Pumping Station, a mobile home park, low density residential development, and the Northgate industrial area, together with regional transportation corridors. [2] In addition to these uses, a major north-south electric power transmission line corridor runs along the eastern border of the Study Area, a major drainage canal traverses the Study Area in a north-south direction, smaller irrigation and drainage ditches and associated levees are scattered throughout the area, and a railroad line which runs adjacent to the Study Area's eastern boundary connects points to the north and south of North Natomas.

Existing land uses are illustrated in Exhibit D-2, and the areas of these uses are summarized in Exhibit D-3. Existing General Plan land use designations of the City and County lands within the Study Area are illustrated in Exhibit D-4; adopted policies which address these General Plan designations are discussed below, "Relationship to Adopted Plans and Policies". Existing zoning of City and County land within the Study Area is shown in Exhibit D-5, Exhibit D-6 summarizes the areas within zoning categories, and Exhibit D-7 provides definitions of the City and County zoning districts present in North Natomas.

More detail about the existing land uses in North Natomas is available in the North Natomas Community Plan Background Report prepared by The SWA Group. That report is available for review at the City of Sacramento Planning Department.

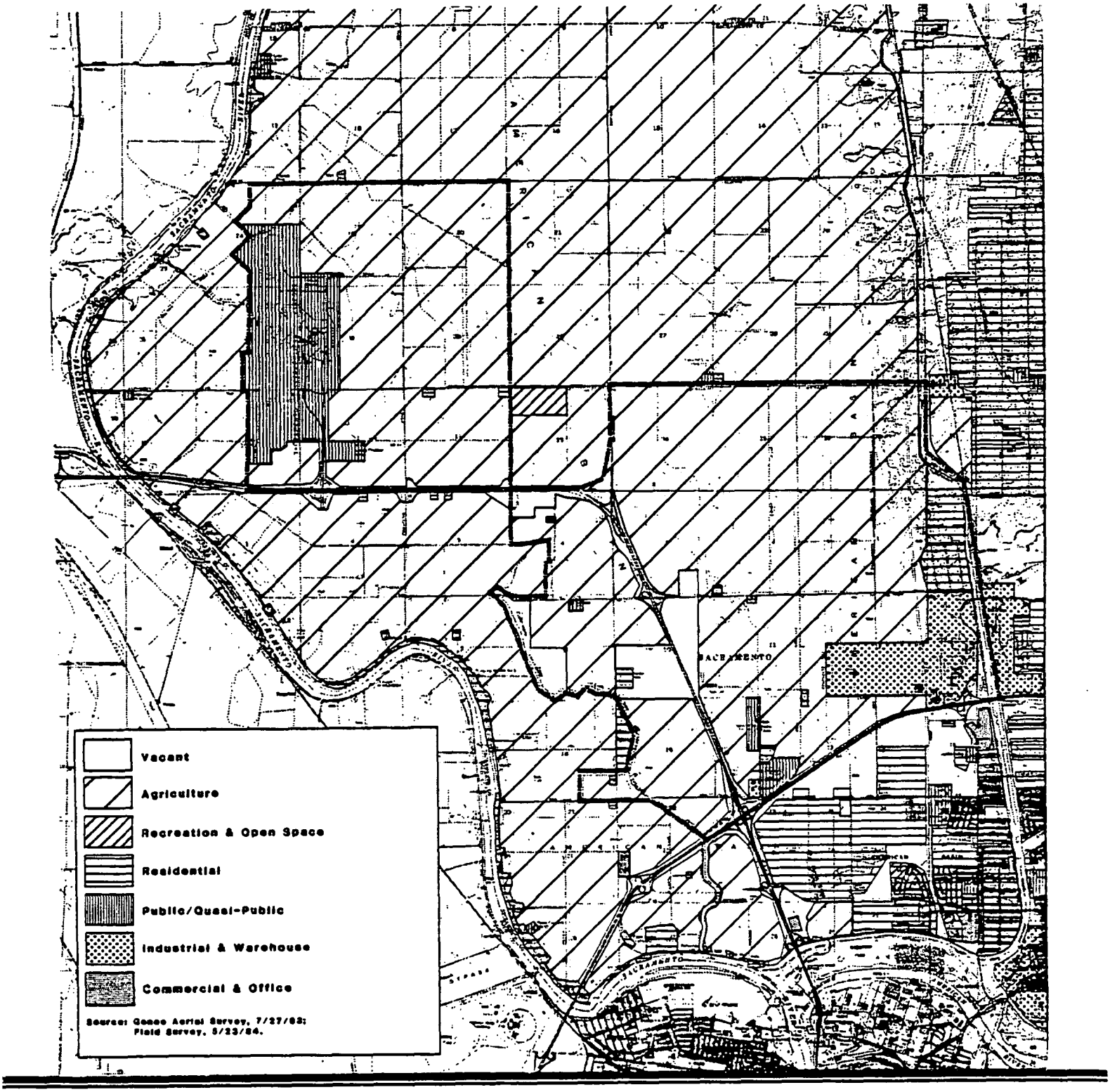


EXHIBIT D-2
EXISTING LAND USE

0 3200 6400 Ft.

Source: The SWA Group

EXHIBIT D-3

Existing Land Use -- North Natomas Study Area
(1984)

Land Use	Approximate Gross Acres			Approximate % of Study Area		
	Total	City	County	Total	City	County
Agricultural	11,145	6,733	4,412	77%	60%	40%
Major Public/ Quasi-Public	1,286	112	1,174	8%	8%	92%
Industrial	660	18	642	4%	2%	98%
Residential	65	50	15	0.4%	76%	24%
Recreation/ Open Space	-	-	-	-	-	-
Vacant Parcels	1,150	830	320	8%	72%	28%
Total	±14,330					

Source: Background Report, op. cit., Table II-1, page 8.

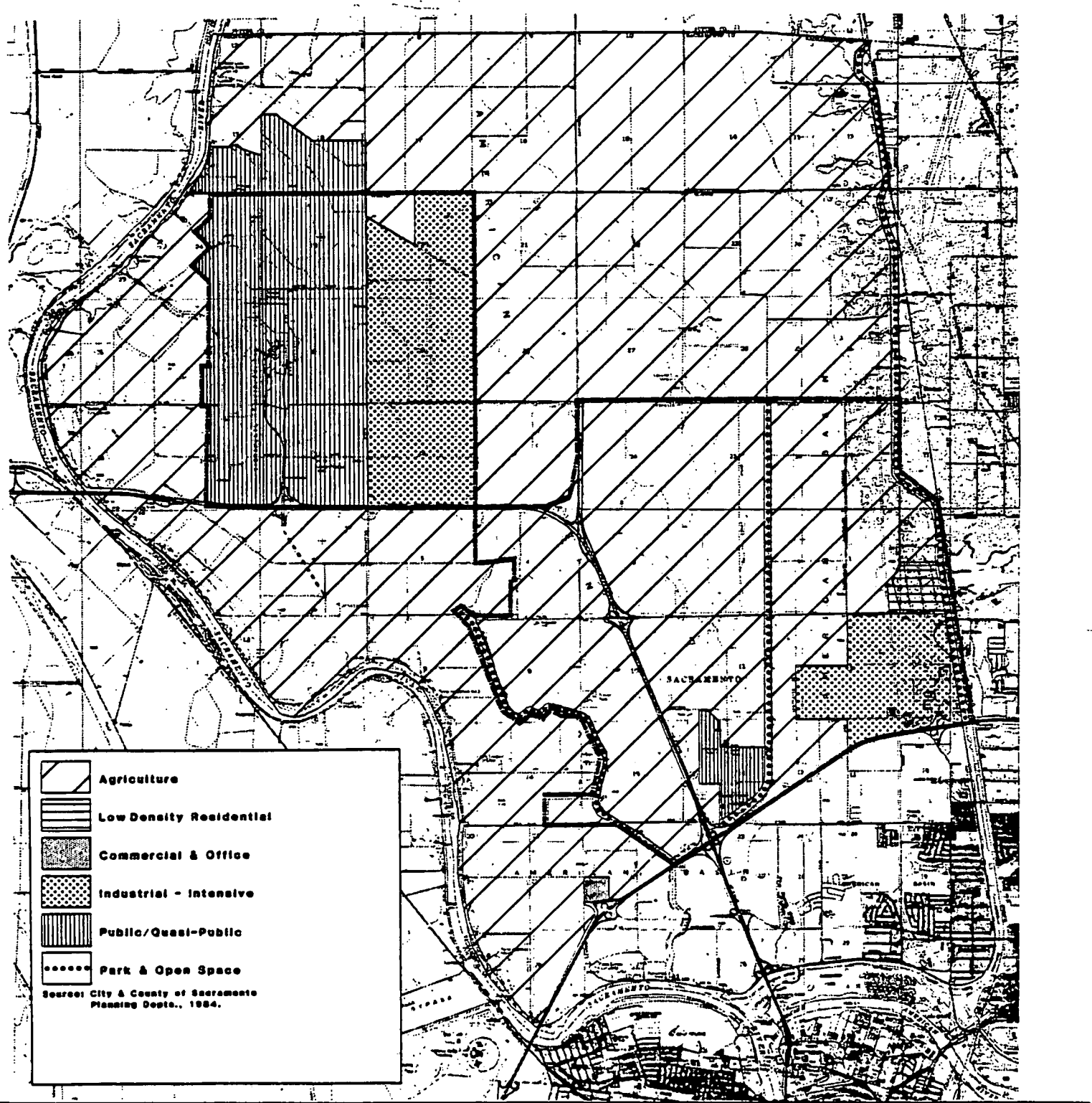


EXHIBIT D-4
GENERAL PLAN DESIGNATION

0 3200 6400 Ft.

Source: The SWA Group

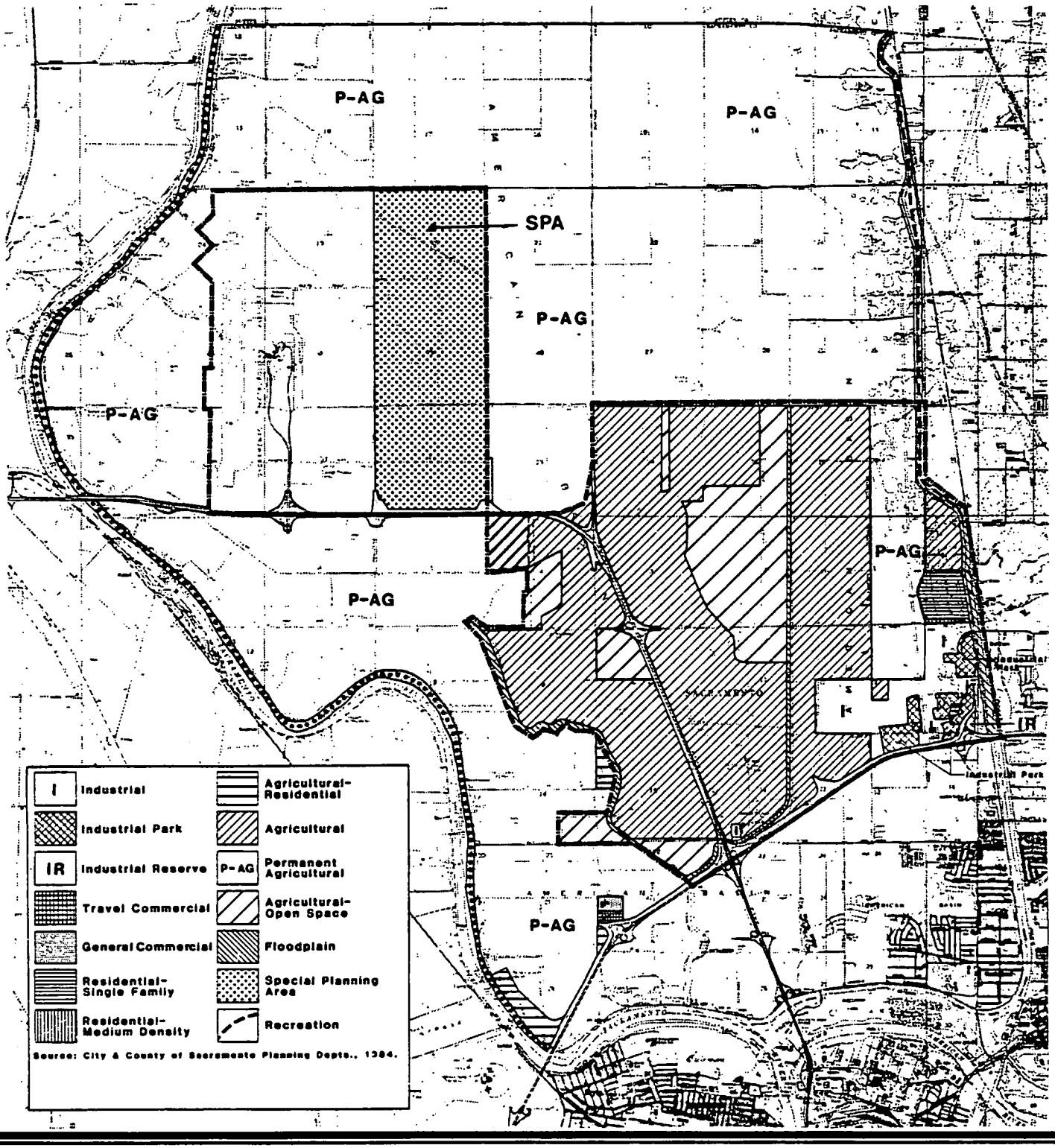


EXHIBIT D-5
ZONING

Source: The SWA Group

EXHIBIT D-6

Zoning Designations -- North Natomas Study Area
(1984)

Zoning Designation	Approximate Gross Acres			Approximate % of Study Area		
	Total	City	County	Total	City	County
Industrial	499	6	493	3%	1%	99%
Industrial Park	166	-	166	1%	-	100%
Agricultural	5,448	5,298	150	38%	97%	3%
Permanent Agricultural	3,665	-	3,665	25%	-	100%
Agricultural-Open Space	1,342	1,342	-	9%	100%	-
Floodplain	285	164	121	2%	57%	43%
Special Planning Area	1,855	-	1,855	13%	-	100%
Residential-Single Family	118	118	-	0.8%	100%	-
Residential-Medium Density	1	-	1	1/	-	100%
Recreation	50	-	50	0.3%	-	100%
General Commercial	2	-	2.5	1/	-	100%
TOTAL 2/	14,330	6,928	6,503.5			

1/ Negligible.

2/ Total does not include acreage in highway and drainage rights-of-way (899 acres).

Source: Background Report, op. cit., Table II-4, page 21, citing 1984 data of the City and County of Sacramento.

EXHIBIT D-7

City and County Zoning Districts

District	Description
City of Sacramento	
R-1	Single Family Zone. This is the most selective of residential zones, composed chiefly of homes, and may have recreational, religious, and educational facilities as the basic elements of a balanced neighborhood.
A	Agricultural Zone. This is an agricultural zone restricting the use of land primarily to agriculture and farming. It also is considered an open space zone. Property in this zone will be considered for reclassification when proposed for urban development which is consistent with the General Plan.
F	Flood Zone. This is a special zone which permits agricultural uses and other uses subject to special review and approval. It also is considered an open space zone. It is intended to be applied to areas along the Sacramento and American Rivers and their tributaries and other areas subject to innundation.
A-OS	Agriculture-Open Space. This is an exclusive agricultural zone designed for the long-term preservation of agricultural and open space land. This zone is designated to prevent the premature development of land in this category to urban uses.
County of Sacramento	
M-I	Light Industrial. This area is intended for fabrication, manufacturing, and processing facilities not involving production of smoke, gas, or other objectionable by-products.
M-P	Industrial Park. This area is intended for park-like, nuisance-free industrial, research, service, and office developments. Such developments will provide visual and operational amenities through development standards such as setbacks and landscaped areas.
A	Permanent Agriculture. This former general plan designation (June, 1982) was intended to protect areas essential to the County's agricultural economy. Most of these areas in North Natomas currently are designated as Agricultural-Cropland.
SPA	Special Planning Area. SPA's are zoning categories for sites requiring particular attention due to location or proximity to special facilities. In North Natomas the area east of the airport is intended to provide land for future industrial development. The other SPA in the general [analysis] area is located between the Sacramento River levee and the Garden Highway and is intended exclusively for residential development.

Source: Background Report, op. cit., pages 22-23.

RELATIONSHIP TO ADOPTED PLANS AND POLICIES

The City and County have adopted General Plans and land use policies which guide where and when urbanization will occur and recommend appropriate land use intensities and development densities for those areas. This section discusses the conformance of the five community plan alternatives with relevant policies of the following principal planning documents:

Plan/Study [3]	Date Adopted	Planning Period/Until Year	
• County General Plan (updated every 5-7 years)	1982, amended 1983	10 years	1990
• City General Plan (updated every 5-7 years)	1974	20 years	1995
• City Growth Policy	1982	± 15 years	1995
• North Sacramento Community Plan	1983	± 15 years	2000
• South Natomas Community Plan	Being Revised	20 years	2005
• LAFCO Sphere of Influence Study	1981	20 years	2001

Most of the North Natomas Study Area currently is designated for agricultural use with substantial areas of industrial and public (airport) lands and a smaller amount of residential land. The majority of agricultural land is located in the City's jurisdiction while only a small amount of County land is designated for agricultural use. [4] Outside the Study Area, however, virtually all County land in the North Natomas area is designated for agricultural use.

According to the County General Plan, "many types of [land] uses are quite incompatible with and even destructive of reasonable agricultural pursuits and visa versa". [5] City and County policies on preserving and promoting

agricultural production will be examined first. This will be followed by a discussion of urban growth and job-housing balance policies.

Agricultural Land Use

County Policies

The County General Plan states that "agriculture will continue to play an important role in the economy, although it will employ a decreasing proportion of the total labor force". [6] The Plan establishes a goal, therefore, to "maintain the agricultural environment of the County" [7] not only by protecting and enhancing the agricultural production capability of all agricultural lands [8] but also by promoting a healthy agricultural atmosphere and providing for positive incentives to further long-term uses.

The Plan establishes four agricultural land use designations: Agricultural Cropland, General Agriculture, Agricultural-Urban Reserve, and Agricultural Recreation. [9] (County General Plan designations illustrated in Exhibit D-4 do not differentiate between these designations.) Since the Plan recognizes that "some conditions may arise which would warrant urbanization of lands outside the planned urban area", Agricultural-Urban Reserve, General Agriculture, and Industrial Extensive categories have been designated to accommodate this growth provided that: [10]

- Urban expansion is limited to areas designated as Agricultural-Urban Reserve.

- Designation of new or additional Agricultural-Urban Reserve is limited to areas previously shown as General Agriculture.

Agricultural Cropland shall not be reclassified to General Agriculture or any other use, however, unless the Board of Supervisors determine that: [11]

- Development has substantially consumed vacant land such that the remaining amount of vacant land would not allow for continued development of a full range of living environments.

- The location is appropriate for proposed uses based on the cost of services, environmental effects, the need to balance jobs and housing, the suitability of the land for alternate uses (including agriculture), and other "pertinent" but unspecified factors.

General Plans must provide latitude for interpretation, but the above policies lack empirical criteria for use by the Board to decide on the appropriateness of agricultural cropland conversions. Because the guidelines lack safeguards against subjectivity and inconsistent application they not only offer little protection to the County's most productive agricultural lands but also make this classification of valuable farmlands the most vulnerable to conversion. This is because agricultural cropland classifications can be reevaluated every five to seven years or "as directed by the Board of Supervisors" [12], although the other agricultural classifications remain in force for ± 10 years.

City Policies

The City General Plan recognizes that agricultural lands play a significant role in the County's economy [13], are the City's largest source of open space, and are the most vulnerable to development pressures. [14] One of the Plan's overriding goals, therefore, is to "protect and manage the diverse and valuable natural land, water, and air resources for the use and enjoyment of present and future generations". [15] (City General Plan designations for the Study Area are illustrated in Exhibit D-4.) Supplementing this goal are recommendations to:

- Use open space resources for recreation, productive agriculture, and necessary floodways. [16]

- Prevent unnecessary or premature conversion of agricultural lands to urban uses and discourage development patterns which are detrimental to the overall community. [17]

Among the Plan's findings is that "Natomas north of the [I-80] freeway will not be needed for urbanization within the next 20-year period" [18], and the Plan recommends designating the area north of Del Paso Road for permanent agriculture and south of Del Paso Road for agricultural-urban reserve. [19] Permanent agricultural lands would not be urbanized within the 20-year planning period of the Plan (not before 1995), but agricultural-urban reserve lands could urbanize. [20]

In 1980 the City initiated studies which culminated with the report, Growth Policy Conclusions and Recommendations [21], and the adoption of a citywide Growth Policy. [22] The Growth Policy was developed as a guide for the City's updating of its 1974 General Plan. The Growth Policy report states that "the preservation of productive agricultural land will continue as an

important and viable City policy, and conversion of such lands to urban uses only will occur based upon compelling and overriding community needs". [23] It continues: [24]

> "Our best agricultural lands are either under production or already have been urbanized. New land put under cultivation [25] will take more time, energy, and money for lower levels of production. The results are higher consumer prices and, ultimately, less food. **Local governments simply have to draw some final line beyond which agricultural land will not be converted to urban uses.** The City does not need to permit development in the North Natomas area. The City does need to make its contribution to the preservation of agricultural lands. **The North Natomas area is the only chance to make such a contribution."**

North Natomas is the "only remaining large productive, non-urbanized agricultural area within the City" [26], and is characterized as "good quality agricultural land, much of which would be considered prime farmland". [27] Other important findings of the report are that: [28]

- There is little land available in Sacramento, Sutter, or Yolo Counties with the qualities of North Natomas land which is not already in production.

- Bringing other land into production to substitute for North Natomas could involve capital costs for developing new cropland and higher production costs due to inferior production conditions and lower crop yields.

- Adequate land, suitable for residential and industrial development necessary to meet projected demands through 1995, exists in the city and metropolitan area without opening North Natomas to urbanization.

- If North Natomas is opened for urban development, there will be no barriers within the City or County to limit the extent of urbanization there.

The report concludes: [29]

- The City has only one remaining opportunity to maintain a meaningful agricultural policy. If some of the North Natomas area is permitted to develop, it will be done with the understanding that the City will have no further need for agricultural policies.

- Agricultural production is a viable economic use of land. Agricultural land use in North Natomas should be viewed as a long-term use rather than simply a holding zone for urban development.

- When agricultural lands which are or have been productive are proposed for urbanization, it should be the responsibility of the landowners to show a compelling community need to do so and that other more suitable areas for development do not exist.

- The need to open the agricultural area of North Natomas [to urban development] prior to 1995 has not been adequately demonstrated. [30]

The adopted Growth Policy recommends that: [31]

- Urbanization of agricultural land north of I-80 should not be considered during the current General Plan update.

- North Natomas should not be opened to urban development before 1995, and City policy should support continued agricultural production in the area.

- North Natomas should be redesignated uniformly for "agriculture" in order to send a clear signal to the farming and land investment interests that the area will continue in agricultural use in order to reduce development pressures, increase support for the agricultural industry, and reduce the speculative pressures on land prices which can make farming unprofitable. [32]

In adopting the Growth Policy in 1982, the City Council directed the Planning Department staff to consider designating all of North Natomas as "agriculture" during the updating of the City's 1974 General Plan. [33]

The Growth Policy is effective until 1995. It can be reviewed and modified after five years (1987) [34], and "modifications earlier than the five-year period only will occur if specific findings of overriding social or environmental need are made". [35] In adopting Resolution 84-075 in 1984 -- Exhibit A-8 -- the City reaffirmed the Growth Policy pending completion of the North Natomas planning studies.

Redesignation of agricultural-urban reserve lands between I-80 and Del Paso Road to "agriculture" removes the urban reserve status and gives more protection to this area than existed previously. Removal of the "permanent"

classification from agricultural lands north of Del Paso Road, however, indicates impermanence. The General Plan provides that agricultural-urban reserve and permanent agricultural lands can be considered for reclassification and/or urbanization in five to seven and 20 years, respectively. Preserving agricultural lands for five to 20 years rather than for a longer period creates an interim use, holding the lands for future development. [36]

The duration of City policies is important. Agriculturalists make improvements or purchase new equipment with the expectation that their investment will be returned and that they will receive a profit. [37] Agriculturalists who are uncertain about public policies and/or the possibility of policy reversals are unlikely to make the investments in their operations which may be necessary for continued productivity and profitability.

The City's Growth Policy, stating the value and intention of maintaining agriculture in North Natomas, is weakened by the maximum 20-year time period provided in the 1974 General Plan in which "permanent" was not actually permanent.

Urbanization

County Policies

Both the City and County expect continued population increases, [38], and County Plan policies address the issues of controlling urban sprawl and expanding urban areas logically. [39]

"Developing land within the designated urban area" is the Plan's highest priority, and it directs that "expansion into newly-designated urban areas should not compromise major policies of the plan, particularly the preservation of land designated Agricultural Cropland". [40] The Plan recognizes the need for orderly growth, the use of skipped or underused infill land [41], preventing development of agricultural lands with incompatible uses, and minimizing the effects of land divisions and other entitlements on agricultural uses. [42] The Plan is oriented to limiting outward expansion of the urban area and to reducing or eliminating urban fringe problem areas. [43]

These policies aim to use urban land efficiently, and confining urbanization and minimizing urban-rural conflicts would benefit agriculture. Industrial

land -- designated and approved in the mid-1970s in the Northgate industrial area of North Natomas -- would conflict with the intent of the County's current policy contained in its 1983 General Plan by expanding rather than limiting the urban area and by extending the urban fringe west to agricultural land in the City. [44] When industrial and agricultural lands are contiguous, any separation to buffer these uses inevitably is provided on agricultural lands, thus reducing the productive area. [45]

City Policies

The City's General Plan discourages urban sprawl, wasteful, undesirable, and illogical growth along the urban fringe and encourages contiguous growth by preserving agricultural lands from urbanization. [46] The Plan determined that North Natomas would not be needed for urbanization in the next 20 years, although residential expansion is expected to occur elsewhere along the City's urban fringe. [47] In adopting its Growth Policy, the City affirmed that:

- The General Plan should maintain a balanced and continuing supply of industrial, commercial, and residential land to meet projected needs. [48]

- Sacramento can accommodate projected growth in its existing urban area by infill, reuse, and increased densities in selected communities rather than continued expansion in outlying areas. [49]

One General Plan goal is to "develop a strong, diversified economic base and provide for the orderly distribution of employment and other economic opportunities". [50] North Natomas is a desirable location for high technology industry, although it lacks the appropriate industrial zoning, land use designation, public facilities, and infrastructure. These factors would inhibit development for at least five years. Due to it's intrinsic assets, however, North Natomas always will be "attractive for development regardless of whether a decision is made to open the area for urbanization now or at some time in the future". [51] The Growth Policy report emphasizes that the decision on development in North Natomas ultimately will establish the City's growth policy. [52]

An extensive land inventory involved in updating the General Plan revealed that "adequate quantities of land suitable for residential and industrial development necessary to meet projected demands through 1995 exist within the City and throughout the metropolitan area without opening North Natomas

to urbanization". [53] The availability of sites to accommodate even the highest projected levels of high technology development in the region combined with designation of Delta Shores Village for such growth could result in the City "capturing a fair share of high technology industrial growth while adhering to its agricultural land preservation policies" [54] of retaining North Natomas in agricultural use.

The Growth Policy also recognizes the potential effects of development in North Natomas beyond the loss of a discrete amount of agricultural land. The I-80 freeway is regarded as the "last remaining effective barrier separating urbanization from the only area of productive agriculture left within the City" [55] , and "there are no remaining physical barriers within either the City or County which will limit the extent of urbanization if North Natomas is opened for development". [56]

Agricultural land preservation is consistent with City policies to control urban sprawl, to provide safe, stable, and attractive residential areas and functional, efficient commercial and industrial areas, and to revitalize existing communities and neighborhoods within the City. [57] While it is unusual for a city to enact "a meaningful agricultural policy" [58], however, and to "make [a] contribution to the preservation of agricultural lands" [59], North Natomas is the "only chance left to make such a contribution". [60] It is not typical for municipalities to retain agricultural uses within their boundaries except as urban reserve or holding zones for future development. Instead, long-term agricultural uses generally continue on unincorporated lands.

LAFCO Policies

The Sacramento Local Agency Formation Commission (LAFCO) is responsible for discouraging urban sprawl, approving (or denying) boundary changes and/or annexations, encouraging the orderly formation of local agencies, and establishing "Spheres of Influence" which delineate the probable ultimate boundaries and service areas of local agencies. [61] LAFCO also is required by State law to preserve agricultural lands. [62]

Incorporated North Natomas was annexed by the City in the 1960s. [63] Although annexation is not a prerequisite for development [64], annexed land eventually is expected to be developed and provided with urban services and facilities. A process also exists, however, to "detach" lands from local agencies, and preservation of agricultural lands and open space constitute a basis for identifying areas to detach. [65]

LAFCO conducted a Sphere of Influence Study in 1981 which analyzed this City of Sacramento's urban fringe and recommended an appropriate Sphere of Influence (Exhibit D-17). The Sphere of Influence recommended for North Natomas includes land south of Del Paso Road to I-80 and east of I-5 to the North Sacramento Community Plan boundary. [66] Incorporated area north of Del Paso Road was placed outside the City's sphere of influence and is recommended to be detached from the City at "some future time", thus allowing the matter to remain unresolved for now. [67]

Detachment of the area north of Del Paso Road relates to the City's policy to preserve agricultural land in its jurisdiction. It might be logical to detach incorporated land from the City except that the LAFCO study makes an argument for retaining the area both north and south of Del Paso Road within the City's boundary. LAFCO found that "urbanization in peripheral areas has been routinely authorized by the County of Sacramento so that urban use is virtually indistinguishable in incorporated and unincorporated territory, and random sprawl development is the result". [68] This suggests that the County has not necessarily preserved agricultural lands or prevented inappropriate development while the City's Growth Policy would accomplish these objectives in North Natomas.

Urban Development

County Policies

Both the City and County General Plans establish the urban development goal to develop a strong, diversified economic base and provide for the orderly distribution of housing and employment. [69] Both Plans recommend housing, economic development, and job/housing policies.

According to the County General Plan, residential use will continue as the main consumer of land in the County's urban areas: approximately 25 percent of the County will be urbanized by 1990, and 97 percent of the year 1990 population of 996,900 persons will live in the urban area of which the largest residential area will be metropolitan Sacramento. [70]

The County General Plan designates approximately 50,000 acres for industrial use of which roughly 75 percent is vacant and much of which still is expected to be available well after the ten-year planning period of the Plan. [71] The Plan indicates that the County is a strategic location for

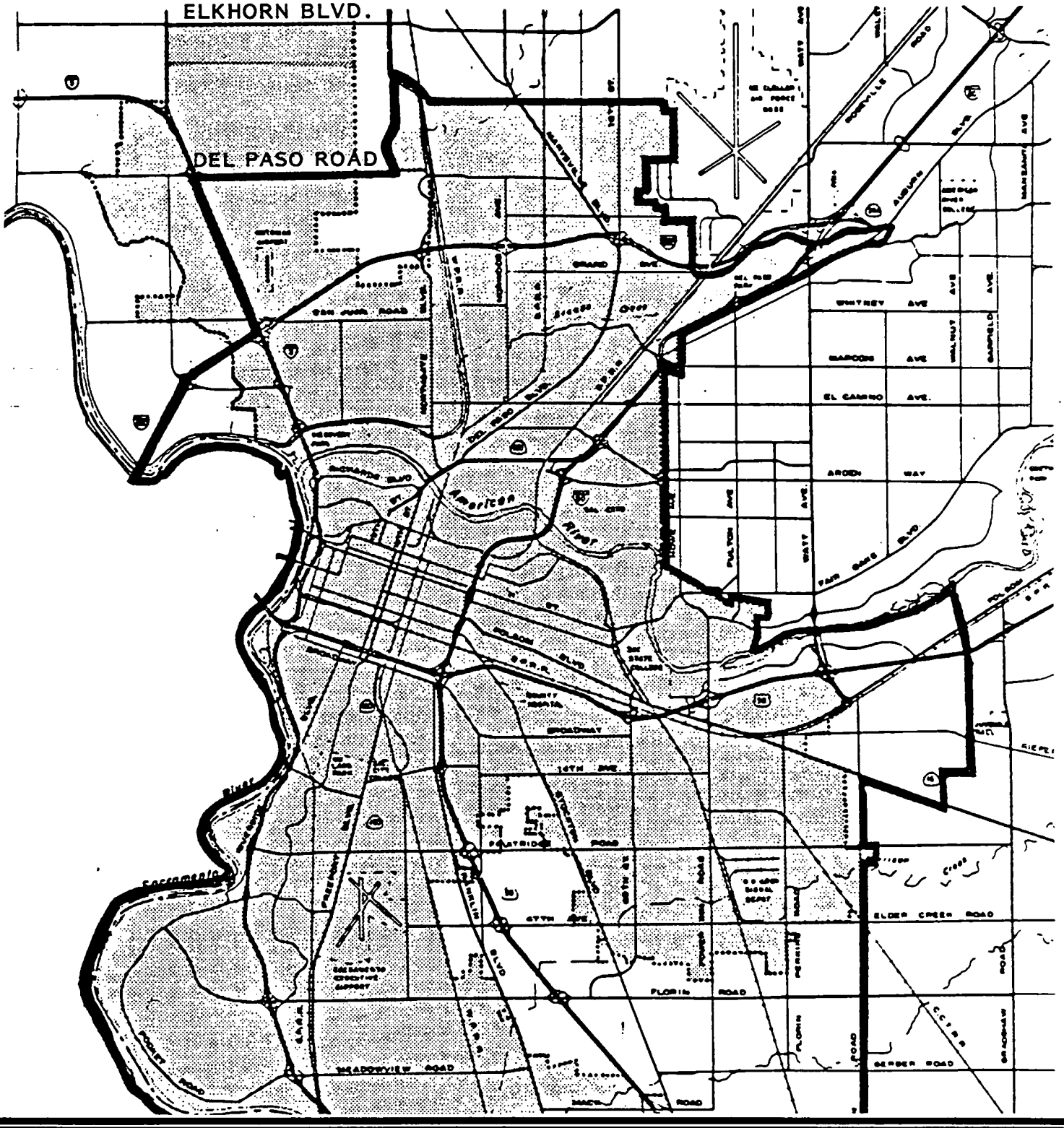


EXHIBIT D-17
CITY OF SACRAMENTO SPHERE OF INFLUENCE

SPHERE OF INFLUENCE

Source: Sacramento Local Agency Formation Commission
Adopted October 21, 1981.

No Scale

industrial growth but must provide a variety of well-located and properly-improved sites in order to compete for industrial development. [72] Among the 19 areas potentially suitable for industrial development are the Northgate-Norwood (prime) and Metropolitan Airport (minimal industrial expansion) areas. [73]

The County General Plan provides for shopping centers, office complexes, and commercial development with uses ranging from professional offices to heavy commercial operations and with locations and sizes based on accessibility, historical patterns, a balanced mix of land uses, and the minimizing of land use conflicts. [74]

County policies link jobs and housing, although the Plan states that there always will be a greater demand for housing than employment. Recognizing anticipated housing demands, the Plan also states that the housing-employment balance should not be construed to prohibit or curtail housing production in relation to job creation. [75]

City Policies

City policies concentrate on infill, reuse, and increased densities to confine development within the existing urban area, at least through the 1995 planning period of the General Plan. [76] Residential lands are designated in areas now served by urban utilities and facilities or where services can be extended logically and economically in the near future. [77] The Plan also recommends programs and development projects which will retain and improve the central business district's role as the major retail, trade, and financial center for the region. [78]

The Plan directs that "adequate industrial land must be reserved for present and future industrial needs, not only to maintain and supplement employment opportunities but [also] to assist in the retention of a tax base for the support of essential public services. [79] Due to industrial expansion and continued consumption of land for industrial use [80], approximately 7,000 acres are designated for industrial use of which 54 percent currently is available for new growth. [81]

The Growth Policy indicates that the City would capture 230 acres of high technology development. [82] This report concludes that there are sufficient suitable sites to accommodate the highest levels of projected high technology industrial growth, even if the City does not open up any new industrial land for development. [83] Furthermore, development of North

Natomas is not necessary at this time considering the sizable undeveloped, industrially zoned acreage in the unincorporated portion of North Natomas, and sufficient land is available in the City to accommodate projected demands for high technology, office, and residential uses through the mid-1990s without opening up North Natomas. [84] The Growth Policy report recommends that: [85]

- The emphasis of the General Plan should direct urban development away from North Natomas and into existing urban areas consistent with recommendations on residential land use strategies, industrial land use, and housing costs.

- Due to its attractiveness, if North Natomas is opened for development, interest in infill and Delta Shores would be reduced substantially. [86]

- Delta Shores should be designated as the City's primary high technology development area, and the entire North Natomas area should be redesignated as agriculture in the General Plan.

Community Plans

Draft North Sacramento Community Plan. [87] North Sacramento, located east of North Natomas, is one of the four areas in the City where a large amount of residential land is located. The community is expected to play a major role in meeting the City's future housing needs. [88] Vacant residential land in North Sacramento (± 1,840 acres) could accommodate 13,100 additional housing units, even if 70 percent of units are single family homes. [89]

Commercial land uses primarily fill community or neighborhood needs, and 43 percent of commercial land in North Sacramento (190 acres) is vacant. [90] Sufficient commercial land needs to be designated, however, to accommodate new growth, mainly in the northern and western areas of the community. [91]

Office uses are concentrated at two North Sacramento locations [92], and the Plan identifies the I-80-Norwood and the Woodlake-Arden areas as prime locations for new office developments. [93]

North Sacramento has excellent industrial development potential, although growth has been slow because of poor circulation, lack of infrastructure, and visual blight. [94] Of the County's major industrial sites located there, the Norwood area south of I-80 is considered prime industrial land,

especially for high technology firms. [95] The community represents one of the City's major employment generation areas for the year 2000. [96]

Existing South Natomas Community Plan. [97] South Natomas is located south of I-80 from North Natomas. The existing Community Plan [98] provides for 23,000 housing units and 3,800,000 square feet of office, retailing, and manufacturing floor area. [99] It projects an annual housing absorption rate of 1,000 to 1,200 units (resulting in buildout in 12 to 15 years, including infill development of 1,600 units) and development of three business parks with a total of 2,600,000 square feet of offices and 12,000 employees.

The City recently received 13 applications proposing the development of 8,100,000 square feet of office, manufacturing, research and development, and retail space in South Natomas. These projects would reduce residential land, thus decreasing the community's housing capacity to 18,600 units or 20 percent less housing than estimated in the 1978 Plan. Development of already approved business parks would increase South Natomas' prominence in the metropolitan area but could detract from the community's residential identity. Additional office development would further shorten the community's buildout period by increasing housing demand while reducing the number of units to be built.

South Natomas is anticipated to capture 25 percent of the demand for office space in the metropolitan area due to the attractiveness of existing development, its accessibility and visibility from freeways, its proximity to downtown, and the availability of multi-unit housing. [100] Manufacturing, research, and development (MRD) land is expected to be absorbed quickly because potential users can acquire large sites with room for expansion. An average annual demand of 275,000 square feet of these uses is estimated. [101] At this rate it would be feasible to build two-thirds of the 8,100,000 square feet proposed by the 13 development applications within the next 20 years.

Draft South Natomas Community Plan (1984 revisions)(Exhibit D-21). The new draft Community Plan recommends a total of 25,920 housing units and 4,356,000 square feet of office park area, an increase of 80 percent over the 2,381,000 square feet of office formerly planned there and exceeding the 3,300,000 square feet of privately owned offices located downtown. [102]

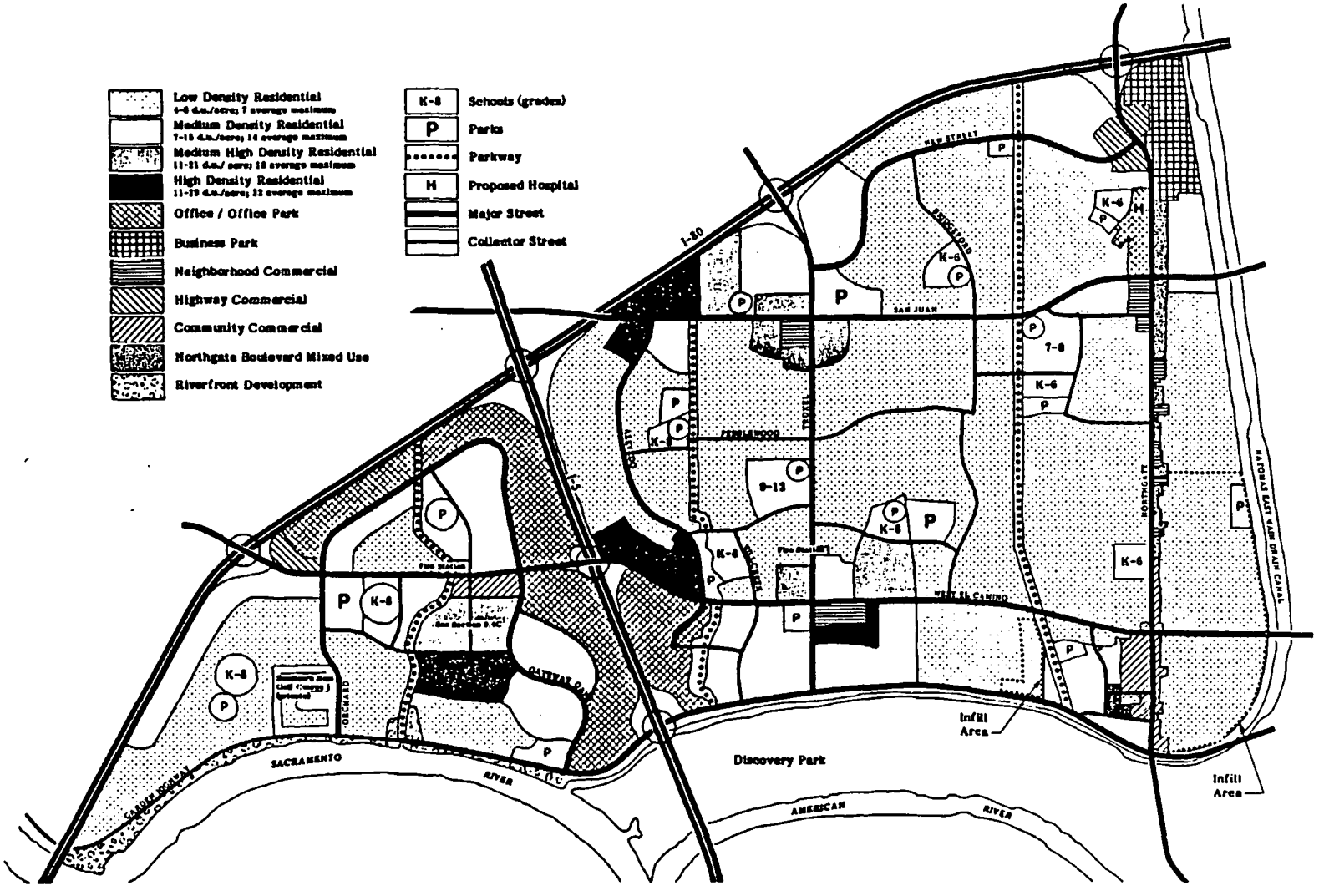


EXHIBIT D-21
SOUTH NATOMAS COMMUNITY PLAN REVISION: DRAFT PLAN

0 2000' Ft.

Source: Blaney-Dyett

Airport and Airport Vicinity Land Uses

County Policies

The 2,900-acre Sacramento Metropolitan Airport is the largest developed land use in North Natomas, and the unincorporated area east of the airport is designated as the Metropolitan Airport/Vicinity Special Planning Area Zone. [103]

A Comprehensive Land Use Plan (CLUP) was prepared to provide for the "sensible growth of the airport and its environs". It defines compatible types and patterns for any future growth near the airport in order to protect the safety and welfare of people on the ground and in the air. [104] It focuses on the compatibility of surrounding land uses with aircraft-generated noise, exposure of people on the ground to hazards from aircraft crashes, and the need for height restrictions to protect airspace and to ensure safe aircraft operations. [105]

Although the airport is outside the City's urban area and is surrounded by agricultural and low density uses, the CLUP observes that "recent pressures to develop land closer to the airport ... could result in some of the land use incompatibilities and associated problems experienced at many other [urban] airports". [106] Consequently, the Plan advises that "it is easier and less costly to prevent land use incompatibility [in advance of encroachment by development and urban uses] than it is to remedy the situation once it has been allowed to occur". [107]

A land acquisition program has been initiated to protect the airport from outside encroachment and to minimize hazards or annoyance from airport operations. Land purchases, together with technical aircraft improvements, are expected to ensure that noise levels exceeding 65 dB CNEL will be contained within the airport's property and that land north and south of the airport under landing and takeoff flight paths would remain in agricultural, not developed use. [108] The airport's noise boundary, however, is the 60 dB CNEL contour. Because noise levels of less than 65 dB CNEL can be considered more intrusive in quiet suburban areas [109], the CLUP identifies locations where aircraft noise potentially could cause complaints, if residential uses were allowed to develop, and establishes criteria to determine the compatibility of adjacent land uses with airport operations. [110]

In response to these criteria, the CLUP recommends the following noise policies (see the Noise Section for a more detailed discussion of this topic): [111]

- No new residential construction shall be permitted within the 60 dB contour of the airport.

- Residential construction shall be prohibited between the 60 and 65 dB CNEL contour unless residential use is related directly to the agricultural use of the property.

- The City and County of Sacramento should evaluate the impact of aircraft noise on residential development proposed outside the 60 dB CNEL boundary of the airport and should consider imposing mitigation measures, such as noise insulation, if such development is approved.

The CLUP recommends that industrial development should be controlled to ensure compatibility with the airport. [112]

The Metropolitan Airport/Vicinity Special Planning Area (SPA) [113] was established to allow airport-related development and limits industrial and commercial uses to those requiring airport services or those which support the development or function of the airport, such as aircraft sales, air cargo warehousing and distribution facilities, travel services and ticket offices, hangars, and aircraft-related research and testing labs. Permitted uses are defined by the Ordinance and include agricultural operations on parcels of 20 acres or more in addition to commercial and industrial uses. [114] Development is not permitted, however, until public water and sewer systems have been installed, fire protection services are provided, and roads are built. Any future uses within the SPA must conform with the County's MP Industrial Park zoning. [115]

Natomas Air Park

Natomas Air Park is a privately owned general aviation airport. This 80-acre facility is located in incorporated North Natomas approximately three-quarters of a mile north of the I-80/I-5 intersection. The airport was established in 1947 and received its Division of Aeronautics permit in 1949. [116]

The field consists of a single, 2,700-foot asphalt runway with lighting and markings, approximately 60 parking spaces (including ten covered spaces), 12

T-hangars, two hangars used by agricultural operators, and an administration building. Sixty planes currently are based at the field. [117]

Natomas Air Park handles an estimated 20,000 flights annually, and the runway has the capacity to handle 180,000 operations annually. There are no instrument approach and departure procedures.

Flight training programs are available at Natomas Air Park, and the airport manager estimates that 20 to 30 percent of area pilots are trained there. [118]

Natomas Air Park's "area of influence" (the area where restraints apply for residential and public facility developments) is defined by the 65 CNEL contour (Exhibit G-3). [119]

In 1981 Sacramento County conducted a general aviation reliever airport feasibility study in order to identify airport development alternatives and to evaluate their potential for meeting future demands. [120] The study found that Natomas Air Park had good growth potential and accessibility. Due to its proximity to Sacramento Metropolitan Airport and the potential for air space conflicts, however, Natomas Air Park was not designated as a reliever airport in the Sacramento Area Council of Government's (SACOG) Regional Aviation System Plan of 1984 (RASP).

SACOG's plan emphasizes protecting existing public use airports (such as Natomas Air Park) from encroachment by incompatible land uses. This Plan recognizes the importance of Natomas Air Park to the overall general aviation capacity requirements of Sacramento County. The potential for reliever status for Natomas Air Park also has been recognized by the County and City of Sacramento.

The RAS Plan found that future demand for aviation facilities and services is a fundamental issue facing aviation throughout the entire Sacramento region. Based on existing aircraft parking availability and projected increases, for instance, existing parking supply for aircraft in the Sacramento region will be exhausted by 1986. [121] Existing policy is for the private sector to provide fifty percent of regional aviation demands. [122]

D. LAND USE -- THE IMPACTS

The purpose of the planning process is to provide general agreement on where and what types of land uses are appropriate and at what intensity development is appropriate. Planning documents recommend both the pattern of urbanization and the timing or sequence of development. Public plans consist of two basic ingredients: (1) goals, objectives, and policies and (2) land use designations for specific areas provided on land use maps. A zoning classification also is applied to parcels of land in order to implement an adopted land use designation.

Public plans are not inflexible. Public officials can change policies or land use classifications by amending plans. A prerequisite for approving a General Plan Amendment, however, is for the action to be consistent with the goals, objectives, and policies of the plan. An amendment to reclassify certain lands to other uses, therefore, must conform with the overall policies of the plan -- or those policies also must be amended.

When the City accepted the Gateway Point application in December, 1983, this action prompted other North Natomas landowners to submit land use applications. The applications request reclassifications of land presently designated for "agriculture". In response to the five applications, the City initiated the North Natomas Community Plan process in order to determine whether or when urbanization should proceed. Approval of a Community Plan will constitute a General Plan Amendment.

The land uses considered by the five Community Plan alternatives could be designated on the City's land use map by amending the General Plan, but since amending the Plan involves both land use classifications and public policy considerations, the land uses also must conform with the Plan's goals, objectives, and policies.

Because of the breadth and scope of General Plans, all public goals and objectives cannot necessarily be accomplished by one Community Plan or an individual development application. In these cases decisionmakers have to determine which of several policies are more important to accomplish.

The City made two decisions in response to the five applications which significantly influenced the future of North Natomas. First, the applications were accepted rather than rejected as premature and inconsistent with adopted policy. Second, a community planning process was initiated for North Natomas. By the very nature of the public planning process, these actions might be considered to be a decision to open North

Natomas for development. Absent a moratorium to the contrary, however, the City cannot refuse to accept a valid application to amend existing land use policies. The question which the planning process must answer is whether the North Natomas area should be permitted to urbanize at this time.

Community plans are not usually necessary to plan for agricultural use. They plan for and are synonymous with development. When land is designated for agricultural use and agricultural policies are adopted, little more documentation is needed. It is not necessary to plan for agricultural land use in the same detail as is required to coordinate the timing and intensity of urbanization. When land is designated for development, however, the sequence, mix of uses, and density of development must be planned together with the urban infrastructure necessary to support development.

Community plans, therefore, usually do not determine whether urbanization will occur, as suggested by the City. They designate how much development will occur, where, and when.

A third decision was made in determining alternatives for consideration as the Community Plan. Five alternatives were selected, none of which is an agricultural alternative totally consistent with present public policy. No new development would occur within the City's portion of the Study Area, so technically Alternative A would be consistent with the adopted Growth Policy. Industrial development would occur on County lands within the Study Area -- as designated by the County yet inconsistent with the intent of the County's 1983 General Plan agricultural policies. The net effect of a combined City-County Study Area where industrial development would occur under Alternative A would be inconsistent with City and County agricultural policies. Alternative A, therefore, is not a "no development" alternative. For the reasons discussed below, no alternative totally conforms with current agricultural preservation policies, and, thus, all alternatives represent a substantial policy departure from the City's and County's goals and objectives to maintain and enhance agricultural production which were reaffirmed recently by their respective General Plan updating processes.

Finally, the lack of decision on a fourth point potentially could undercut the consensus which results from the planning process. This relates to implementation. The City and County Planning Commissions have been cooperating at appointed times during the planning process because the Study Area includes land in both jurisdictions. There has been no indication, however, that the County will adopt and implement the planning approach to which the City ultimately agrees. Without formal agreement between the City and County to adopt and implement one plan for the entire

Study Area, what those policies say about unincorporated lands could be largely irrelevant. This is a basis of serious concern because the County has "routinely authorized" urbanization in peripheral areas, suggesting, therefore, that the County could disregard City policies for North Natomas if the policies did not suit the County. [123]

SEQUENCE OF GROWTH

When public plans divert urbanization from particular geographical areas for a specific period, this does not mean that urbanization necessarily will proceed when this period has elapsed. Delaying urbanization to a future date is not intended to allow for planning now and for urbanization to proceed immediately when the development prohibition expires. Instead, plan dates indicate after what time it again may be appropriate to consider planning for these areas.

The City's Growth Policy diverts urban development away from North Natomas at least until 1995, and the earliest review is scheduled for 1987. If circumstances suggest the wisdom and merit to reassess existing policies in 1995, planning for North Natomas could commence, but the Growth Policy contains no requirement that planning must proceed. [124] In the meantime, urbanization is premature unless City policies are changed.

The Growth Policy anticipated the possibility that North Natomas landowners might petition the City to consider urbanization prior to 1987 and states that "it should be the responsibility of the landowners to show a compelling community need to [convert productive agricultural lands to urban uses and to show] that other more suitable areas for development do not exist". [125] As required by the Growth Policy, no such evidence of "compelling need" or "that other more suitable areas for development do not exist" has been submitted to the City. [126]

PATTERN OF DEVELOPMENT

Both the City and County have agricultural policies for their jurisdictions, but these policies have not been followed consistently. The County "routinely approves" development proposals [127], putting aside its agricultural policies in favor of urbanization. It appears that this pattern may have contributed to the City's decision to enact and implement its own agricultural policy in North Natomas, since the County's

preservation of agricultural land is not always consistent with its policies.

The County's recently updated General Plan neglected to adopt the City's policies for North Natomas as County policy. Failure to maintain consistency perpetuates ambiguity about government's intentions in North Natomas and confuses farmers and developers and increases the potential for land speculation.[128]

Agricultural Land Use

Although the SPA area has been planned as an industrial area for several years, all alternatives would reduce existing agricultural land use. Agricultural conversions do not protect or enhance agricultural production capability, promote a healthy agricultural atmosphere, or provide incentives for long-term agricultural uses as recommended by the County. 129 Agricultural lands in North Natomas are not classified as "agricultural-urban reserve" which would be required by the County Plan for expansion of urban use. [130] Except for Alternatives A and B, only limited commercial agricultural production would continue north of I-80 as recommended by the City Plan.[131] Instead, the "final line beyond which agricultural land will not be converted to urban use" would be moved farther north. [132] Finally (and significantly), no "findings of overriding social or environmental need" have been presented on which to base the negation of the City's existing agricultural policies as required by the City's adopted Growth Policy. [133]

Urbanization

The alternatives address the "urban fringe problem area" differently, although none would eliminate it completely. [134] Airport-related industrial development under all alternatives, for instance, represents urban encroachment, even though zoning to allow such development already has been approved. Differing widths of greenbelt buffering are proposed for various alternatives in an attempt to create artificial barriers which could shield agricultural areas from urbanization now that the American River and I-80 barriers have been breached. Provision of greenbelts reflects some understanding that problems exist at the interface of conflicting land uses. Unfortunately, however, the text of the draft North Natomas Community Plan suggests that these barriers are proposed to protect future residents from agricultural activities, not visa versa. [135] While describing greenbelts

as "containment edges", the Draft Plan suggests that their usefulness is limited to the plan's 20-year timeframe and, as a result, that the boundaries do not constitute and are not proposed as permanent barriers to urbanization. Lacking permanence they actually would promote eventual growth and conversion of other nearby agricultural lands.[136] Except for Alternatives A and B, I-5 has not been used as a barrier to the westerly continuation of urbanization.

Although the City and County may not interpret urbanization of North Natomas as leap-frog, both the City and County seek to use urban land efficiently by promoting infill development. That aim could be accomplished by directing development to the vacant and underutilized areas already identified to receive growth. When the urban area is built out, new areas might be opened for additional growth.

This EIR has determined that opening North Natomas for development during the 20-year planning period would divert development away from other areas of the City where urban growth was planned to be accommodated. The fundamental concept underlying the City's General Plan update was to determine whether growth could be accommodated within the urban areas which existed in 1981. The City's capacity was analyzed extensively, and individual communities were designated to receive growth -- according to how much would be appropriate and when development should occur. When the City concluded that growth could be accommodated without expanding its boundaries, the City Council adopted this concept as policy in 1982.

All alternatives except Alternative A propose development north of Del Paso Road. This would prevent LAFCO from detaching the area north of Del Paso Road from the incorporated area and would extend the City's urban area beyond the Sphere of Influence established by LAFCO. LAFCO updates Sphere of Influence periodically (approximately every five years) which means the Sphere designated for the City can be amended.[137] If the Community Plan adopted by the City for North Natomas includes urbanization outside the existing Sphere of Influence, the City must request LAFCO to change the Sphere of Influence.

Urban Development

The conformance of the five alternatives and five individual applications with selected General Plan policies adopted by the City and County is summarized in Exhibit D-30.

EXHIBIT D-30

Conformance of North Natomas Community Plan Alternatives and Individual Applications with General Plans and Policies

Policies	Alternatives					Applications 1/				
AGRICULTURAL PRESERVATION	A	B	C	D	E	G	F	S	P	R
Protect, enhance, and promote agricultural production (County General Plan).	No	No	No	No	No	No	No	No	No	No
North Natomas should not be opened to urban development before 1995 (City Growth Policy)	Yes	No	No	No	No	No	No	No	No	No
URBANIZATION										
Expansion into newly-designated urban areas should not compromise major policies of the plan, articularly the preservation of land designated as Agricultural-Cropland (County General Plan).	No	No	No	No	No	No	No	No	No	No
The I-80 freeway is the last remaining effective barrier separating urbanization from the only area of productive agriculture left within the City (City Growth Policy).	Yes	No	No	No	No	No	No	No	No	No
Incorporated North Natomas north of Del Paso Road is outside the City's Sphere of Influence and should be detached from the City (LAFCO Sphere of Influence Study)	Yes	No	No	No	No	Yes	Yes	No	No	No
URBAN DEVELOPMENT										
Link jobs and housing, recognizing there always will be a greater demand for housing than employment (County General Plan).	No	No	No	No	No	No	No	No	No	No
Concentrate on infill, reuse, and increased densities to confine development within existing urban areas (City Growth Policy)	Yes	No	No	No	No	No	No	No	No	No
Delta Shores should be designated as the City's primary high technology development area, and the entire North Natomas area should be redesignated as agriculture (City Growth Policy)	Yes	No	No	No	No	No	No	No	No	No

1/ **G** = Gateway Point; **F** = Fong Ranch; **S** = Schumacher-Iverson; **P** = Payne; **R** = Reid-Ketscher.

The analysis which follows demonstrates that if public decisionmakers proceed with any of the alternatives now under consideration for North Natomas, the Study Area will be committed to eventual urbanization. Although not to the same magnitude, this holds true for Alternative A as well because it accepts existing County plans for industrial development.

Alternative A

The existing inconsistency between City and County policies on urbanization in North Natomas theoretically could result in further growth on unincorporated County lands and continued agricultural production within the City. Urban development and agricultural operations result in conflicts between these uses, however, and the presence of urban uses inevitably would exert pressure on owners of agricultural land to convert their holdings to developed uses. Consolidation of incorporated and unincorporated lands under one agreed upon North Natomas Community Plan potentially could ensure that policies in the area would be implemented uniformly. It is not anticipated, however, that the City would annex unincorporated Study Area lands under Alternative A. Consequently, the policy conflict between continued agricultural production and urban growth are reflected in Alternative A rather than resolved by it.

This is because the alternative reflects existing government land use policies and inconsistencies together with existing or planned development patterns. In accepting some future uses such as airport-related industrial development, however, there actually would be land use changes in North Natomas under Alternative A compared with present conditions: [138]

- 2,000 acres for airport-related industrial uses would be provided in the SPA area plus another 625 acres of light industrial, manufacturing, and office land near the existing Northgate industrial area (see Exhibit A-21). Both types of industrial land would account for 2,625 acres (18 percent of the Study Area). [139]

- 337 acres of residential land would be provided, representing less than 2 percent of the Study Area. The area devoted to residential land use would be expanded by more than 5 times the area now devoted to housing development. [140]

For existing land uses these two categories currently amount to 725 acres but would be expanded to cover a 2,962-acre area. Agricultural land would be reduced under Alternative A by approximately 34 percent less agricultural

land than presently exists, due primarily to development of the Metro Airport SPA and Northgate industrial area.

Three road building projects are proposed by Caltrans in North Natomas independent of this planning process. One project is the construction of a Highway 99 freeway along El Centro Road from I-5 to the Sacramento-Sutter County line. [141] The other two projects are construction of an I-5/Airport Boundary Road interchange and construction of Elkhorn Road as a "major east-west thoroughfare". These projects would be carried out no matter which alternative is selected as the Community Plan. By improving circulation through and access to North Natomas these projects will stimulate pressures for growth regardless of public policies adopted by this planning process. [142]

Alternative B

This alternative would preserve agricultural land west of I-5, would maintain agricultural use east of Metro Airport for an indefinite period, and would keep some lands northeast of the I-5/Highway 99 interchange in agricultural production. [143] Altogether, approximately 38 percent of the Study Area would remain in agricultural use, at least in the immediate future, there would be a reduction of 62 percent of present agricultural land. Conversion of Agricultural/SPA Reserve land to industrial use at some future time, however, means that three-quarters of the Study Area would be urbanized and that only one-quarter would remain in agricultural use.

North of the urbanized area, this alternative proposes an open space buffer separating developed and agricultural uses. Only Alternatives A and B would provide a separation well within the Study Area (rather than at the Study Area's boundaries), thus helping to protect agricultural land to the north, inside or outside of the Study Area. This approach has the potential to be considerably more effective in avoiding urban-rural conflicts than under Alternatives C, D, and E where little separation is proposed. Alternative B, however, envisages a substantial amount and intensity of development south of this separation. Consequently, agricultural land within the Study Area to the north ultimately would constitute the barrier rather than being protected by the open space separation. One reason for this is that people living within the adjacent residential areas are likely to use the open space for recreational purposes, thus presenting the opportunities for encroachment onto agricultural lands and creating urban-rural conflicts. The extent to which this remaining agricultural land actually would be productive, therefore, is doubtful.

Alternatives C, D, and E

Alternatives C, D, and E represent even more dramatic policy changes for the City and even more extensive development than planned by the County for North Natomas. Ninety-six (96) to 99 percent of land would be developed or affected by development under Alternatives C, D, and E. Agricultural land would shrink proportionately to little more than a remnant of existing productive land within the Study Area.

Significant employment-generating development would occur, accompanied by significant residential growth. Under Alternative C, 17 percent of the Study Area would be devoted to employment-generating uses, and 23 percent would be developed for residential use. Twenty-one (21) percent of land under Alternative D would be designated for employment generating uses while 20 percent would provide for housing. According to Alternative E, 33 percent of the Study Area would be designated for industrial and commercial development, and 28 percent of land would be devoted to residential uses. These land uses currently account for 725 acres (660 acres of industrial and 65 acres of residential land). Four (4) to 7 times more industrial land and from 44 to 47 times the amount of residential land would be provided than now exist.

Agricultural use essentially would be eliminated from the Study Area. The negligible remnant of agricultural land would be meaningless in the context of existing City policies and would be vulnerable to conversion to urban use.

Adoption of any of these alternatives would mean that the City and County accept the urbanization of North Natomas and define it as an area of the City where growth is logical. Development probably would occur in North Natomas before other areas of Sacramento are built out.

The proposed land uses would result in substantial diversification of the economic base because of the magnitude of development and because of the amount of manufacturing, research, and development land (M-20 and M-50) provided.[144] This diversification conforms with City and County policies. In view of the City's decision to concentrate high technology development in Delta Shores Village, however, development of high technology industry in North Natomas would substantially reduce interest in infill, revitalization areas, and Delta Shores.[145]

Commercial lands would serve local and regional needs of new residents and other residents of the region due to the accessibility of North Natomas in conformance with County policy.

By definition of the M-20 and M-50 land use categories, one-fifth to one-half of manufacturing lands could be developed with offices. When combined with proposed office uses (OB), between 15 percent (Alternative C) and 42 percent (Alternative D) of employment generating uses could be developed with offices as summarized in Exhibit C-35.

Approximately 11,000,000 square feet of office space already exist in the metropolitan area [146], and another ± 8,053,000 square feet in major office projects were proposed to be built in the City as of 1983. [147] Office development alone in North Natomas potentially could represent 5 (Alternative A) to 101 (Alternative D) percent of existing and proposed office space, potentially doubling all office space in Sacramento within one community. This would diminish the influence of downtown Sacramento as the major retail, trade, and financial center of the region, contrary to City policy.

Residential land could accommodate some employees in close proximity to newly created jobs near transportation corridors, but employment opportunities would surpass the proposed housing supply. The County Plan states, however, that the demand for housing always will be greater than jobs created. The imbalance between housing and jobs would require many North Natomas job holders to seek housing elsewhere in the City or region.

Five Individual Applications

If one or more of the five applications on file with the City were approved, without development such as envisaged by Alternative E, the magnitude of development would be less than Alternatives B, C, D, and E, but the net effect would be worse than urbanization under those alternatives. Implementation of these proposed projects would open North Natomas to development but would not constitute coordinated, planned, or orderly growth.

From a land use and planning perspective, development of the Fong Ranch property might be considered an extension or continuation of development which already ahs occurred in the adjacent Northgate industrial area. However, it would represent an encroachment of urbanization into North

EXHIBIT D-35

Potential Employment from Development of Offices in North Natomas

Land Use	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Potential Office:					
• M-50 (acres)	-	-	104	910	1,025
(square feet) 1/	-	-	*1,638,000*	*14,332,500*	*16,143,750*
• M-20 (acres)	70	168	147	170	-
(square feet) 2/	*842,500*	*2,142,000*	*1,874,250*	*2,167,500*	-
Office Business (acres)	-	80	122	170	-
(square feet) 3/	-	*1,320,000*	*2,013,000*	*2,805,000*	-
Total (acres)	70	248	373	1,250	1,025
Total (square feet)	*892,500*	*3,462,000*	*5,525,250*	*19,305,000*	*16,143,750*
Total Employment-Generating Land (acres)	2,625	1,794	2,426	2,980	4,810
Potential North Natomas Office Development (percent of total)	3%	14%	15%	42%	23%

1/ "Average Building Square Feet Yield/Net Acre", Memorandum to Members of Consultant Team, North Natomas Planning Studies, from Marty Van Duyn, City of Sacramento Planning Director, January 23, 1985. M-50 @ 15,750 square feet per acre.

2/ Ibid., M-20 @ 12,750 square feet per acre.

3/ Ibid., OB @ 16,500 square feet per acre.

Natomas, a loss of agricultural land, and, with those two effects, a stimulant for growth inducing impacts.

The Gateway Point, Schumacher-Iverson, Payne, and Reid-Ketcher proposals epitomize leap-frog development because none of these parcels is adjacent to existing urban land uses. Their approval would lead inexorably to pressures, first, to fill-in intervening lands east toward North Sacramento and, ultimately, to convert the remainder of North Natomas to urbanization. One of the principal reasons that development of the five parcels (including the Fong Ranch) would result in additional urbanization in North Natomas would be because of the substantial amount of employment-generating land uses proposed in relation to the amount of residential development envisaged. This impact would be significant taken alone. When viewed with housing demands expected to be generated from office and business development in South Natomas, the pressures to convert other land in North Natomas to urban uses would grow proportionately.

Effects on Other Communities

Local and regional officials expect growth to continue in the future. Opening of North Natomas for development would divert some growth away from other areas where it otherwise would occur and would focus growth in incorporated and unincorporated areas of northern Sacramento. The City's decision to withhold North Natomas from development at least until 1995 was supported by the availability of an adequate supply of sites elsewhere in Sacramento suitable to accommodate projected growth. The desirability of North Natomas for development means that it will attract projects away from other communities, particularly from northern and southern Sacramento communities and older neighborhoods near the central city. In a regional context, a certain amount of growth is expected. Alternatives A through E represent various amount of that growth which would occur in North Natomas rather than elsewhere throughout the region. Thus, the more intensely developed North Natomas becomes, the less new development would take place elsewhere.

Delta Shores Village has not proceeded beyond initial planning, and high technology development in south Placer County has failed to meet expected levels, suggesting that the demand for high technology industrial land has not been as strong as projected. Both factors also suggest that the region has not "lost" development projects to other areas because there is a lack of suitable sites or due to the unavailability of North Natomas.

North Natomas is considered more desirable and easier to develop than some other locations in the City where project proponents feel constrained by the sizes and shapes of infill parcels. The availability of large tracts of open land in North Natomas means that infill parcels are less likely to be developed. Consequently, City policy to use these parcels would not be fulfilled, and investment which could stimulate further development in existing neighborhoods would be diverted. Opening North Natomas is likely to diminish development opportunities in North Sacramento and could affect the development potential of Delta Shores Village and the surrounding Airport-Meadowview community (see Exhibit B-75 through B-77). [148]

The significance of this is that inner-city communities which have poor images due to deterioration, blight, and socioeconomic factors already require special revitalization efforts (such as Redevelopment Agency development or funding programs) to stimulate private investment and realize their development potential. These communities would be unable to compete with North Natomas. As long as they are bypassed by development, they will remain unattractive to investors, and further development would continue to be diverted to other areas. When North Natomas and other more desirable sites are built out, the disadvantages of depressed communities still would discourage investment, and developers would seek other outlying locations for their projects. [149] The Sacramento Housing and Redevelopment Commission is concerned in particular about the effects that urbanization in North Natomas could have on its revitalization efforts in North Sacramento and Del Paso Heights. A motion was passed in November, 1984 requesting that this EIR examine these impacts. [150]

Opening North Natomas also is expected to affect development and land use in South Natomas. The current planning process there responded to 13 development applications which would greatly increase employment generating uses. The opening of North Natomas, however, could prompt South Natomas developers to ignore the jobs-housing balance sought by the revised South Natomas Community Plan. They could promote their projects and use the availability of North Natomas for residential development as their rationale for proposing employment generating uses. Since a jobs-housing balance is not achieved in North Natomas under any of the alternatives, a precedent could be established which would make non-residential developers be less inclined to adhere to such policies in other communities.

How opening of North Natomas would be expected to affect land use in other communities is summarized in Exhibit D-38. [151]

EXHIBIT D-38

Existing and Projected Year 2005 Land Uses 1/
(increases)

Offices (000 square feet)	Existing	A	B	C	D	E
Highway 50	1,263.0	3,700.0	3,700.0	3,600.0	3,300.0	3,300.0
South Sacramento	120.9	320.2	320.0	250.0	200.0	200.0
North Highlands	360.0	1,100.0	1,100.0	1,000.0	800.0	800.0
North Sacramento	60.9	1,800.0	1,000.0	900.0	700.0	700.0
South Natomas	14.1	4,500.0	4,600.0	4,600.0	4,400.0	4,400.0
Downtown	8,800.8	13,000.0	13,000.0	12,000.0	10,500.0	10,700.0
Airport / Meadowview	120.6	1,600.0	1,600.0	1,600.0	1,500.0	1,500.0
Industrial (acres)						
Highway 50	1,415.0	390.0	500.0	480.0	450.0	500.0
South Sacramento	1,363.0	200.0	200.0	180.0	150.0	200.0
North Highlands	615.0	300.0	250.0	240.0	200.0	300.0
North Sacramento	1,261.0	400.0	200.0	189.0	140.0	246.0
South Natomas	14.0	60.0	135.0	145.0	142.0	175.0
Downtown	985.0	80.0	80.0	80.0	80.0	100.0
Airport / Meadowview	38.0	110.0	135.0	135.0	130.0	130.0
Residential (dwelling units)						
Highway 50	30,497	10,000.0	10,000.0	9,500.0	9,500.0	9,000.0
South Sacramento	31,234	20,000.0	20,000.0	18,000.0	17,500.0	16,000.0
North Highlands	27,315	17,300.0	17,300.0	17,300.0	17,000.0	16,500.0
North Sacramento	14,993	12,000.0	13,000.0	12,000.0	11,500.0	11,250.0
Airport / Meadowview	10,063	9,500.0	9,500.0	9,000.0	8,800.0	8,500.0

1/ Sacramento SMSA Growth Allocations, McDonald & Associates. Refer also to Analysis Report, op. cit., pages 45-47 for a qualitative assessment of Alternative C's effects on regional land use.

The reduced market for office and industrial land in North Sacramento would prevent any significant expansion of employment opportunities, although local residents could find jobs in North and South Natomas. Little if any office and industrial development would mean that sites now designated for these uses would remain vacant unless redesignated, such as for residential use. Sites suitable for office and industrial use are not necessarily appropriate for residential use, however, due to their location, surrounding land uses, and environmental conditions (noise exposure, for instance).

The job surplus to be created in North Natomas by all alternatives could benefit residents of other communities who might hold these jobs. Substantial pockets of unemployment, for instance, exist in North Sacramento. If a sizeable proportion of currently unemployed residents of this area were to obtain North Natomas jobs, their incomes could help rejuvenate the community by increasing the needs for commercial goods and services. Whether this would lead to buildout of existing commercial lands, however, and the need to designate more of these lands would depend on the amount of new industrial and residential growth in North Sacramento, as well as the magnitude of increased incomes of community residents.

In addition to expanded job opportunities for North Sacramento residents, existing residents of communities as far away as East Broadway/Oak Park and Pocket/Land Park and areas outside the city, such as Rio Linda, Elverta, and North Highlands in Sacramento County and Broderick, Bryte, and West Sacramento in Yolo County might hold these jobs.[152] Potential employment opportunities for these residents, however, would not have land use consequences unless these people wanted to move, such as nearer to their jobs, which would shift the areas where housing would be in greatest demand. The growth inducing effect of development in North Natomas is likely to result in increased pressures for further growth in unincorporated northern Sacramento, southern Sutter, and eastern Yolo Counties. Unless these growth pressures can be avoided, potential development would be diverted from existing communities, thus decreasing the demand for developable land in those areas and increasing the demand for urban land uses where they currently are not planned.

Job creation could generate secondary employment opportunities. Because population and employment forecasts were based on regional allocations, secondary population and employment already are included in those numbers.

Land Availability and Demand

The amount of land proposed under each alternative (Exhibit D-41) was compared with the estimated North Natomas "market share" of estimated SMSA land demand for different types of land uses. The estimates in Exhibit D-41, prepared by McDonald & Associates, refined the information contained in the North Natomas Background Report. [153]

After allocating non-residential market shares, the remainder of North Natomas land available for urban uses was assigned to residential use. This resulted in an allocation of 31,000 dwelling units or 5,636 acres using an average of 5.5 dwelling units per acre.

It should be noted, however, that the economic consultants have stated that the market actually would absorb any residential land (up to 8,000 acres) in North Natomas which would be made available, due to the large undersupply of residential land in the region and the magnitude (48,600 acres -- or 58,300 acres to allow for a 20 percent oversupply) of estimated year 2005 SMSA residential land demand. The North Natomas Analysis Report states that "the residential market for the Sacramento region will absorb all of the land (including North Natomas) which currently is zoned or planned for residential development over the next twenty years". [154]

Exhibit D-42 shows the percentages by non-residential land use provided by each alternative.

Compatible Land Uses

Some land uses can have very few compatibility problems while other uses either create impacts on surrounding uses (and people) or are more sensitive to various factors related to particular uses of land. For example, hospitals, schools, and libraries both create impacts on surrounding land uses (such as traffic and noise) and are affected adversely by certain land uses (such as heavy industry which might create intolerable levels of air pollution, wastes which require special handling, and/or heavy traffic). Special care must be taken in siting such facilities.

Agriculture. Agricultural lands are highly vulnerable to urban-rural conflicts where contiguous to developed uses. Residential populations can complain about agricultural practices, such as odors from pesticides or fertilizers, enter and/or vandalize agricultural lands, or let domestic pets loose on agricultural land. Agricultural use can be compatible, however,

EXHIBIT D-41

North Natomas Land Demand Compared with Sacramento SMSA

Land Use	SMSA 1985-2005 No Project Alternative	SMSA 1985-2005 North Natomas Available	North Natomas Market Share
High Growth Manufacturing	425 acres	800 acres	300 acres
Other Industrial	2,900 acres	3,000 acres	890 acres
Commercial	10,454,400 square feet	10,454,400 square feet	1,000,000 square feet
	or	or	or
	1,600 acres	1,600 acres	153 acres
Office	43,527,330 square feet	45,738,000 square feet	9,500,000 square feet
	or	or	or
	2,855 acres	3,000 acres	623 acres
Residential	242,300 units	267,300 units	31,000 units
	or	or	or
	44,055 acres	48,600 acres	5,636 acres
TOTAL URBAN USES	51,835 acres	57,000 acres	7,602 acres

Source: McDonald & Associates, December, 1984

EXHIBIT D-42

Percentage of Non-Residential Land Uses Proposed

Land Use	North Natomas Market Share (acres)	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
High Growth Manufacturing 1/	300	93%	224%	230%	303%	342%
Other Industrial 2/	890	31%	36%	56%	61%	26%
Commercial	153	0%	67%	107%	170%	216%
Office 3/	623	11%	40%	60%	91%	156%

1/ 80 percent of M-20; 50 percent of M-50.

2/ Airport SPA acreage not included.

3/ 20 percent of M-20; 50 percent of M-50; 100 percent of Office/Business.

Source: McDonald & Associates and City of Sacramento Planning Department

EXHIBIT D-43

Comparison of Land Availability, Land Demand, and Proposed Land Uses by Alternatives and Applications [1/]

Land Use	VACANT LAND [3/] Incorporated North Natomas	VACANT LAND [3/] Citywide	LAND DEMAND [4/] North Natomas [5/]	LAND DEMAND [4/] SMSA [6/]	ALTERNATIVES Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	FIVE APPLICATIONS Gateway Pointe	Fong	Schumacher Iverson	Reid Ketscher	Payne	Five Applications
Residential	48.30	10,070.90	5,636	58,300	337	1,900	3,313	2,877	3,036	140.0	--		3.0	229.0	372.0
Non-Residential															
Office	-	177.48	623	4,900	-	80	122	170	-	0.0 [12/]	4.1	28.0	72.0	54.0	158.1
Commercial	-	696.65	153	2,200	-	105	163	260	330	140.0	17.0	-	-	-	157.0
Heavy Commercial/ Industrial [2/]	-	3,565.25	1,190 [7/]	9,500 [8/]	2,625 [9/]	1,409	1,941	2,350	4,280	850.0 [10/]	87.9	484.0 [11]	152.0 [11/]	9.0 [11/]	1,582.9
(High Tech Portion of Heavy Commercial/ Industrial)			*(300)*		*(350)*	*(839)*	*(941)*	*(1,305)*	*(2,050)*	*(809.5)*	*(87.9)*	*(484.0)*	*(152.0)*	*(9.0)*	*(1542.4)*
Sports Complex					-	200	200	200	200						
Non-Residential Subtotal	-	4,439.38	1,966	16,600	2,625	1,794	2,426	2,980	4,810	990.0	109.0	512.0	224.0	63.0	1,898.0 [14/]
Other Uses	-	-	-	-	11,338	10,606	8,561	8,443	6,454	280.0	-	44.0	-	27.0	351.0 [13/]
Proposed Office					-	80	122	170	-	-	4.1	28.0	72.0	54.0	158.1
50% M-50					-	-	104	228	1,025	404.5	43.9	242.0	76.0	4.0	770.4
20% M-20					70	168	147	170	-	-	-	-	-	-	-
Office Subtotal			623		70	248	373	568	1,025	404.5	48.0	270.0	148.0	58.0	928.5
Remaining High Technology					280	671	690	907	1,025	405.0	44.0	242.0	76.0	5.0	772.0

1/ Source: City of Sacramento Planning Department.

2/ Includes high technology industrial and other industrial, not differentiating between SPA and light industry.

3/ The Amount of Vacant Land (see Exhibit G-3, Population, Housing and Jobs). These land use categories were used by the City, although McDonald & Associates used the following land use categories: high technology, other industrial, commercial, business/ professional office, and residential.

4/ Background Report, SWA Group. McDonald & Associates, et al, page 125.

5/ Market share.

6/ Only given for region which includes city.

7/ High technology industrial (300 acres) plus other industrial (890 acres) = 1,190 acres.

8/ High technology industrial (1,100 acres) plus other industrial (8,400 acres) = 9.500 acres.

9/ Light industrial (275 acres) plus airport-related industrial (2,000) plus 350 acres M-20 = 2,626 acres.

10/ High technology industrial (809.5 acres) plus light industrial (40.5 acres) = 850.0 acres.

11/ High technology industrial only.

12/ Up to 50 percent MRD land actually could be developed with office uses but no such uses specifically are proposed.

13/ Includes 170 acres for sports complex.

14/ Does not include 170-acre sports complex.

with adjacent industrial uses where there are adequate setbacks or buffering. The land uses planned for North Natomas are discussed below in terms of their relative compatibility or incompatibility.

M-20/M-50/Industrial Uses. High technology uses usually are characterized by "campus like" development -- low scale buildings surrounded by large areas of parking and landscaping. Light industrial and warehousing development tends to be low scale with extensive paved areas for related shipping and receiving activities. Both land uses can be compatible with adjacent agricultural operations on a day-to-day basis. Without strict controls on and outright prohibition against converting agricultural lands, however, M-20 and M-50 facilities likely would create significant pressures to expand onto agricultural lands.

M-20 and M-50 areas devoted to research, development, and associated office uses can be empty in evenings and weekends. If these uses only operate during normal business hours on weekdays, there could be opportunities for shared or overflow parking of commercial or sports facilities,[155] thus using land more efficiently and keeping these areas from becoming "dead" during off-hours. Where M-20, M-50, and light industrial uses house fabrication, manufacturing, and assembly functions, however, there can be two to three shifts per day which means that facilities could be operating day and night. High technology and industrial businesses have security concerns about off-hour uses of their parking areas or the introduction of large numbers of people there, if their facilities only are operated during one shift versus used around the clock. These uses would be compatible adjacent to Metro Airport and Natomas Air Park (the latter would be removed under all but Alternative A) and a sports complex use. Both are low density uses so could be designed within airport height restrictions. They would not be as susceptible to noise exposure as other uses.[156]

Stadium/Arena. Sports and entertainment facilities could be vulnerable to airport noise levels and also would generate noise affecting nearby land uses. Both facilities are expected to be used more frequently for sports events which would be less susceptible to noise impacts than uses such as concerts. An enclosed arena could be designed to mitigate potential impacts from outside noise sources. An outdoor stadium, however, would generate more noise affecting adjacent uses, such as from public address systems or cheering crowds.

The traffic generation and parking requirements of sports and entertainment complexes which are used frequently also make them inappropriate in

residential neighborhoods and, possibly, would cause conflicts with retail commercial uses.

Offices. Office uses would not be confined to lands designated OB because M-20 and M-50 lands could be developed with up to 20 percent and 50 percent offices, respectively. Office/business development in support of high technology industrial uses would be compatible with each other. Offices also are proposed near medium and high density residential neighborhoods. These could provide jobs in close proximity to residents and would avoid high density non-residential uses near low density residential neighborhoods. Development of OB uses within an entirely new community can help provide locations for professional offices serving local residents. When located near community shopping areas and residential neighborhoods, such offices would be convenient for local residents' daily needs (such as with Alternatives B through D).

Commercial Uses. Commercial uses must be near transportation corridors in order to provide accessibility. They can help to buffer nearby residential neighborhoods from higher density uses or from their proximity to major streets in an area, although the traffic and noise generated at large regional and community shopping centers can affect adjacent residential uses adversely unless properly mitigated, such as by walls, adequate landscaping, and proper lighting of parking lots. Offices frequently complement commercial areas. They are compatible as upper story or nearby uses of commercial development and can generate patrons for commercial tenants.

Boundaries. Boundaries are separating lines. They consist of physical features, natural or man-made (such as mountain ranges or rivers), which define the extent of or limits of an area and may impede uses beyond an area. Boundaries also can be artificial lines or separations with or without any relation to physical boundaries. These may be established in the absence of or disagreement over physical boundaries. What constitutes and is adequate as a boundary depends on the purpose of a boundary, what uses are being separated, and the sensitivity of adjacent uses to each other.

In the context of public planning, physical boundaries are tangible and recognizable whereas artificial boundaries may be more difficult to discern. The Sacramento and American Rivers historically acted as boundaries. More recently freeways, other roads, and such features as drainage canals have served as boundaries. The Sacramento and American Rivers, therefore, originally defined the western and northern boundaries of the City until annexations of North Natomas and North Sacramento, for instance, created

artificial boundaries. These two annexations demonstrate that political actions can negate even the most effective physical boundaries, such as when a decision is made to expand an urban area.

Sports Complex

An economic analysis of the potential development of a sports arena and/or stadium within Sacramento was prepared for the City by Economics Research Associates (ERA). [157] The ERA study examined a total of five sites in the City, including a 170-acre site in North Natomas, for development of an arena or both an arena and open air (not domed) stadium. [158]

ERA's market analysis concluded that Sacramento needs additional sports facilities if the potential market demand is to be satisfied. [159] ERA found that:

- A 17,000- to 20,000-seat arena would be well used and, with a professional basketball franchise, that an arena would be expected to generate a profit regardless of the alternative site analyzed. [160]

- A professional-sized stadium would have relatively limited use, at least in the first five years of operation because football or baseball use would be needed to attract support, neither of which is likely in Sacramento.

The usefulness of ERA's report is confined to its confirmation that sufficient demand currently exists for an arena in Sacramento. It does not provide an adequate basis, however, for comparing all five sites equally because some of the significant assumptions used in assessing a North Natomas site are dramatically different from those used to rank the other four sites.

The North Natomas site was the only one where facilities were assumed to be built with private funds and, thus, would not result in any public land acquisition, construction, infrastructure, financing, or operating costs. ERA's report states, "we assume that the [North Natomas] developer will provide all facilities, infrastructure, land, and replacement reserves and [will] cover any operating deficits at no cost to the public". [161]

Instead, the costs associated with development of a sports complex in North Natomas would be:

- To agricultural land which must be converted at the 170-acre site (or 200-acre site as designated in Alternatives B through E).

- To agricultural land surrounding the site which is proposed to be developed in order to "subsidize" construction of an arena and stadium. [162]

ERA emphasizes that "there would be no public land costs involved since the land would be developed by private parties in exchange for development rights to surrounding areas". [163] In effect this says that when private entrepreneurs accept the financial risks of developing these facilities -- which is a daily part of business and which developers do not assume without a reasonable expectation of profit on the investment -- they also would be guaranteed ancillary profitmaking through additional development.

Such substantial, generous incentives are not assumed in evaluating the other four sites considered by ERA. The potential for off-site growth-inducing impacts was summarized, for instance, for each of the sites examined. These included replacement of existing uses by businesses stimulated by development of a sports complex (restaurants, bars, etc.). Also considered was the potential incompatibility of a sports complex with adjacent uses (primarily residential). The "problem of relocation" in relation to the North Natomas site was not addressed, "since the land currently is used for farming". [164] Moreover, the compatibility with existing uses is "strictly a matter of making appropriate land use designations on the proposed North Natomas Community Plan". [165] ERA's report concedes that it assumed the "North Natomas area would be made available for urban development". [166] Nevertheless, the analysis does not consider the costs and impacts of removing agricultural land from production and from the loss of agricultural jobs in evaluating the merits of this site, whereas constraints at other sites were considered impediments to development of a sports complex at those locations. In short, the prospect of a "free" facility overshadows the substantial public costs not in terms of public finance but in terms of public planning and land use.

The magnitude of this impact is compounded when viewed from the perspective that a market does not appear to exist for a stadium at this time and, in fact, that there is "no compelling evidence" that such a facility would attract a major league baseball or football team to Sacramento "within a reasonable planning horizon". [167] This finding suggests that:

- Either private businessmen would build the arena and stadium, would develop surrounding lands to subsidize the sports complex, and would

have a "white elephant" on their hands -- the costs for which might even prompt the promoters to request additional development of nearby lands.

- Or private businessmen only would build an arena, still would develop surrounding lands, and would make as much or more profit without making as large an investment.

Natomas Air Park

Continued operation of Natomas Air Park would be permitted under Alternative A, and its potential for future use as a reliever airport would remain unchanged. Alternatives B through E, however, would convert the Natomas Air Park to other land uses. There are no suitable sites in the North Natomas Study Area where the airport could be relocated.

General aviation demand is anticipated to increase throughout the Sacramento region. County policy currently does not provide for general aviation at Metropolitan Airport. If Metro Airport absorbed the existing and forecast general aviation traffic of Natomas Air Park, this would be contrary to the policy of relying on the private sector to handle half of general aviation's needs in the region.[168] Moreover, the increased demand on Metro Airport from absorbing existing use and forecast growth of Natomas Air Park does not include demands which would result from development in North Natomas under Alternatives B through E.

With the closure of Natomas Air Park and unless traffic is diverted to Metro Airport, current users would be expected to transfer to Phoenix Field (20 percent), Rio Linda (30 percent), Sacramento Executive Airport (40 percent), and other facilities (10 percent).[169] Use of these airports would be expected to increase costs and travel times.

Elimination of Natomas Air Park would reduce regional options for reliever airports, if other designated reliever airports also are replaced. The loss of Natomas Air Park would contribute, therefore, to the cumulative shortage of airports as identified in the SACOG RAS Plan but in itself would not result in a significant impact.

Community Plan Policies

The goals and objectives currently recommended for North Natomas tend to be broad in nature and generally are in conformance with the overall community development policies of the City's General Plan. [170] Most policies proposed for North Natomas relate to urban design for future development of the planning area once the land uses and densities are determined. The goal that North Natomas "shall develop as a mixed-use community ..." [171] assumes that Alternatives B, C, D, or E would be selected as the community plan. Since land uses under Alternative A would be largely agricultural and industrial, this alternative would not conform with the mixed-use community envisaged by this policy.

Housing

All alternatives fail to "accommodate supportable market demand" [172] for residential land, and all but Alternative A would exceed projected demands for high growth manufacturing land while providing less than North Natomas market share of other industrial land. (Alternatives C, D, and E would provide a surplus of land for commercial development, however, and all but Alternative E would provide less land than the market share for office development.)

The longest possible commute within the Study Area would be approximately five miles in length, and from three (3) percent (Alternative A) to 66 percent (Alternative C) of North Natomas employees could live within the Study Area. Alternatives B, C, and D would provide adequate housing units within North Natomas so that at least 60 percent of persons who lived there could have commutes of six or less miles per one-way trip. [173] Due to the large number of persons employed in North Natomas versus the number of housing units to be built under Alternatives A and E, however, it is very unlikely that 80 percent of North Natomas employees would have one-way commutes of six to eight miles. [174]

An objective is proposed "in the event that surplus residential capacity does not exist outside of the Study Area" which is to balance jobs and housing within North Natomas. [175] (No recommendation is made about whether this is to be accomplished by increasing residential densities or by replacing non-residential uses with housing.) Neither could achieve a jobs-housing balance under Alternative A without converting agricultural land for residential use or without building housing in areas inappropriate for residential use (adjacent to Metro Airport or freeways). Alternative E not

only proposes the most intense development of all types but also would result in the highest density residential development. It theoretically might be possible but may not be desirable to increase residential densities to balance housing and jobs. Reducing employment generating uses would be a more effective way to create such a balance.

In order to create a "high quality community with a variety of desirable locations in which to live and work"[176] not only must there be ample availability of housing but also housing must be affordable by employees. Newly-built, low density and rural estate housing would be affordable only to upper middle to upper income households; medium and high density housing might be affordable to lower paid service, industrial, and office workers who would represent the majority of employees in North Natomas, as discussed in the previous section (Population, Housing, and Employment) of this EIR. Alternative A effectively would provide no housing for new workers of any employment category, Alternatives B and C provide roughly one-third each of low, medium, and high density housing, and 70 percent of housing under Alternative D and 90 percent under Alternative E would be medium or high density units.

Alternatives B and E provide no community park [177], and Alternative C would locate office and manufacturing uses (as well as an urban sports complex) adjacent to the proposed community park. In the first case, the only open space amenities available to residents would be limited to landscaped drainageways and the buffer intended to protect agricultural lands. [178] In the latter case under Alternative E, more North Natomas employees than community residents would benefit from immediate proximity to park amenities. This conflicts with the recommended policy that "residential uses [should] focus on open space amenities". [179] Alternative D, however, would provide medium and high density housing, as well as a high school site, immediately contiguous with a regional/community park. Other nearby uses would include low density housing and office development.

Among the proposed recommendations is one to phase employment-generating and residential uses to "ensure an adequate supply of residential land, dwelling unit types, and affordability of units is incorporated into each phase". [180] Few guidelines are offered about how to implement this policy -- such as (1) conditioning approval of employment-generating development until applications for sufficient residential development projects are received or (2) providing development incentives, such as density bonuses, for developers of non-residential projects to build housing -- suggesting that this balance may not be achieved. [181]

Commercial

Proposed commercial policies recommend maintaining access to existing regional shopping centers downtown and at Arden Fair and establishing three community level shopping centers of 20 to 30 acres to serve the daily needs of North Natomas residents. [182]

The City's proposed shopping center standards call for community shopping centers of 100,000 to 200,000 square feet in size which provide 34 to 68 stores and serve a population of 40,000 to 100,000 people within a two- to five mile radius.

Since details about proposed community shopping facilities only have been provided for Alternative C, the City's recommended standard on the population size to be served by community shopping centers was used to analyze this land use. The expected Study Area population has been projected for each alternatives, thus enabling equal comparison of Alternatives B, C, D, and E with the City's recommended standards (no commercial uses are proposed under Alternative A).

Using the City's recommended population of 40,000 to 100,000 people to be served by community commercial centers, therefore, one to two centers would be needed to serve the residential populations of Alternatives B through E (41,766 to 76,626 residents expected). If three community commercial centers are built under these alternatives, as recommended by the Draft Community Plan, there would be an oversupply of this type of commercial space compared with the City's proposed standards (Exhibit D-52).

Using the combined residential and employee populations expected for these four alternatives of 83,136 (Alternative B) to 194,376 (Alternative E) people at buildout, one to two community centers could be needed to serve the expected population of Alternative B and two to five centers could be needed to serve the population of Alternative E. If three centers are built, as recommended by the Draft Community Plan, there could be an excess of this type of community commercial space provided in Alternative B and potentially an undersupply of such space to serve Alternative E's anticipated population. These estimates, however, do not take the potential for double-counting of population into account. If substantial numbers of people both lived and worked in North Natomas, as desired by the Draft Community Plan, proportionately less community commercial space would be required in order to conform with the City's recommended standards.

EXHIBIT D-52

Neighborhood and Community Shopping Centers

	Alternative B	Alternative C	Alternative D	Alternative E
Community Commercial:				
• Acres	90	100	140	220
• Square Feet (at 9,000 square feet/acre)	810,000	900,000	1,260,000	1,980,000
Nieghborhood Commercial:				
• Acres	15	63	120	110
• Square Feet (at 9,000 square feet/acre)	135,000	567,000	1,080,000	990,000
Total Community and Neighborhood:				
• Acres	105	163	260	330
• Square Feet	945,000	1,467,000	2,340,000	2,970,000
Community Commercial:				
• Residential Population	41,766	63,907	65,792	76,625
• Employee Population	41,370	56,450	77,525	117,750
• Total Estimated Population at Buildout	83,136	120,357	143,317	194,376
• Centers Required at 40,000 people/ center	2	3	4	5
• Centers required at 100,000 people/ center	1	1	2	2
• Number recommended, Draft Community Plan	3	3	3	3
• Conformance with Proposed City Standard	Exceeds Standard	Could Conform	Could Conform	Could Conform
• Number of Sites Shown on Plan (Community and Neighborhood not differentiated)	6	4	4	6
• Conformance with Proposed City Standard	Exceeds Standard	Could Conform	Could Conform	Exceeds Standard

The alternative plans do not distinguish between community and neighborhood commercial sites which have been designated. The Draft Community Plan, however, suggests that four- to eight-acre neighborhood commercial sites be developed with 30,000 to 100,000 square feet of commercial uses. Alternative B designates 15 acres of neighborhood commercial uses which would result in two to four sites of four to eight acres each and 33,750 to 67,500 square feet. Alternative D could result in development of 15 to 30 such sites, each with 36,000 to 72,000 square feet of neighborhood commercial use.

The failure of the alternative plans to differentiate between community and neighborhood commercial sites suggests that there might be inadequate areas identified for neighborhood commercial uses, if the proposed acreages and estimated square footages are to be accommodated.

Agriculture

If any of the alternatives currently under consideration for North Natomas is adopted, none of the proposed policies would be adequate to protect remaining agricultural land uses either within or outside of the Study Area. The proposed policies discuss establishing "limits or containment edges to development within the plan's 20-year timeframe" [183], consisting of strong greenbelts between the community and adjacent agricultural areas along the incorporated boundaries of the Study Area. The narrative and recommended policies suggest that such edges are intended to protect the community from agriculture not the reverse, and that these separations are not permanent barriers to urbanization, only an interim measure until year 2005. (No greenbelt is proposed between development and agriculture under Alternative A.)

No recommendations are provided about what should be done to designated greenbelt and buffer areas to discourage their use by North Natomas' residents and to ensure that they would protect adjacent agriculturalists adequately from urban encroachment. It is not clear who would own and maintain the greenbelts and open space -- such as a public agency or homeowners/property-owners association. Except for Alternative B, developed areas would not be set back from agricultural land outside North Natomas -- which would force agriculturalists to provide buffers on their own lands, thus reducing their productivity. The narrow buffers proposed most likely would guarantee their impermanence from the very outset of plan implementation. If urban encroachment is to be limited, deep setbacks of

development should be provided, legal mechanisms to prevent their non-agricultural use and provide for their maintenance should be developed, and public access must be forbidden.

Drainageways, such as the West Drainage Canal, if developed as part of an overall agricultural land preservation program (see the Agricultural Lands section of this EIR), potentially could provide physical separation between developed urban uses and agricultural lands. Drainageways would be wide enough to inhibit or prevent such urban-rural conflicts as trespassing or vandalism on agricultural lands. Due to the pressures for continued urbanization of agricultural land, however, drainageways would not provide adequate buffering to limit to halt urban encroachment in the long-term.

The five alternatives differ in the extent to which the density of development would be feathered or tapered with less intense urban uses on the periphery of the Study Area adjacent to agricultural lands. Alternatives B, C, and D tend to locate extensive, low density residential uses contiguous to Study Area boundaries. (Alternative E, however, would locate medium and high density housing adjacent to agricultural lands.) This planning approach reduces density from the most to the least intense uses, producing a visual appearance of tapered development. While this may be attractive aesthetically and may give neighborhoods a suburban or rural identity, this approach does not necessarily protect agricultural land. The inexorable pressures for continued urbanization make agricultural land conversions to low density residential development easier when adjacent to or extensions of existing low density housing. If land uses were developed, however, which would be incompatible with residential uses, such a barrier could be more effective in protecting agricultural lands from further urban encroachment.

The area designated for Rural Estates was rezoned by the City in 1962 to allow one-acre lots (the density which is proposed by Alternatives A and C for this residential use).[184] According to the Draft Community Plan, Rural Estate areas would be rezoned for agricultural (A), Rural Estate (RE), or Planned Unit Development (PUD) zoning.

RE zoning itself does not indicate density in terms of units per acre. RE zoning is used as a very low density residential zone but attaches the maximum number of units per acre as a suffix (RE-1/4, RE-1/2, RE-1/1, etc.).[185] RE residential use in Alternatives A and C would retain the existing density of one unit per acre which was established in the 1960s. (Under Alternatives B, D, and E, existing rural estate areas would be

absorbed into low density neighborhoods which would allow seven units per acre.)

The City's recently revised zoning ordinance provides no minimum parcel size for areas subject to Agricultural (A) zoning.[186] Agriculturalists who continue to farm their land (Alternatives A and B, primarily) would be able to live on their land. Without minimum parcel sizes, however, they could subdivide or sell off parcels of their land. If significant acreages were involved, rezonings would be required prior to conversion to another use, such as residential, and before development could proceed. Individual sales of agricultural parcels for rural ranchette type development, however, potentially could proceed since agricultural (A) zoning has no minimum parcel size and because no protection against parcelization is recommended by the Draft Community Plan.

Parcelization (or subdivision of larger parcels) often occurs where agricultural land abuts urbanizing areas and frequently results in conversion of lots meeting minimum parcel sizes to rural ranchettes. In effect, agricultural land is transformed to large lot residential development which appears rural in character but which removes the land from economic production. The remnants of agricultural land, especially the very small ones under Alternatives C, D, and E, would be highly vulnerable to parcelization and rural ranchette development, since there is no minimum lot size under A zoning and because the economic incentive to agricultural landowners to subdivide their parcels would be so great due to the urban land prices for which rural ranchette type lots could be sold. The proposal to retain A zoning in North Natomas, therefore, would not protect agricultural land use adequately and virtually would ensure eventual parcelization and conversion of these lands to residential use.

D. LAND USE -- MITIGATION MEASURES

The significant adverse impacts from allowing development to proceed in North Natomas cannot be reduced to less than significant impacts. This is true whether the amount of development which occurs already is permitted by existing County zoning (Alternative A) or whether the amounts of development envisaged by Alternatives B through E are allowed. The impacts discussed in the previous subsection could be avoided, however, if none of the alternatives is adopted and if:

- The County redesignates existing light industrial and airport-related industrial (SPA) land to Agricultural Cropland and

- The City reaffirms its Growth Policy to maintain North Natomas in agricultural use at least until 1995 and includes this as a policy of the yet-to-be completed updating of the 1974 General Plan.

Two sets of mitigation measures are presented below: those applicable to selection of Alternative A and those which should be implemented if Alternative B, C, D, or E is adopted.

Alternative A

- In accordance with the adopted Growth Policy and the intent of General Plan policies to confine growth in Sacramento, North Natomas should not be opened for urbanization before 1995 at the earliest. Of all alternatives, Alternative A comes the closest to conforming with the Growth Policy and should be selected as the Community Plan. Specific Community Plan policies should be prepared and adopted to protect agriculture in conformance with the Growth Policy, and the five applications for North Natomas now pending with the City should be denied as inconsistent with adopted City policy. AND

- Incorporated land north of Del Paso Road should not be detached from the City, and the LAFCO Sphere of Influence Study should be revised to delete this recommendation. (Since LAFCO's study defers the detachment of these lands to some indefinite time in the future, however, it may not be necessary to amend the study's recommendations.) OR

- The City should work with the Local Agency Formation Commission (LAFCO) and the County Board of Supervisors to develop the most effective strategy to preserve agricultural lands north of Del Paso Road and throughout North Natomas. While LAFCO's recommendation to detach incorporated North Natomas north of Del Paso Road from the City would have merit in an isolated jurisdictional and planning context, in reality this is not a solution for long-term preservation of agricultural lands as is sought by LAFCO. OR

- If a Community Plan other than Alternative A is approved for North Natomas, consideration should be given to annexing the Northgate industrial area to the City in order to provide for efficient delivery of public services.

OR

Alternatives B through E

- If the City decides to amend existing policies and permit urbanization in North Natomas, it must determine that there are overriding social and environmental needs for opening the Study Area for development prior to 1995. AND

- If the North Natomas Community Plan is to have meaning for the Study Area and serve as a useful planning precedent for other areas surrounding the City, a mechanism must be established so that the Community Plan is implemented uniformly. The most effective way to do this would be for the City to annex unincorporated lands within the Study Area and implement the Community Plan throughout the Study Area. If the City does not annex unincorporated areas within North Natomas, the City and County should enter into a joint powers agreement or establish another legal mechanism to ensure that both incorporated and unincorporated areas are administered according to the Community Plan. (Various methods to implement the policy recommendations are proposed by the Draft Community Plan but do not address the interjurisdictional aspects of planning in North Natomas adequately.[187] None of the suggested methods actually would keep the City and County from implementing a Community Plan differently.)

- In order to achieve some (but not total) conformance with the City's and County's agricultural preservation policies, the Community Plan should not allow any development west of I-5 or north of Del Paso Road. Lands west of I-5 and north of Del Paso Road within the Study Area should remain designated for agriculture. Selection of Alternative B, revised to delete development now proposed north of Del Paso Road, could accomplish this.

- Measures recommended to preserve agricultural lands (see the Agricultural Lands section of this EIR) should be adopted in order to adequately buffer agricultural areas from urban uses and to avoid urban-rural conflicts. These measures include use of low density, open space buffers, drainageways, or designation of specific land uses, such as certain industrial uses, within the boundaries of North Natomas where the Study Area is contiguous to agricultural lands.

- The City of Sacramento should request that LAFCO amend the Sphere of Influence (SOI) which it has designated for the City to include the portion of the Study Area not presently located within the SOI.

- If the City approves private development of a sports complex in North Natomas, it should determine how much additional development would be necessary to support the sports complex and limit land use approvals and rezonings accordingly.

- One possible measure to mitigate the loss of Natomas Air Park would be to direct its traffic to other airports throughout the region, such as Executive Airport.

- An alternative to the above could be to revise the land uses in the Community Plan to:

  -- Maintain Natomas Air Park and use the proposed golf course and other open space and recreational uses as the required 65 dB CNEL buffer. OR

  -- Develop Natomas Air Park as an industrial airport. OR

  -- Maintain the airfield and relocate proposed residential units to sites which would not conflict with established traffic patterns.

  If Natomas Air Park is maintained under Alternative B, C, D, or E, there could be other impacts from its operation which have not been analyzed in this EIR.

- Consideration should be given to amending the City of Sacramento Zoning Ordinance to define the minimum lot size within agricultural zones (A), such as 20-acre minimum lots, in order to discourage parcelization and residential development of agricultural lands.

Five Individual Applications

- None of the five development applications should be approved in the absence of an approved Community Plan for North Natomas which designates urban land uses where these properties are located in order to ensure that any development which proceeds is orderly and coordinated and is in conformance with adopted City policies.

- Measures recommended to mitigate the impacts of Alternatives B through E should be applied if any of these applications is approved.

1 North Natomas Community Plan Background Report, The SWA Group et al, June, 1984, page 8. The report does not define "vacant lands" further.
2 Ibid., page 6.
3 Some discrepencies exist between plans related to areas covered by communities. (North Natomas, for instance, is north of Del Paso Road in the County Plan but north of I-80 in City Plans.) Where germane to this EIR such differences are highlighted. Detail differs according to the focus of individual documents, some of which necessarily are more broad while others are more site-specific. Finally, some plans are more current than others, so that previously prepared documents may not necessarily reflect more recent policies and recently completed documents may provide more detail. In addition, some changes have occurred which are not reflected consistently in all planning documents. Since the route number changes from I-880 to I-80 occurred after adoption of some plans, for instance, this EIR substitutes I-80 for I-880 where appropriate.
4 Most of the unincorporated County lands within the planning area are designated for industrial and public (airport) uses.
5 The Sacramento County General Plan, July, 1982, as amended as of 1983, page 56.
6 Ibid., page 8. This is consistent with another of the Plan's assumptions that the local population will continue to increase. Accordingly, agricultural employment would not necessarily decline in total jobs but the proportion of all agricultural jobs would decrease in relation to total employment in the region.
7 Ibid., page 7. This is one of nine Plan goals.
8 Ibid., page 16.
9 Ibid., pages 10, 100, and 102. Agricultural Cropland consists of irrigated, intensively cultivated farmlands. These lands are located in the Natomas, South Central, and Delta areas. General Agricultural lands usually are not irrigated and support extensive uses. (As increasingly more irrigated acreage has been converted to urban use, however, modern agricultural practices and irrigation are being used more frequently to convert extensive general agricultural lands to intensive production.) Agricultural-Urban Reserve and Agricultural-Recreation lands are designated for agricultural uses through 1990, the planning period of the County Plan.
10 Ibid., pages 11-12.
11 Ibid.
12 Ibid., emphasis added.
13 The 1974 Sacramento General Plan, page 6-12. Agricultural land is the largest land use in the City with approximately 26.5 square miles or 28 percent of the total incorporated area.
14 Ibid., page 6-4.
15 Ibid., page 1-4.
16 Ibid., Land Use Element, page 2-1.
17 Ibid., Open Space Element, page 6-4.
18 Ibid., page 1-6.
19 Ibid., page 6-13. The Plan discusses 6,943 acres in North Natomas: 3,582 acres north and 3,172 acres south of Del Paso Road.
20 Ibid., page 6-6. While the area north of I-80 is reserved for commercial agricultural production, some highway commercial and industrial uses could be considered in North Natomas providing,

however, that they "would not induce ancillary growth in [the] vicinity".

21 Growth Policy Conclusions and Recommendations, Accelerated General Plan Update, City of Sacramento, March, 1982.

22 Resolution 82-251 of the Sacramento City Council, April 13, 1982. A discussion about how urbanization would proceed according to this and other jurisdictions' policies follows this section.

23 Growth Policy, op. cit., page 4.

24 Ibid., pages 12-13. Emphasis added; emphasis in the original.

25 Such as extensive agricultural lands discussed by the County Plan.

26 Growth Policy, op. cit., page 8.

27 Ibid., page 9.

28 Ibid., pages 9 and 14.

29 Ibid., page 15, emphases added.

30 Ibid., page 17.

31 Ibid., pages 17 and 20.

32 This would eliminate (1) the agricultural-urban reserve designation south of Del Paso Road and (2) the permanent agricultural designation north of Del Paso Road and would designate all North Natomas as "agriculture".

33 Resolution 82-251, op. cit.

34 Growth Policy, op. cit., page 3.

35 Ibid., emphasis added.

36 The General Plan does not define the land use designations agricultural-urban reserve and permanent agriculture except to provide the maximum duration of their effectiveness. For agricultural-urban reserve, this period spans five to seven years. For permanent agriculture, the General Plan designates these lands for this use for 20 years and states: "review permanent agricultural areas every 20 years and adjust these areas if warranted". (It also recommends prohibiting the formation of new urban-type assessment districts or expanding existing districts inside designated agricultural lands.) Twenty (20) years is the accepted timespan of General Plans as the amount of time which reasonably might be forecast. In terms of agriculture, however, 20 years is note "permanent". This period limits long-term investment in agricultural operations which must be recovered and, therefore, acts as a restraint against making a commitment for long-term operations and the investments which are necessary to keep agriculture viable.

37 Developers also plan projects according to the time over which their initial investments in land, construction, and financing can be recovered, and a profit can be realized.

38 The Sacramento County General Plan, op. cit., page 8.

39 Ibid., page 9.

40 Ibid., page 11.

41 Ibid. The Plan also encourages higher intensity land uses "within existing and planned transportation corridors" and promotes accommodating growth within existing urban infill areas as a priority over urban expansion, not only to preserve agricultural lands but also to achieve other goals such as improvement of air quality. Ibid., page 19.

42 Ibid., page 17.

43 Ibid., page 56.

44 The existence of industrially-designated does not conform with the intent of the County's more recently adopted General Plan policies. That this conflict dates to the mid-1970s, prior to the adoption of the 1983 General Plan, and has not subsequently been corrected, is not a justification in itself for the continued inconsistency between adopted policy and land use designation.

45 These agricultural lands were classified agricultural-urban reserve until 1982. The County may have reasoned that, since agricultural lands in North Natomas had been annexed to the City, they eventually would be developed with urban uses. When the City reclassified these lands to "agriculture", it removed the urban reserve designation and reaffirmed the agricultural use. The County Plan (amended in 1983) did not take these changes into account, although the LAFCO Sphere of Influence study (completed in October, 1981) did. A similar situation exists to the northwest where airport-industrial and agricultural lands are contiguous.

46 The 1974 Sacramento General Plan, op. cit., page 1-5. The Plan aims not only to preserve agriculture by limiting urban expansion but also to minimize the public costs which would result from extending urban services and facilities to outlying areas.

47 Ibid., page 1-6.

48 Growth Policy, op. cit., page 4.

49 Resolution 82-251, op. cit., and Growth Policy, op. cit., page 4.

50 The 1974 Sacramento General Plan, op. cit., page 1-4. The County General Plan contains a virtually identical goal, adding housing opportunities to the goal. According to the City "diversification of the local employment base needs to occur, particularly with respect to the manufacturing sector", Growth Policy, op. cit., page 3.

51 Growth Policy, op. cit., page 2. North Natomas is a desirable area for high technology industry, and landowners indicate that approximately 1,200 acres could be made available for such uses. Ibid., page 5. High technology development on large tracts of land removed from urban centers, however, is synonymous with urban fringe development.

52 Ibid., page 2.

53 Ibid., page 8.

54 Ibid., page 14.

55 Ibid., page 2.

56 Resolution 82-251, op. cit. The growth policy report states: "As a practical matter, the development of the I-5 and I-80 freeway system through the area may have determined the future of North Natomas long ago". Growth Policy, op. cit., page 2.

57 The 1974 Sacramento General Plan, op. cit., page 2-1. Unchecked expansion often allows older neighborhoods to deteriorate and frequently produces a bland cityscape with little recognizable character. Consequently, the extent to which the City adheres to its policy to confine and concentrate development and redevelopment can help to serve its residents' interests well. The Sacramento Local Agency Formation Commission (LAFCO) has concluded, however, that "containment of the City with a tightly drawn sphere of influence boundary will not affect urban development in the metropolitan area [because] the County currently approves new development of urban density in all areas of the metropolitan region". City of Sacramento Sphere of Influence, Sacramento Local Agency Formation Commission,

October, 1981, page 75.

58 Growth Policy, op. cit., page 15.

59 Ibid., pages 12-13.

60 Ibid.

61 Knox-Nisbet Act, Government Code Section 54774, as cited in City of Sacramento Sphere of Influence, op. cit., page 1.

62 Ibid., page 5.

63 Ibid., page 41.

64 Ibid., page 2.

65 Ibid., page 3.

66 Ibid., page 10.

67 Ibid., page 139. Although LAFCO was aware that the City's growth policy was being conducted as its report was being prepared, the City had not adopted the Growth Policy and had not redesignated the agricultural lands in North Natomas before the completion of the LAFCO report. Inclusion of the area south of Del Paso Road in the City's sphere of influence appears to be in response to the agricultural-urban reserve land use classification of the area at the time. The proposed detachment of the area north of Del Paso Road appears to have been in response to its "permanent" agriculutre designation whereas the City now has redesignated all of North Natomas for "agriculture".

68 Ibid., page 74.

69 The Sacramento County General Plan, op. cit., page 30.

70 Ibid., page 62.

71 Ibid., page 70. This large area takes the following factors into account: the location of existing industrial development, the need for compatible development in air force base approach and departure zones, open space requirements around space and defense industries, and the desire to provide industrial area in a wide variety of locations.

72 Ibid.

73 Ibid., Map 2, Major Sacramento Industrial Areas, page 72. Specific policies related to airport and airport area uses are contained in the Metropolitan Airport Comprehensive Land Use Plan and Metropolitan Airport/Vicinity Special Planning Zone Ordinance, both of which are examined in a separate subsection, below.

74 Ibid, page 67.

75 Supplementing these policies which focus on the jobs-housing link per se are policies aimed at providing housing and employment opportunities in close proximity of each other. While these latter policies have land use, air quality, and social ramifications, they also could help to address an important issue raised by the City's growth policy related to public finance. Concentrating tax generating commercial and industrial uses in some areas while confining service demanding residential uses elsewhere can result in disproportionate burdens on some governments to pay for urban services with other government entities receiving the benefits of increased revenues from commercial and industrial development. If both housing and employment generating development are built within close proximity, it would be less likely that one jurisdiction would receive most of the economic benefits while another would pay most of the costs. Growth Policy., op. cit., page 13.

76 Ibid., page 4.

77 The 1974 Sacramento General Plan, op. cit., page 2-1.

78 Ibid., pages 2-7 and 2-10. It also recommends developing methods which better coordinate City and County controls affecting the placement of commercial land uses where these lands have a service impact on both jurisdictions.
79 Ibid., page 2-11.
80 Ibid.
81 Ibid.
82 Sacramento Area Employment and Land Use Projections, McDonald & Associates, op. cit., Exhibit IV-7, page 52.
83 Growth Policy, op. cit., page 14.
84 Considering the County's designation of 50,000 acres for all industrial uses -- high technology and other industry -- the growth policy's conclusion represents a significant understatement.
85 Ibid., page 20 and Resolution 82-251, op. cit.
86 The City has approved a Master Plan for mixed-use development of the Delta Shores project area in southwest Sacramento. This project provides area for manufacturing, research, and development (MRD zone), including high technology industrial development.
87 One map showing all land uses recommended for North Sacramento is not available from the City, although the Draft Community Plan is and can be inspected at the City Planning Department. It contains separate maps for different land use types (such as residential, commercial, circulation, etc.).
88 North Sacramento Community Plan (draft), January, 1983, page 3.
89 Ibid. Single family homes represent the least intense type of residential development.
90 Ibid. Vacancy rates of existing commercial space are among the highest in the city, and low rent commercial uses show a weak demand for the available commercially designated land in parts of North Sacramento.
91 Ibid., page 12. The latter, western area is closest to North Natomas.
92 Ibid. At Rio Linda Boulevard and Grand Avenue and in the Woodlake-Arden area which is developing as a regional office center near Highway 160.
93 Ibid. A ± 240-acre vacant area suitable for intense employment use also is identified by the Plan.
94 Ibid., page 21.
95 Ibid. Approximately 250 acres are vacant which have high visibility from the freeway. The other three prime industrial sites in North Sacramento comprise another 1,740 acres of which the majority (over 80 percent) is vacant land.
96 Ibid., pages 20 and 23.
97 A land use map from the 1978 South Natomas Community Plan is available for review at the City Planning Department. The revised land use map proposed for the 1984 revised South Natomas Community Plan is provided on the following page, since this is the most recent map of the area.
98 South Natomas Community Plan Revision, Working Paper #1: Existing Conditions, Planning Issues, and Options, March, 1984; Working Paper #2: Alternative Sketch Plans, May, 1984; Working Paper #3: Preliminary Draft Plan, June, 1984, prepared for the City by Blayney-Dyett.
99 Ibid. The following discussion summarizes the findings of Working Paper #1, pages 1,8, 18, and 19.
100 Ibid., pages 18-19.
101 Keyser Marsten, economists for the South Natomas Community Plan EIR, as

cited in Working Paper #1, page 18.

102 Working Paper #3, page 14. The City Planning Department uses the number 8.8 million square feet of offices in the Central City. This total includes public (City, State, and Federal government) and private office space. Memo of Stephen Jenkins, City Planning Department, to Nichols-Berman, April 30, 1985.

103 Metropolitan Airport Comprehensive Land Use Plan (draft), Airport Land Use Commission, February, 1984, pages 2, 6, and 7. The County owns this facility which was built in 1967, and the County Department of Airports operates it. The County actually owns 4,000 acres at this time which includes land located outside the airport site but within the airport's sphere of influence. The airport proper and its planned expansion area cover 2,900 acres. The ultimate ownership under the airport's land acquisition program, however, is planned to be approximately 7,000 acres.

104 Ibid., page 1.

105 Ibid. The Plan establishes height restrictions governing off-site development, designates airport safety areas (and limits land use and development activities on the ground within the airport's landing and takeoff, approach and climbout areas, and overflight zones), adopts airport safety policies, and recommends noise policies. The planning concept most critical to the use of off-site lands in the vicinity of the airport is the compatibility of land use or development with airport operations.

106 Ibid., page 8.

107 Ibid.

108 Ibid., pages 6 and 12. CNEL means Community Noise Equivalent Level. This is the noise rating method used for airports in California and to measure overall noise exposure for communities located near airports.

109 Ibid., pages 16-17.

110 Ibid., page 8. These criteria require that the use would not result in the (1) need to alter standard departure and arrival routes, (2) imposition of curfews on the hours of airport operation, and (3) prohibition of certain types of aircraft from using the airport.

111 Ibid., page 9.

112 Ibid., page 6, citing the airport Master Plan's off-site land use recommendations. The area northeast of the airport is recommended to be used either for permanent agriculture (as lands to the north and south are designated) or for compatible industrial use.

113 An Ordinance Amending the Zoning Code of Sacramento County Establishing a Special Planning Area Known as the Metropolitan Airport/Vicinity Special Planning Area Zone, Ordinance Number 83-SPA3, December 6, 1983. The SPA covers the land bounded by Lone Tree Road (east), the airport (west), Elverta Road (north), and I-5 (south). "Power Line Road", a designated but as yet built road contiguous to the airport, serves as the SPA's official western boundary.

114 Types of uses not listed by the ordinance require use permits.

115 This zone provides for "well-designed and controlled groupings of research, service, and light industrial uses within an area containing visual and operational amenities. ... This zone is intended to provide a park-like, nuisance-free environment for uses desirous of such a setting in an industrial-office development". County of Sacramento Zoning Ordinance, page 186.

116 Regional Aviation System Plan, Sacramento Area Council of Governments, June, 1984, page 44.

117 Nichols-Berman conversation with Russell Kilmer, Manager, Natomas Air Park, March, 1985.

118 Ibid.

119 North Natomas Draft Commuity Plan, op. cit., page 57. For a description of the CNEL contour, see Section F -- Noise.

120 The study was funded by a grant from the Federal Aviation Administration.

121 Regional Aviation System Plan, op. cit., page 3.

122 Nichols-Berman conversation with Larry Kozub, Senior Airport Planner, Sacramento County Department of Airports, March, 1985.

123 City of Sacramento Sphere of Influence Study, op. cit., page 74.

124 The City's General Plan illustrates these concepts. This document provides the planning context for Sacramento over the 20-year period to 1995. It provides for regular updating at 5- to 7-year intervals so that new circumstances can be taken into account or so that unanticipated problems can be resolved or corrected -- thus recognizing the inability to forecast precisely over a 20-year period. The City's accelerated General Plan update process began in 1980 in accordance with the 5- to 7-year timetable. The updating process is refining or fine-tuning the General Plan, indicating that its broad parameters still represent Sacramento's consensus on policies and, thus, that this document will continue to provide the overall policy framework for decisionmaking in the City. The updating process, thefore, is reaffirming the basic policy direction of the General Plan, not rejecting its fundamental premises.

125 Growth Policy., op. cit., page 15, emphases added. None of the applications, however, showsa compelling community need for any of the land uses proposed, and none addresses this issue. None of the applications shows that there is no other land suitable for the proposed uses, and none addresses this issue.

126 With respect to the issue of the stadium or arena, the ERA report concludes that any of the five alternative sites studied in Sacramento would be financially feasible for an arena.

127 City of Sacramento Sphere of Influence Study, op. cit.

128 These inconsistencies not only affect North Natomas but also have the potential to be interpreted as a precedent in other areas of the City or County, thus undercutting the validity of adopted public policies on growth and urbanization in the future.

129 The Sacramento County General Plan, op. cit., pages 16-17.

130 Ibid., pages 11-12.

131 The 1974 General Plan for the City of Sacramento, op. cit., page 6-6. Conversion of agricultural lands under Alternative A would occur in County but not City jurisdiction. Agricultural land conversions under all other alternatives, however, would occur in both jurisdictions.

132 Growth Policy., op. cit., pages 12-13.

133 Ibid., page 3.

134 The Sacramento County General Plan, op. cit., page 56.

135 This draft plan was prepared for Alternative C. Plan policies would have to be formulated and adopted whichever alternative is selected for North Natomas. The policies recommended by the draft plan, which are analyzed below, are assumed by this EIR to be applicable to Alternatives B through E, even though they initially were formulated for Alternative C.

136 North Natomas Community Plan (draft), The SWA Group, December, 1984, pages 56 and 86.

137 Nichols-Berman conversation with Karen Hall, Sacramento County Local Agency Formation Commission (LAFCO), May 24, 1985.

138 The No Project Alternative is not a "no development" alternative but provides for already planned and/or existing development.

139 Existing industrial land (660 acres) accounts for 5 percent of the planning area's ± 14,300 acres. Nearly 4 times as much industrial land would be provided under Alternative A than currently is designated. No explanation is readily available for the discrepency between currently designated industrial acreage (660 acres) and the 625 acres envisaged by this alternative.

140 Existing residential land (65 acres) accounts for less than 1 percent of the Study Area. Residential development has occurred in two areas. One is the near the eastern Study Area boundary adjacent to North Sacramento, including both City and County land. The other is at the Golden West Mobile Estates. This is a ± 37-acre site, half of which has been developed with 152 mobile home pads and common facilities and the other half of which its owners plan to develop with another 152 or more mobile home sites. Nevertheless, the assumption that up to 444 units could be developed on this parcel would result in an intensification of land use from what exists (152 units) or what is proposed (± 300 units total). Ultimate buildout of this parcel under Alternative A could increase the amount of development envisaged there (± 304 units) by one-third (444 units). (While Alternative A accepts existing residential land use designations in North Natomas, the analysis of population, housing, and employment in the previous section discusses a discrepency in this alternative between the number of housing units envisaged (744 units) and the number which actually exists (755 units), irrespective of acreage differences.)

141 Sacramento County Department of Public works, letter of May 14, 1984. This freeway is proposed to provide a full freeway-to-freeway interchange at I-5, an interchange at Elkhorn Boulevard, and, possibly, an interchange at Elverta Road. It is scheduled to be built within the next five years.

142 The effects of the projects are discussed in the analysis of Growth Inducing Impacts.

143 The existing mobile home park west of I-5 would remain, however, and while 1,750 acres east of Metro Airport would be designated Agricultural/SPA Reserve, 250 acres would be converted to industrial (SPA) use.

144 Up to 50 percent of M-50 lands could be used for offices; up to 20 percent of M-20 lands could be used for offices. Alternatives C, D, and E designate 39 percent, 44 percent, and 43 percent, respectively, of all employment generating land for M-20 and M-50 uses.

145 Growth Policy, op. cit., page 20.

146 Including the City of Sacramento, the northern portion of Sacramento County, West Sacramento, Davis, and Roseville. Delta Shores Village Final EIR, May, 1983, page 14.

147 Ibid., Exhibit II-4. At the time that report was completed, another ± 8,053,000 square feet of office space was proposed in major projects in the city.

148 McDonald & Associates has concluded that development of North Natomas as an office-industrial center effectively would eliminate such development from occurring in North Sacramento, although this area

might accommodate lower-end housing. Analysis Report, SWA Group et al, page 46.

149 These factors are important reasons for the City to adhere to its existing policy of infill and reuse in addition to wanting to prevent urbanization of outlying lands. If infill and reuse within the existing urban area are delayed indefinitely, it will be more difficult to implement those goals because the precedent will have been established to convert more easily urbanized lands to development. Conditions within the existing urban area, if neglected in the meantime, would have deteriorated further, thus discouraging infill and reuse there. This also means that the city would continue to have a surplus of developable land, although the demand would have shifted away from the areas where these parcels are located.

150 Letter to City Council, City of Sacramento from Richard Teramoto, Chairman, Sacramento Housing and Redevelopment Commission, December 12, 1984. Resolution of November 5, 1984.

151 Primarily northern Sacramento areas are shown in order to compare the distribution of growth, such as with the Central City and southern communities (South Sacramento and Airport-Meadowview where Delta Shores Village is located). A more extensive list of City, County, and SMSA areas affected by the opening of North Natoms to development is provided in Exhibits B-73 thorugh B-75.

152 Assumes a six-mile home-to-work commute, the maximum recommended by Sacramento County. Additional discussion of this subject, including Joint City-County Planning Commission standards is provided under Growth Inducing Impacts.

153 North Natomas Background Report, op. cit., page 126.

154 North Natomas Analysis Report, op. cit., page 45.

155 If M-20, M-50, or industrial uses operate more than one shift a day, however, they could conflict with adjacent, dissimilar uses.

156 M-20 and M-50 development could be designed to minimize noise exposure. These uses also could be built alongside major transportation corridors if designed suitably to mitigate noise exposure of these buildings' occupants and if designed to minimize visual impacts on drivers traveling on these roads.

157 Economic Analysis of an Arena and/or Stadium for Sacramento, California, prepared for the City of Sacramento by Economics Research Associates, September, 1984.

158 Other sites included on Southern Pacific land, at Cal Expo, downtown, and at Granite Park. The study assumed a 60,000-seat stadium and an 18,000-seat arena. Only the North Natomas and, possibly, the Southern Pacific sites could accommodate both facilities. Except for the North Natomas site, other alternatives only considered development of an arena.

159 Economic Analysis, op. cit., pages III-55 and III-56.

160 In the report's discussion of potential uses of an arena, it pointed out that more events probably would be scheduled at a facility located downtown than at an outlying, suburban location because of more convention use of a downtown arena. Ibid., pages III-34 and III-35.

161 Ibid., page II-7.

162 "This site will actually be realistic for sports facilities it if is taken out of agricultural uses and the owners develop surrounding lands as a means of subsidizing the cost of constructing the stadium and arena". Ibid., page V-21.

163 Ibid., page V-25. Emphasis added.

164 Ibid.

165 Ibid.
166 Ibid., page II-5.
167 Ibid., page III-56.
168 Nichols-Berman conversation with Larry Kozub, op. cit.
169 Nichols-Berman conversation with Russell Kilmer, op. cit.
170 As noted previously, the proposed policies were formulated for Alternative C, and no other comparable policies are recommended for the other alternatives considered in this EIR. All alternatives are assessed, however, in light of these policies.
171 North Natomas Draft Community Plan, prepared by the SWA Group, December, 1984, page 13.
172 Ibid.
173 This assumes that there would be 1.2 North Natomas workers per North Natomas household, an assumption of the city's planning team. The relationship between jobs and housing is discussed in detail in the Population, Housing, and Employment section.
174 North Natomas Draft Community Plan, op. cit.
175 Ibid.
176 Ibid.
177 Neither does Alternative A where 40 percent of units would be large-lot rural estates. Common facilities have been developed for residents of Golden West Mobile Estates.
178 Inadequate open space within the community suggests that the buffer area would be used for recreational purposes. If so, impacts on adjacent agricultural lands could result in conflicts with City and County agricultural preservation policies.
179 North Natomas Draft Community Plan, op. cit., page 14.
180 Ibid., page 20.
181 The proposed goal states that "development phasing must provide a housing linkage (roughly 200-300 acres of residential use for 100 acres of employment generating uses)". Ibid., page 91.
182 North Natomas Draft Community Plan, op. cit., pages 24-25.
183 Ibid., page 56.
184 Memo from Steve Jenkins to Nichols-Berman, op. cit.
185 City of Sacramento Zoning Ordinance, revised February, 1985, page 1-1.
186 Ibid., page 4-1. The City's previous zoning ordinance require a five-acre minimum lot size in A zones.
187 North Natomas Draft Community Plan, op. cit., page 104, Implementation of Joint Policies.

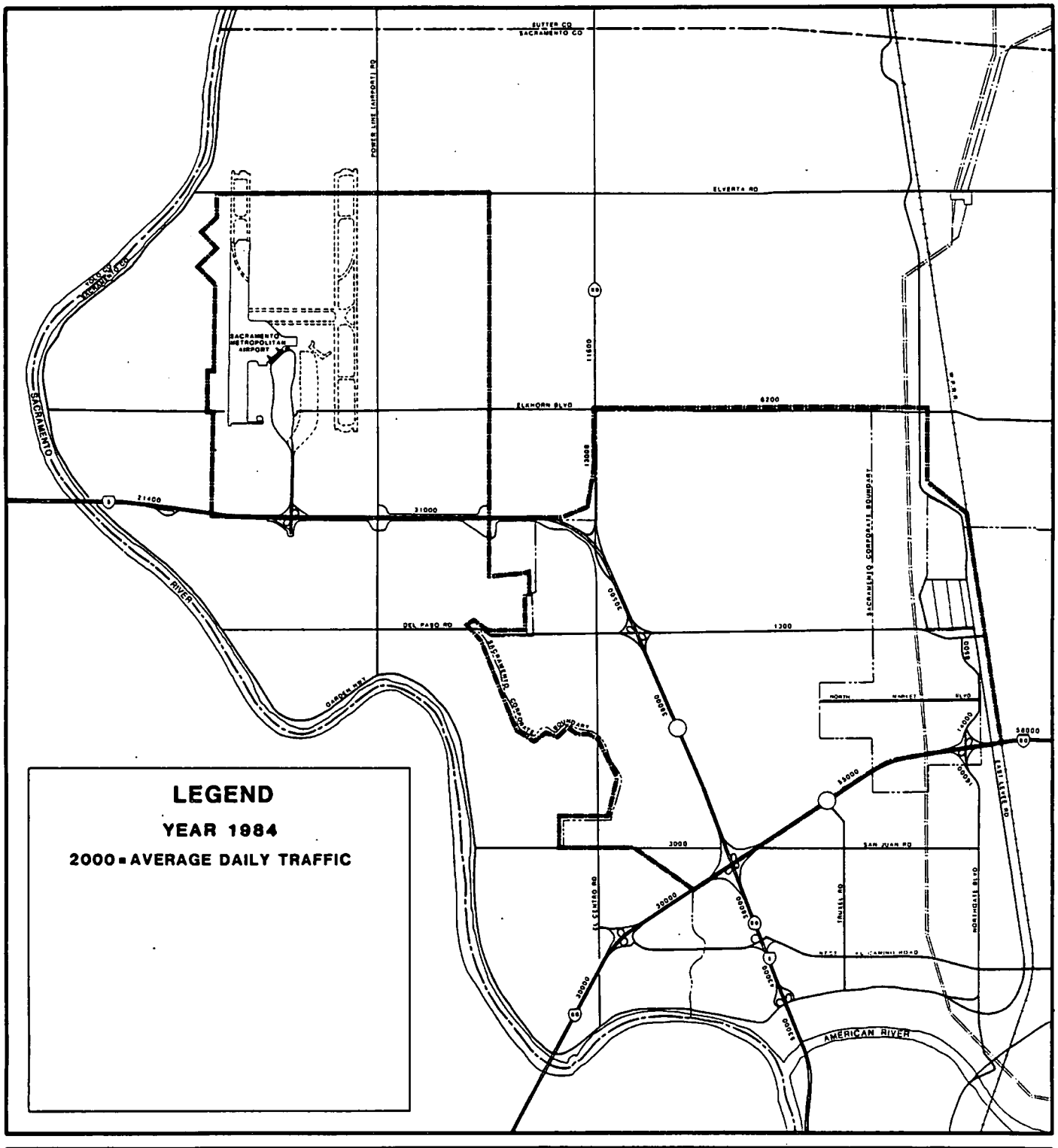
TRANSPORTATION - THE SETTING

EXISTING CIRCULATION SYSTEM

A. Roadway Network

The existing circulation system serving the North Natomas area is depicted on Exhibit E-2. Two major interstate freeways, I-80 and I-5, provide important regional access on an east-west and north-south basis, respectively. These facilities are both six lanes throughout most of the North Natomas area, although I-5 is 8 lanes between I-80 and the American River, and becomes 4 lanes north of its interchange with State Route 99. At this interchange, State Route 99 separates from I-5 and continues north as a two-lane highway to Marysville, Yuba City and beyond. The Study Area currently has grade-separated interchanges at Northgate Boulevard/I-80, Del Paso Road/I-5 and Airport Road/I-5; and freeway-to-freeway interchanges at the intersection of I-80 and I-5, and S.R. 99 and I-5. There is also an at-grade, signalized intersection at State Route 99 and Elkhorn Boulevard. CalTrans is currently designing improvements for State Route 99 which includes widening State Route 99 to four lanes from Interstate 5 to Sutter County Line, and reconstruction of the S.R. 99/I-5 interchange to accommodate this widening. CalTrans is also designing a grade separated interchange at Elkhorn and State Route 99. Construction of these improvements are planned to occur within five years.

The local circulation system serving the Study Area is composed primarily of rural, two-lane, unimproved blacktop facilities which are compatible with the existing predominately agricultural land uses. Elkhorn Boulevard in the northern North Natomas area, Del Paso Road in the center, and San Juan Road in the extreme southern portion of the area, are improved two-lane roadways which provide east-west access within and to points outside of the Study Area. The major improved north-south roads within the North Natomas area are El Centro Road and Northgate Boulevard. El Centro Road, south of I-5 is a two-lane local roadway and becomes State Route 99 just north of I-5. Northgate Boulevard is a four-lane facility from its interchange with I-80 north to North Market Boulevard, and two-lanes between North Market and Del Paso Road. North of Del Paso Road/Main Avenue, north-south access is provided by East Levee Road, a narrow, two-lane levee-top road. Northgate Boulevard continues south of I-80 and provides important access to South Natomas and points further south.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

EXISTING CIRCULATION SYSTEM AND EXISTING TRAFFIC VOLUMES

EXHIBIT E-2

Other existing roadways within the Study Area that provide circulation for the North Natomas area include; 1) Elverta Road, which provides east-west access to the north of Metro Airport, 2) North Market Boulevard, which is the sole outlet for traffic in the Northgate Industrial Park, and 3) Garden Highway, which follows the bank of the Sacramento River.

B. Key Intersections and Interchanges

Descriptions of the intersection and interchange conditions in the Study Area are as follows:

- Elkhorn Boulevard/East Levee Road. This intersection is controlled by four-way stop signs. Both of the East Levee Road legs are narrow two-lane widths. The east leg of Elkhorn Boulevard is a two-lane bridge and the west leg is a two-lane roadway.

- Del Paso Road - Main Avenue/Northgate Boulevard. This "T" intersection includes three-way stop sign control. The eastbound approach includes a through lane and a brief right-turn lane, while the westbound approach is one lane. The northbound approach includes separate left and right-turn lanes.

- North Market Boulevard/Northgate Boulevard. At this location, only North Market is controlled by a stop sign. The North Market approach includes separate left and right-turn lanes. Northgate southbound includes separate through and right-turn lanes while Northgate northbound is a single lane approach.

- Northgate Boulevard/I-80 ramps. At this interchange, traffic flows involve unrestricted ramp movements except for the eastbound to northbound and westbound to southbound left turns. These ramps are each two-lanes wide and are controlled by stop signs at their intersections with Northgate Boulevard. Northgate is four-lanes wide across this interchange.

- Northgate Boulevard/San Juan Road. Northgate is currently a two-lane street with a center two-way left turn lane. San Juan has a single lane approach which is controlled by a stop sign.

- Del Paso Road/I-5 Ramps. Traffic flows are essentially uncontrolled except the northbound to westbound and southbound to eastbound left turns. Each of these ramp movements is stop-sign controlled at Del Paso. Del Paso is a four-lane width (with median area) through the interchange.

- San Juan Road/El Centro Road. Both roads are two lanes in width with single lane approaches on all four legs. There are stop sign controls on both San Juan Road approaches.

- El Centro Road/Del Paso Road. Both roads are two lanes in width with single lane approaches on all four legs. There are stop sign controls on both Del Passo Road approaches.

- Elkhorn Boulevard/S.R. 99. This intersection is signalized and both roads are two lanes in width. Both Elkhorn Boulevard approaches are single lane. The southbound S.R. 99 approach has a single exclusive left turn lane and a shared through and right turn lane. The northbound S.R. 99 approach has single, exclusive left, through and right turn lanes.

- Elkhorn Boulevard/Power Line Road. This is a T-intersection with single lane approaches on all 3 legs. Both roads are two lanes in width.

- Airport Road/I-5 ramps. This is a 1/2 cloverleaf interchange with loops in the northeast and southwest quadrants. There are four lanes crossing over the freeway and all ramps are single lane, with the exception of the westbound I-5 off-ramp, which is two lanes. Left turn movements from the off-ramps are controlled by stop signs.

EXISTING TRAFFIC VOLUMES AND FLOW CONDITIONS

To provide a comprehensive data base, daily traffic volumes and AM and PM weekday peak hour turning movements volumes have been obtained for all the major streets, key intersections and freeway interchanges in the Study Area. In addition, for the Sports Complex analysis, existing traffic counts were also obtained from CALTRANS and the City of Sacramento for Sunday travel in the vicinity of the Study Area.

A. Daily Traffic Volumes

The existing daily traffic volumes and roadway capacities for area roads are shown on Exhibits E-2 and E-6. As shown, the traffic counts are based on average daily traffic (ADT) observed in 1983 and 1984. The counts were provided by CALTRANS, the City of Sacramento and the County of Sacramento and were supplemented by counts taken in May 1984 by OMNI-MEANS, Ltd.

The daily traffic volumes on the existing circulation system were evaluated as to their ability to operate at acceptable Levels of Service. Level of Service (LOS) is a quantitative measure of traffic operating characteristics, whereby a letter grade "A" through "F", representing progressively worsening conditions, is assigned to an intersection or a segment of roadway. The unacceptable Level of Service for intersections varies between the City and County of Sacramento. The County's acceptable level is "E", V/C = 0.99 whereas LOS "C"-"D", V/C = 0.80 is acceptable to the City. For this analysis, the acceptable Level of Service ranged from LOS "A" to "C"-"D", V/C = 0.0 - 0.80. Exhibit E-7 specifically defines each Level of Service category, and Exhibit E-4 lists the ADT capacity by facility for each LOS category.

As shown in Exhibit E-6, the traffic volumes on North Natomas roadways indicate that all facilities, including all freeway interchanges and intersections, operate at Levels of Service "A" or "B", which can be described as "good" traffic operating conditions. Excluding I-80 and I-5, the existing circulation system possesses the capacity to accommodate, roughly, double the existing traffic volumes. On the segments of I-5 and I-80 having the highest existing volumes, the present capacity will allow for roughly 35,000 additional daily trips. This number is based upon a Level of Service "C" condition on the freeway system.

EXHIBIT E-6

Existing Circulation System
For
Study Area Analysis

ROADWAY SEGMENT	LANES	1984 ADT	1984 V/C	1984 LOS
Regional System				
I-80 (west of I-5)	6	30,000	0.25	"A"
(I-5 to Northgate)	6	51,000	0.43	"B"
(East of Northgate)	6	56,000	0.47	"B"
I-5 (I-80 to American River)	8	41,000	0.26	"A"
(I-80 to S.R. 99)	6	35,800	0.30	"A"
(S.R. 99 to Sacramento River)	4	29,600	0.37	"A"
S.R. 99 (I-5 to Elverta Road)	2	13,000	0.33	"A"
Local System				
Del Paso Road (I-5 to Northgate)	2	1,300	0.09	"A"
El Centro Road	2	2,000	0.13	"A"
Elkhorn Blvd. (SR 99 to E. Levee)	2	6,200	0.41	"A"
Levee Road*	2	1,400	0.09	"A"
Northgate Blvd. (I-80 to N. Market)	4	14,200	0.47	"A"
(North Market to Del Paso)	2	8,500	0.56	"A"
North Market Boulevard*	2	7,300	0.49	"A"
San Juan Road (West of I-5)	2	3,800	0.25	"A"
(East of I-80)	2	4,600	0.31	"A"

* Estimated from AM and PM peak hour counts.

EXHIBIT E-7

Non Freeway Level of Service Definitions

LEVEL OF SERVICE	INTERSECTION	FREEWAY
"A"	Uncongested operations, all queues clear in a single-signal cycle. V/C = 0.00 - 0.60*	Free flow vehicles unaffected by other vehicles in the traffic stream.
"B"	Uncongested operations, all queues clear in a single cycle. V/C = 0.61 - 0.70	Higher speed range of stable flow.
"C"	Light congestion, occasional backups on critical approaches. V/C = 0.71 - 0.80	Stable flow with volumes not exceeding 85 percent capacity.
"D"	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. V/C = 0.81 - 0.90	Upper end of stable flow conditions. Volumes do not exceed 95 percent of capacity.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). V/C = 0.91 - 1.00	Unstable flow at roadway capacity. Operating speeds 30 to 25 mph or less.
"F"	Total breakdown, stop-and-go operation. V/C > 1.00	Stop-and-go traffic with operating speeds less than 30 mph.

* V/C ratio same for highway description.

Source: Transportation Research Circular No. 212, January 1980, pg. 11.

EXHIBIT E-8

Evaluation Criteria For Level of Service

(Daily)

Facility Type	Level of Service "C" ADT Traffic Volumes	Level of Service "D" ADT Traffic Volumes	Level of Service "E/F" ADT Traffic Volumes
Urban Streets	V/C = 0.71 - 0.80	V/C = 0.81 - 0.90	V/C = 0.91 - 1.00
Two Lane	10,700 - 12,000	12,000 - 13,500	13,500 - 15,000
Four Lane	21,300 - 24,000	24,000 - 27,000	27,000 - 30,000
Six Lane	32,000 - 36,000	36,000 - 40,500	40,500 - 45,000
Eight Lane	42,600 - 48,000	48,000 - 54,000	54,000 - 60,000
Freeway	V/C = 0.66 - 0.85	V/C = 0.86 - 0.95	V/C = 0.96 - 1.00
Four Lane	52,800 - 68,000	68,000 - 76,000	76,000 - 80,000
Six Lane	79,200 -102,000	102,000 -114,000	114,000 - 120,000
Eight Lane	105,600 -136,000	136,000 -152,000	152,000 - 160,000
Ten Lane	132,000 -170,000	170,000 -190,000	190,000 - 200,000
Twelve Lane	158,400 -204,000	204,000 -228,000	228,000 - 240,000

Source: Transportation Research Board, Circular 212 and the 1965 Highway Capacity Manual.

B. AM and PM Peak Hour Volumes Intersections and Interchanges

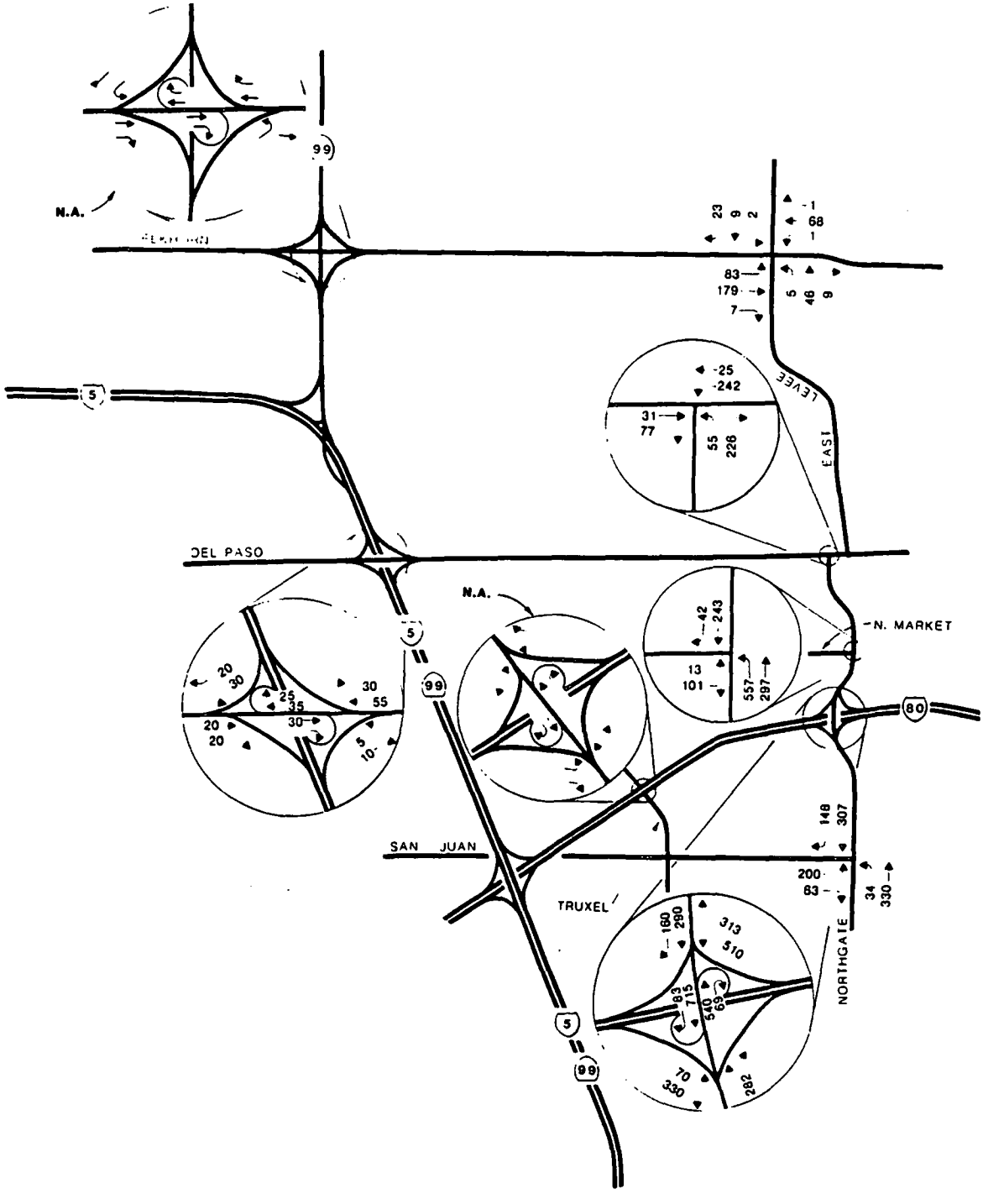
Shown in Exhibits E-10 and E-11 are the existing AM and PM peak hour traffic volumes as obtained through traffic counts by OMNI-MEANS in January, 1985. At each location peak hour Level of Service analyses have been performed and the need for signalization evaluated. The methodologies utilized for these evaluations include the Transportation Research Board, Circular No. 212, "Critical Movement Analysis" for Level of Service evaluation and the California Traffic Manual for signal warrant analysis.

Exhibit E-13 presents current AM and PM peak hour ramp volumes, v/c ratios and associated Levels of Service. To address ramp operating conditions, existing ramp volumes were compared to an assumed ramp capacity of 1,500 vehicles per hour. As shown, all ramps carry peak hour volumes within the service volumes associated with Level of Service "A" or "B". The following paragraphs discuss existing intersection/interchange operations in the Study Area. This information is summarized in Exhibit E-14.

- Elkhorn/East Levee. Although it is tenuous to calculate Service Level for a four-way stop intersection, intersection capacity and the service level can be estimated. During both the AM and PM peak hours, volumes are about 30% of capacity and the Service Level is "A". Volumes are well below the levels needed to warrant signalization.

- Northgate/Del Paso - Main. During both the AM and Pm peak hours the intersection operates in the "A" Service Level range. Volumes are well below minimum levels to warrant signalization.

- Northgate/North Market. The intersection's overall operation is satisfactory but delays are experienced by certain movements. During the AM peak hour, the outbound left turn from Market to Northgate experiences very long delays (Service Level "E"). During the PM peak hour, both the right turns and left turns from Market experience long delay (Service Level "D"). Volumes are approaching the warrant levels for signalization and with the delay being experienced by turning movements, signalization would be needed in the near term.

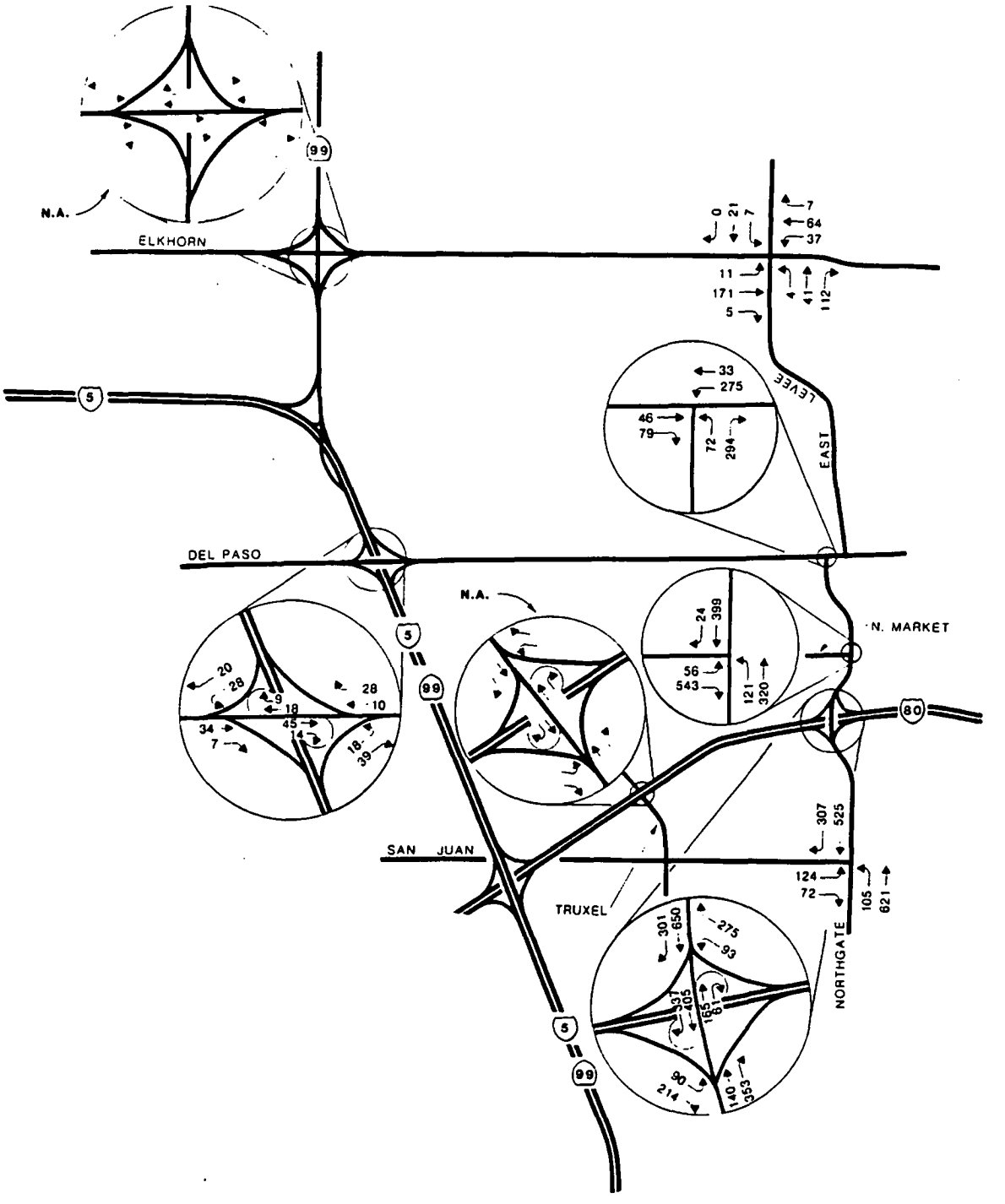


NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

EXISTING AM PEAK HOUR TURNING MOVEMENTS

EXHIBIT E-10



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

EXISTING PM PEAK HOUR TURNING MOVEMENTS

EXHIBIT E-11

- Northgate/I-80 Ramps. The ramp intersections with Northgate generally operate at stable flows (Service Level "C" or better) during the PM peak hour. During the AM peak hour however, the left-turn movements from the ramps to Northgate are subject to long or very long delays (Service Level "D/E"). With speeds on Northgate at or near 40 miles per hour, the volumes indicate that signalization could be justified at both the eastbound and westbound left-turn off-ramps.

- Del Paso/I-5 Ramps. The northbound and southbound ramp intersections operate at Service Level "A" - no delay during both the AM and PM peak hours. The current intersection volumes are well below the levels at which signalization would be warranted.

- S.R. 99/Elkhorn Boulevard. This at-grade, signalized intersection currently operates at LOS "B" during the morning peak hour, and at LOS "A" during the evening peak hour.

- The San Juan/El Centro, El Centro/Del Paso and Power Line/Elkhorn. These intersections are all low volume intersections that currently operate at LOS "A/B" (estimated).

- Airport Road/I-5 ramps. The total ramp volumes equal 10,000 ADT at this location. Given the existing geometrics and capacity at the ramp intersections, it can be estimated that existing LOS is "B" or better.

EXHIBIT E-13

1985 Peak Hour
Ramp Levels of Service

INTERCHANGE	AM PEAK HOUR VOLUME	AM PEAK HOUR V/C	AM PEAK HOUR LOS	PM PEAK HOUR VOLUME	PM PEAK HOUR V/C	PM PEAK HOUR LOS
I-80 @ NORTHGATE						
WB OFF-RAMP	820	.55	"B"	370	.25	"A"
NB NORTHGATE TO WB ON-RAMP	70	.05	"A"	60	.04	"A"
SB NORTHGATE TO WB ON-RAMP	160	.11	"A"	300	.20	"A"
EB OFF-RAMP	400	.27	"A"	300	.20	"A"
SB NORTHGATE TO EB ON-RAMP	80	.05	"A"	340	.23	"A"
NB NORTHGATE TO EB ON-RAMP	280	.19	"A"	350	.23	"A"
I-5 @ DEL PASO						
SB OFF-RAMP	50	.03	"A"	50	.03	"A"
WB DEL PASO TO SB ON-RAMP		.01	"A"	10	.01	"A"
EB DEL PASO TO SB ON-RAMP	20	.01	"A"	10	.01	"A"
NB OFF-RAMP	15	.01	"A"	60	.03	"A"
EB DEL PASO TO NB ON-RAMP		.01	"A"	30	.02	"A"
WB DEL PASO TO NB ON-RAMP	30	.02	"A"	15	.01	"A"

EXHIBIT E-14

Existing Intersection Operating Conditions

INTERSECTION	PEAK HOUR SERVICE LEVEL AND DISCUSSION
- Elkhorn/East Levee	Service Level "A", signal not warranted.
- Del Paso/Northgate	Service Level "A/B", signal not warranted.
- North Market/Northgate	Service Level "D/E" (long delay) for left-turn from Market volume approaching signal warrants.
- Northgate/I-80 Ramps	Service Level "C" or better during PM peak hour. Service Level "D/E" (long delay) during AM peak hour for left-turns from ramps. Signalization warranted.
- Northgate/San Juan	Service Level "E" (long delays) for San Juan traffic signalization warranted.
- Del Paso/I-5 Ramps	Service Level "A", signals not warranted.

C. AM and PM Peak Hour Volumes (Freeway Segments)

Because the projects under analysis have the potential to impact freeway conditions the analysis has been expanded to address conditions on basic freeway segments. To address operating conditions of basic freeway segments, the maximum service volume thresholds and Level of Service definitions presented in Exhibit E-16 were compared to current average peak hour volumes reported by CALTRANS. The 70 mph average highway speed criteria is used based upon design speed, which is applicable to all freeways in the North Natomas area. Volume to capacity (v/c) ratios have also been presented for basic freeway segments. The v/c ratios associated with each freeway segment Level of Service differ from those associated with surface streets. While both Levels of Service are based on observed operating speeds, the relationship between increasing traffic volume and decreasing operating speed on each facility varies. Volume/capacity ratios derived from maximum freeway service volumes were then used to identify existing peak hour Levels of Service.

Exhibit E-17 presents current average weekday peak hour traffic volumes on Interstate 80 and I-5 in the Study Area. Peak hour Levels of Service now range from "A" or "B/C".

EXHIBIT E-16

Freeway Level of Service Definitions

LEVEL OF SERVICE	FREEWAY SEGMENT
A V/C=0.01-0.40	This is in the category of free flow operation. Average running speeds of 50 mph and above prevail on freeways with 70 mph AHS. Vehicles are almost unimpeded in their ability to maneuver within the traffic stream, and to enter and leave at ramps.
B V/C=0.41-0.65	This may also be considered to be free flow. Average running speeds of 50 mph or greater still prevail on freeways with 70 mph AHS, though vehicles are more closely spaced. The ability to make lane changes, or to enter or leave the traffic stream is somewhat restricted, but not at all difficult.
C V/C=0.66-0.85	Stable operation occurs but deterioration of service as volume increases occur quickly in this range. Vehicles still maintain a good average running speed, 48 mph for freeways with 70 mph AHS, but freedom to maneuver within the traffic stream is clearly restricted.
D V/C=0.86-0.96	Borders on unstable flow. Speeds in the range of 40 mph can be maintained on highways with AHS = 70 mph if no incidents occur. The ability to maneuver within the traffic stream is severely restricted.
E V/C=0.97-0.99	Describes capacity operation, and is quite unstable. Speeds of about 30 mph prevail, and any vehicle entering the traffic stream or attempting to change lanes will cause a disturbance which the traffic stream cannot easily absorb.
F V/C=1.00+	Represents forced, or breakdown flow. Conditions will vary considerably from minute-to-minute, as traffic is brought to a halt, and then moves suprisingly well for a short distance before again being stopped. This condition is highly unstable and speeds vary widely, generally ranging below 30 mph.

AHS = Average Highway Design Speeds
SOURCE: Circular 212

EXHIBIT E-17

Existing 1984 Peak Hour
Freeway Levels of Service

LOCATION/# LANES	7 - 8 AM PEAK HOUR VOLUME	V/C	LOS	4 - 5 PM PEAK HOUR VOLUME	V/C	LOS
INTERSTATE 80						
EAST OF I-5						
WESTBOUND/3	4,000	.66	"B/C"	1,900	.32	"A"
EASTBOUND/3	1,500	.25	"A"	3,200	.53	"B"

INTERSTATE 5 - NO HOURLY COUNTS AVAILABLE IN IMMEDIATE VICINITY OF STUDY AREA.

EXISTING PUBLIC TRANSPORTATION

There is currently no Regional Transit bus service within the North Natomas area. Regional Transit officials have, however, indicated that they are interested in providing service to the area if development occurs and funding can be secured. The Sacramento Transit Development Agency has no immediate or long term plans for light rail to serve the North Natomas area. If private funding for light rail is proposed, the agency is receptive to developing trunk lines off their main route. There are a number of private commuter buses and taxi companies that currently provide regional service to/from the Sacramento Metropolitan Airport.

TRANSPORTATION -- THE IMPACTS

STUDY ASSUMPTIONS

To provide a consistent basis for the analysis, a number of basic assumptions were developed prior to performing this study. As outlined below, these assumptions cover the essential components of the traffic analysis:

A. Community Plan Alternatives

Five Community Plan alternatives, Alternatives A through E, will be analyzed in this traffic section of the EIR. These alternatives are as follows:

Alternative A	-	No Project
Alternative B	-	
Alternative C	-	Proposed Community Plan
Alternative D	-	
Alternative E	-	Composite Applications

In addition to the analysis of these five Community Plan alternatives, a phasing analysis has been performed on Alternative C, the Proposed Community Plan. Four intermediate development phases, identified by Mc Donald & Associates, will be analyzed to determine traffic impacts and necessary circulation improvements to support each phased development level at acceptable Levels of Service.

The five land use applications submitted to the City of Sacramento for projects within the North Natomas Plan Area were also individually evaluated to determine traffic impacts and necessary mitigation measures.

Also, within Gateway Point, the largest project application, a Stadium and Arena Sports Complex is proposed which has been separately analyzed in this traffic element. Therefore, the following six individual project analyses have been conducted:

A. Stadium/Arena Sports Complex
B. Gateway Point
C. Ketscher
D. Schumacher/Iverson
E. Payne
F. Fong

In this analysis, the Draft South Natomas Community Plan, November 1984, land uses were assumed to buildout under 2005 conditions, and that plan is the basis for the South Natomas contribution to the overall Study Area trip generation. Any changes in this plan in terms of the location and intensity of land uses could potentially have a significant affect on the North Natomas analysis described in this EIR.

B. Background Growth and Development

In order to identify, not only the local, but also regional transportation impacts within the Sacramento region, some estimation of the dynamics of regional growth and development within the region would need to be determined both with and without development of the North Natomas Plan Area. In cooperation, the City, County and Mc Donald & Associates provided such regional growth and development projections for use in the regional transportation model. Discussions of these projections are contained in Section C of this EIR.

C. Regional and Subregional Transportation Models

Due to the size of the Study Area and the magnitude of development being considered, regional and subregional transportation models were assumed to be the most appropriate transportation planning tools to project and analyze traffic volumes and impacts. To analyze the interaction of travel within a 20,000 acre North and South Natomas area, a subregional transportation model was created and utilized. To analyze the change in travel and identify traffic impacts throughout the Sacramento region, the regional transportation model, which covers essentially the entire Sacramento County, was also created and utilized. These transportation models are described further in the following sections of this Traffic Element and additional documentation is contained in the Appendix.

D. Periods of Analysis

The North Natomas transportation analysis was conducted utilizing daily traffic projections from the regional and subregional transportation models. The utilization of daily traffic projections for long range transportation modeling and analysis is a typical approach and procedure in the transportation planning field and has been approved by City and County staff. Where appropriate, however, when peak hour information is desirable, such information has been extrapolated to serve the specific purposes. For the analysis of the individual projects, traffic impacts and mitigation measures have been determined on a peak hour basis.

E. Trip Generation

Alternative trip generation techniques were explored for use in this analysis. Trip generation information obtained from the Institute of Transportation Engineers, CALTRANS and other nationally recognized sources were reviewed. In addition, trip generation information developed as a part of the Sacramento Area Transportation Study (SATS) efforts in the creation of a Sacramento regional transportation model in early 1970 was also considered. Upon analyzing and utilizing the above trip generation information, the trip rates developed for the Sacramento region as a part of the SATS efforts were found most appropriate in calibrating the regional transportation model developed in this analysis. Therefore, the SATS residential trip generation rates were assumed and utilized in this study. A complete description of these trip generation rates are contained in the Model Description and Development sections of this Traffic Element. Additionally, no reduction in the projected traffic volumes was assumed due to the implementation of Transportation Systems Management (TSM) techniques. A discussion of the potential benefits of TSM is found in the Mitigations section. It should be noted, however, that an inherent 3% TSM factor is included in the ITE trip rates.*

---

* "Creekside Oaks DEIR", June 1984
Common To All Alternatives

F. Trip Distribution and Trip Assignment

Following the calibration and validation of the regional transportation model, the regional model was assumed to be a reasonable forecasting tool of trip distribution and assignment of traffic to the regional street system. Trip distribution and trip assignment characteristics determined from the regional transportation model were then utilized in the subregional transportation model. A complete description of the regional transportation model is contained in the Model Description and Development sections of this Traffic Element.

G. Future Roadway Improvements

Since the North Natomas Plan Area is largely currently undeveloped, some base roadway improvements have been determined by the Planning Consultant and City staff to support each of the land use alternatives under consideration. These base roadway improvements will be described in the following paragraphs. Any additional improvements required to achieve acceptable operating conditions, beyond these base roadway improvements, will be identified as mitigation measures to minimize traffic impacts. In addition, under the regional analysis, the existing freeway network was assumed as the future base condition.

Common To All Alternatives

In all five Alternatives, State Route 99 was assumed to be improved to a four-lane freeway from I-5 into Sutter County. This segment would also include a grade-separated interchange with Elkhorn Boulevard which will be of similar design as the Del Paso/I-5 interchange. Both the freeway and interchange are presently being designed by CALTRANS. Both I-5 and I-80 were assumed to potentially have a maximum of eight through lanes within the Study Area. In this analysis, however, the assumed freeway widths will be used as future base conditions and any further widenings will be identified as mitigation measures. CALTRANS has indictated that eight through lanes is the maximum freeway improvement projected in the Sacramento Region. In addition, the maximum intersection improvement is depicted in Exhibit E-24. The following descriptions detail the assumed roadway improvements under each of the five alternatives.

Alternative A

Under Alternative A, interchanges would be constructed at Power Line Road and I-5, and Truxel Road and I-80. The Power Line Road/I-5 interchange, located east of Metro Airport, would primarily serve development of the SPA lands. The Truxel Road/I-80 interchange would serve South Natomas only, with no northerly extension of Truxel into North Natomas. These improvements and projected ADT are depicted on Exhibit E-25.

Alternative B

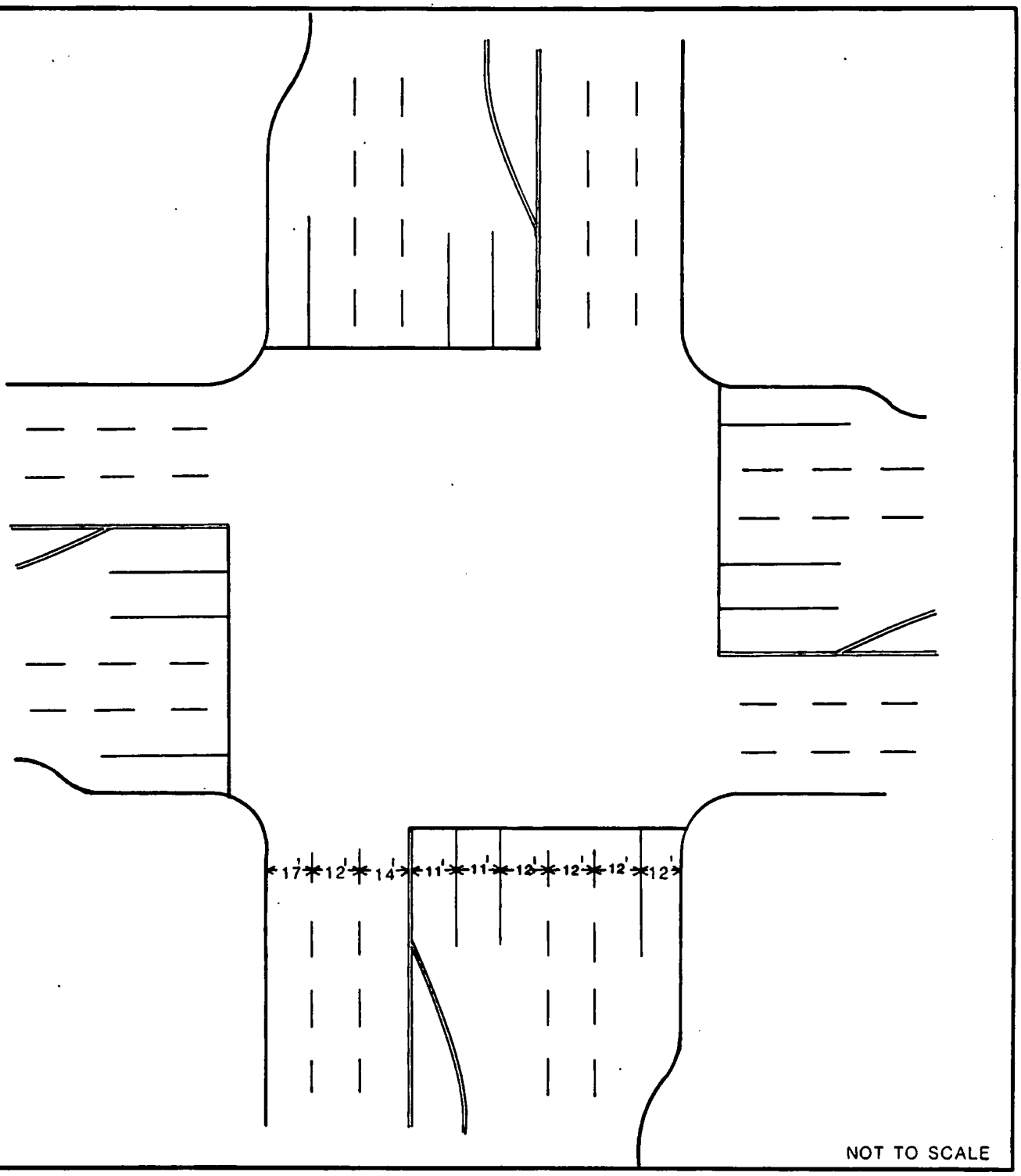
In addition to the two interchanges identified in Alternative A, an interchange at North Market Boulevard and I-5 would be added under Alternative B. The Truxel Road/I-80 interchange would be improved to serve both the North and South Natomas areas. The projected roadway system and projected ADT are shown in Exhibit E-26. Del Paso Road, North Market Boulevard, Truxel Road and the Loop Road are all assumed to be built as six-lane facilities.

Alternative C

The Alternative C roadway network and projected ADT are shown in Exhibit E-27. The improvements are consistent with those identified in the North Natomas Draft Community Plan, December 1984. New interchanges are included at: Power Line Road and I-5; North Market Boulevard and I-5; and Truxel Road and I-80 . Truxel Road, Del Paso Road and North Market Boulevard are all designated as six-lane roads. All other major roads, including the Loop Road, are four-lanes, with the exception of two minor roads connecting to Elkhorn Boulevard and East Levee Road, which are two-lane facilities.

Alternative D and E

The proposed roadway systems for Alternatives D and E are depicted in Exhibit E-29 and E-30. All roads were assumed to be six-lane facilities. Additional interchanges are included at: Power Line Road/I-5; North Market Boulevard/I-5; and Truxel Road/I-80.



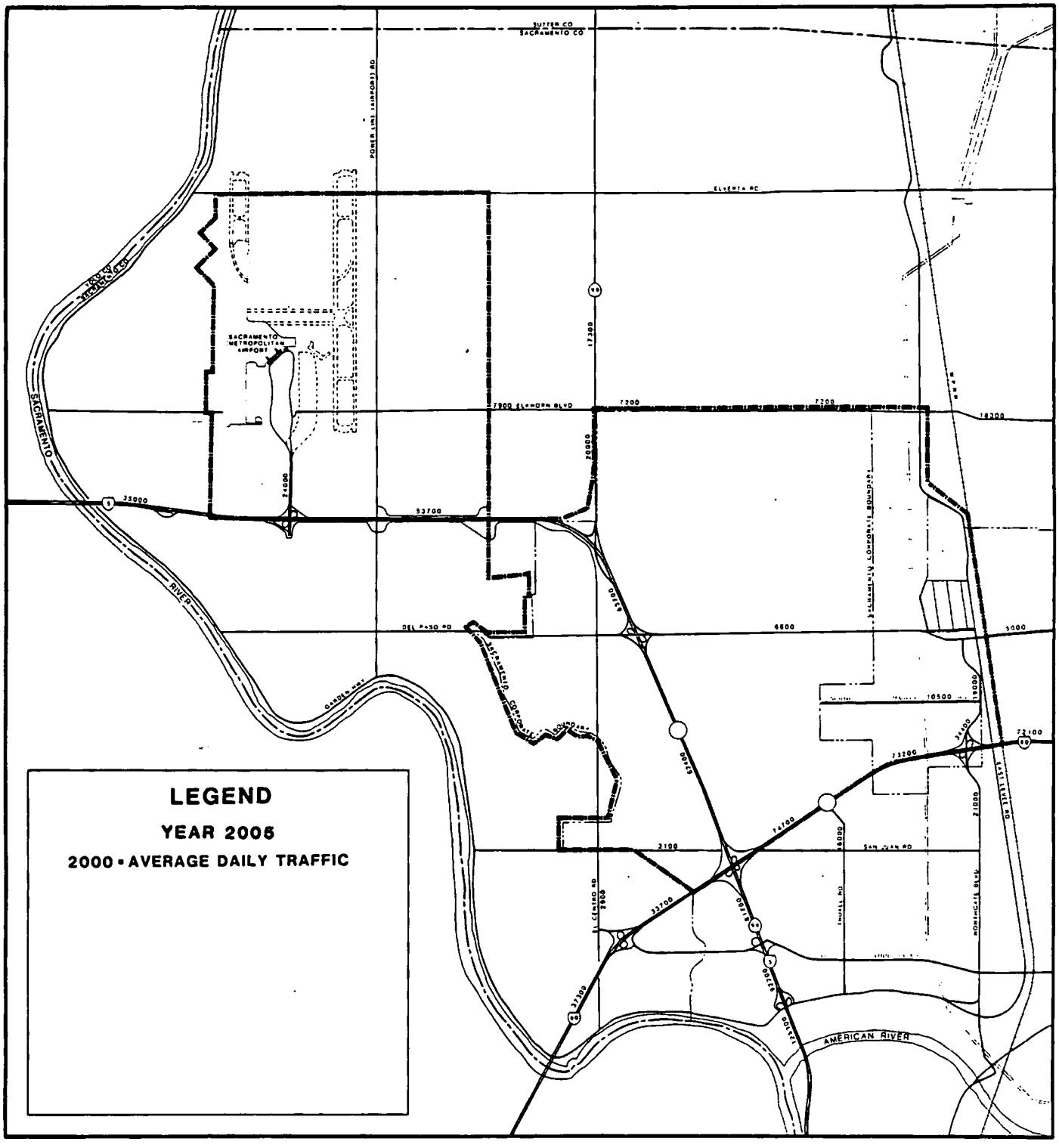
NOT TO SCALE

NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

MAXIMUM INTERSECTION CHANNELIZATION

EXHIBIT E- 24

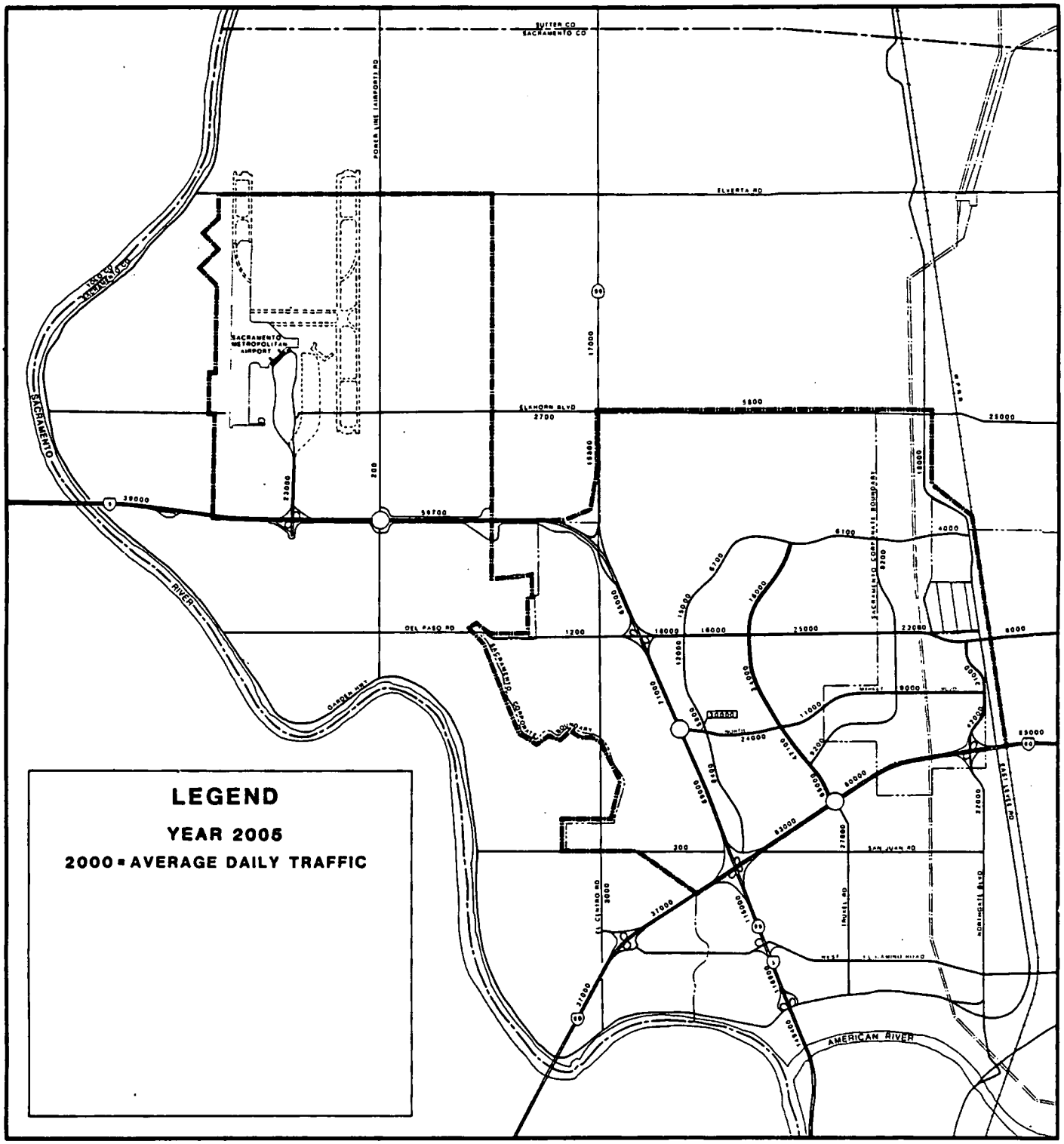


NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE A PROPOSED CIRCULATION SYSTEM AND PROJECTED TRAFFIC VOLUMES

EXHIBIT E-25

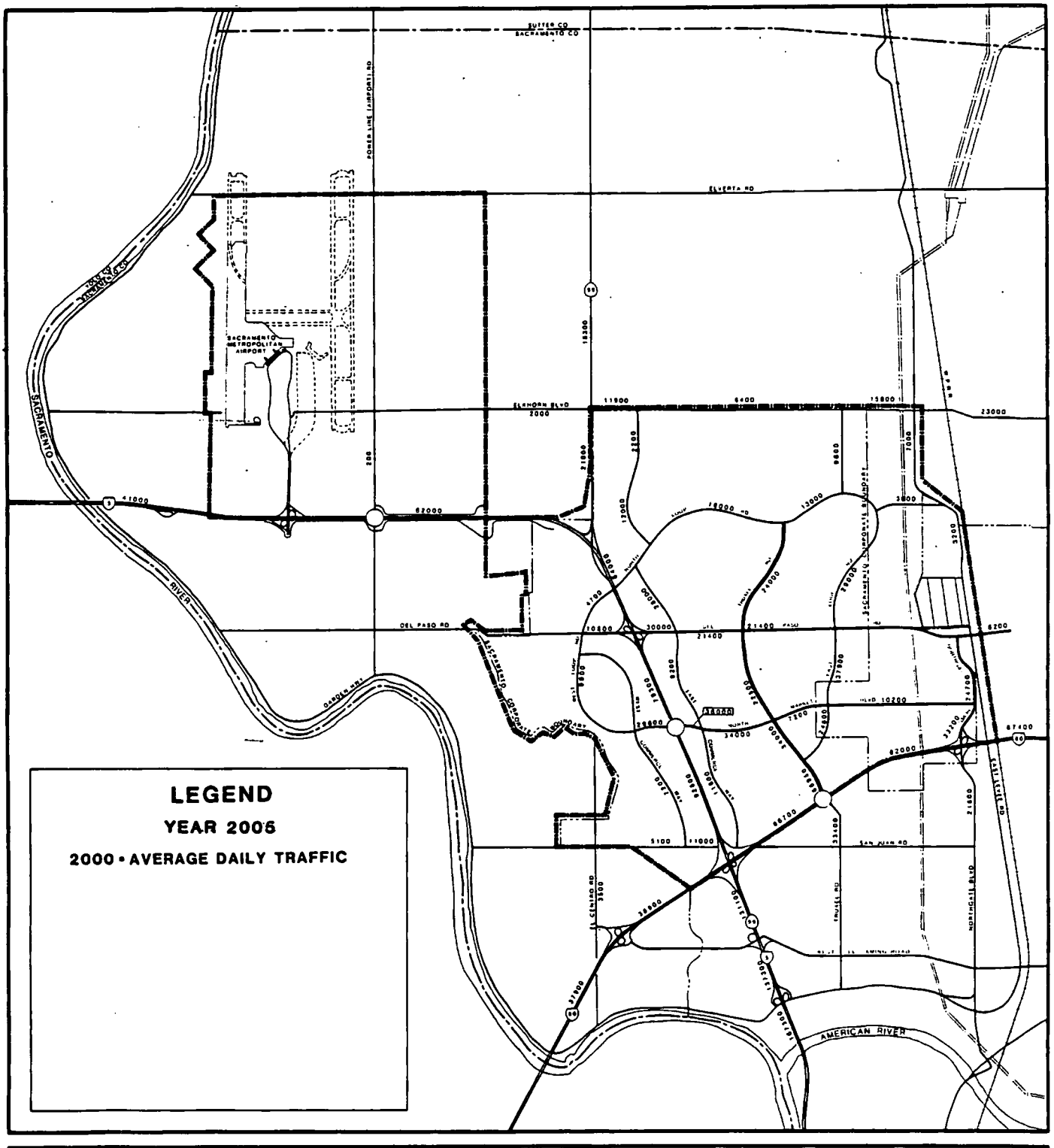


NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE B PROPOSED CIRCULATION SYSTEM AND PROJECTED TRAFFIC VOLUMES

EXHIBIT E-26



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE C PROPOSED CIRCULATION SYSTEM AND PROJECTED TRAFFIC VOLUMES

EXHIBIT E-27

H. Criteria for Traffic Impact Evaluation

For the evaluation of impacts, a criteria of maintaining LOS "C" (Volume to Capacity Ration [V/C] = 0.71 - 0.80) on the local street system was used. The criteria was also applied to the freeway system, however, as noted in Exhibit E-16, the V/C ranges for freeway segments are somewhat different. The upper V/C limit, 0.80, was allowed as an acceptable condition, even though 0.80 presents a borderline LOS "C/D" condition. This approach was taken under the direction of the City Traffic Engineer, to allow for marginally unacceptable conditions.

The maximum improvements to be considered as mitigation measures are listed below. Given the fact that these are identified as maximum improvements, there may be certain impacts that exceed the capacity of even these maximum improvements and therefore cannot be mitigated to acceptable LOS conditions as described above.

Maximum Circulation Design Parameters

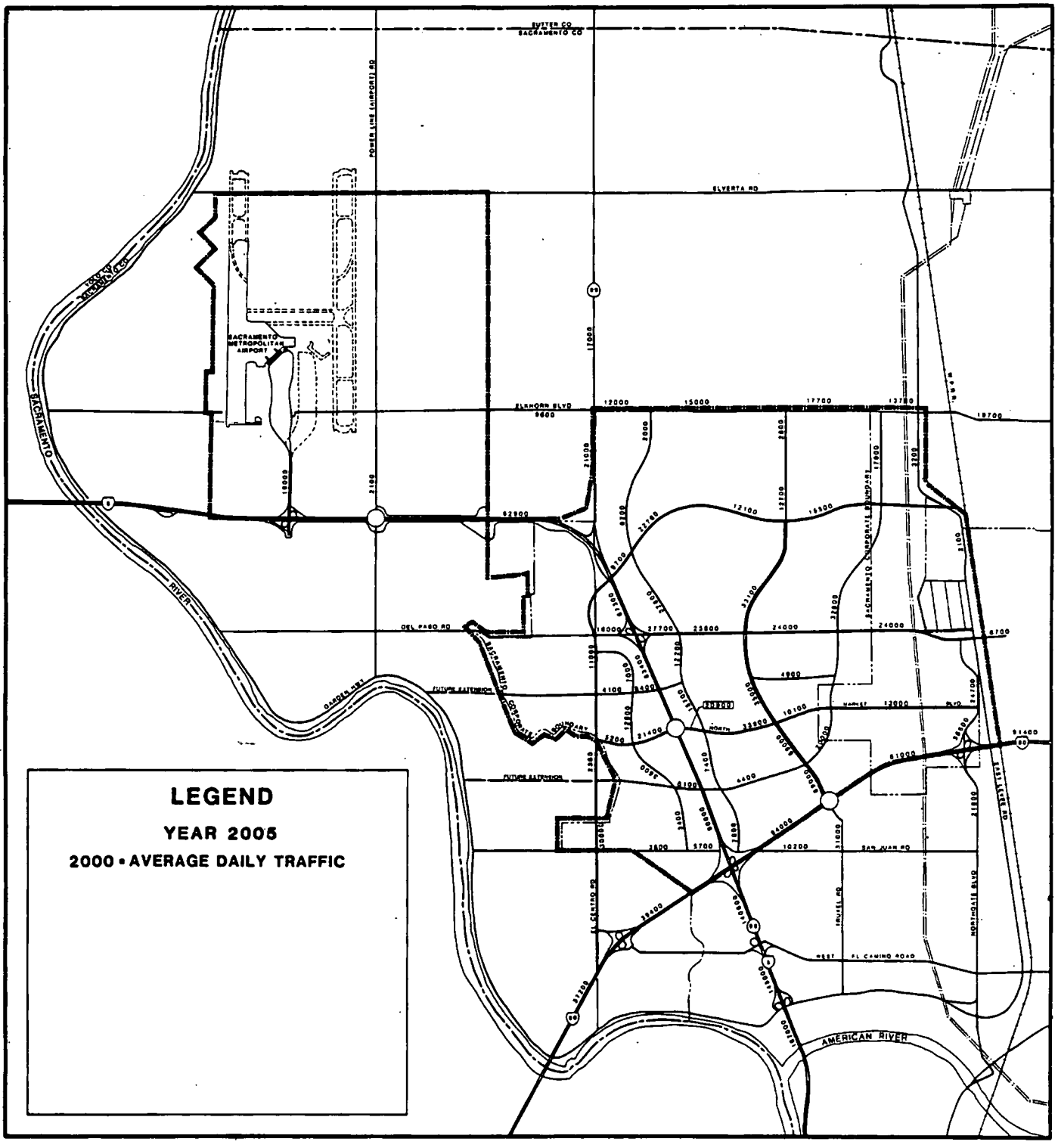
1) A maximum of eight (8) grade-separated interchanges on the existing freeway system; one (1) on State Route 99; two (2) on I-80 including the existing Northgate interchange; and five (5) on I-5 including the existing Del Paso, S.R. 99 and Airport interchanges.

2) Maximum roadway of six (6) through lanes on any street within the City of Sacramento.

3) Maximum intersection channelization of dual left turn lanes and single exclusive right turn lanes as shown in Exhibit E-24.

4) Roadway capacities to be designed for Level of Service "C" conditions (Volume to Capacity ratio of 0.80). Exhibit E-8, included in the existing conditions section lists the criteria for Level of Service designations for various roadway types.

5) As stated by CALTRANS, a maximum of eight (8) through lanes on either I-80 or I-5.



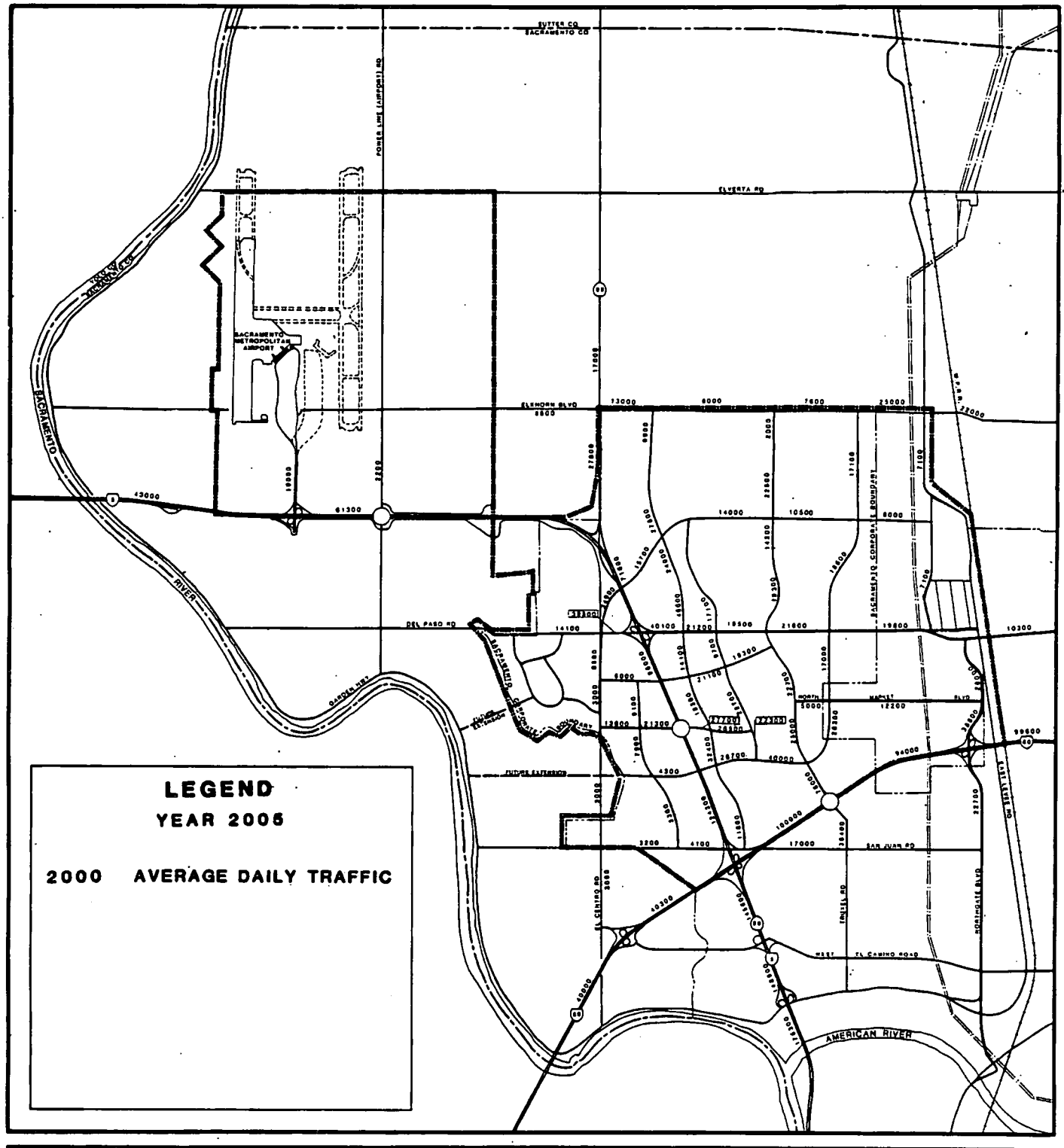
NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE D PROPOSED CIRCULATION SYSTEM AND PROJECTED TRAFFIC VOLUMES (REGIONAL MODEL)

NOTE: NOT FULL BUILDOUT

EXHIBIT E-29



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE E PROPOSED CIRCULATION SYSTEM AND PROJECTED TRAFFIC VOLUMES (REGIONAL MODEL)

NOTE: NOT FULL BUILDOUT

EXHIBIT E-30

TRANSPORTATION MODEL DESCRIPTION

For the evaluation of impacts, a computerized transportation modeling system was utilized to simulate and project traffic conditions in both North Natomas and throughout the entire Sacramento regional area. The model system, called MINUTP, uses a gravity model technique to assign traffic to a street system based upon existing and projected land uses and roadway networks. The MINUTP model is an adaptation of the UTPS mainframe urban transportation modeling program developed by the Federal Highway Administration.

A. Transportation Model Development

Given the size of the Study Area and the intensity of the land uses proposed under the Community Plan Alternatives, it was determined by City staff and the traffic consultant that a regional transportation model would be required to fully address both the local and regional impacts which might result from urbanization of the Study Area. To establish the regional model, the Sacramento Area Transportation Study model (SATS model - see Appendix E for description) was used to establish an information base. This information included the regional highway and street network, land use information, trip generation rates and auto occupancy factors established from the last fully updated SATS model run performed in 1979. The model was updated for 1983-84 land use conditions and a calibration process was performed whereby the model output was compared to the observed existing traffic conditions. Once the model was calibrated, and reasonably simulated existing traffic conditions, it was determined to be validated by the City Traffic Engineer for use in making traffic projections based upon future and alternative land use scenarios.

For each of the five Community Plan alternatives, the model was modified to reflect network and land use changes for a 2005 base year. In addition, the SATS zonal system was aggregated in outlying areas to facilitate the running time of the MINUTP model. The aggregation process involved consolidation of several SATS minor zones into a single zone. Specifically, all the land use data including dwelling units and employees were transferred into a single zone. The single zone was based upon

criteria to determine which of the aggregated zones would have the most representative traffic loading and distribution characteristics for the entire aggregated group. As stated, the aggregation process was performed in outlying areas, where access to regional roadways is limited predominately to one facility. Because of this, the creation of fewer, larger traffic zones would not affect the model distribution and assignment.

This was confirmed by making existing conditions comparsion runs using the entire SATS zonal system (999 zones) and the aggregated (400 ±) system, in which no significant differences in traffic assignments were identified. The purpose of the aggregation process was to reduce overall computer running time, thereby allowing more time for fine tuning of the model and analysis.

B. Land Use Inputs

The land use inputs utilized in the model for both existing and future conditions in the Sacramento region were provided by the City of Sacramento Planning Department and Angus McDonald and Associates, economic consultants. Section C of this EIR lists the estimated existing and projected future land use conditions. This information was supplemented by future residential projections provided by SACOG (Sacramento Area Council of Governments) and both residential and non-residential land use information for the County of Sacramento. The 1979 SATS model residential land use information was also used, not for absolute numbers, but for establishing a distribution of dwelling types based upon economic stratification. The stratification is defined in terms of dwelling unit type and auto ownership, where single-family and multi-family dwelling units are categorized in terms of 0, 1, or 2 or more auto ownership levels, resulting in a range of six residential dwelling unit types. In fairly established neighborhoods, it was assumed that a similar stratification would remain as infill development progressed. In newer areas, comparative communities were used as a guideline for developing the auto ownership levels. The residential development in North Natomas, for example, was assumed to be similar to areas of South Natomas and Rancho Cordova in terms of economic composition.

Through-traffic volumes on the regional system were also developed for both existing and future conditions. Through-traffic trips are defined as trips which have neither origin nor destination within the Study Area.

For existing conditions the SATS 1985 through-traffic projections were used, and through the calibration process were found to reasonably simulate existing through-traffic conditions. The future through traffic volumes were developed by applying an annual growth rate of 2.5 percent to the existing through-traffic volumes, based upon information provided by CALTRANS and City of Sacramento staff.

The 2005 No-Project Alternative A forecast established the regional base levels for both employment and population. Each of the four additional alternatives (B-E), representing greater levels of development in North Natomas, were determined to capture a greater portion of the 2005 base level of growth. Therefore, the regional traffic impacts of each plan will differ depending on shifts in high growth locations from throughout the region. This assumption was based upon forecasts and judgements made by Angus McDonald and Associates (see Section C of this EIR for detailed explanation). Briefly, the concept is that there will be a 50/50 percent "increment/siphon" effect if North Natomas were opened for development. This means that of the jobs that might be created in North Natomas, 50 percent would be drawn to the region by the mere fact that North Natomas was opened for development and 50 percent of the jobs would be siphoned away from other areas in the region. As development intensities increase in the North Natomas plans, growth in other portions of the region is lessened, and, to some extent, so is the traffic generated in those areas. Therefore, for each of the five alternatives, different land use projections were input into the transportation model for different areas of the region, representing projected shifts in growth areas and ultimately, reflecting the accurate regional traffic impacts resulting from each individual Community Plan.

The employment projections used in the model are included in Section C of this EIR. The employment categories were divided into: high-growth (high-tech) manufacturing; light industrial; commercial; office employment; and Airport SPA.

C. Trip Generation

The trip generation rates for residential land uses were taken from the SATS model. They were chosen for use in this study as opposed to rates developed by the Institute of Transportation Engineers.* The reasons for the selection of the SATS rates include:

---

* "Trip Generation, 3rd Edition", Institute of Transportation Engineers, 1982.

- Local Accuracy. Different urban areas within different regions of the country can experience significant variance in local residential trip generation. The ITE trip rates are developed based upon studies made throughout the United States. The SATS trip generation rates were developed for local conditions, and were validated in the 1979 SATS model run.

- Size of Study Area. The SATS rates were developed for a major metropolitan region containing a wide variety and type of dwelling units. ITE residential trip rates are based upon studies of subdivisions and relatively small projects. As an example, the ITE trip rate for single-family units was developed from studies averaging only 387 units. Since the North Natomas Community Plan was to be analyzed relative to its regional impacts, the SATS rates were found preferable, especially considering that residential trips decrease as the size of urban area increases.**

- Reliability of Variable. ITE rates are based upon density and dwelling unit type. SATS rates are based upon dwelling unit type and auto-ownership (income level). Auto-ownership (income) provides a more accurate variable for projecting trip generation. While density is sometimes related to auto-ownership, the available 1979 SATS data, including auto-ownership, provides a more accurate portrayal of trip generation.

In the transportation model, the total trip generation was computed by residential land uses and the non-residential/trips were then balanced to the residential trip generation. This occurs because the model assumes that: 1) the region operates as a whole, relatively independent unit, and 2) that there can be no more trips than there are occupied residences to generate them. In Alternatives A through C, the balancing that occured was minimal, because regionwide a relative jobs-housing balance is intact. Alternatives D and E present large amounts of employment generating land uses that create an imbalance of jobs over housing within the region. The model, however, reduced those employment generated trips to achieve the balance, and therefore underestimated the impacts that could potentially occur under buildout of Alternatives D and E. To fully address the potential impacts resulting from buildout of Alternates D and E, a sub-regional local model was used. There is no clear projection of when full

** "Transportation and Traffic Engineering Handbook", Institute of Transportation Engineers, 1982.

buildout of Alternatives D or E could occur. In the sub-regional model through-traffic volumes from year 2005 were used, lacking any firm projection for when buildout would be achieved. If or when buildout takes place, the sub-regional model provides the projected traffic impacts on the local street system and the adjacent regional facilities, relative to 2005 base year conditions.

The trip generation rates used in this study are listed in Exhibit E-36. The trips generated by each alternative are listed in Exhibit E-37. Included in Exhibit E-37 are the trips generated by South Natomas upon buildout of the Draft South Natomas Community Plan dated November, 1984.

EXHIBIT E-36
Trip Generation Rates

LAND USE	UNIT	DAILY TRIPS (vehicle)
Residential*		
0 Vehicle SF[1]	Dwelling Unit (DU)	0.7
1 Vehicle SF	DU	5.7
2+Vehicle SF	DU	9.0
0 Vehicle MF[2]	DU	0.6
1 Vehicle MF	DU	4.5
2+Vehicle MF	DU	7.2
Non-Residential		
Hi-Tech[3]	Employee (EMP)	3.2
Light Industrial[4]	EMP	2.7
Neighborhood Commercial[5]	EMP	24.8
Highway Commercial[6]	EMP	25.0
Office[5]	EMP	3.8
Defense[5]	EMP	1.8
Community Shopping Center[5]	EMP	11.3
Elementary School[5]	EMP	13.1
Junior High[5]	EMP	13.1
High School[5]	EMP	45.5
Community Park[5]	Acre	6
University[5]	Student	1.5

* All residential trip rates from SATS model.
1 Single-Family Dwelling Unit
2 Multi-Family Dwelling Unit
3 Includes M-20 and M-50 employees. Trip rate from City Traffic Engineer.
4 CALTRANS
5 ITE Trip Generation Handbook, 3rd Edition, 1983. Some rates were adjusted to conform with employee density assumptions provided by McDonald and Associates.
6 OMNI-MEANS, Ltd.

EXHIBIT E-37
North Natomas Total Trip Generation

ALTERNATIVE	TOTAL SOUTH NATOMAS	RESIDENTIAL TRIPS	NON-RESIDENTIAL TRIPS	TOTAL STUDY AREA TRIPS
Existing	71,800	1,800	19,100	92,700
A	372,800	5,900	75,500	454,200
B	372,800	162,400	196,100	731,300
C	372,800	243,500	280,200	896,500
D[1]	372,800	261,500	412,600	1,046,900
E[1]	372,800	311,300	581,600	1,265,700

1 Full trip generation not presented in regional model based upon 2005 projections. The numbers shown are representative of buildout and are outlined in the sub-regional model.

Traffic associated with growth of Metro Airport was also developed for input into the model. A comparison of existing aircraft operations to existing ADT at the airport was performed, and future ADT generated by year 2005 operations was estimated based upon growth projected by Metro staff. The projected growth rate was estimated at 5 percent annually.

D. Trip Distribution

The MINUTP transportation modeling system distributes trips based upon the fulfillment of individual trip types, which is directly related to the interaction of residential and non-residential land uses. Residential land uses act as "productions" and non-residential land uses act as "attractions", wherein each trip generated by a residence finds a destination at an appropriate non-residential use (that would include work trips, shopping trips, etc.). This matching process distributes the trips throughout the region based on the location and distance between the residential and non-residential land uses.

Under existing conditions, the model indicated a directional distribution as listed in Exhibit E-39.

This distribution also includes the South Natomas area under existing conditions. The reason for the low component of internal trips within the community was the absence of a significant number of employment opportunities in what is predominately a residential area.

In the future alternatives, the trip distribution characteristics shift considerably from the existing distribution patterns. The shift is primarily in the internal/external component, with the directional distribution remaining relatively similar to existing conditions. The shift to the high internal component is the result of the balance of land uses projected in the future plans. It should be noted that even in Alternative A, the "No-project" alternative, the internal component of travel grows significantly over existing conditions. The reasons for this occurance are twofold. First, the buildout of the Draft South Natomas Community Plan, with significant employment opportunities, creates a community in which a great portion of the trip purposes generated in the area can be satisfied within. Secondly, the addition of 10,000 SPA jobs near the airport will draw heavily on the South Natomas residential stock, particularly since the SPA land is isolated from residential areas, and South Natomas is one of the closest residential communities that may provide workers.

A balance of land uses indicates that the various trip types generated by residential land uses can be fulfilled within the local community: i.e.; there are employment opportunities, shopping centers, schools and parks all contained within the North Natomas area. As this balance shifts (especially the jobs/housing balance) within the five alternatives, so does the internal/external component of trip distribution. If the jobs/housing balance becomes skewed due to imbalances in the rate of development (residential vs employment), the external component would increase in a relatively proportionate manner. As shown in Exhibit E-39, Alternative C, with the highest ratio of jobs to housing, captures the highest percentage of internal trips. Alternatives D and E, with lesser jobs/housing ratios, create situations where more workers must commute into the Study Area from other communities, thereby increasing traffic volumes on routes entering and exiting the Study Area. The directional distribution at external traffic was determined by looking at each North Natomas traffic zones origin and destination trips based upon their location relative to North Natomas. The directional percentages were averaged and the results are depicted in Exhibit E-39.

EXHIBIT E-39

Existing North and South Natomas and Projected 2005 Trip Distribution - Determined from Model

	North	East	South	West	Internal
Existing	3%	42%	44%	1%	10%
Alternative A	2%	18%	21%	2%	57%
Alternative B	2%	16%	21%	2%	59%
Alternative C	1%	14%	20%	2%	63%
Alternative D	2%	16%	20%	1%	61%
Alternative E	2%	18%	21%	2%	57%

E. Model Calibration

For the purpose of continuity, both the existing and future model development have been discussed concurrently in this section. It is critical to note, however, that the existing conditions model was developed prior to any of the future models in order to test, confirm, and refine the model inputs and assumptions. By this calibration process, the land use inputs, trip generation rates, through-traffic estimates, and the

network itself are tested to see if the model simulates the existing traffic flow conditions. Once the calibration is achieved, the model can be used as a reliable tool for forecasting future traffic conditions. The amounts of forecasted jobs and dwelling units (i.e. trips) are added to the existing conditions model, once the future modifications to the transportation network have been carefully and accurately incorporated into the original model. The specific modifications that were made with the existing conditions model for each of the 5 alternatives are summarized below:

- Network - The existing regional network was used in all five Alternative model runs. The local networks depicted on the land use maps were input for each individual model run. In addition, the circulation network proposed in the Draft South Natomas Community Plan was used in each of the five Alternative model runs.

- Through-Traffic Volumes - As discussed previously, through-traffic volumes were estimated to increase by a 2.5 percent annual increase, based upon information provided by the City and CALTRANS.

- Trip Generation Rates - Trip generation rates remained identical to those used in the existing conditions model. Part of the reason for the calibration process is to identify and refine local trip generation characteristics, which are not then expected to change significantly in the future.

TRAFFIC IMPACTS

A. Criteria for Evaluating Impacts

As directed by the City, the traffic impacts were evaluated based upon a criteria of maintaining a Level of Service "C" on the local and regional circulation network. In situations where LOS is borderline, conditions may occur where LOS is only marginally unacceptable. To allow for these conditions, a V/C ratio of 0.80 will be considered the breakpoint for acceptbale and unacceptable LOS. Exhibit E-7 and E-16 lists the definitions of Level of Service for both intersections and roadway segments. Exhibit E-8 lists the average daily traffic volumes for Level of Service on various facility types.

Because of the large size of the Study Area and its current undeveloped nature, it was determined by City staff and the consultant that the traffic evaluation would be most beneficial based on analysis of Average Daily Traffic (ADT) volumes. The ADT evaluation would allow for facility sizing and the development of right-of-way requirements. It would be inaccurate to attempt a specific peak hour analysis without site specific plans to analyze traffic loading operations. To assess intersection operations, a generalized analysis was performed for the key intersections in North Natomas. Level of Service was determined for each roadway type and size based on ADT volumes. Exhibit E-8 lists the range of ADT by facility for each LOS designation. Additionally, this study identifies "significant" traffic impact as one that LOS is worse than Level "C/D" (V/C 0.80). The projected traffic volumes under each alternative are listed in Exhibits E-25 - E-30.

B. Regional Impacts

The purpose of evaluating the North Natomas traffic impacts using a regional transportation model was two fold. One, it was determined to be necessary in order to accurately assess the directional distribution and internal/external component of North Natomas traffic. Secondly, the regional model was used to potentially address any impacts that North Natomas might have on the existing regional transportation system. It was felt that the magnitude of North Natomas development in the Alternative plans might also shift and redistribute the development potential of other communities within the region. However, as projected by the economic consultant the shifts were found not to significantly alter the regional traffic impacts between the five Community Plan Alternatives, based upon the volumes projected by each alternative's model run. The projected volumes for year 2005 for each alternative are shown for selected locations in Exhibit E-43 and are listed in Exhibit E-45. Exhibit E-44 lists 1984 ADT for the regional freeway network.

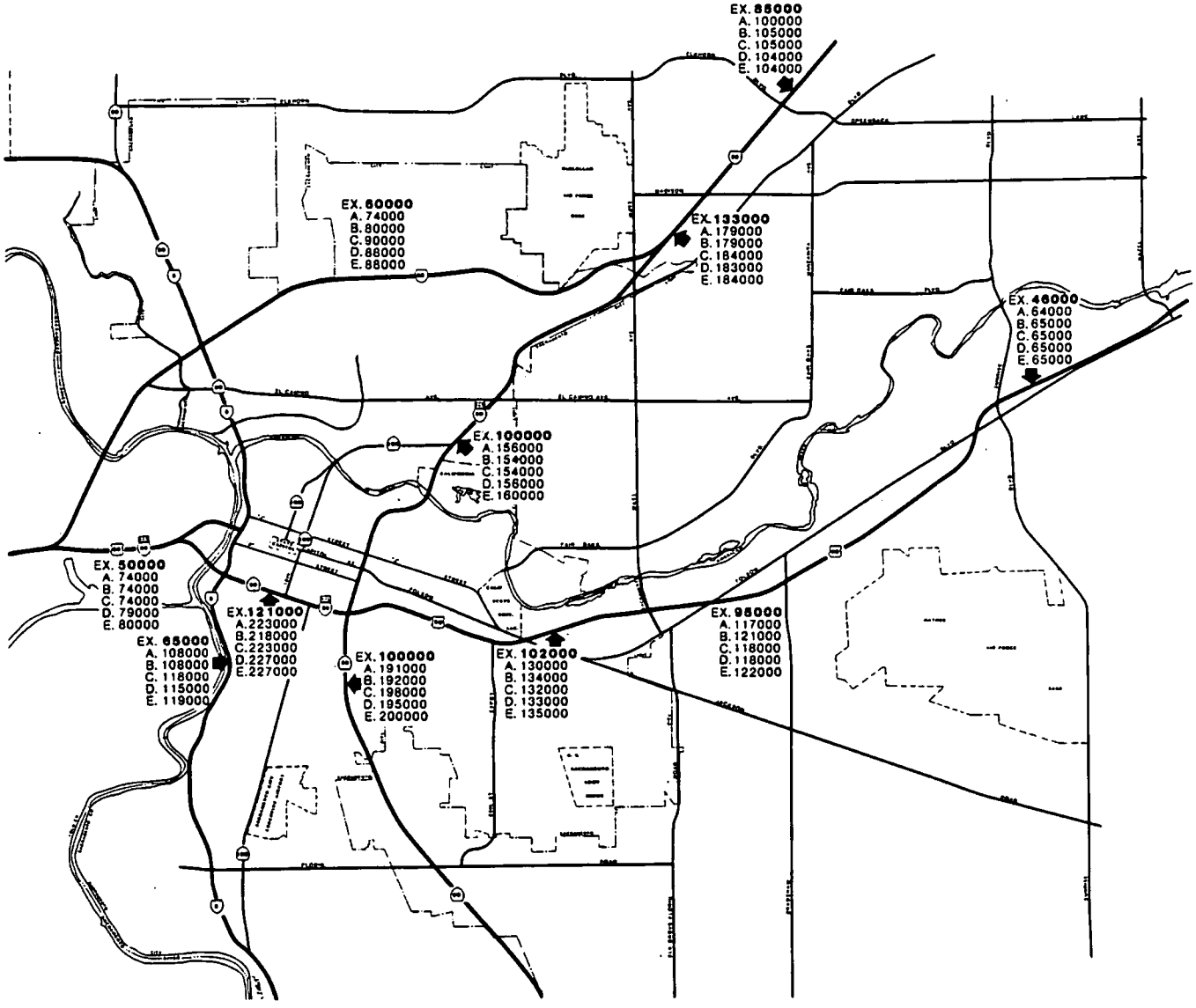
As would be expected, the regional traffic impacts related to each alternative are greatest immediately adjacent to North Natomas and diminish as the distance from the Study Area increases. The most significant impacts would occur on I-5 from S.R. 99 south to Business 80, and on I-80 from I-5 east to Business 80. These impacts are based on a comparison between the No-Project Alternative (A) and Alternatives B - E. The impacts on other regional facilities such as I-5 and S.R. 99 in the south area, U.S. 50, and I-80 to the east and west are marginally above what would occur for the year 2005 for the No-Project Alternative, and no

additional adverse impacts would be created over the No-Project Volumes other than those identified on I-5 from the Central City north to I-80.

The model volumes were compared to those projected by CALTRANS in the same 20 year period. The volumes estimated by CALTRANS were not developed by a transportation model, but by historical and projected growth rates within the region. A comparison of the volumes indicates consistency between both projections. On both I-80, and I-5, the projections are within a 12 and 16 percent range, respectively. This study projected higher volumes on I-5 and lower volumes on I-80, over those projected by CALTRANS. There are two major reasons for this discrepancy. One is the assumption for growth in North Natomas; and two, is the location within the region of projected growth.

The CALTRANS traffic projections were based upon forecasts provided by the Department of Finance (DOF). As understood from discussions with CALTRANS, the growth forecasts that they used in the Natomas area were much less than those presented in the Alternative Community Plans. Additionally, the regional growth forecasts used in the studies seem to focus on different areas as having high growth potential. The DOF-based CALTRANS projections forecast the Roseville-South Placer area as a future high growth area, while McDonald and Associates forecast a greater growth potential in the South Sacramento area and less in the Roseville-South Placer communities.

While the projected volumes on the regional facilities do not significantly change under the different Alternatives (away from the facilities immediately serving the Natomas area), development in North and South Natomas does appear to affect commute patterns between Downtown and the Northeast communities, as projected by the model. The model selects travel routes based upon calculated travel times between origins and destinations. It takes into account congestion and delay as it relates to the capacity of a facility to efficiently move a certain amount of traffic. If congestion and delay on one route is sufficient enough to slow travel times such that an alternative route is quicker, the model will re-assign traffic onto the newly calculated, faster route. This methodology is called an iterative capacity-restraint process, wherein a certain amount of traffic is assigned to the roadway based upon free flow travel times. Following this first iteration, additional traffic is assigned to the network, based upon new calculated travel times that may be the result of congestion or delay associated with the first assignment of traffic.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

PROJECTED REGIONAL VOLUMES

EX. EXISTING TRAFFIC VOLUMES

A. ALTERNATIVE A TRAFFIC VOLUMES

B. ALTERNATIVE B TRAFFIC VOLUMES

C. ALTERNATIVE C TRAFFIC VOLUMES

D. ALTERNATIVE D TRAFFIC VOLUMES

E. ALTERNATIVE E TRAFFIC VOLUMES

EXHIBIT E-43

EXHIBIT E-44
Existing Circulation System for
Regional Analysis

ROADWAY SEGMENT	THRU LANES	1984 ADT*	1984 V/C	1984 LOS
I-5 (Sacramento River to S.R. 99)	4	32,000	0.40	"A"
(S.R. 99 to I-80)	6	32,000 - 47,000	0.27 - 0.39	"A"
(I-80 to American River)	8	47,000 - 68,000	0.29 - 0.43	"A/B"
(American River to Business 80)	8	70,000	0.44	"B"
(Bus. 80 to Florin Road)	8	44,000 - 83,000	0.28 - 0.52	"B"
(South of Florin Rd.)	6	30,500 - 44,000	0.25 - 0.37	"A"
I-80 (Causeway to Bus. 80)	8	31,000 - 71,000	0.19 - 0.44	"A/B"
(Bus. 80 to Bus. 80)	6	31,000 - 62,000	0.26 - 0.52	"A/B"
(Bus. 80 to Greenback)	9	110,000	0.61	"B"
(Greenback to Roseville)	8	89,000	0.56	"B"
Bus 80 (I-80 to Jefferson)	8	50,000 - 73,000	0.31 - 0.46	"A/B"
(Jefferson to I-5)	6	73,000 -110,000	0.61 - 0.92	"B/D"
(I-5 to S.R. 99)	8	110,000 -121,000	0.69 - 0.76	"C"
(S.R. 99 to E Street)	8	110,000 -120,000	0.69 - 0.75	"C"
(E St. to Cal Expo)	6	96,000 -120,000	0.80 - 1.00	"C/F"
(Cal Expo to Arden Way)	4	96,000 -125,000	1.20 - 1.56	"F"
(Arden Way to I-80)	6	84,000 -115,000	0.70 - 0.96	"C/E"
S.R. 160 (Business 80 to American River)	4	33,000 - 44,000	0.41 - 0.55	"B"
S.R. 99 (Business 80 to Fruitridge)	8	87,000 -118,000	0.54 - 0.74	"B/C"
(Fruitridge to Florin Road)	6	75,000 - 90,000	0.63 - 0.75	"B"
(South of Florin Rd.)	4	46,000 - 75,000	0.58 - 0.94	"B/D"
U.S. 50 (Business 80 to Sunrise)	8	51,000 -127,000	0.32 - 0.79	"A/C"
(East of Sunrise Blvd)	6	35,000 - 51,000	0.29 - 0.43	"A/B"

* Range is due to multiple counts along this segment and differs because of additions and losses of freeway traffic from interchanges.

EXHIBIT E-45
Year 2005 ADTs Plus LOS
Regional Analysis

	1984	ALTERNATIVE A - LOS	ALTERNATIVE B - LOS
I-5 (Sacramento River to S.R. 99)	32,000	53,000 "A"	59,700 "A"
(S.R. 99 to I-80)	38,000	62,000 "A"	71,000 "B"
(I-80 to American River)	56,000	122,000 "C"	155,000 "E"
(American River to Business 80)	70,000	137,000 "D"	158,000 "E"
(Bus. 80 to Florin Road)	65,000	108,000 "B"	108,000 "B"
(South of Florin Rd.)	37,000	43,000 "A"	40,000 "A"
I-80 (Causeway to Bus. 80)	68,000	74,000 "A"	79,000 "A"
(Bus. 80 to Bus. 80)	63,000	74,000 "A"	85,000 "B"
(Bus. 80 to Greenback)	110,000	179,000 "F"	179,000 "F"
(Greenback to Roseville)	89,000	100,000 "A"	105,000 "B"
Bus 80 (I-80 to Jefferson)	56,000		48,000 "A"
(Jefferson to I-5)	74,000		
(I-5 to S.R. 99)	121,000	223,000 "F"	219,000 "F"
(S.R. 99 to E Street)	110,000		219,000 "F"
(E St. to Cal Expo)	120,000	140,000 "F"	144,000 "F"
(Arden Way to I-80)	114,000	156,000 "F"	160,000 "F"
S.R. 160 (Business 80 to American River)	44,000	87,000 "F"	91,000 "F"
S.R. 99 (Business 80 to Fruitridge)	100,000	191,000 "F"	192,000 "F"
(Fruitridge to Florin Road)	75,000	194,000 "F"	148,000 "F"
(South of Florin Rd.)	46,000	99,000 "F"	98,000 "F"
U.S. 50 (Business 80 to Sunrise)	115,000	130,000 "C"	134,000 "C"
(East of Sunrise Blvd)	46,000	65,000 "C"	65,000 "C"

EXHIBIT E-45
Year 2005 ADTs Plus LOS
(continued)

	1984	ALTERNATIVE C - LOS	ALTERNATIVE D - LOS[1]	ALTERNATIVE E - LOS[1]
I-5 (Sacriv - 99)	32,000	62,000 "C"	62,900 "C"	63,000 "C"
(99 - I-80)	38,000	87,000 "C"	90,000 "C"	124,300 "F"
(I-80 - A.R.)	56,000	164,000 "F"	168,000 "F"	173,000 "F"
(A.R. - B-80)	70,000	168,000 "F"	168,000 "F"	176,000 "F"
(B-80 - Florin)	65,000	118,000 "B"	115,000 "B"	119,000 "B"
(S. of Florin)	37,000	44,000 "A"	44,000 "A"	44,000 "A"
I-80 Causeway - B-80	68,000	74,000 "A"	80,000 "A"	73,000 "A"
(B-80 - B-80)	63,000	92,000 "C"	85,000 "B"	86,000 "B"
(B-80 - Grbk)	110,000	184,000 "F"	183,000 "F"	183,000 "F"
(Grbk - Rsville)	89,000	105,000 "B"	104,000 "B"	104,000 "B"
B-80 I-80 -Jefferson	56,000			
(Jefferson - I-5)	74,000			
(I-5 - S.R. 99)	121,000	227,000 "F"	223,000 "F"	227,000 "F"
(S.R. 99 - E St)	110,000	227,000 "F"	223,000 "F"	221,000 "F"
(E St. - Expo)	120,000	138,000 "F"	139,000 "F"	138,000 "F"
(Arden - I-80)	114,000	152,000 "F"	154,000 "F"	156,000 "F"
S.R. 160 B-80 - A.R.	44,000	85,000 "F"	87,000 "F"	87,000 "F"
S.R. 99 B-80 - Frdge	100,000	198,000 "F"	195,000 "F"	200,000 "F"
(Frdge - Florin)	75,000	156,000 "F"	152,000 "F"	158,000 "F"
(S. of Florin)	46,000	107,000 "F"	102,000 "F"	108,000 "F"
U.S. 50/B-80-Sunrise	115,000	132,000 "C"	133,000 "C"	135,000 "C"
(E. of Sunrise)	46,000	65,000 "C"	65,000 "C"	65,000 "C"

[1] In the regional model, Alternatives D and E are not shown under buildout conditions. For this reason, and because of distribution differences in the model, some segments under Alternatives D and E have lower volumes projected than Alternative C.

The effect of this process on the regional system has been to assign a large amount of the Northeast area - Downtown commute traffic to Business 80 as opposed to I-80/I-5. This can be directly attributed to development in North and South Natomas in that traffic generated in those communities have created significant congestion and delay on I-5 into the Central City, and that commute traffic has been assigned to Business 80 because the model has calculated this as a faster route. This is evident in Exhibit E-43 where volumes on I-80 east of the Study Area increase by only 14-30,000 ADT while on Business 80, ADT increases are 40-52,000.

As listed in Exhibit E-45, several freeway segments in the region will be operating at significantly congested levels under the 2005 projections even without any new development in the North Natomas area. They include:

	Freeway Segment	V/C	LOS
o	I-5 between I-80 and the WX freeway.	0.86	"D"
o	Segments of Business 80 between I-80 and the WX freeway.	1.30	"F"
o	The WX freeway.	1.39	"F"
o	S.R. 99 between the WX freeway and Meadowview Road.	1.19	"F"

Impacts Common To All Alternatives

There are no significant traffic impacts that are common to all five alternatives. Exhibits E-49 - E-51 lists the significant impact locations for each alternative. Exhibits E-25 - E-30 show the projected traffic volumes under each alternative. Alternative A creates no significant traffic impacts on the local street or freeway systems. There are street segments on West El Camino Avenue in South Natomas that would experience LOS problems. Those problem locations are, however, not related to development in North Natomas, but are the result of the buildout of the Draft South Natomas Community Plan.

As a basis of comparison for evaluating the Alternative's impacts, Exhibit E-52 lists locations that currently experience congestion and delay similar to those projected.

There are a number of traffic impacts common to Alternatives B, C, D and E. The location of those impacts are:

Truxel Road - Between San Juan Road on the south and the Loop Road on the north. Along this road, LOS would range from "D" to "F" in all four Alternatives (B -E). Generally, LOS would be worse as Truxel approaches I-80 and becomes better as the road goes north. At the most critically impacted location, between I-80 and North Market Boulevard, LOS "F" occurs in Alternatives "B" - "E", with V/C ratios ranging from 1.44 to 2.16.

I-5 - South of the Garden Highway into the Central City LOS ranges from "C/D" to "F".

Elkhorn Boulevard - Immediately east of East Levee Road. As a two-lane roadway, LOS would occur in the "E" to "F" range. Elkhorn Boulevard is designated as a 110 foot wide (6 lanes) expressway on the Major Street and Highway Plan, so the required mitigation (improvement to 4 lanes) would be consistent with County Policy.

Alternative B Impacts

Beyond those impacts identified as common to Alternatives B, C, D and E, the development of Alternative B would create no other significant traffic impacts (see Exhibit E-26 for Year 2005 ADT). As mentioned, the traffic impact to I-5 is marginal, with the projected traffic volume at the American River exceeding LOS "C" by roughly 3%. On Truxel Road, between I-80 and Loop Road, the impacts would be significant, with LOS well into the "F" level. Other locations in the study area would not exceed LOS "C", however, they would operate at the high end of LOS "C" capacity. Those locations which would approach capacity are:

- Truxel Road between the Loop Road and Del Paso Road,
- Northgate Boulevard between I-80 and North Market Boulevard, and
- North Market Boulevard between Truxel Road and I-5.

EXHIBIT E-49

2005 Level of Service - Alternative Community Plans

Local Streets

ROAD	EXISTING	ALT A	ALT B	ALT C	ALT D[2]	ALT E[2]
Northgate Blvd.	"A"	"E/F"	"E"	"E"	"F"	"F"
Del Paso Road	"A"	"E/F"	"A"	"D"	"E"	"F"
Elkhorn Blvd.	"A"	"E/F"	"E/F"[1]	"F"[1]	"F"[1]	"F"[1]
North Market Blvd.	"A"	"A"	"A"	"C/D"	"F"	"E/F"
Truxel Road	N/A	N/A	"F"	"F"	"F"	"F"
West Commerce Way	N/A	N/A	N/A	"A"	"A"	"A"
East Commerce Way	N/A	N/A	"A"	"A"	"E/F"	"D"
East Loop Road	N/A	N/A	"A"	"B"	"E"	"E"
West Loop Road	N/A	N/A	N/A	"A"	N/A	N/A
North Loop Road	N/A	N/A	"A"	"A"	"B"	"B"
Power Line	N/A	"A"	"A"	"A"	"A"	"A"
El Centro	"A"	"A"	"A"	"A"	"A"	"A"
San Juan	"A"	"A"	"A"	"A"	"A"	"A"
Northgate (SN*)	"A"	"B"	"C"	"D"	"D/E"	"E"
W. Wl Camino (SN)	"A"	"A"	"A"	"B"	"D"	"E/F"
Truxel (SN**)	"A"	"A"	"D/E"	"F"	"F"	"F"
San Juan (SN)	"A"	"A"	"A"	"A"	"A"	"B"

* From North Natomas to first major intersection in South Natomas.

** Assumed 4-lane facility.

1 East of East Levee Road.

2 Based on buildout conditions using sub-regional model.

EXHIBIT E-50

2005 Level of Service - Alternative Community Plans Intersections*

ROAD	EXISTING	ALT A	ALT B	ALT C	ALT D[1]	ALT E[1]
Northgate Blvd/ EB I-80 Ramps		"E/F"	"E"	"E"	"F"	"F"
Northgate/ W I-80 Ramps		"B"	"C"	"D"	"D/E"	"E"
Northgate/ North Market		"E/F"	"E/F"	"E/F"	"F"	"F"
Northgate/ Del Paso		"E/F"	"E/F"	"E/F"	"D"	"E/F"
Elkhorn/ S.R. 99 Ramps		"A"	"A"	"A"	"A"	"A"
Elkhorn/Power Line		"A"	"A"	"A"	"A"	"A"
Airport/I-5 Ramps		"A"	"A"	"A"	"A"	"A"
Del Paso/I-5 Ramps		"A"	"A"	"D"	"E"	"F"
Del Paso/W. Commerce		N/A	N/A	"B"	"C"	"E"
Del Paso/E. Commerce		N/A	"A"	"D"	"E/F"	"F"
Del Paso/Truxel		N/A	"D"	"D"	"E/F"	"D"
Del Paso/East Loop		N/A	"E/F"	"E/F"	"E"	"D"
E. Commerce/N. Loop		N/A	N/A	"E"	"C"	"C"
E. Commerce/N. Market		N/A	"A"	"E/F"	"E/F"	"E/F"
E. Commerce/San Juan		N/A	"A"	"A"	"B"	"B"
Truxel/North Loop		N/A	"A"	"C"	"E"	"D"
Truxel/North Market		N/A	"F"	"F"	"F"	"F"
Truxel/I-80 Ramps		N/A	"F"	"F"	"F"	"F"
Truxel/East Loop		N/A	"F"	"F"	"F"	"F"
E. Loop/North Market		N/A	"A"	"E/F"	"C"	"C"
San Juan/Northgate (SN)		"C"	"C"	"C/D"	"D"	"D"
San Juan/Truxel (SN)		"C"	"D/E"	"E"	"E/F"	"E/F"

* Estimated by evaluation of daily turning movements (presents worst case, either AM or PM).

** All future Alternatives assume signalized intersections.

1 Based upon buildout conditions using sub-regional model.

EXHIBIT E-51

2005 Level of Service - Alternative Community Plans

Freeway Segments

ROAD	EXISTING	ALT A	ALT B	ALT C	ALT D[1]	ALT E[1]
I-80						
Northgate-Norwood		"B"	"B/C"	"C"	"E/F"	"F"
Northgate-Truxel		"B"	"B"	"B"	"D"	"E"
Truxel-I-5		"B"	"B/C"	"C"	"D"	"F"
I-5-West El Camino		"A"	"A"	"A"	"A"	"A"
West El Camino-Sacramento River		"A"	"A"	"A"	"A"	"A"
I-5						
Sacramento River/Airport Road		"A"	"A"	"A"	"A"	"A"
Airport Road/S.R. 99		"C"	"C"	"C"	"B/C"	"C/D"
S.R. 99/Del Paso		"B"	"A"	"A"	"A"	"C"
Del Paso/N. Market		"B"	"A/B"	"B/C"	"C"	"E/F"
North Market/I-80		"B"	"A/B"	"C"	"C"	"F"
I-80/W. El Camino		"B"	"C"	"C"	"E"	"F"
W. El Camino/Garden Highway		"B"	"C"	"C/D"	"E/F"	"F"
Garden Highway/American River		"C"	"E"	"E/F"	"F"	"F"
S.R. 99						
I-5/Elkhorn		"A"	"A"		"A"	"A"
Elkhorn/Elverta		"A"	"A"		"A"	"A"

1 Based on buildout conditions using sub-regional model.

EXHIBIT E-52

Comparative Traffic Condition Locations

Local Streets

LOCATION	NUMBER OF LANES	1983-1984 ADT	V/C	LOS
Sunrise Boulevard between Madison and Fair Oaks	4	38,000	1.27	"F"
Greenback Lane between Dewey and San Juan	4	34,000	1.13	"F"
Watt Avenue between El Camino and Marconi	6	42,000	0.93	"E"
Arden Way between Business 80 and Point West	6	49,600	1.10	"F"
Expo Boulevard between Challenge and Arden	6	33,900	0.75	"C"
Folsom Boulevard between Watt and Wissemann	4	22,500	0.75	"C"
Florin Road between 24th Street and Tamoshanter	4	28,200	0.94	"E"
Florin Road between Greenhaven and I-5	6	27,300	0.61	"B"
Watt Avenue bridge over the American River	4	73,100	2.44	"F"
Sunrise Boulevard bridge over the American River	4	53,000	1.76	"F"
Marconi Avenue between Watt and Morse	4	24,500	0.82	"D"
Northgate Boulevard between San Juan and I-80	4	16,200	0.55	"A"

(continued)

EXHIBIT E-52 (continued)
Comparative Traffic Condition Locations
Freeways

LOCATION	NUMBER OF LANES	1983-1984 ADT	V/C	LOS
Business 80 between Expo and El Camino	4	91,000	1.14	"F"
I-5 bridge over American River	8	68,000	0.43	"A"
I-80 between Northgate and I-5	6	58,000	0.48	"A"
S.R. 160 between Business 80 and the American River	4	44,000	0.74	"B"
U.S. 50 between Business 80 and Stockton Boulevard	8	127,000	0.79	"C/D"
I-80 through Albany-Berkeley in East Bay Area	6	189,000	1.57	"F"

Alternative C Impacts

Under Alternative C, the Draft Community Plan, there are additional locations where LOS "C" is exceeded, however, the two most critical locations remain on I-5 and Truxel Road (see Exhibit E-27 forYear 2005 ADT). It should also be noted that the model balancing effect that has underestimated the traffic volumes upon buildout of Alternatives D and E has also lessened, only on a marginal basis, the Alternative C traffic projection. The model balancing has reduced potential Alternative C traffic by an estimated 5 - 10 percent. Crossing the American River, I-5 operates at LOS "E"-"F" (V/C 1.04). Truxel Road, between I-80 and Loop Road, would experience LOS well into the "F" category with projected ADT of 67,000 (V/C 1.99). In addition, the eastern Loop Road between Truxel Road and the minor street connecting to East Levee Road. LOS would range from "D" (V/C 0.83) to "F" (V/C 1.26) on segments of this road. This is based on the Loop Road being a four-lane facility as identified in the Draft Community Plan. Under Alternatives B, D and E the Loop Road was analyzed as a six-lane facility. The projected volumes on Truxel Road/I-80 interchange ramp would also create capacity problems assuming one-lane ramps. The westbound-north to Truxel on and off ramps would require two lanes to maintain LOS "C". Other locations where LOS "C" capacity would be approached, but not exceeded, are:

- Northgate Boulevard between I-80 and North Market,
- North Market between Truxel Road and the Western Loop Road,
- Truxel Road between the Loop Road and North Market Boulevard, and
- Del Paso Road between I-5 and the first road to the east.

DEVELOPMENT PHASING FOR ALTERNATIVE C

Alternative "C" was analyzed for four phased levels of development to identify the street improvements that will be required to serve the levels of development identified under each phase, and their associated costs for construction. The development levels were based on forecasts made by Angus McDonald and Associates, economic consultants, and the criteria for the location of the phased development was determined by a concensus of public service providers and City staff. The phasing was analyzed under the base years 1990, 1995, 2000 and 2005. The street improvements were identified in each phase based upon the goal of maintaining a volume to

capacity (V/C) of 0.80 on the street system. The maximum improvement considered was a six-lane width on major roads. The following critera were developed by City staff to determine the location of the phased land uses: 1) Generally, that portion of the Study Area located south of Del Paso Road shall be considered for Phase 1 development; the area north of Del Paso Road, east of East Drain is Phase 2; and the area north of Del Paso Road, west of the East Drain is Phase 3; 2) The phasing of development of the Airport SPA shall commence in Phase 1, with the first development located along Elkhorn Boulevard; 3) Except for the Airport SPA, development shall be delayed as long as possible from going north of Del Paso Road so as to defer the costs of providing infrastructure to the area; 4) Development of the area south of Del Paso Road shall proceed in an east to west direction, until residential uses delayed from going west of I-5 as long as possible; 5) Commercial uses shall be phased in as needed, and in locations convenient to residential and industrial development; 6) The Truxel/I-80 interchange shall be included in Phase 1, with the North Market/I-5 interchange included in Phase 2; 7) All roadways and related improvements required to serve a particular phase of development shall be in place at the beginning of that particular phase; 8) The use of temporary improvements is to be avoided; 9) The arena shall be included in Phase 1, and the stadium in Phase 2. Listed in Exhibit E-56 are the land use summaries for each phase.

EXHIBIT E-56
Land Use Phasing
Alternative C

LAND USE	NET ACRES (Cumulative)[1] PHASE 1 1985-1990	PHASE 2 1985-1995	PHASE 3 1985-2000	PHASE 4 1985-2005
M-50 (45 EMP/AC)	52	104	166	197
M-20 (30 EMP/AC)	183	366	586	696
LIGHT INDUSTRIAL (20 EMP/AC)	100	225	375	475
SPA (5 EMP/AC)	125	250	400	500
OFFICE/BUSINESS (55 EMP/AC)	31	62	99	116
COMMUNITY COMMERCIAL (30 EMP/AC)	20	45	75	95
HIGHWAY COMMERCIAL (30 EMP/AC)	13	29	48	60
SPORTS COMPLEX (5 EMP/AC)	100	200	200	200
RURAL ESTATE (1 DU/AC)	101	202	314	374
LOW DENSITY (7 DU/AC)	410	820	1275	1518
MEDIUM DENSITY (12 DU/AC)	303	606	942	1121
HIGH DENSITY (22 DU/AC)	81	162	252	300
TOTAL ACRES	1,519	3,071	4,732	5,652
TOTAL JOBS	13,618	27,981	44,616	53,803
TOTAL DU'S	8,384	16,768	26,084	31,052

1 Net acreages include existing development.

METHODOLOGY

The methodology used to evaluate the phased development of Alternative C was to create a sub-regional model from the established regional model. The regional model was used to evaluate the impacts of the buildout of Alternative "C" both locally and on a regional basis.

The sub-regional model was created by "windowing" out a section of the regional model that is site specific to the North and South Natomas areas. The information developed in the regional model regarding the directional distribution and the internal/external component of travel were input into the sub-regional model. The intent is to transfer the regional travel characteristics developed by the regional model to the site-specific sub-regional model. Once this is accomplished, the local, sub-regional model is able to simulate what the regional model projects, yet on a very site specific level taking into account the very localized characteristics of travel between differing land uses.

Also derived from the regional model was an estimation of through traffic flowing through the North and South Natomas area. Through traffic is defined as those trips on the street network that have neither origin nor destination within the Study Area. In the North and South Natomas area, the major through-traffic movement occurs on I-80 westbound to I-5 southbound. This movement reflects the current and future commute pattern which occurs between the residential areas in the Northeast and the employment centers Downtown. For the base years of analysis (1990, 1995, 2000 - 2005), the through-traffic volumes were derived for each base year by factoring down the 2005 regional model projections, assuming a uniform growth rate.

The proposed land uses under each phase were converted into dwelling units and employees based upon the density assumptions presented in the Population, Employment and Housing section of this EIR. In addition to phasing the development of Alternative C, five year increments of land use development were projected in South Natomas to coincide with North Natomas phasing. The increments were based upon the assumption that South Natomas would achieve buildout of their Draft Community Plan in 20 years, and that growth would occur on a linear basis. Therefore, of the remaining development potential in South Natomas, 25% was estimated to occur in 5 years, 50% in 10 years, 75% in 15 years and 100%, or buildout, in 20 years.

The North and South Natomas phased development and corresponding dwelling unit and employment data were then input into the appropriate traffic zones and the sub-regional model was run using the entire proposed street network for Alternative C. A screenline analysis was performed, whereby the directional travel demands from the areas of development could be ascertained. Once the travel demand flows were determined, those roadway improvements required to accommodate that demand were recommended. Additionally, roadway improvements needed for access and circulation to serve specific development sites were identified and costed.

The trip generation rates used in the local model were identical to those used in the regional model. Those rates are listed in Exhibit E-37, located on page E-37 of this chapter.

The trip distribution used in the local model, derived from the regional model output, is listed in Exhibit E-58. The distribution was determined by examining the regional distribution of each traffic zone in North and South Natomas under Alternative C and developing an average for use in the local model.

EXHIBIT E-58
Trip Distribution

NORTH	1%
EAST	14%
SOUTH	20%
WEST	2%
INTERNAL	63%

ALTERNATIVE C - PHASE 1 (1985 - 1990)

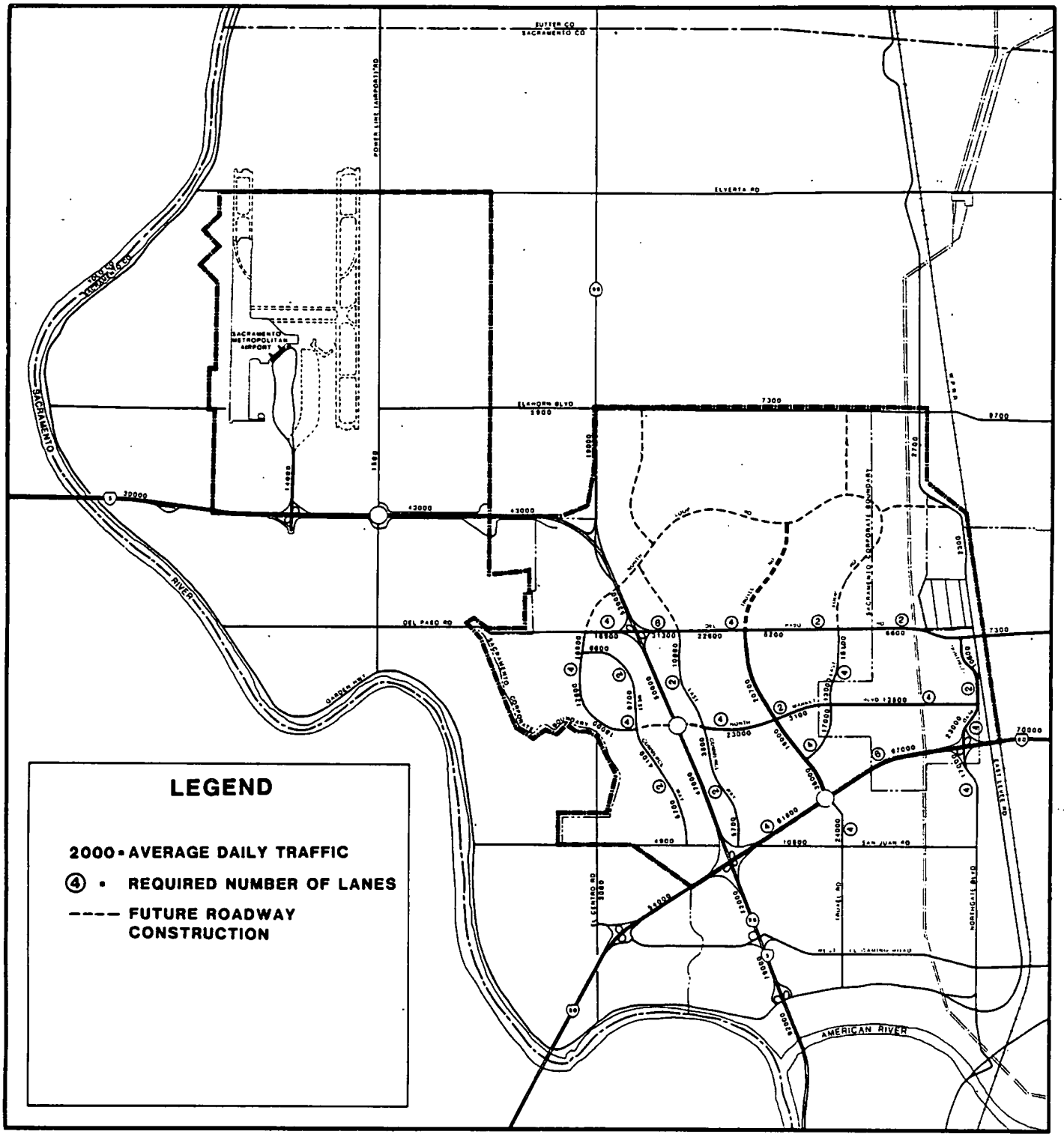
The projected traffic volumes under Phase 1 of Alternative C are depicted in Exhibit E-60. Also shown in Exhibit E-60 are the roadways that will be required to serve Phase 1 development. Exhibit E-61 - E-63 listed the LOS for each phase of development. As shown, the entire circulation system proposed for Alternative C is not required to serve the projected traffic

demand under Phase 1. Only those roadways necessary to provide for acceptable LOS and safe and efficient access and circulation have been included. With the recommended circulation improvements described in Exhibit E-60, all local and regional facilities will operate at V/C=.80 or better. Most of the proposed circulation system south of Del Paso Road will be required under Phase 1, including an interchange at Truxel Road and I-80.

An interchange at North Market Boulevard and I-5 would not be required under this phase, given available capacity at the I-5/Del Paso, I-80/Truxel and I-80/Northgate interchanges. While capacity exists for acceptable operations at these interchanges under Phase 1, it is likely that the driving characteristics of the public may not reflect the projected ADT's at each of the interchange approaches. Some drivers may perceive certain delays at the Truxel/I-80 interchange as acceptable, rather than choosing an alternative route via the I-5/Del Paso, or I-80/Northgate interchanges. Therefore, it is possible that the projected volumes on Truxel approaching I-80 could be up to 10% higher, with corresponding decreases on the approaches to the I-5/Del Paso and I-80/Northgate interchanges. If this occurs, LOS on the Truxel road approach to I-80 would reach Level "D" conditions.

The existing two lane segment of Elkhorn Boulevard west of S.R. 99, along with the proposed Elkhorn/S.R. 99 interchange, would adequately serve the SPA development. No interchange at Power Line Road and I-5 would be necessary.

The traffic generated by the Arena in Phase 1 could be accommodated by the proposed street system.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE C PHASE 1 (1985 - 1990)
REQUIRED CIRCULATION SYSTEM
AND PROJECTED TRAFFIC VOLUMES

EXHIBIT E-60

EXHIBIT E-61

Level of Service - Alternative Community Plan C

Local Streets

(worse segment - not entire roadway)

ROAD	PHASE 1	PHASE 2	PHASE 3	PHASE 4
Northgate Boulevard	"C"	"C/D"	"E"	"F"
Del Paso Road	"B"	"C"	"D"	"E"
Elkhorn Boulevard[1]	"B"	"B"	"D"	"F"
North Market Boulevard	"C"	"C/D"	"D"	"E"
Truxel Road	"C/D"	"E"	"F"	"F"
West Commerce Way	"B"	"B"	"B"	"B"
East Commerce Way	"C"	"D"	"F"	"F"
East Loop Road	"A"	"C"	"F"	"F"
West Loop Road	"B"	"C"	"E"	"E/F"
North Loop Road	N/A	"A"	"D"	"D/E"
Power Line	"A"	"A"	"A"	"A"
El Centro	N/A	N/A	N/A	N/A
San Juan	"A"	"A"	"C/D"	"D"
Northgate (SN*)	"A"	"B"	"C"	"C/D"
West El Camino (SN)	"A"	"A"	"A"	"A"
Truxel (SN**)	"C/D"	D/E"	"F"	"F"
San Juan (SN)	"A"	"B"	"C"	"C/D"

* From North Natomas to first major intersection in South Natomas.

** Assumed 4-lane facility.

1 East of East Levee Road

EXHIBIT E-62

Level of Service - Alternative Community Plan C

Intersections*

INTERSECTION	PHASE 1	PHASE 2	PHASE 3	PHASE 4
Northgate Blvd./EB I-80 Ramps	"C"	"C/D"	"E/F"	"F"
Northgate/W I-80 Ramps	"A"	"B"	"C"	"D"
Northgate/North Market	"C"	"C/D"	"E/F"	"F"
Northgate/Del Paso	"C"	"B"	"C"	"D"
Elkhorn/S.R. 99 Ramps	"A"	"A"	"A"	"A"
Elkhorn/Power Line	"A"	"A"	"A"	"A"
Airport/I-5 Ramps	"A"	"A"	"C"	"C"
Del Paso/I-5 Ramps	"B"	"C"	"D/E"	"E/F"
Del Paso/West Commerce	"B"	"B"	"B"	"B"
Del Paso/East Commerce	"B"	"D"	"F"	"F"
Del Paso/Truxel	"B"	"B/C"	"E"	"E/F"
Del Paso/East Loop	"A"	"B/C"	"D"	"E/F"
East Commerce/North Loop	N/A	N/A	"D"	"E"
East Commerce/North Market	"C"	"C/D"	"D"	"E"
East Commerce/San Juan	"A"	"A"	"B"	"D"
Truxel/North Loop	N/A	"A"	"D"	"D"
Truxel/North Market	"C"	"C"	"D"	"D/E"
Truxel/I-80 Ramps	"C/D"	"E"	"F"	"F"
Truxel/East Loop	"C/D"	"E"	"F"	"F"
East Loop/North Market	"A"	"C"	"F"	"F"
North Market/I-5 Ramps	N/A	"C"	"D"	"E/F"
San Juan/Northgate (SN)	"B"	"C/D"	"D"	"C/D"
San Juan/Truxel (SN)	"C/D"	"D"	"F"	"F"

* Estimated by evaluation of daily turning movements (presents worst case, either AM or PM). All future Alternatives assume signalized intersections.

EXHIBIT E-63

Level of Service - Alternative Community Plan C

Freeway Segments

INTERSECTION	PHASE 1	PHASE 2	PHASE 3	PHASE 4
I-80				
Northgate-Norwood	"B"	"B"	"C"	"C"
Northgate-Truxel	"B"	"B"	"C"	"C"
Truxel-I-5	"B"	"B"	"C"	"C"
I-5-West El Camino	"A"	"A"	"A"	"A"
West El Camino-Sacramento River	"A"	"A"	"A"	"A"
I-5				
Sacramento River/Airport Road	"A"	"B"	"B"	"B"
Airport Road/S.R. 99	"B"	"B"	"C"	"C"
S.R. 99/Del Paso	"B"	"B"	"B"	"B"
Del Paso/North Market	"B"	"B"	"B"	"B/C"
North Market/I-80	"B"	"B"	"B"	"C"
I-80/West El Camino	"B"	"C"	"C"	"C/D"
West El Camino/Garden Highway	"B"	"C"	"C"	"D"
Garden Highway/American River	"B"	"C"	"D"	"E/F"
S.R. 99	"A"	"A"	"A"	"A"
I-5/Elkhorn	"A"	"A"	"A"	"A"
Elkhorn/Elverta	"A"	"A"	"A"	"A"

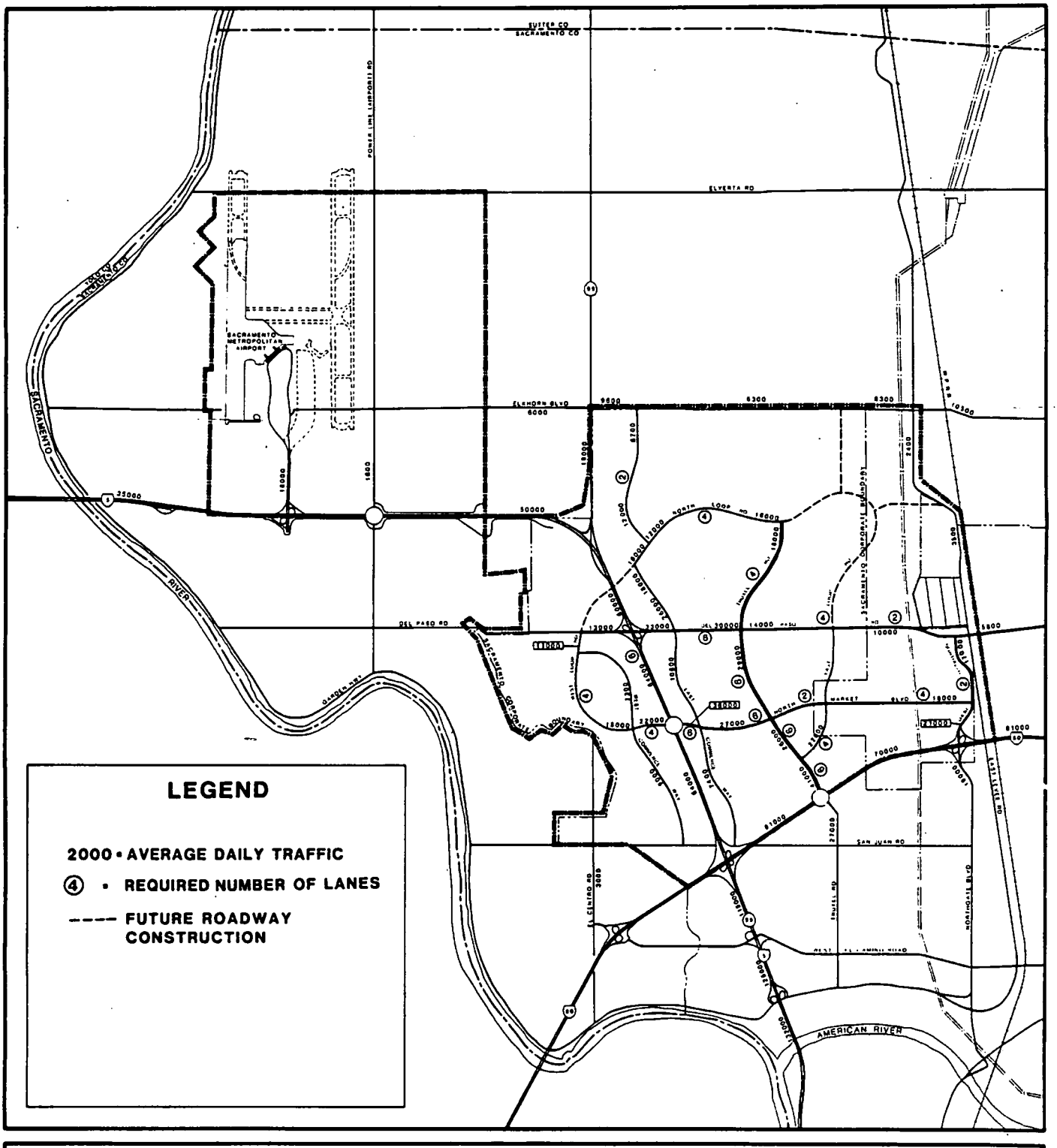
ALTERNATIVE C - PHASE 2 (1990 - 1995)

The projected traffic volumes and required circulation system for Phase 2 of Alternative C are shown in Exhibit E-65. In Phase 2, acceptable LOS can be maintained on most of the local street network given the identified improvements. On Truxel Road, however, LOS would reach "D"-"E" between I-80 and the East Loop Road. There has been some diversion of traffic from Truxel Road for freeway destined traffic onto Del Paso, North Market, and Northgate because of the calculated delays on Truxel. The projected congestion on Truxel Road, however, is not significant enough to cause significant diversion onto other non-freeway roadways, such as San Juan, Northgate, and Main, as routes to other areas of the region.

In Phase 2, much of the remaining proposed circulation system north of Del Paso Road would need to be constructed, the exception being the North-East Loop Road between Truxel Road and Del Paso Road, and one of the minor roads connecting to Elkhorn Blvd. and East Levee Road. The North Market Blvd./I-5 interchange is also required in Phase 2 to serve the overall internal/external demand of Phase 2 and also future development along the I-5 corridor.

There would be no impacts on the freeway system that would require improvement under Phase 2 development. All freeway segments, including the I-5 American River bridge, would operate at LOS "C" or better.

While ADT on East Commerce Way only requires a two-lane roadway, traffic generated by Stadium operations will require that this road be six lanes in width between Del Paso Road and North Market Boulevard.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE C PHASE 2 (1990 - 1995)

REQUIRED CIRCULATION SYSTEM

AND PROJECTED TRAFFIC VOLUMES

EXHIBIT E-65

ALTERNATIVE C - PHASE 3 (1995 - 2000)

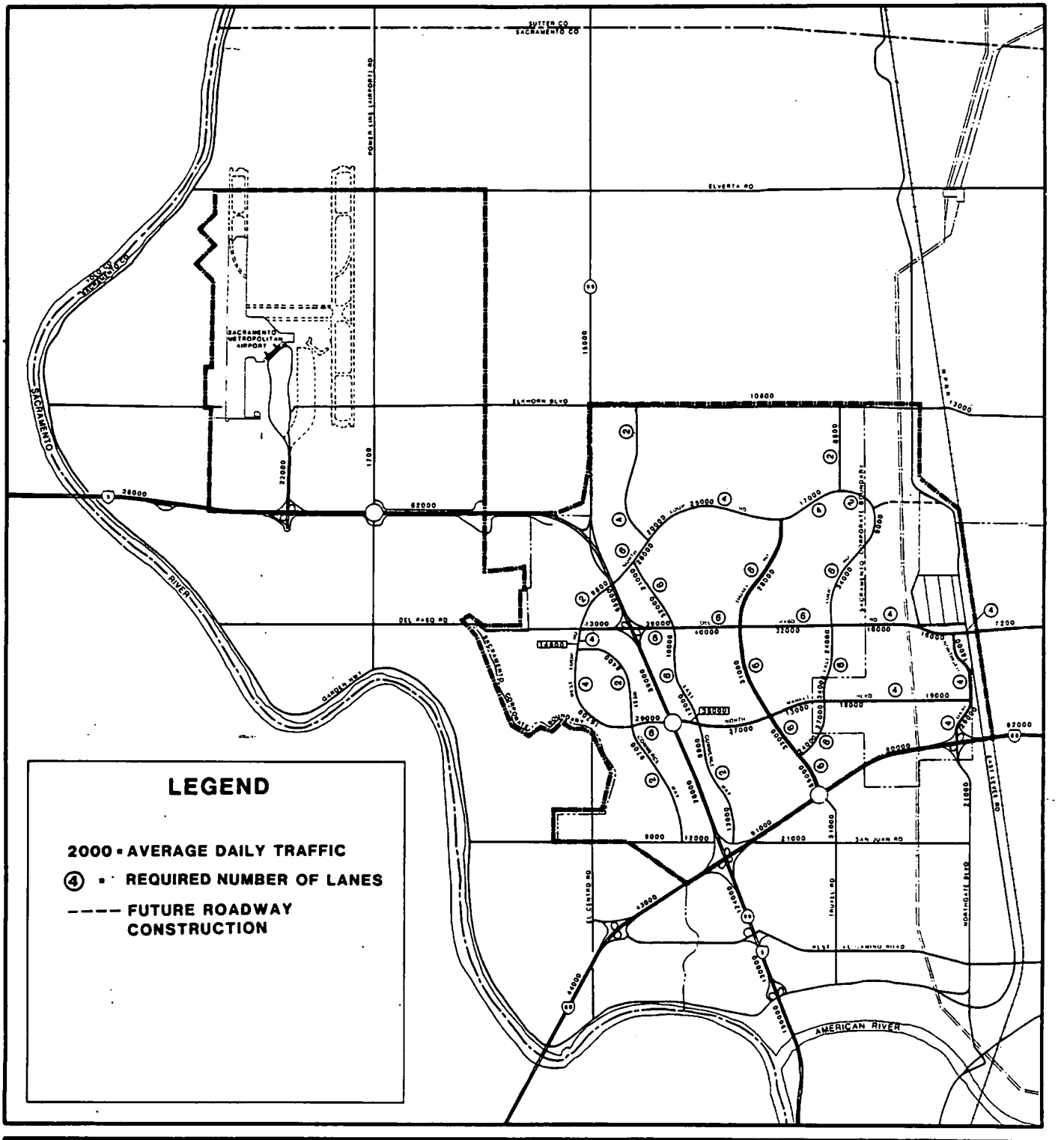
Exhibit E-67 depicts the recommended circulation system and projected ADT for Phase 3. The key improvements required to serve Phase 3 development included the completion of the N-E Loop Road, and widenings of Del Paso Road, North Market Boulevard, and the East Loop Road. By Phase 3, the ultimate circulation system proposed for Alternative C would essentially be in place.

Under Phase 3, the proposed development levels generate traffic levels that exceed the City of Sacramento's V/C ratio threshold of 0.80, LOS "C/D". This occurs even assuming improvements beyond those presented in the Draft Community Plan Element, such as construction of East Loop Road as a six-lane facility rather than a four-lane road as depicted in the plan. Even with the identified improvements, Truxel Road between I-80 and East Loop Road, Northgate Boulevard between I-80 and North Market Boulevard, North Market Boulevard between Truxel Road and I-5, and Del Paso Road between Truxel Road and I-5 all experience unacceptable LOS. Both Del Paso Road and North Market Boulevard would operate under LOS "E/F" conditions. As a comparison, the 55,000 projected ADT on Truxel Road, as a six-lane facility, is roughly equal to the existing conditions on segments of Madison Avenue in Sacramento County. Madison Avenue between I-80 and Auburn Boulevard is a six-lane roadway and the most recent counted ADT on that segment was 52,000 in October 1983.

On the freeway segments, under Phase 3, the American River bridge on I-5 would operate at LOS "D". This is primarily due to traffic generated by development occurring in North and South Natomas by the Phase 3 base year, year 2000. Of the 25,000 ADT increase projected in Phase 3 over Phase 2 conditions on I-5, roughly 80% can be attributed to development in North and South Natomas.

A comparable LOS condition for a freeway segment currently occurs on Business 80 between Arden Way and Marconi Avenue. This segment is six lanes rather than the eight lanes on I-5, however, the V/C ratio and LOS on I-80 are very similar to what is projected on the I-5 segment under Phase 3 conditions.

The locations on the local street systems that are experiencing delays and congestion are primarily those leading to freeway interchanges. Because of spacing requirements, there are no further locations in the area for interchanges to allow for additional freeway access. There are, however,



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE C PHASE 3 (1995 - 2000)
REQUIRED CIRCULATION SYSTEM
AND PROJECTED TRAFFIC VOLUMES

EXHIBIT E- 67

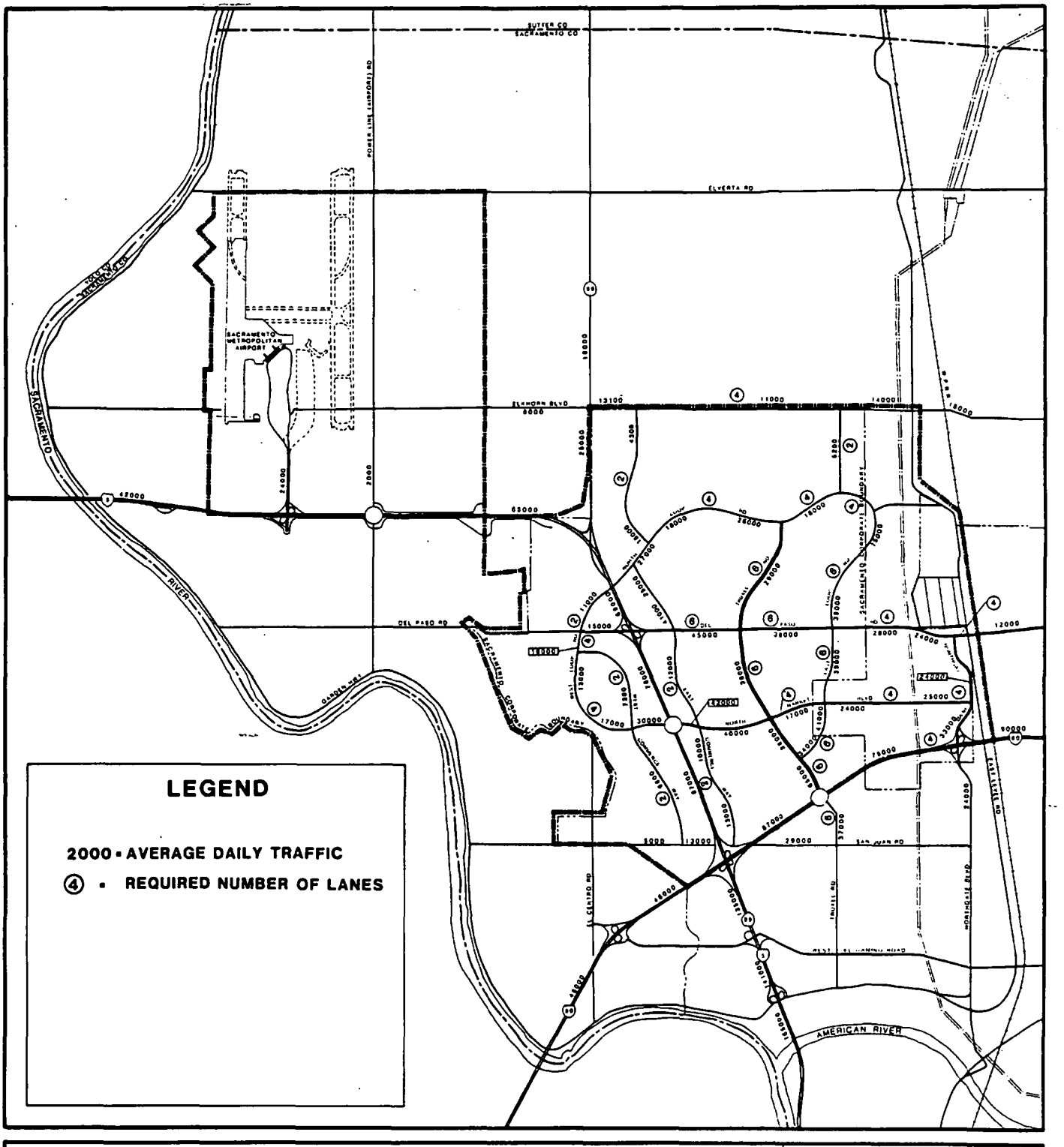
other alternative freeway access routes available to North Natomas traffic, such as San Juan to El Centro to the West El Camino/I-80 interchange, and Main Avenue to the Norwood/I-80 interchange. Under this phase, the congestion and delay on the freeway approaches on Truxel Road, Northgate Boulevard, North Market Boulevard and Del Paso Road are not significant enough to make these alternative routes more attractive, as determined by the transportation model based upon calculated travel speeds.

ALTERNATIVE C - PHASE 4 (2000 - 2005)

Depicted in Exhibit E-69 are the projected ADT's and recommended improvements for Phase 4 development. Although no new facilities would be built beyond those identified in under Phase 3, several roadways would require widening. Those roadways would include a portion of the North-East Loop Road, and ramps at the I-80/Truxel Road interchange. The segment of the North-East Loop Road between the east connector road south to the 6-lane wide segment at East Loop Road north at Truxel Road would require widening to 4 lanes. Both the westbound off-ramp southbound Truxel westbound I-80 on-ramps at the Truxel Road/I-80 interchange, would require dual lanes. Additional widenings beyond 6 lanes on the major roads in North Natomas would lessen projected traffic impacts. The City has, however, adopted a policy of limiting roadway widths to a maximum of 6 through lanes.

The impact locations under Phase 4 are basically identical to those identified for Phase 3, except that the additional traffic volumes intensify the projected LOS problems at those locations. On Truxel Road, between I-80 and East Loop Road, LOS would be well into Level "F". From East Loop Road to Del Paso Road, LOS on Truxel would fall into Level "D". Del Paso Road operates at Levels "D" to "E" between I-5 and Truxel Road. On North Market Boulevard, between Truxel Road and I-5, Levels of "D" to "E" would also occur. Northgate Boulevard between I-80 and North Market Boulevard would experience LOS "F". For purposes of comparison, Exhibit E-52 lists street segments in the Sacramento area that currently experience similar ADT or LOS conditions.

Also in Phase 4, the American River Bridge on I-5 would operate at an LOS "E/F" condition. Exhibit E-52 lists other freeway segments in the area that experience similar LOS conditions.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE C PHASE 4 (2000 - 2005)
REQUIRED CIRCULATION SYSTEM
AND PROJECTED TRAFFIC VOLUMES

EXHIBIT E-69

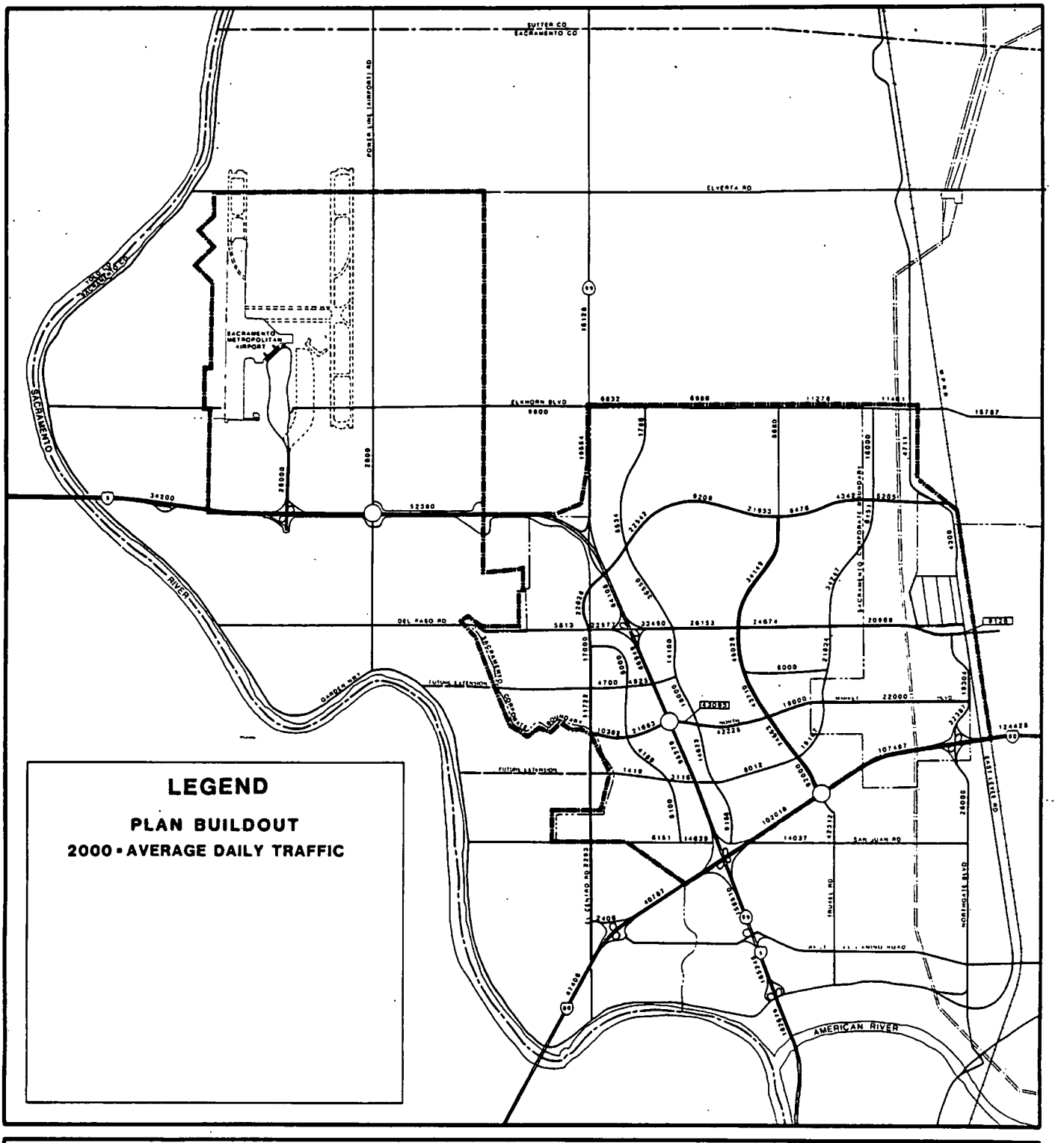
Alternative D Impacts

Under both Alternatives D and E, the proposed amounts of employment are so great that the projected population of the Sacramento Region in the year 2005 cannot fulfill the potential job demand for Buildout conditions by the year 2005, (see section on market demand). Therefore, the model has reduced the trips generated by Alternatives D and E to a level that can be supported by the projected regional population. When or if full buildout occurs, however, the traffic volumes could be significantly higher than those presented in the regional model analysis. For this reason both Alternatives D and E were also evaluated by use of a sub-regional model, whereby the full potential traffic impacts of both Alternatives could be addressed. Exhibit E-71 shows the projected sub-regional model traffic volumes for Alternative D. In Alternative D, using the 2005 regional model (see Exhibit E-29), the significant traffic impacts on I-5 and Truxel Road are further intensified. ADT's reach 167,000 (V/C = 1.04) and 89,000 (V/C = 1.98), respectively, on I-5 and on Truxel Road. The impacted section of Truxel Road is also expanded north to North Market Boulevard. All ramps with single width serving northbound Truxel Road traffic at the Truxel Road/I-80 interchange would also exceed LOS "C". Two lane ramps would, however, mitigate the interchange impacts. Northgate Boulevard, between I-80 and North Market Boulevard, also marginally exceeds LOS "C" under this Alternative. Other locations approaching, but not exceeding, LOS "C" are:

- Del Paso Road between I-5 and the first road to the east, and
- North Market Boulevard between Truxel Road and I-5.

Additional impacts occur using the projections derived from the sub-regional model, based upon buildout conditions. On Truxel Road, the projected volumes reach 92,000 (V/C = 2.04) and on the I-5 American River bridge, the projected volumes reach 182,000 (V/C = 1.14). North Market Boulevard also exceeds LOS "C" with projected volumes of 43,000 (V/C = 0.96) between East Loop Road and I-5. The impacts on Truxel Road are extended from East Loop Road to Del Paso Road, with a projected volume on this segment of 45,000 (V/C = 1.00). Truxel Road in South Natomas between I-80 and San Juan Road also exceeds LOS "C" (ADT 42,000, V/C = 0.96).

The sub-regional model projects other freeway segments to operate at LOS worse than level "C". They include I-5 between the Garden Highway (ADT 165,000, V/C = 1.03) and I-80 between I-5 and Northgate (ADT 107,000, V/C = 0.89) and between Northgate and Norwood (ADT 124,000, V/C = 1.03).



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE D PROPOSED CIRCULATION SYSTEM AND PROJECTED TRAFFIC VOLUMES (SUB-REGIONAL MODEL)

EXHIBIT E-71

Alternative E Impacts

As in Alternative D, the total trip generation of Alternative E has been reduced by the transportation model to simulate the inability of the region to absorb such a level of development. However, based on use of the sub-regional model (see Exhibit E-73), Truxel Road (V/C 1.73) and I-5 (V/C 1.10) experience severe LOS problems as in Alternative D. In addition, Northgate Boulevard (V/C 0.86) exceeds LOS "C" along with Del Paso Road (V/C 0.89)between the west Loop Road and the first road east of I-5. That same road, parallel to I-5 on the east, would exceed LOS "C" (V/C 1.04) between Del Paso Road and the north Loop Road. All ramps serving northbound Truxel Road traffic at the Truxel Road/I-80 interchange would require dual lanes. Other roads approaching, but not exceeding, capacity would include:

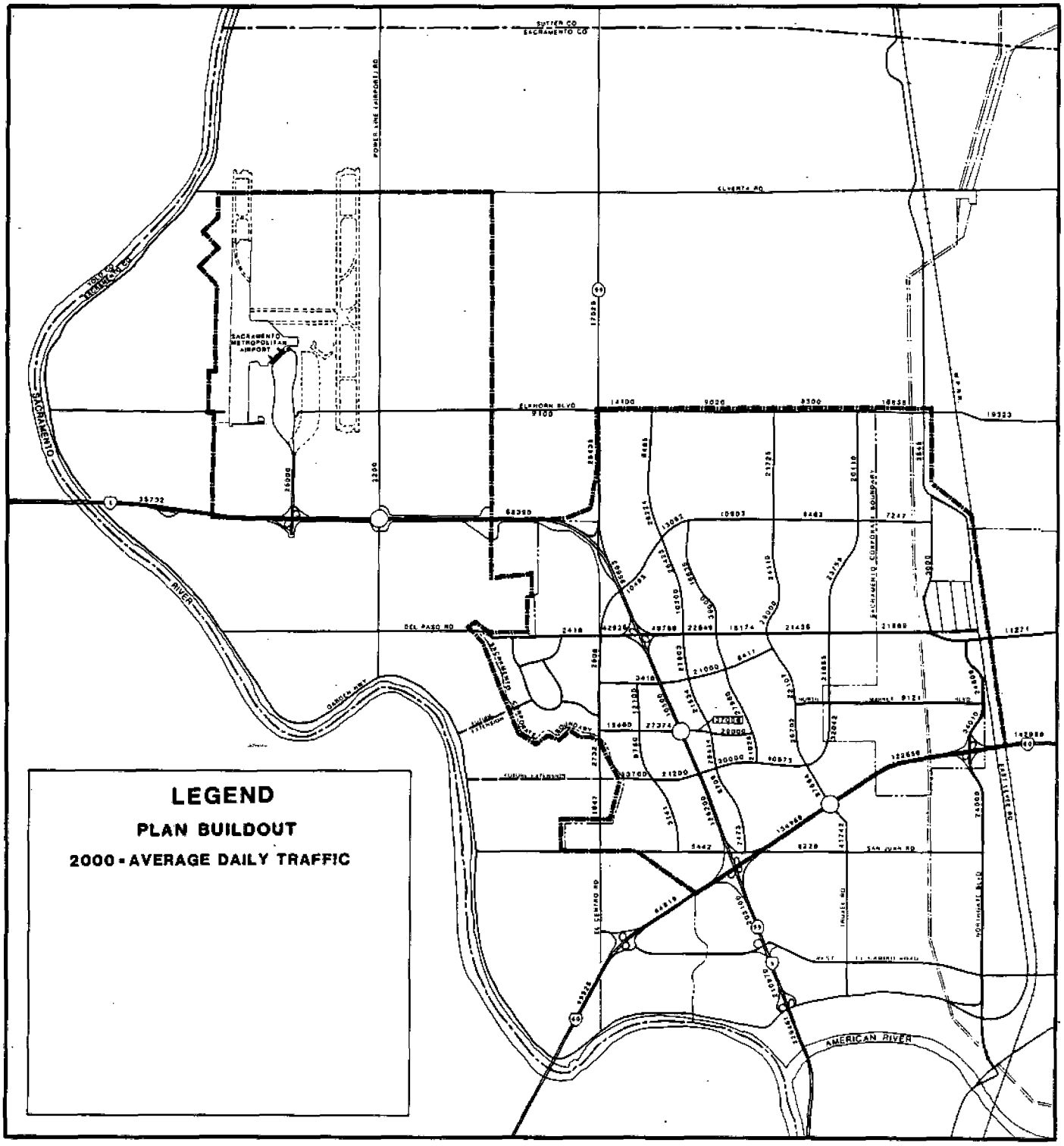
- North Market Boulevard between I-5 and Truxel Road, and
- Del Paso Road between I-5 and the first road to the east.

Additional impacts occur using the sub-regional buildout conditions model. These include LOS "F" (ADT 143,000, V/C 1.19) on I-80 between Norwood and I-5, and worsening of the LOS conditions on I-5 over the American River to V/C of 1.43 (ADT 229,000). I-5 between the Garden Highway and I-80 would also reach LOS "F" (ADT 210,000, V/C 1.31).

No additional local facilities exceed LOS "C" based upon the sub-regional model projections. Most all roadways, however, experience higher traffic volumes over those projected by the regional model (see Exhibit E-30) by 5 to 20 percent.

TRANSPORTATION -- MITIGATION MEASURES

Mitigation measures have been identified where possible to improve traffic operating conditions at impacted locations. Feasible mitigation measures are those identified in the discussion on Study Assumptions. Briefly, the maximum improvements considered included local streets at a maximum of six through lanes, freeway improvements to eight through lanes, and maximum intersection channelization to include dual left-turn lanes and single exclusive right-turn lanes as depicted in Exhibit E-24. Additionally interchange improvements were considered that included dual lanes on all ramps.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE E PROPOSED CIRCULATION SYSTEM AND PROJECTED TRAFFIC VOLUMES (SUB-REGIONAL MODEL)

EXHIBIT E-73

Mitigation Measures Common To All Alternatives

No physical improvements have been identified as mitigation measures that are common to all five Alternatives. Transportation Systems Management (TSM) techniques and Public Transit should be incorporated into all Alternatives as potential measures for reducing overall vehicle trip generation. These two factors are discussed in detail later in this section.

Mitigation Measures Common To Alternatives B - E

Under Alternate B and also Alternatives C, D and E, Elkhorn Boulevard would require widening to four lanes from Watt Avenue west to the access road leading south into the North Natomas Community. It is also recommended that the widening continue to the Elkhorn Boulevard/S.R. 99 interchange to maintain roadway continuity and to accommodate potential future demand. As noted previously, Elkhorn Boulevard is designated as a 110 ft. wide expressway on the County Major Street and Highway Plan, so this improvement is consistent with County policy. Also under Alternatives B - E, Truxel Road would require widening to six lanes between San Juan Road and I-80 in South Natomas, also under Alternatives B - E. This improvement would successfully mitigate LOS to "C" in each alternative on this segment.

Alternative A Mitigation Measures

There are no significant traffic impacts associated with Alternative A that would require mitigation.

Alternative B Mitigation Measures

In addition to the mitigation measures identified for Alternatives B - E, two other locations would require mitigation under Alternative B. Those locations are on Truxel Road between I-80 and the Loop Road immediately north of I-80, and I-5 crossing over the American River into downtown. There are no physical improvements to the circulation system that can mitigate the LOS condition on Truxel Road. A reduction of land uses, that would result in a 20 percent reduction in trip generation south of Del Passo Road, along with an effective TSM and Public Transit system, could potentially reduce the impact on Truxel Road to acceptable levels.

If a TSM program was instituted that affected a 10% reduction on non-residential trip generation, then a re-location of 75 acres of M-20 to the area north of Del Paso Road and East of Truxel Road would improve operating conditions to acceptable levels on Truxel Road near I-80. This would be contingent upon the 75 acres of M-20 not being replaced by any land use exceeding low-density land use in trip generation. Available capacity on Del Paso Road and the Del Paso Road/I-5 interchange could accommodate the traffic generated by the M-20 use in that area.

The adverse impact on I-5 under this Alternative is minimal. The LOS "C" condition is only marginally exceeded, and delay and congestion on I-5 would not be significant or length, with average operating speeds of 40± MPH. Any physical roadway improvement identified to reduce the traffic impact to within acceptable levels would be extremely costly. However, an overall reduction in land use intensities would reduce trip generation and could therefore result in acceptable Levels of Service.

Alternative C Mitigation Measures

Under Alternative C, there are few physical roadway improvements that can improve traffic flow conditions. The North Natomas Draft Community Plan identified the Loop Road as a four-lane facility. The eastern portion of this road between Truxel Road and the minor road connection to East Levee Road would require six through travel lanes. LOS "C" would still be marginally exceeded on segments of this road (ADT 37,000, V/C 0.83) even with mitigation. The on-and-off bound ramps serving Truxel Road northbound traffic would all require dual lanes at the Truxel Road/I-80 interchange. Northgate Boulevard would also require six lanes between I-80 and North Market Boulevard. No other physical roadway improvements can be identified to mitigate the projected traffic volumes.

If I-5 was widened from West El Camino to 10 lanes through the downtown area, this improvement would result in a LOS "C" condition on the impacted freeway segment, well within the "C/D" boundary level. CALTRANS has, however, stated a policy of limiting the through travel lanes to eight on freeways in the Sacramento region. Even if this policy is modified in the future, significant financial and structural obstacles would remain. The major problem is the physical constraint precluding wideningsouth of the "J" Street interchange. At this point, the freeway is adjacent to Old Town and then continues below grade through the downtown core area. It cannot be assumed that all the downtown-oriented traffic would exit at "J" Street nor could the interchange absorb the capacity, so widening would have to occur beyond the "J" Street interchange. The reality of this

occuring is questionable. If it were ever considered, the extreme costs associated with it would likely further damper its continued consideration.

Another potential mitigation measure would be the construction of a new facility crossing the American River into the downtown area. A four-lane facility of this type could reduce volumes on I-5 and Northgate Boulevard by 24,000 ADT as they cross the river. With this reduction, I-5 would be well within the LOS "C" range. The cost of construction of this type of facility would be very high, and the specific alignment and connection into downtown is questionable also. The most advantageous connecting point to the Study Area would be at an extension of Truxel Road. A potential alignment would then extend southeast as a bridge over Discovery Park and connect at grade with North 7th Street. An elevated facility would then be required at the southern terminus of North 7th south over the Southern Pacific Railroad yards to a connection with the 7th and 8th Street one-way couplets and the downtown area. Again, the cost of this type of facility is perhaps its greatest constraint. Other problems with this mitigation measure would include the political and social ramifications of building an overcrossing above Discovery Park. The ability of 7th and 8th Street, and the adjacent street system, to handle the additional volumes presents another concern. The most recent (1977) ADT counts on 7th between "K" and "L" Streets, and on 8th between "K" and "J" Streets were 5,830 and 7,440, respectively. Applying an annual traffic growth rate of 2.2%, as dircted by the City, the 1984 estimated volumes are 6,790 on 7th and 8,660 on 8th. Assuming the new facility contributes 12,000 ADT to 7th and 8th Street, each, then a LOS condition of "D/F" would occur. The capacity of these roads could be increased by removing on-street parking and creating a fourth travel lane. The resulting LOS at 7th Street would be "C", and on 8th Street a marginal "C/D" condition would occur. With the decreasing amount of parking available downtown, some resistance to this alternative could be expected.

No additional feasible mitigation measures can be recommended for Alternative C. The relocation of land uses would not improve LOS conditions, since most roads are at or near capacity, and more importantly, no capacity is available at the interchanges providing access to the regional transportation system. A 15 percent reduction in trip generation due to TSM and other vehicle trip reduction methods would still result in a LOS "F" condition on Truxel Road between I-5 and the Loop Road, and LOS "E/F" on I-5 from the Garden Highway into Downtown.

The only other feasible method for achieving a LOS "C" standard under Alternative C would necessitate a reduction in land use density approximate to that identified in Alternative B.

Alternatives D and E

As identified in the impact section, the critical impact locations remain at Truxel Road and on I-5 in Alternatives D and E, and are intensified over those discussed under Alternative C. There are no additional feasible physical improvements to the circulation systems that could improve traffic operating conditions. Based upon the traffic volumes projected by the sub-regional model, a Truxel Road bridge into Downtown would not mitigate traffic volumes on I-5 to acceptable levels. The addition of two travel lanes on I-5 would improve LOS to "D" for Alternative D, but under Alternative E LOS "F" would still occur. Again, as discussed previously, the feasibility of either of these mitigation measures is uncertain. A 15 percent trip reduction due to TSM would still not raise LOS out of the "F" range on either Truxel Road or I-5. Realignment of the circulation system or the land use plan would result in any improvement in LOS. Again, as in Alternative C, the only remaining feasible mitigation measure would be a reduction in land use density approaching Alternative B. Further discussions of TSM and Light Rail is contained in the following section.

TRANSPORTATION SYSTEMS MANAGEMENT

In addition to the specific physical improvements recommended to mitigate identified traffic impacts, implementation of Transportation System Management (TSM) techniques are also recommended to forestall or potentially eliminate the need for some of the required improvements. No reductions in traffic generation were assumed in the base analysis due to the implementation of TSM measures. Discussions with City staff have determined that reductions in traffic up to 12 to 15 percent may be advisable within certain areas of the community such as non-residential and non-commercial land uses. Specifically, the employment area has the greatest potential for traffic reduction due to implementation of TSM measures. Some of the TSM measures* to be considered in the North Natomas Community Plan Alternatives are as follows:

- Transportation Systems Management Director: Coordination of alternative modes of transportation can be achieved through the employment of a full-time TSM director. The director is responsible for developing the program, gaining management support, marketing the program to fellow employees, maintaining, evaluating and improving the program. A company may choose to hire a consultant to assess the situation and develop an overall transportation program and then assign a coordinator to implement the program.

- Car and Van Pools: Ridesharing can reduce commute costs, energy consumption per passenger, highway congestion, parking space demand, and air pollution. By encouraging employees to rideshare, the company can benefit in terms of better employee morale, reduced absenteeism and tardiness and lower capital costs for employee parking.

  A portion of employee parking spaces should be set aside for car and van pools. The employer can also save by reducing the need for parking spaces. For each van pool formed, a company can remove at least 6 vehicles from its parking facility. For each 3 person car pool formed, a reduction of at least 2 spaces can be achieved. Car and van pooling by future office and industrial tenants should also be coordinated to match destinations and schedules.

---

* "Commute Coordinator Handbook", Metropolitan Transportation Commission, 1981.

- Public Transit: The TSM coordinator should provide schedules and route information for Light Rail Transit and Regional Transit and encourage office tenants to schedule employee hours around those schedules. Light Rail and Regional Transit should be encouraged by developers.

  Transit ridership in parts of the region indicates that transit is the chosen alternative for many commuters. Transit frees the commuter from parking costs, parking space availability problems and expensive vehicle maintenance costs. In many areas, especially where parking is hard to find, commuting by transit is as fast or faster than driving to work.

- Cycling and Walking: If there are employees who live within a few miles of work, bicycling and walking can be important elements of a company's transportation program. Bicycling is most attractive to employees who live within five miles of work and walking is more popular among employees who live within one mile of the work site.

  A company can encourage bicycle commuting by offering facilities and incentives and marketing the program. Bicycle usage should be promoted by increasing the number of bicycle parking spaces and providing shower and locker facilities for cyclists. Since bicycles are succeptible to theft and to damage by exposure to weather, lockers should be provided. A variety of lockers is available to provide complete security and weather protection; and secure bicycle racks can be placed in a covered area. A locker room, shed, or fenced section of a parking lot also makes a good bicycle storage area.

- Park and Ride Lots: To encourage ridesharing and transit usage, park and ride lots should be developed in the vicinity of the major freeways such as I-5/Del Paso Road and I-80/Truxel Road interchanges. If Light Rail stations are developed at these locations, both bus and Light Rail activities could share the site. The following Light Rail Transit section identifies and evaluates the proposed sites.

- Parking Management: The availability, accessibility and cost of parking are factors in determing how a person makes a trip to work. Employers can encourage ridesharing with a parking management plan such as "preferential" parking (reserved spaces or close-in spaces), or reduced parking fees.

- Alternative Work Hours: Spreading the demand for travel over time is a way to make more efficient use of buses and roadspace. Two types of alternative work hour plans are staggered hours and flex-time.

  Staggered hours are scheduled by assignment, with different work groups slotted to begin work at different times. Spacing arrivals at specified intervals before and after conventional business hours allows workers to travel at times when traffic moves freely.

  Flex-time is a scheduling practice that allows individual employees to set their own working hours within limits established by company policy. Employees benefit from the ability to make a schedule that suits work, commuting, and home life more conveniently. Employers benefit from reduced absenteeism, reduced turnover, and increased productivity. The community benefits from the easing of rush-hour traffic congestion that results when employees choose schedules that allow them to avoid the rush-hour crush.

LIGHT RAIL TRANSIT

The development of a light rail line into the North Natomas Community could potentially reduce southbound and eastbound oriented traffic volumes by 2-6 percent on a daily basis. The reduction of peak hour traffic with the development of a light rail line will be approximately 12-15 percent. The trip reduction would occur primarily in commuter work trips, with a minor reduction occurring in non-work trips. Potential alignments of a line and station locations are described below. The proposed LRT alignments have been prepared by the staff of Regional Transit (RT) in association with the City Planning Department as part of the North and South Natomas Community Planning Studies. A description of each of the alignments is included below.

Criteria Used to Determine Potential Transit Routes

The principles underlying the LRT and bus route alignments proposed for the North Natomas Community Plan area are:

- Proximity to higher density development
- Proximity to commercial/office development
- Proximity to special trip attractors, e.g., sports stadium, airport, schools, parks, etc.

Based on these principles the routes are evenly spaced throughout the community so as to provide overall rather than concentrated coverage.

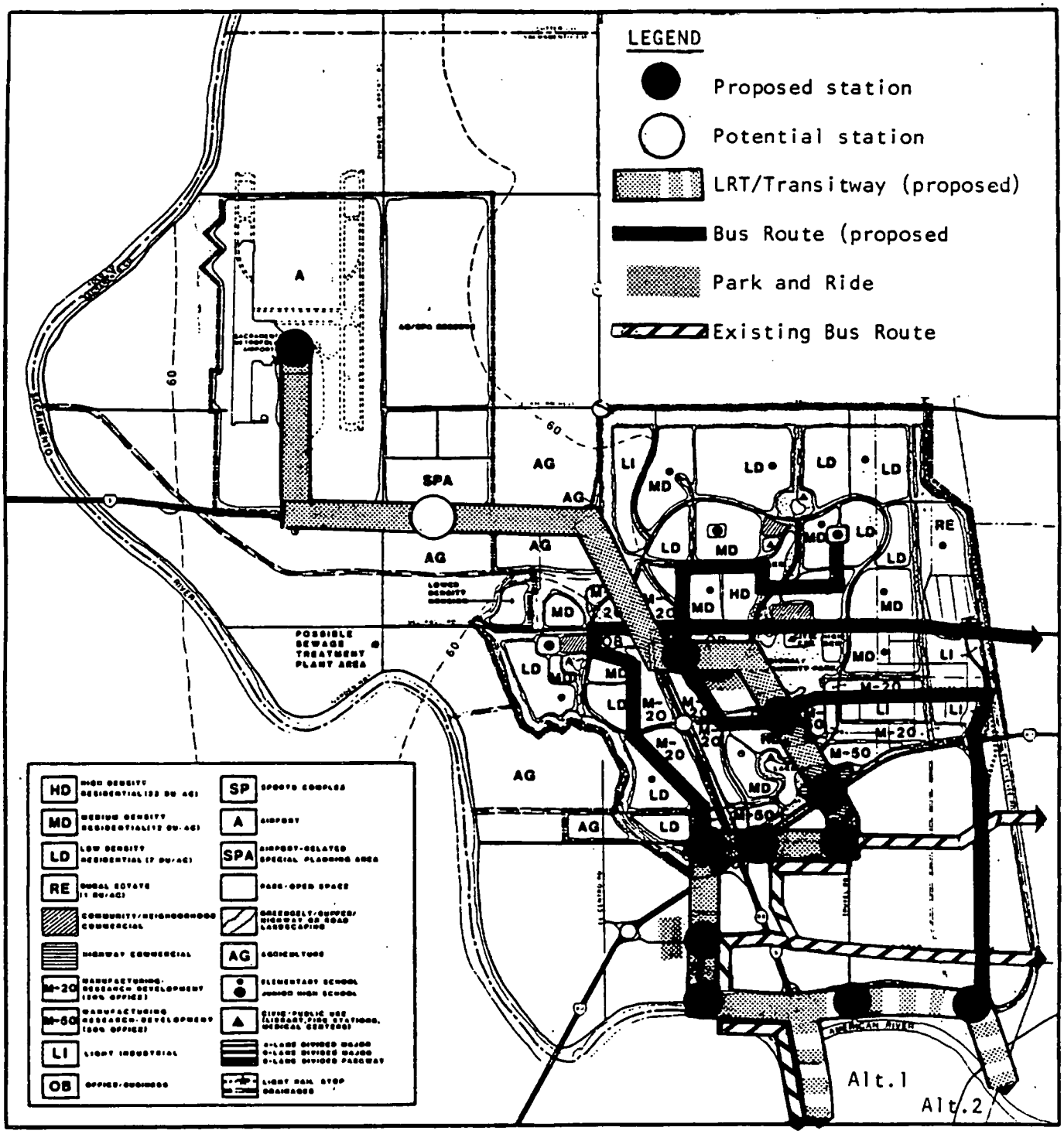
Considering the need to develop an areawide light rail network to improve the availability and effectiveness of public transit, (and considering the premise that light rail should function as a high speed, high volume transit spine), only one light rail alignment is proposed for the corridor between Metro Airport and the Sports Stadium in the North Natomas area. This proposed alignment is based on land use, location of the sports stadium, and the need to have the alignment central to the proposed development of the area.

Since large areas of South Natomas have already been developed, it is more difficult to designate a single alignment. The criteria used to evaluate the potential routes are: maximum accessibility for patrons; conflicts with automobile operations; travel time; land use compatibility; right of way avilibility; and feasibility to connect to the LRT line starter. Many design criteria exist for light rail transit which vary by study location. Two right-of-way design guidelines are a minimum of 26 feet required for a double track system and 40 feet minimum required for a station.

Four alternative alignments are proposed which serve the Study Area. Differences in alignment lie between the stadium site and connection with the starter LRT line and downtown Sacramento. Each of the proposed alternative alignments are discussed below.

Alternative 1

The alignment shown on Exhibit E-82 serves Metro airport, the stadium site, the proposed South Natomas business parks and then connects to the starter LRT line and downtown Sacramento either (1) via the I-5 corridor, or (2) via Garden Highway and Northgate Boulevard, or (3) via the Arden-Garden connector. This alignment serves more of the commercial rather than residential developments in the Natomas area. It also traverses, for the most part, parcels that are currently undeveloped.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

TRANSIT SERVICE PROPOSAL PHASE 4
LRT ALTERNATIVE 1

ALTERNATIVE C
DRAFT COMMUNITY PLAN

The SWA Group Community Planning
LSA, Inc. Environmental Analysis

0 FT 3200 6400

EXHIBIT E-82

Alternative 2

The alignment shown on Exhibit E-84 serves the airport, the stadium site and Truxel Road. The Truxel alignment is the most centrally located through the North and South Natomas developments. From Truxel, there are a number of ways by which this alignment can connect to the existing LRT system and downtown: (1) via El Camino and I-5 or Northgate, or (2) via Garden Highway and I-5 or Northgate, or (3) via the Arden-Garden connector.

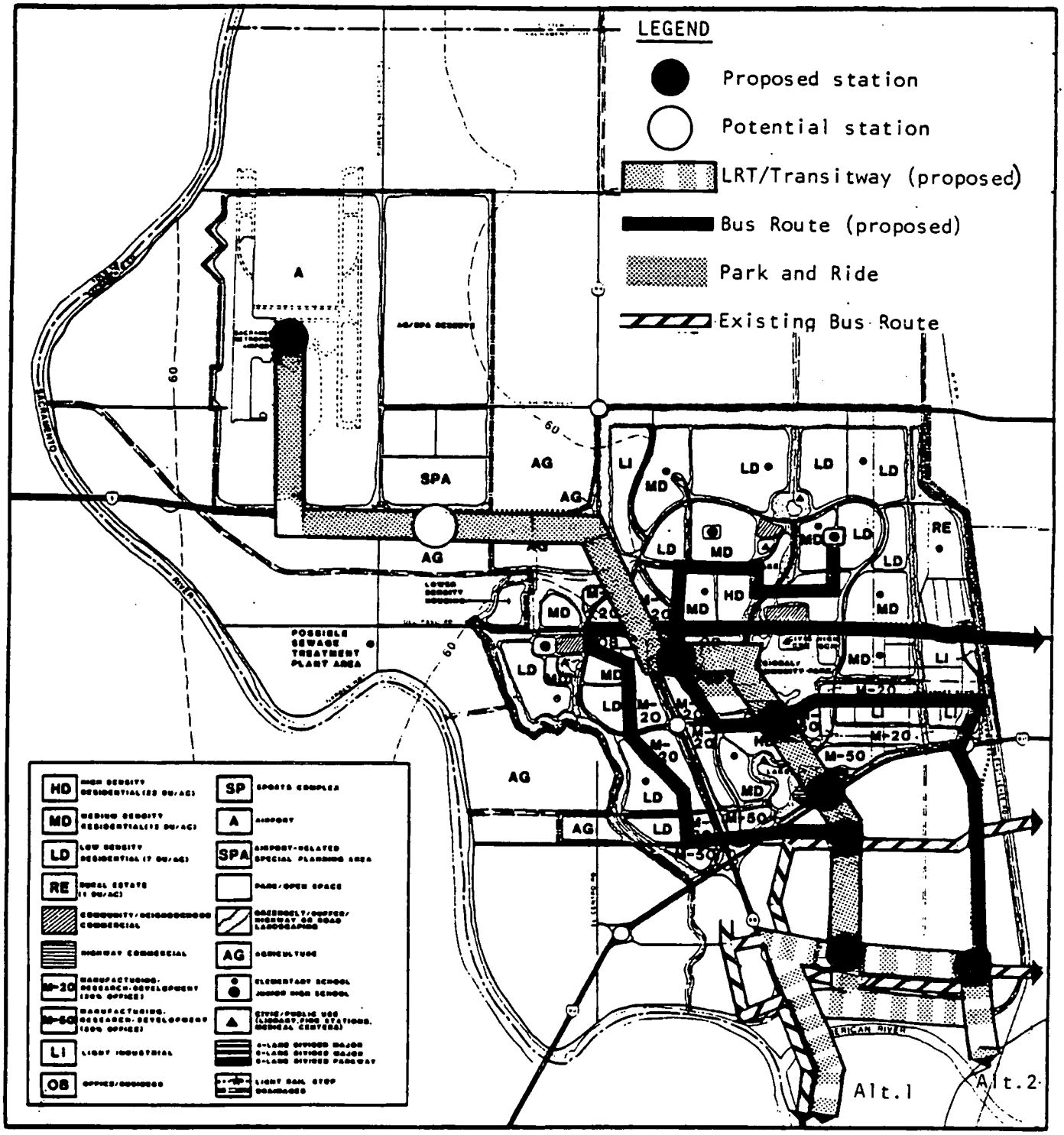
Alternative 3

The alignment shown on Exhibit E-85 serves the airport, the stadium site and connects with the existing LRT system via Northgate Boulevard. It traverses the more densely developed portion of North Natomas and connects southward via an existing major roadway.

Alternative 4

The alignment shown on Exhibit E-86 follows the power line easement south of North Market Boulevard in the North Natomas study area to Garden Highway and thence to the starter LRT line and downtown Sacramento via either (1) I-5 or (2) Northgate Boulevard or the Arden-Garden connector. An important reason for considering this alignment is the use of an existing easement through the developed portion of South Natomas.

Exhibits E-82 - E-86 also present the proposed station locations for each alternative alignment. The station locations proposed by a majority of the alternatives are Airport; Stadium; Del Paso/East Commerce Way and North Market/Truxel. Alternative 1 includes eleven proposed stations and one potential station located at the stadium. Other than the locations mentioned previously, the remaining stations are at various locations on Garden Highway, El Camino, San Juan Road and Truxel Road. Alternative 2 proposes seven stations and one potential station located at the Stadium. A majority of the stations are located along Truxel Road. Seven stations are proposed in Alternative 3 with one potential stations located at the Stadium. Two stations are located on North Market and two are located on Northgate Boulevard. Alternative 4 includes six proposed and one potential station.



NORTH NATOMAS COMMUNITY PLAN

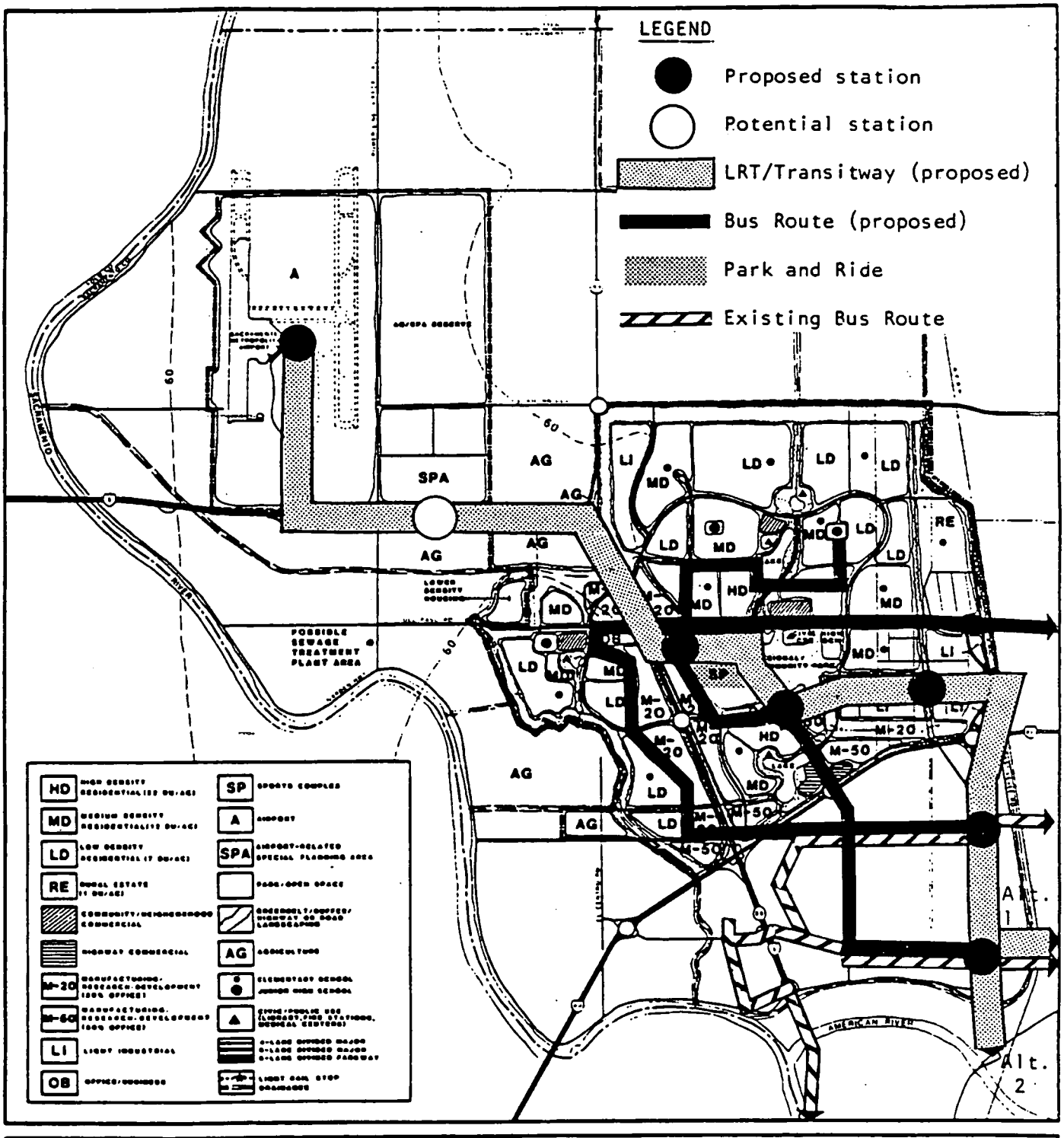
Sacramento, California

TRANSIT SERVICE PROPOSAL PHASE 4
LRT ALTERNATIVE 2

ALTERNATIVE C
DRAFT COMMUNITY PLAN

The SWA Group Community Planning
LSA, Inc. Environmental Analysis

EXHIBIT E-84



NORTH NATOMAS COMMUNITY PLAN

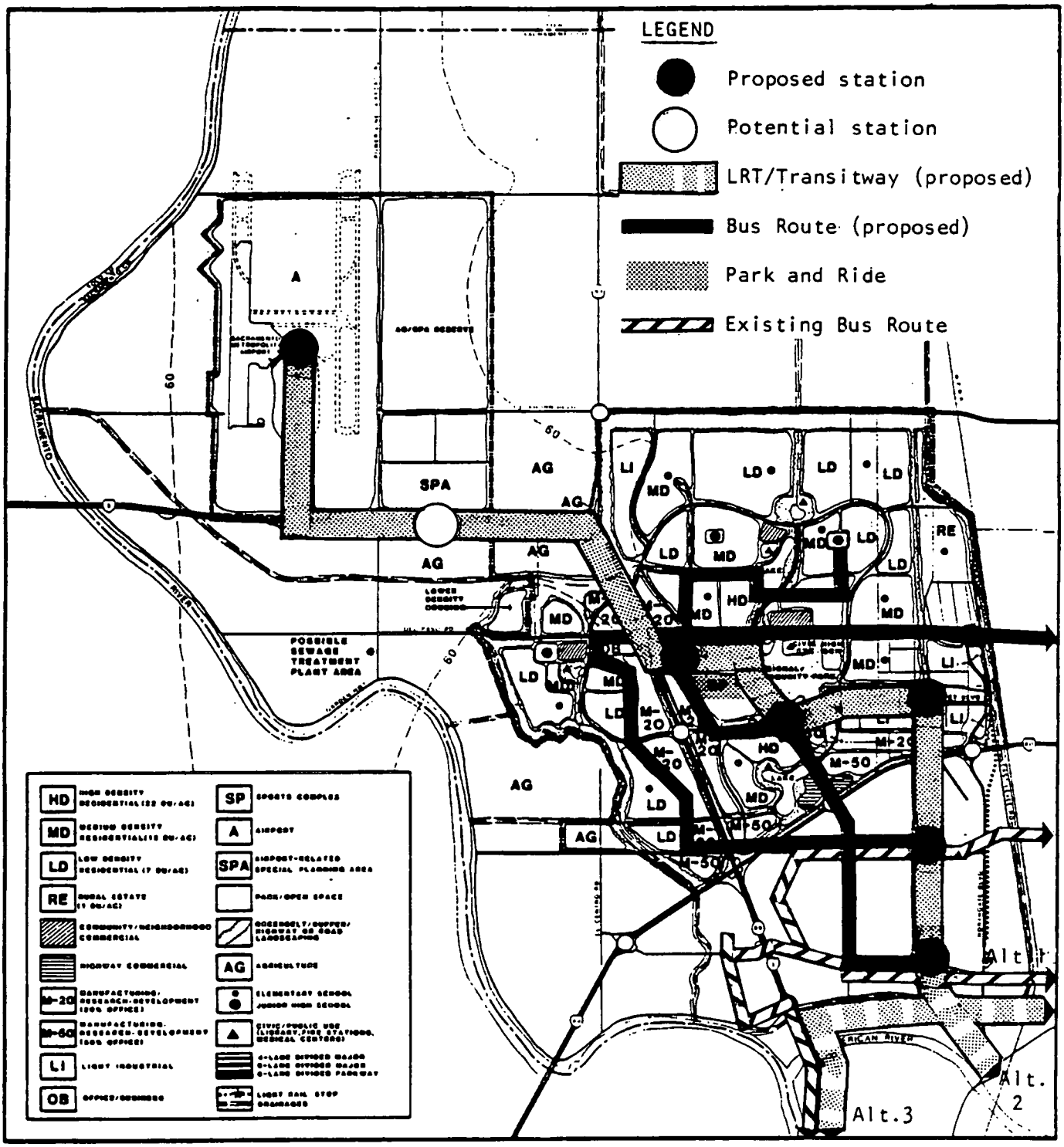
Sacramento, California

TRANSIT SERVICE PROPOSAL PHASE 4
LRT ALTERNATIVE 3

ALTERNATIVE C
DRAFT COMMUNITY PLAN

The SWA Group Community Planning
LSA, Inc. Environmental Analysis

EXHIBIT E- 85



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

TRANSIT SERVICE PROPOSAL PHASE 4
LRT ALTERNATIVE 4

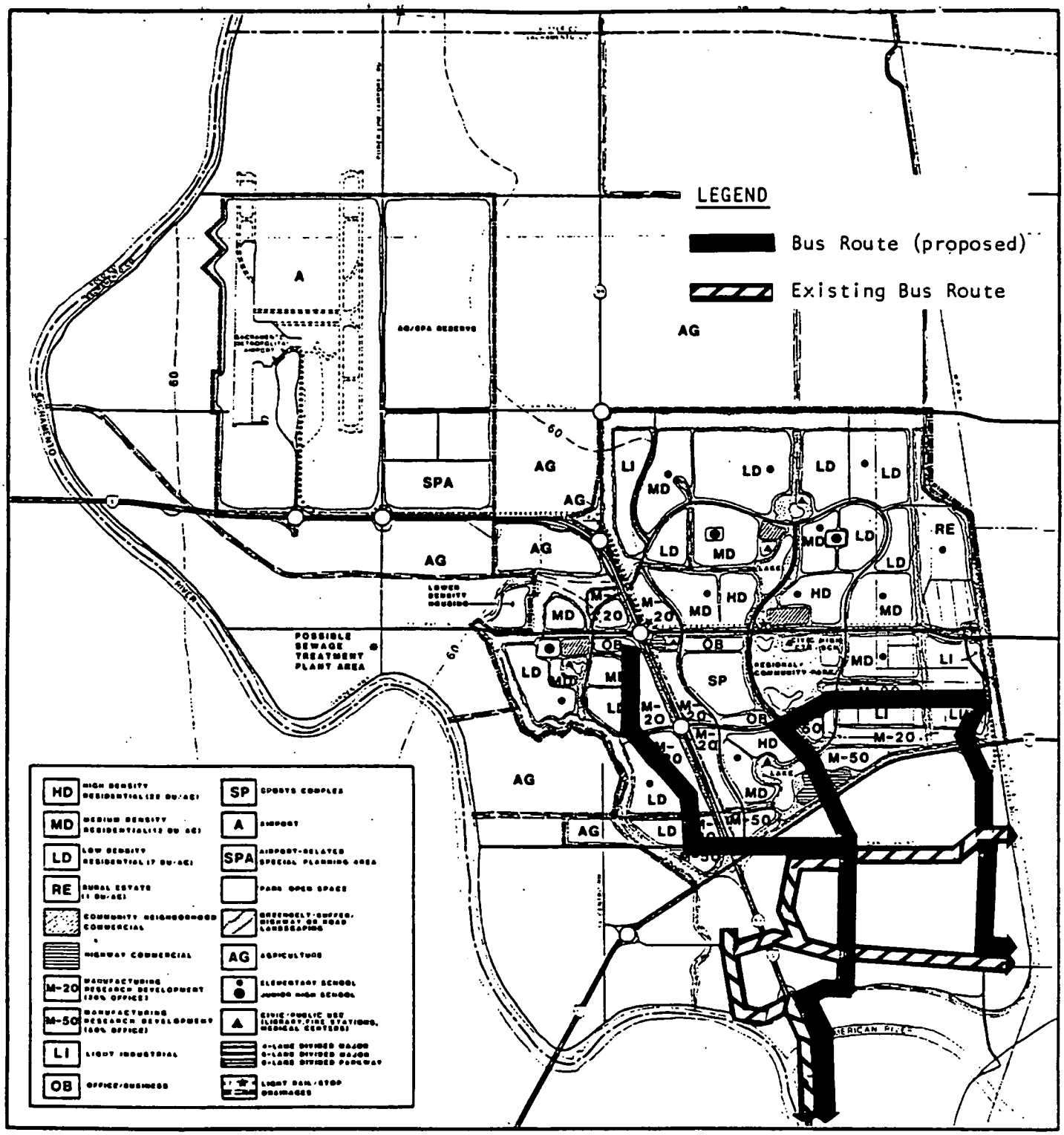
ALTERNATIVE C
DRAFT COMMUNITY PLAN

The SWA Group Community Planning
LSA, Inc. Environmental Analysis

EXHIBIT E-86

Bus Transit and Phasinag of Service

Exhibits E-88 - E-90 present the proposed phasing of the bus-LRT system for Alternative C which is based on the size, density and location of development expected to occur for each five year period between 1985 and 2000. This phasing program has been prepared by the staff of Regional Transit in association with the City Planning Department as part of the North and South Natomas Community Planning Studies. It also based on the density of the development that has occurred. Initially all service will be bus service and route alignments will follow, as much as possible, the alignments proposed at build-out. Alignment changes, however, are made from one phase to the next to accommodate earlier stages of development until further development takes place. This analysis assumes that for the period 2000 - 2005, one of the four alternative LRT/Bus Transit alternatives previously described will be selected to serve the Study Area.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

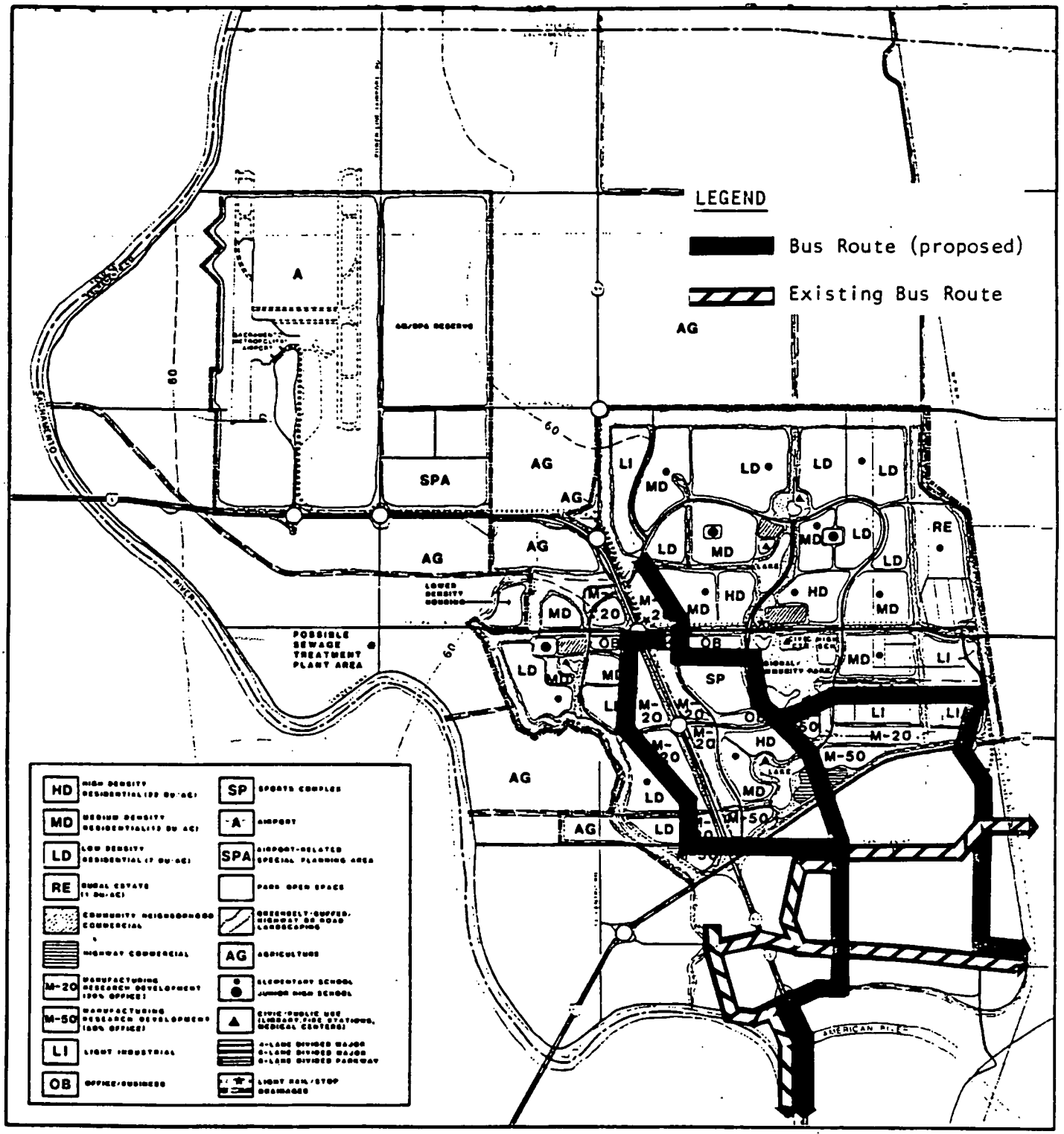
TRANSIT SERVICE PROPOSAL PHASE 1

ALTERNATIVE C

DRAFT COMMUNITY PLAN

The SWA Group · Community Planning
LSA, Inc. Environmental Analysis

EXHIBIT E- 88



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

TRANSIT SERVICE PROPOSAL PHASE 2

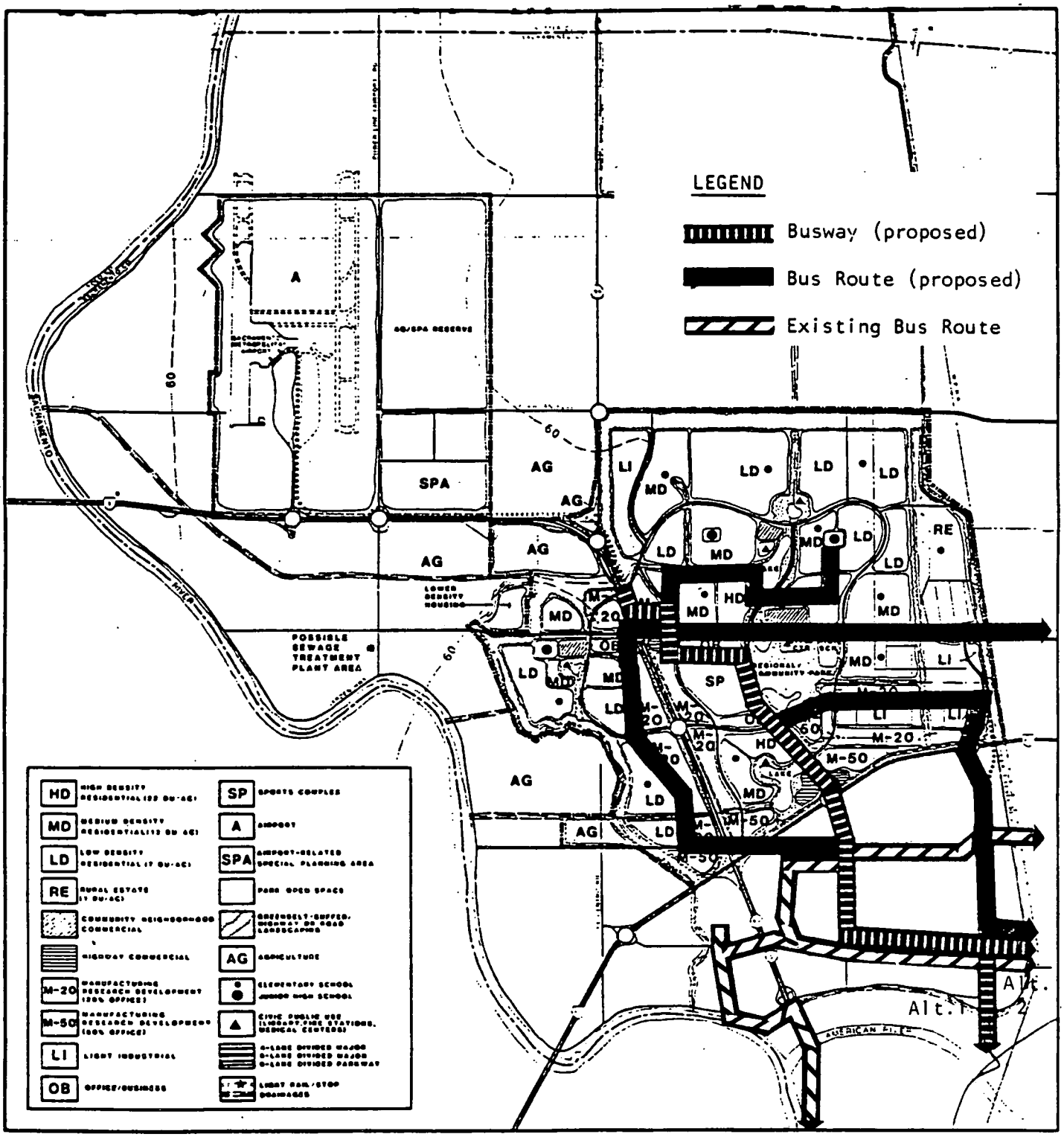
ALTERNATIVE C

DRAFT COMMUNITY PLAN

The SWA Group Community Planning
LSA, Inc. Environmental Analysis

0 FT 1200 6400

EXHIBIT E-89



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

TRANSIT SERVICE PROPOSAL PHASE 3

ALTERNATIVE C
DRAFT COMMUNITY PLAN

The SWA Group Community Planning
LSA. Inc. Environmental Analysis

EXHIBIT E-90

PEDESTRIAN AND BICYCLE CIRCULATION AND ACCESS

Pedestrian and bicycle routes should be included in all of the alternative community plans. The inclusion of such routes within North Natomas can help achieve an overall reduction in traffic and air quality impacts. Specifically, bike and pedestrian paths should provide access between residential areas and employment centers as a means to reduce commuter work trips.

Pages 48 - 53 of the North Natomas Draft Community Plan text describe a bicycle and pedestrian way circulation system for Alternative C. The policies and systems presented in that document should be adopted as a mitigation measure with the following additions:

- An on-street bike lane should be included on the unknown east-west collector connecting the northern Loop Road to Sorento Road.

- An off-street bike path should be included on North Market Boulevard between the Loop Road and the off-street bike path paralleling the eastern border of the study area.

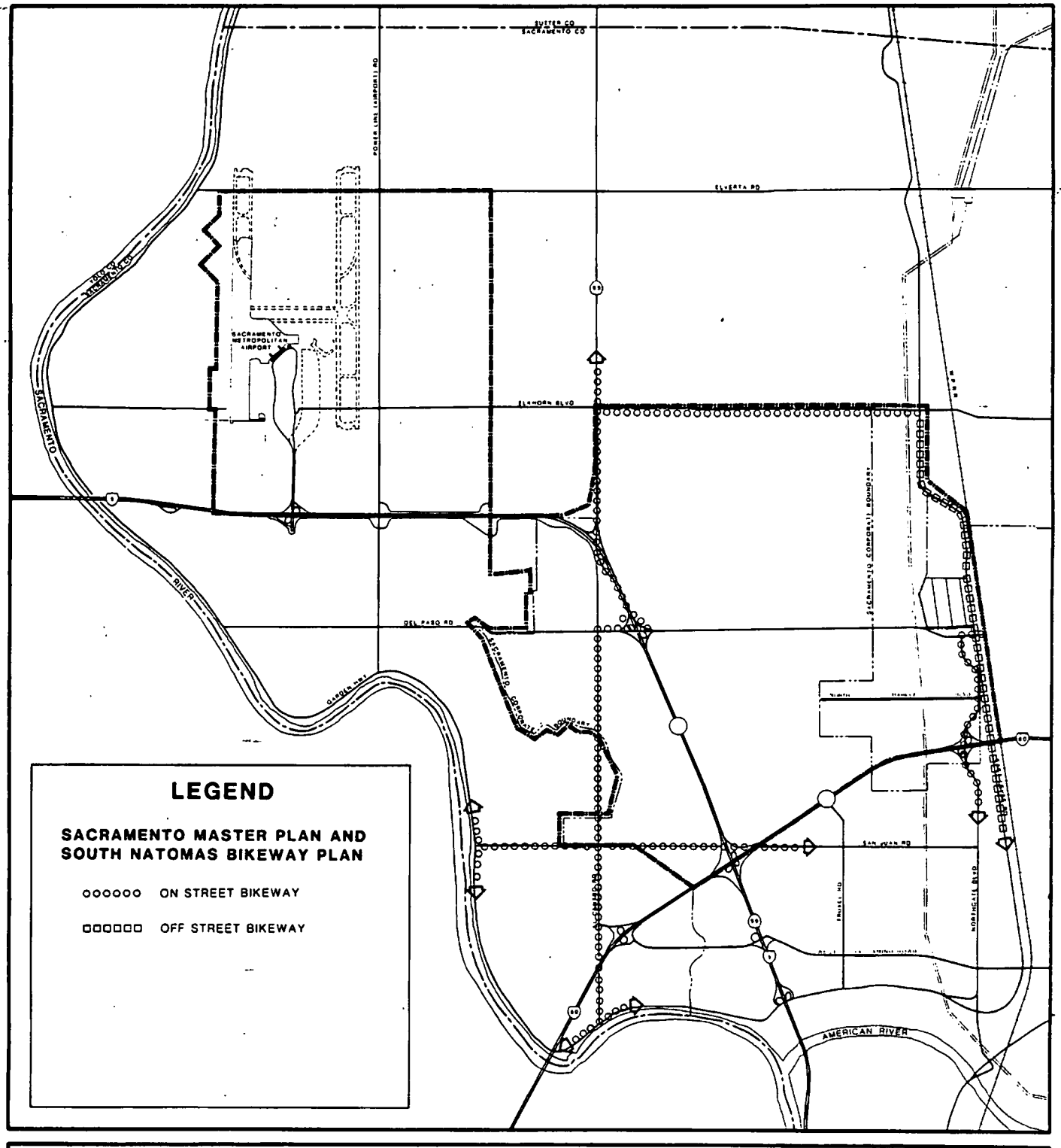
- An off-street bike path should be included connecting the western Loop Road to a junior high school, south of Del Paso Road. The bike path runs parallel with Del Paso Road. Exhibit E-95 presents the location of this bike path.

- An off-street bike path should be included on Del Paso Road between East Commerce Way and eastern Loop Road. This bike path would create a connection between three north-south bikeways and allow access to a civic center, light rail transit stop, and a high school.

These four additional routes, as shown in Exhibit E-95, will provide greater and more complete bicycle access to all points within the community.

Alternative B, D and E include bicycle route systems similar to that identified for Alternative C and are presented in Exhibits E-94 - E-97. The bikeways for Alternative A are shown in Exhibit E-93 which represents exclusively the Sacramento Bikeway Master Plan and the South Natomas Bikeway Plan for this no-build alternative.

Exhibits E-93 - E-97 also include the Sacramento Bikeway Master Plan and the South Natomas Bikeway Plans for Alternatives A - E.

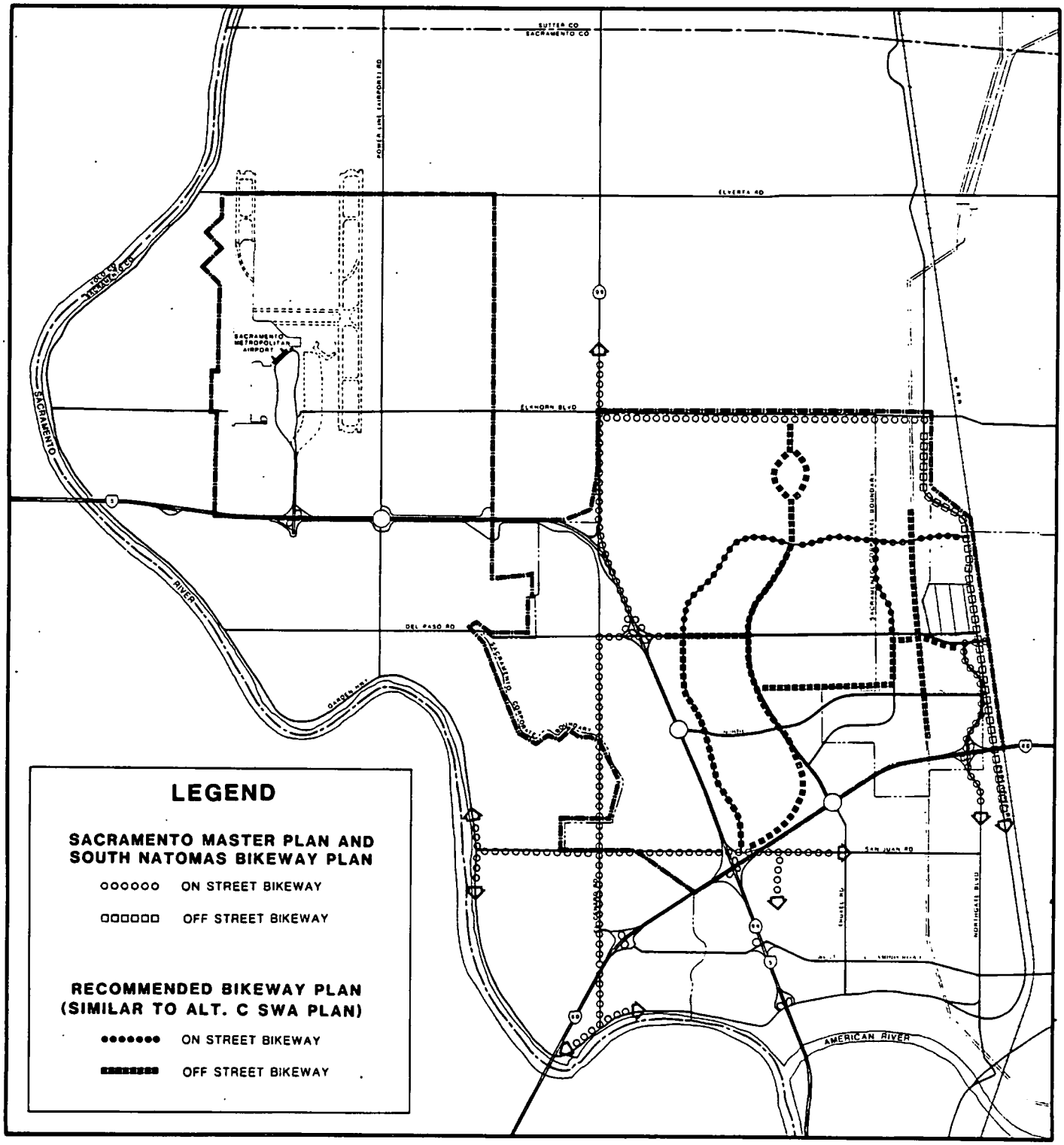


NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE A BIKEWAYS

EXHIBIT E-93

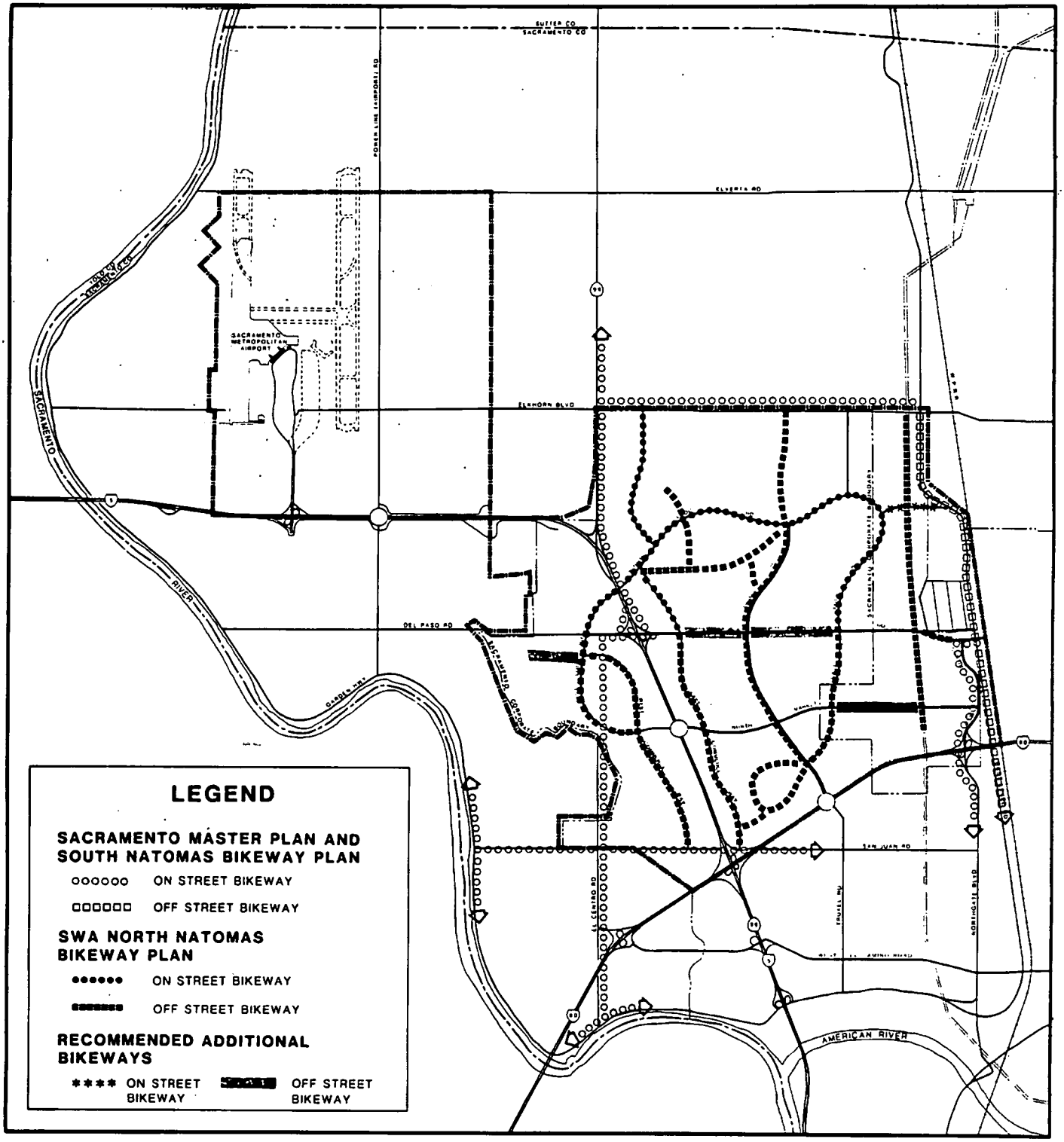


NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE B BIKEWAYS

EXHIBIT E-94

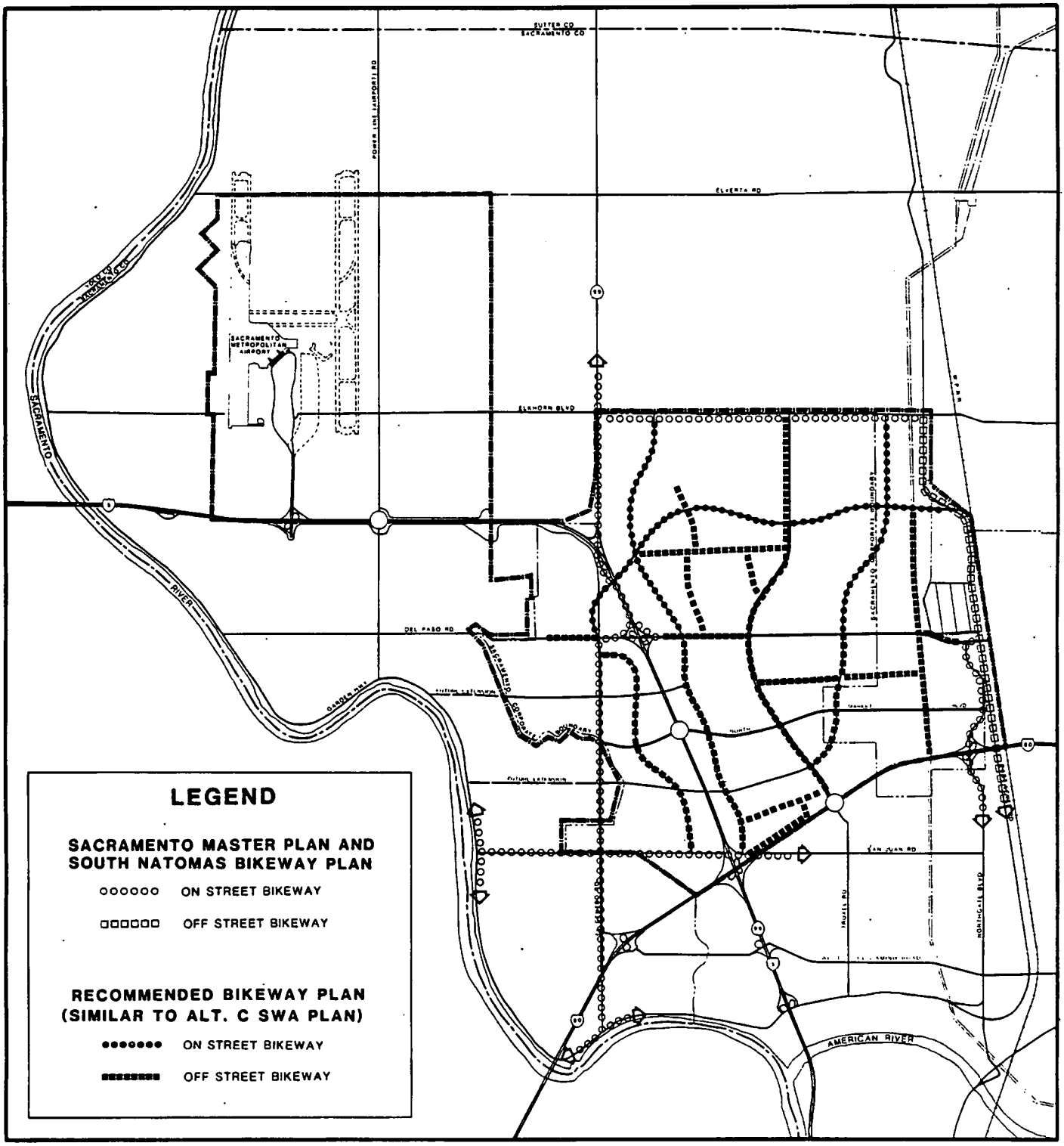


NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE C BIKEWAYS

EXHIBIT E-95

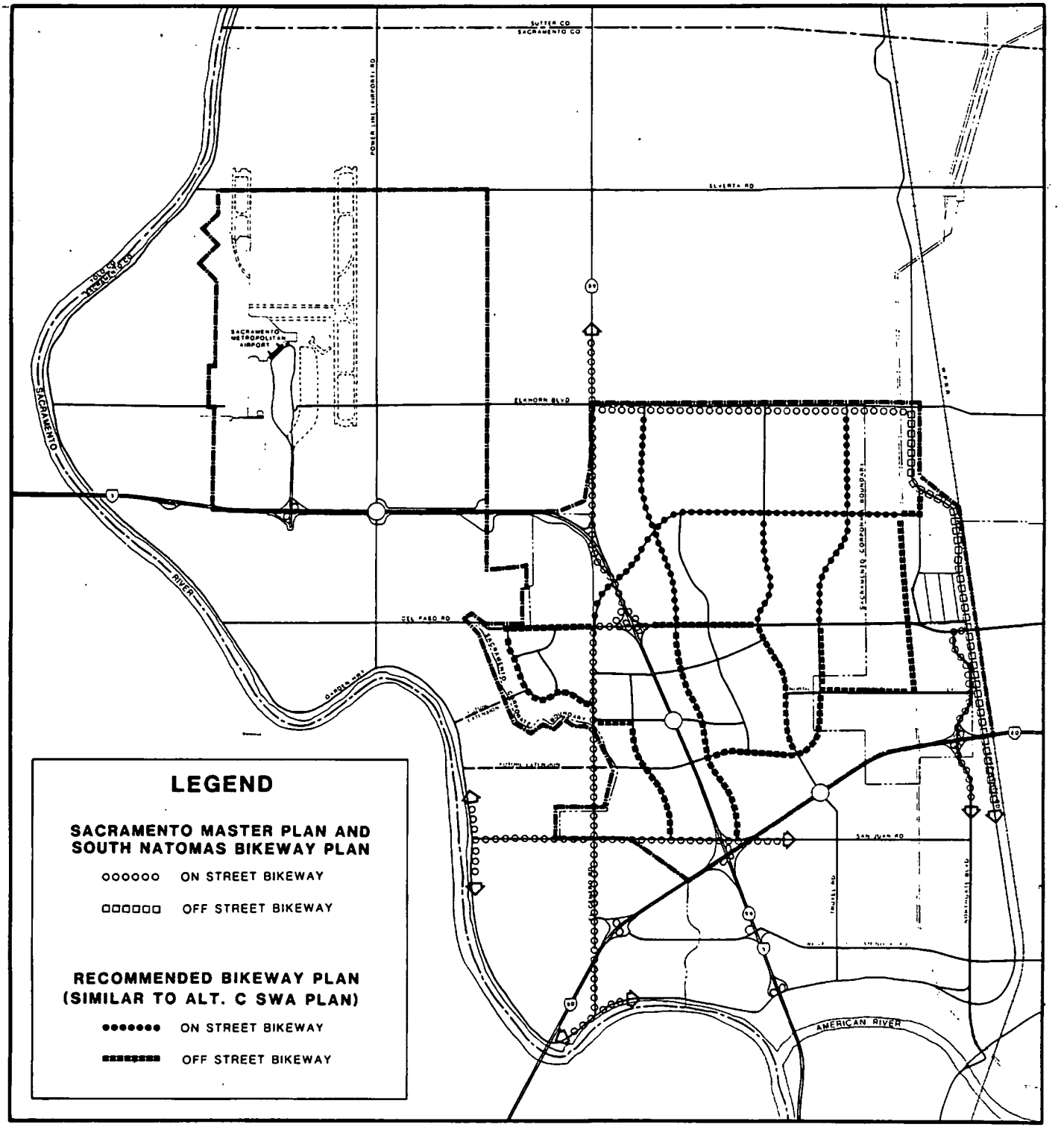


NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE D BIKEWAYS

EXHIBIT E- 96



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE E BIKEWAYS

EXHIBIT E-97

INDIVIDUAL PROJECT TRAFFIC IMPACT ANALYSIS

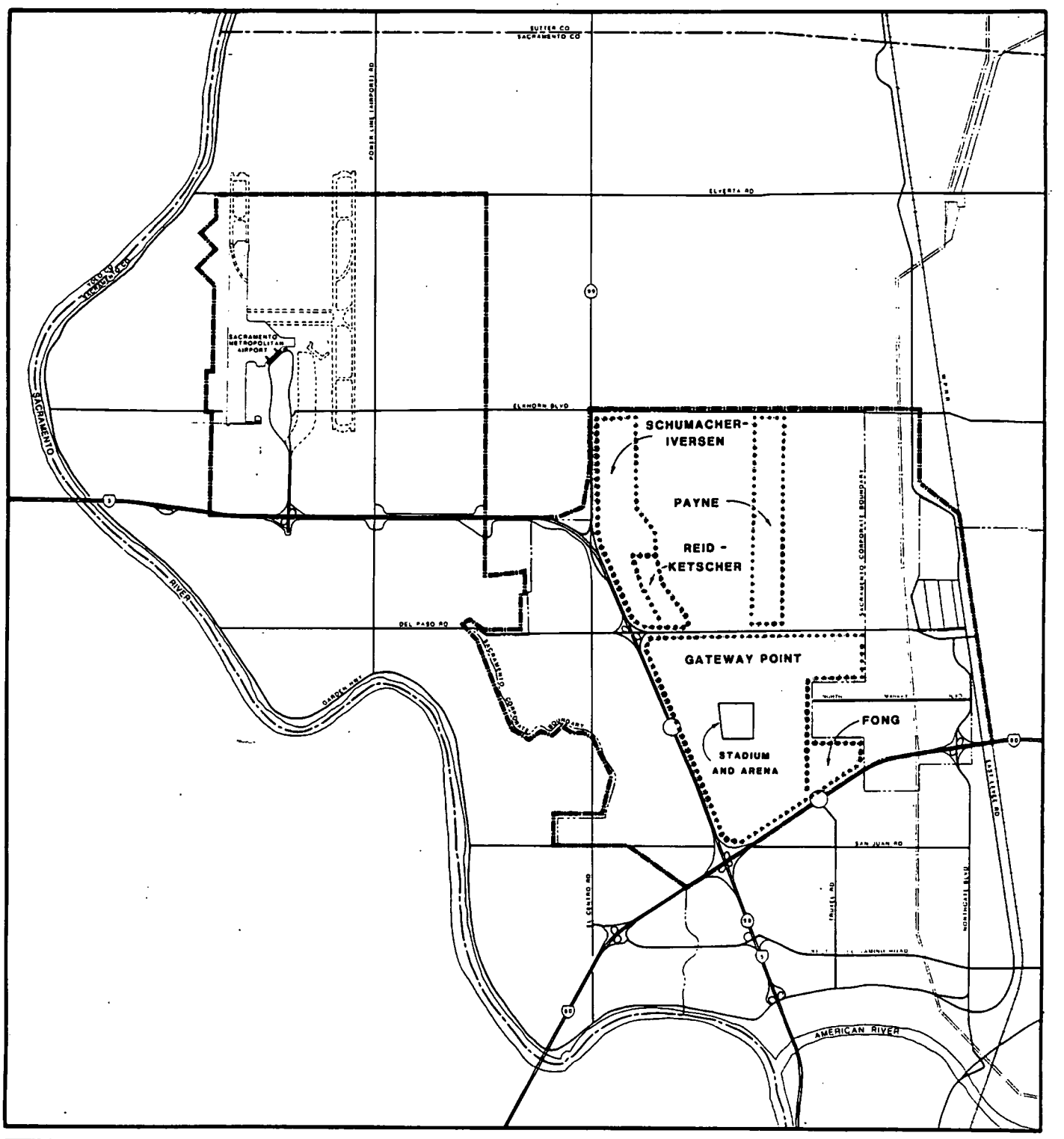
DESCRIPTION OF APPLICATIONS

The purpose of this portion of the traffic analysis for the North Natomas Community Plan EIR is to assess individually the potential traffic impacts of the five proposed development applications within the North Natomas Plan Area. In addition, a specific analysis will also be conducted on the proposed Sports Complex which is a use contained within the Gateway Point application. As identified in Exhibit E-99 and listed as follows, there will be six (6) individual project traffic evaluations to be conducted within this section:

A summary of land uses, population, dwelling units and employment proposed within each of the above five project applications is found in Project Description section of this EIR.

The methodology to be employed will be to evaluate existing transportation conditions, (as previously described) identify additional traffic generation resulting from the project application over the projected Alternative "A" - No Project Traffic Base, analyze critical impact locations and recommend alternative mitigation measures to assure acceptable future levels of traffic flow throughout the project area.

The following text describes the study assumptions, traffic impacts and mitigation measures for each of the proposed project applications and Sports Complex.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

INDIVIDUAL PROJECT LOCATIOINS

EXHIBIT E-99

PROJECT IMPACTS

Basic Assumptions

To provide a consistent basis for the analysis, a number of basic assumptions were developed prior to performing this study. As outlined below, these assumptions cover the essential components of the traffic analysis:

1. Project Analysis - To meet the environmental requirements prescribed under the California Environmental Quality Act (CEQA), project applications are analyzed individually, even through, except for possibily Gateway Point, the projects were predicated and planned as a part of development of the North Natomas area. The proposed land uses and densities may, therefore, appear inconsistant with the assumed street system.

2. Periods of Analysis - For the traffic analysis of the proposed project applications, weekday AM and PM peak hours will be evaluated. For the analysis of the Sports Complex, the hours immediately proceding the beginning and following the conclusion of major events at both the stadium and arena on a Sunday afternoon, are analyzed.

3. Project Trip Generation Rate - ExhibitE-101 shows trip generation rates which were based upon a review of past studies within the City and County of Sacramento, ITE research and discussions with City and County staff.

EXHIBIT E-101
Trip Generation

LAND USE	UNIT	AM PEAK HOUR IN	AM PEAK HOUR OUT	PM PEAK HOUR IN	PM PEAK HOUR OUT
Low Density Res.	Dwelling Unit	0.20	0.50	0.50	0.30
Medium Density	Dwelling Unit	0.10	0.40	0.40	0.20
High Density	Dwelling Unit	0.07	0.37	0.37	0.18
General office	1,000 gross sf	1.86	0.35	0.27	1.36
High technology	1,000 gross sf	1.44	0.25	0.31	0.92
Industrial park	1,000 gross sf	0.72	0.21	0.24	0.75
Hotel	room	0.53	0.25	0.27	0.25
Highway Comm.[1]	1,000 gross sf	13.2	13.2	16.5	16.5
Shopping Centers:[2]					
Under 50,000	1,000 gross sf	1.56	1.37	7.19	7.23
50,000-100,000	1,000 gross sf	1.24	1.16	3.78	4.02
100,000-200,000	1,000 gross sf	0.90	0.80	2.90	3.10
200,000-300,000	1,000 gross sf	0.40	0.20	2.34	2.46
300,000-400,000	1,000 gross sf	1.60	0.70	2.66	2.84
400,000-500,000	1,000 gross sf	0.30	0.20	2.45	2.45
500,000-1,000,000	1,000 gross sf	0.38	0.23	1.53	1.59

[1]The Highway Commercial trip rate was developed by averaging trip rates associated with the following land uses; motel, service station, drive-in restaurant, and a convenience market. The peak hour traffic was assumed to be 8 and 10 percent in the AM and PM, respectively, of the daily generation.

[2]During the PM Peak Hour, it has been estimated that 25% of shopping center trips are diverted from the passing traffic stream. This was documented in a study called "Reductions in Estimates of Traffic Impacts of Regional Shopping Centers", ITE Journal, January 1981, Gorove and Slade. Therefore, the PM Peak Hour trips from commercial land use will be reduced by 25% in this analysis.

4. Sports Complex Trip Generation - For a worst case analysis, a stadium and arena will be evaluated as operating concurrently on a Sunday afternoon. The assumptions contained in Exhibit E-102 will be used in regard to type of event, operating hours, attendance, transit use, and auto occupancy

EXHIBIT E-102
Sports Complex Assumptions

	STADIUM	ARENA	TOTAL
Event	Baseball	Circus	NA
Time/Day	1pm/Sunday	1pm/Sunday	NA
Attendance (% occupancy)	55,000 (92%)	11,700 (65%)	66,700
Transit	10%	5%	
Auto Occupancy	2.7	3.0	
Total Vehicle Trips	18,333	3,705	22,038
Peak Inbound Hour	12-1 PM	12-1 PM	
Peak Outbound Hour	4-5 PM	4-5 PM	NA
Vehicle Trips in Peak Inbound Hour (percent of total)	11,916 (65%)	3,335 (90%)	15,251 (71%)
Vehicle Trips in Peak Outbound Hour	16,500 (90%)	3,335 (90%)	19,835 (90%)

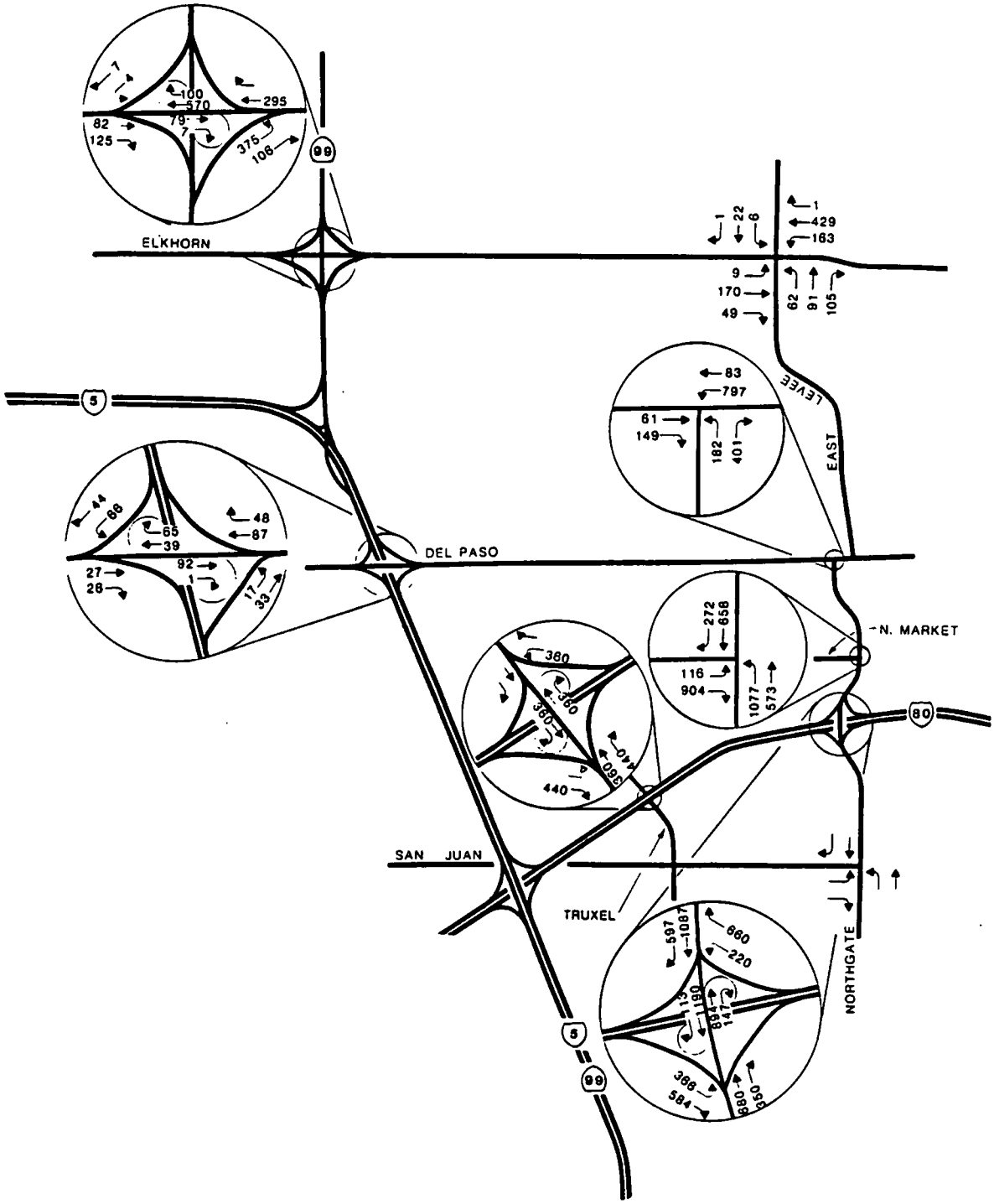
5. Trip distribution - Upon review of available data and approval by the City of Sacramento, the trip distribution presented in Exhibit E-103 will be assumed for each of the project traffic analyses.

EXHIBIT E-103
Trip Distribution

	PROJECT	NORTH	WEST	SOUTH	EAST	INTERNAL
A.	Stadium/Arena	6%	6%	46%	42%	0%
B.	Gateway Point	3%	1%	47%	41%	8%
C.	Ketscher	3%	1%	48%	42%	6%
D.	Schumacher/Iverson	3%	1%	48%	43%	5%
E.	Payne	3%	1%	50%	44%	2%
F.	Fong	3%	1%	50%	44%	2%

6. Future Base - Cumulative Development - As approved by City staff, Alternative "A" (no-project) traffic volumes will be used as the future base traffic level. Traffic generated from buildout of the Draft South Natomas Community Plan dated November, 1984, is also included in the future base traffic level. The peak hour turning movements at key locations will be derived by factoring the projected ADT's in comparison with the existing traffic flow conditions. Exhibits E-104 and E-105 illustrate a representation of a future traffic base for both AM and PM hours.

7. Future Base - Street Network - Based on discussions and approval by the City of Sacramento staff, the street networks listed in Exhibit E-106 will be assumed for each project.

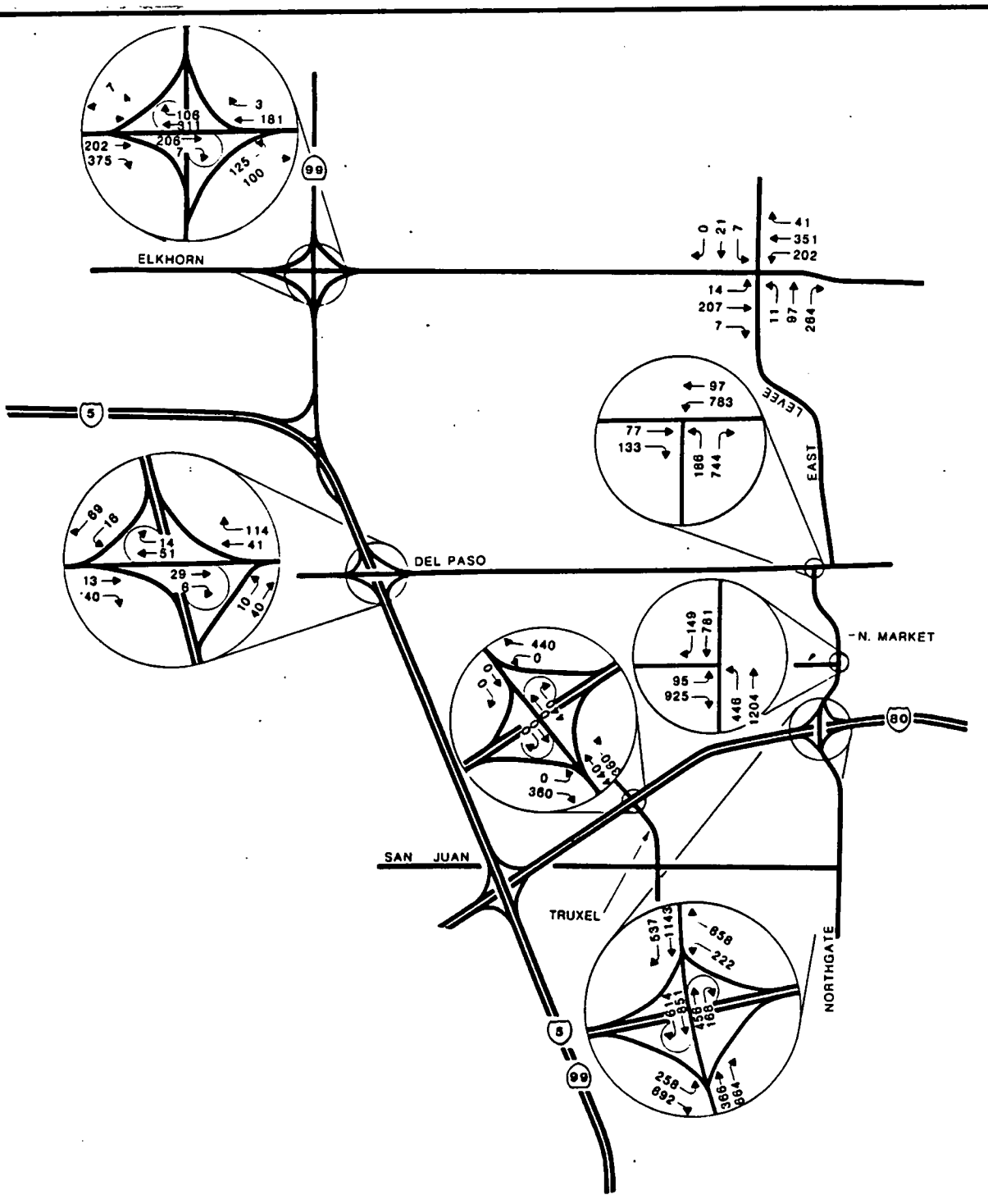


NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

AM PEAK HOUR FUTURE BASE TRAFFIC

EXHIBIT E-104



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

PM PEAK HOUR FUTURE BASE TRAFFIC

EXHIBIT E-105

EXHIBIT E-106
Future Base Street Networks

PROJECT	STREET NETWORK
A. Sports Complex	Improved Access to Del Paso Boulevard/I-5 and Northgate/I-80 interchanges and a new interchange at Truxel/I-80.
B. Gateway Point	Applicant's proposed street network.
C. Ketscher	Existing Street Network with direct access only to Del Paso Boulevard.
D. Schumacher-Iverson	Existing Street Network with direct access to Del Paso Boulevard and Elkhorn Boulevard.
E. Payne	Existing Street Network with direct access to Del Paso Boulevard and Elkhorn Boulevard.
F. Fong	Existing Street Network utilizing the extension of North Freeway Boulevard to the project plus access to Truxel Road via an overcrossing only.

8. Future Signalization - Under projected traffic conditions for each of the project applications, Level of Service was calculated assuming signalization at all the critical locations eventhough signals may not presently exist. In the analysis, for those intersections identified to require signalization, such an improvement is designated as a mitigation measure. For those other locations where signalization is not required or warranted, such conclusion is clearly stated.

9. Level of Service Criteria - Based on City direction, acceptable Level of Service is defined as a volume-to-capacity ratio of less than or equal to 0.8 or LOS "C". This analysis will attempt to identify mitigation measures where necessary to achieve at least a V/C ratio of 0.8. The City standard differs substantially from that of the County of Sacramento. The County minimum acceptable Level of Service is "E" or 1.0.

YEAR 2005 FUTURE BASE TRAFFIC CONDITIONS

Projected peak hour operations were analyzed at intersections and on ramp and freeway segments to establish a future base traffic condition for the year 2005. Exhibit E-108 presents the resulting peak hour Levels of Service at Study Area intersections. As shown, traffic signals will likely be warranted at four locations:

Northgate/I-80 Ramps (EB)
Northgate/I-80 Ramps (WB)
Northgate/Del Paso
Elkhorn/East Levee

In addition, major modifications to the Northgate/North Market intersection are necessary in order to achieve LOS "C". The necessary improvements include an additional through lane on northbound and southbound approaches, a second left turn lane from northbound Northgate and an auxiliary lane southbound to receive traffic turning right from North Market.

Exhibit E-109 presents future base ramp conditions. As shown, no ramps exceed capacity.

Exhibit E-111 indicates future base traffic volumes on basic freeway segments. As shown, peak hour service levels range from "A" to "D". To

achieve LOS "C", an additional westbound travel lane would be required on Interstate 80 in the study area.

EXHIBIT E-108
Year 2005 Future Base
Intersection Levels of Service

INTERSECTION	AM FUTURE BASE V/C	AM FUTURE BASE LOS	PM FUTURE BASE V/C	PM FUTURE BASE LOS
NORTHGATE/I-80 RAMPS (EB)	.71	"B/C"	.75	"C"*
NORTHGATE/I-80 RAMPS (WB)	.75	"C"*	.59	"A"*
NORTHGATE/N.MARKET	.69	"B"**	.43	"A"**
NORTHGATE/DEL PASO	.71	"B/C"*	.75	"C"
TRUXEL/I-80 RAMPS (EB)	.41	"A"	.39	"A"
TRUXEL/8-80 RAMPS (WB)	.12	"A"	.02	"A"
DEL PASO/I-5 RAMPS (SB)	.06	"A"	.02	"A"
DEL PASO/8-5 RAMPS (NB)	.04	"A"	.02	"A"
ELKHORN/S.R. 99 RAMPS (SB)	.13	"A"	.06	"A"
ELKHORN/S.R. 99 RAMPS (NB)	.35	"A"	.15	"A"
ELKHORN/EAST LEVEE	.58	"A"*	.66	"B"*

* Signal Warranted
** With Improvements Described Herein

EXHIBIT E-109
Year 2005 Future Base
Ramp Levels of Service

INTERCHANGE	AM PEAK HOUR VOLUME	V/C	LOS	PM PEAK HOUR VOLUME	V/C	PM) LOS
I-80 @ NORTHGATE						
WB OFF RAMP	880	.59	"B"	880	.59	"B"
NB NORTHGATE TO WB ON RAMP	150	.10	"A"	170	.11	"A"
SB NORTHGATE TO WB ON RAMP	600	.40	"B"	640	.42	"B"
EB OFF RAMP	950	.63	"B/C"	950	.63	"B/C"
SB NORTHGATE TO EB ON RAMP	110	.07	"A"	615	.41	"A/B"
NB NORTHGATE TO EB ON RAMP	350	.23	"A"	665	.44	"B"
I-80 @ TRUXEL						
WB OFF RAMP	360	.24	"A"	440	.29	"A"
NB TRUXEL TO WB ON RAMP	360	.24	"A"	440	.29	"A"
SB TRUXEL TO WB ON RAMP	0	.00	N/A	0	.00	N/A
EB OFF RAMP	440	.29	"A"	360	.24	"A"
SB TRUXEL TO EB ON RAMP	0	.00	N/A	0	.00	N/A
NB TRUXEL TO EB ON RAMP	440	.29	"A"	360	.24	"A"
I-5 @ DEL PASO						
SB OFF RAMP	110	.07	"A"	85	.06	"A"
WB DEL PASO TO SB ON RAMP	65	.04	"A"	15	.01	"A"
EB DEL PASO TO SB ON RAMP	30	.02	"A"	40	.03	"A"
NB OFF RAMP	50	.03	"A"	50	.03	"A"
EB DEL PASO TO NB ON RAMP	0	.00	"A"	10	.01	"A"
WB DEL PASO TO NB ON RAMP	50	.02	"A"	115	.08	"A"

(continued)

EXHIBIT E-109 (continued)
Year 2005 Future Base
Ramp Levels of Service

INTERCHANGE	AM PEAK HOUR VOLUME	AM PEAK HOUR V/C	AM PEAK HOUR LOS	PM PEAK HOUR VOLUME	PM PEAK HOUR V/C	PM) LOS
SR 99 @ ELKHORN						
SB OFF RAMP	10	.01	"A"	10	.01	"A"
WB ELKHORN TO SB ON RAMP	100	.07	"A"	110	.07	"A"
EB ELKHORN TO SB ON RAMP	125	.08	"A"	375	.25	"A"
NB OFF RAMP	110	.07	"A"	225	.15	"A"
EB ELKHORN TO NB ON RAMP	10	.01	"A"	10	.01	"A"
WB ELKHORN TO NB ON RAMP	0	.00	"A"	5	.01	"A"

EXHIBIT E-111
Year 2005 Future Base
Freeway Levels of Service

LOCATION/# LANES	AM PEAK HOUR VOLUME	AM PEAK HOUR V/C	AM PEAK HOUR LOS	PM PEAK HOUR VOLUME	PM PEAK HOUR V/C	PM PEAK HOUR LOS
INTERSTATE 80						
EAST OF I-5						
WESTBOUND/3	5,450	.66	"C"	2,460	.41	"A/B"
EASTBOUND/3	2,020	.34	"A"	5,000	.83	"C"
EAST OF TRUXEL						
WESTBOUND/3	5,450	.91	"D"	2,460	.41	"A/B"
EASTBOUND/3	2,020	.34	"A"	5,000	.83	"C"
EAST OF NORTHGATE						
WESTBOUND/3	5,260	.88	"D"	2,380	.40	"A/B"
EASTBOUND/3	1,950	.33	"A"	4,830	.81	"C"
INTERSTATE 5						
NORTH OF I-80						
NORTHBOUND/3	3,250	.54	"B"	3,000	.50	"B"
SOUTHBOUND/3	3,000	.50	"B"	3,245	.54	"B"
NORTH OF DEL PASO						
NORTHBOUND/3	3,310	.55	"B"	3,060	.55	"B"
SOUTHBOUND/3	3,060	.51	"B"	3,310	.51	"B"

A. STADIUM/ARENA

Project Description

The proposed project consists of a 60,000 seat stadium and an 18,000 seat arena on an 170 acre site.

Access to site is proposed at an interchange on Interstate 80 at Truxel Road, at the existing Northgate/I-80 interchange via Northgate Boulevard and Elkhorn Road, at the Del Paso Boulevard/I-5 interchange, and via Elkhorn Boulevard and Del Paso Boulevard.

Trip Generation, Distribution Assignment

The assumptions made in estimating trip generation resulting from this project are summarized in Exhibit E-113A. For this analysis, both facilities have been assumed to be operating concurrently with coinciding inbound and outbound peak hours. Representative activities which could result in concurrent usage include athletic events in the stadium (i.e. football, baseball, soccer) and family/variety entertainment in the arena (i.e. circus, ice show, auto show), which attract different types of patrons. Sources report that concurrent usage can occur about 30% to 40% of the time at similar stadium/arena facilities. While this analysis assumes a worst case condition of exact coincidence, activities at the site are expected to be scheduled so as to minimize this occurance.

For this analysis the stadium is assumed to be at 92% of capacity for a Sunday afternoon baseball game and the arena is assumed to be at 65% of capacity for a circus performance. Utilizing the factors presented earlier, 15,251 inbound automobile trips are expected to be generated in the peak arrival hour (12 Noon to 1 PM) and 19,835 outbound trips are expected in the peak departure hour (4 PM to 5 PM). As shown, the stadium accounts for 78% of peak hour inbound traffic and 83% of peak hour outbound traffic.

The trip distribution assignments presented previously were used and result in the directional distribution shown in Exhibit E-113B. Project trips were assigned to the proposed street system, and under the resulting trip assignment, 62% of project trips utilize the Truxel Road/I-80 interchange, 6% utilize Northgate Boulevard, 6% are assigned to Del Paso Boulevard and 25% utilize the Del Paso Boulevard/I-5 interchange.

EXHIBIT E-113A
Stadium/Arena
Traffic Impact Analysis Assumptions

EVENT Time/Day	BASEBALL 1PM/Sunday	CIRCUS 1PM/Sunday	TOTAL
ATTENDANCE (% of Capacity)	55,000 (92%)	11,700 (65%)	66,700
TRANSIT - % of Attendance	10%	5%	
AUTO OCCUPANCY - per./vehicle	2.7	3.0	
TOTAL VEHICLE TRIPS	18,333	3,705	22,038
PEAK INBOUND HOUR	12 - 1 PM	12 - 1 PM	
PEAK OUTBOUND HOUR	4 - 5 PM	4 - 5 PM	
INBOUND PEAK HOUR TRIPS (% of Total)	11,916 (65%)	3,335 (90%)	15,251 (69%)
OUTBOUND PEAK HOUR (% of Total)	16,500 (90%)	3,335 (90%)	19,835 (90%)

EXHIBIT E-113B
Stadium/Arena Trip Distribution

TRIPS	BASEBALL	CIRCUS	TOTAL
INBOUND PEAK DIRECTIONAL DISTRIBUTION			
N (6%)	715	200	915
E (42%)	5,005	1,400	6,405
S (45%)	5,481	1,534	7,015
W (6%)	715	200	915
	11,916	3,335	15,251
OUTBOUND DIRECTIONAL DISTRIBUTION			
N (6%)	990	200	1,190
E (42%)	6,930	1,400	8,330
S (46%)	7,590	1,534	9,124
W (6%)	990	200	1,190
	16,500	3,335	19,835

FUTURE BASE TRAFFIC

The impacts of the proposed stadium/arena are measured against future background conditions occuring on Sunday at 12 Noon to 1 PM (inbound peak hour) and at 4 PM to 5 PM (outbound peak hour). To create the hourly background traffic volumes associated with these two periods, future daily background traffic was adjusted using factors derived by OMNI-MEANS, Ltd. from recent CALTRANS and City of Sacramento traffic counts.

ExhibitE-115 compares average and Sunday directional traffic counts on Interstate 80 and on Interstate 5 reported last year by CalTrans. As shown, Sunday daily traffic volumes on area freeways near the project site range from 73% to 96% of average daily traffic. Traffic volumes during the Sunday study hours ranged from 6% to 9% of the reported Sunday daily traffic. Directionally, Sunday freeway traffic was divided evenly, with the exception of Interstate 80 traffic which experiences a predominate westbound flow on Sunday.

City staff also provided information from week long traffic counts in an area near the project site. As shown in ExhibitE-116A, Sunday daily traffic represented 75% to 90% of the average daily traffic at the Northgate/El Camino intersection. Six to eight percent of the Sunday traffic occurred in each of the study hours.

Based on this information the factors listed in ExhibitE-116B were calculated to convert daily future background traffic to hourly traffic volumes. As shown, study hour background traffic on area streets was assumed to range from 6% to 9% of daily traffic, with the exception of North Market Boulevard where Sunday trips generated by industrial development in this area are expected to equal about 1.5% of average daily traffic.

Utilizing these factors Exhibits E-117 and E-118 were created. Project trips were in turn superimposed on 12-1 PM and 4-5 background traffic conditions, and the resulting traffic volumes are shown in Exhibits E-119 and E-120.

EXHIBIT E-115

Comparison of Average Daily and Sunday
Freeway Traffic Counts

LOCATION	AVERAGE ANNUAL DAILY TRAFFIC	SUNDAY DAILY TRAFFIC	SUNDAY/ AVERAGE	12 - 1 TOTAL	12 - 1 % DAILY
INTERSTATE 80 2.5 Miles east of I-5	53,800	52,152	.96	3,250	6%
INTERSTATE 5 South of Richards Boulevard	69,091	50,430	.73	3,570	7%
INTERSTATE 5 West of S.R. 99	31,720	28,630	.90	2,100	7%

(cont.)

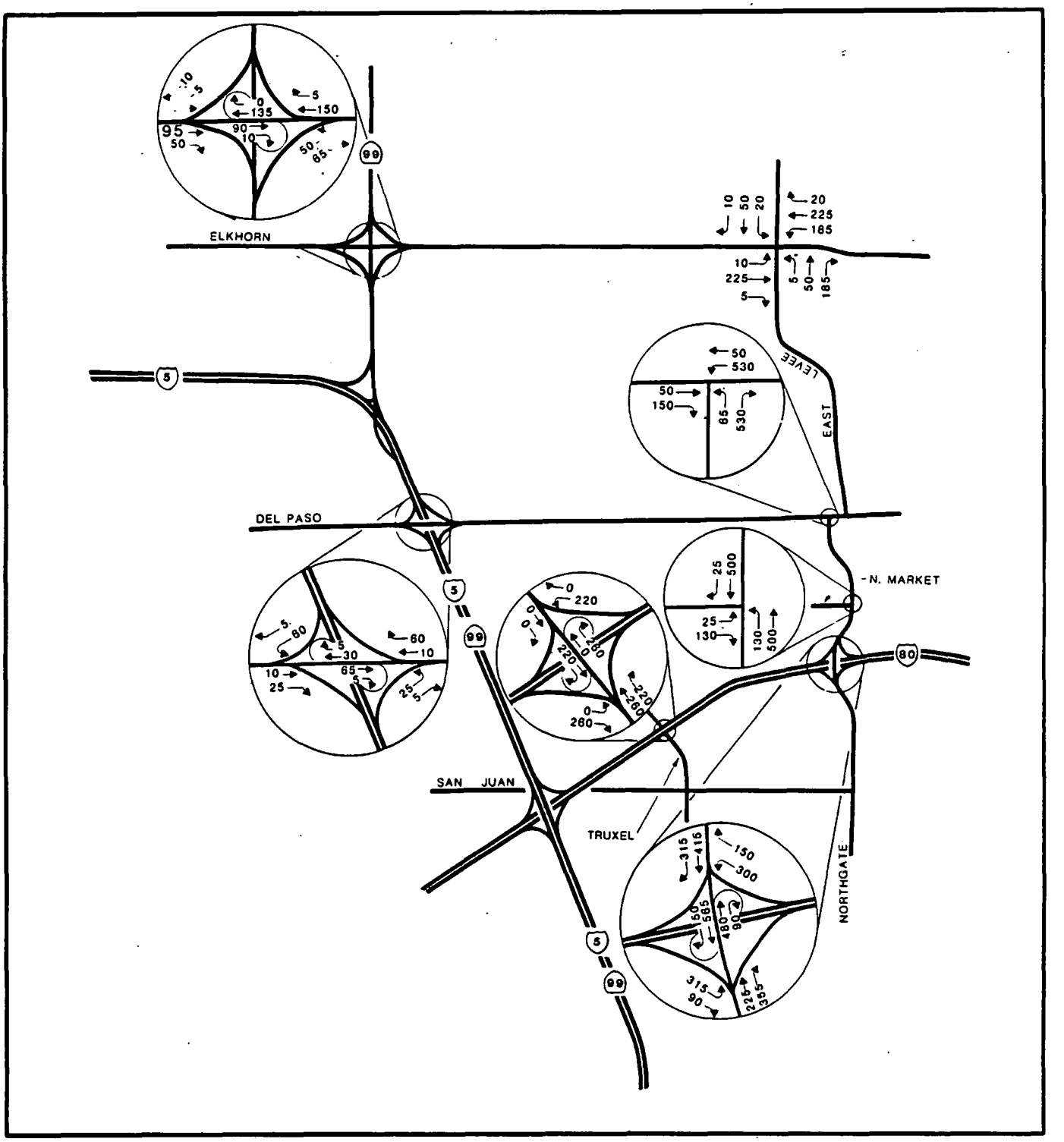
LOCATION	12 - 1 DIRECTIONAL SPLIT	4 - 5 TOTAL	4 - 5 % DAILY	4 - 5 DIRECTIONAL SPLIT
I-80	40% EB/60% WB	4,450	9%	30% EB/70% WB
I-5	47% NB/53% SB	3,990	8%	50% NB/50% SB
I-5	45% NB/55% SB	2,270	8%	50% NB/50% SB

EXHIBIT E-116A
Comparison of Daily/Sunday
Traffic Volumes at El Camino/Northgate

LOCATION	SUNDAY DAILY TRAFFIC / AVERAGE DAILY TRAFFIC	PERCENTAGE OF SUNDAY 12 - 1 PM	PERCENTAGE OF SUNDAY 4 - 5 PM
NORTHGATE NORTH OF EL CAMINO	.80	8%	8%
NORTHGATE SOUTH OF EL CAMINO	.75	8%	6%
EL CAMINO EAST OF NORTHGATE	.86	8%	8%
EL CAMINO WEST OF NORTHGATE	.90	8%	8%

EXHIBIT E-116B
Assumed ADT-Sunday Conversion Factors

LOCATION	12 - 1 PM % ADT	12 - 1 PM DIRECTIONAL SPLIT	4 - 5 PM % ADT	4 - 5 PM DIRECTIONAL SPLIT
INTERSTATE 80	6%	50%/50%	8% - 9%	70% WB/30% EB
OTHER FREEWAYS	6%	50%/50%	7%	50%/50%
LOCAL STREETS	6.4%	50%/50%	6.4%	50%/50%
NORTH MARKET	1.5%	50%/50%	1.5%	50%/50%



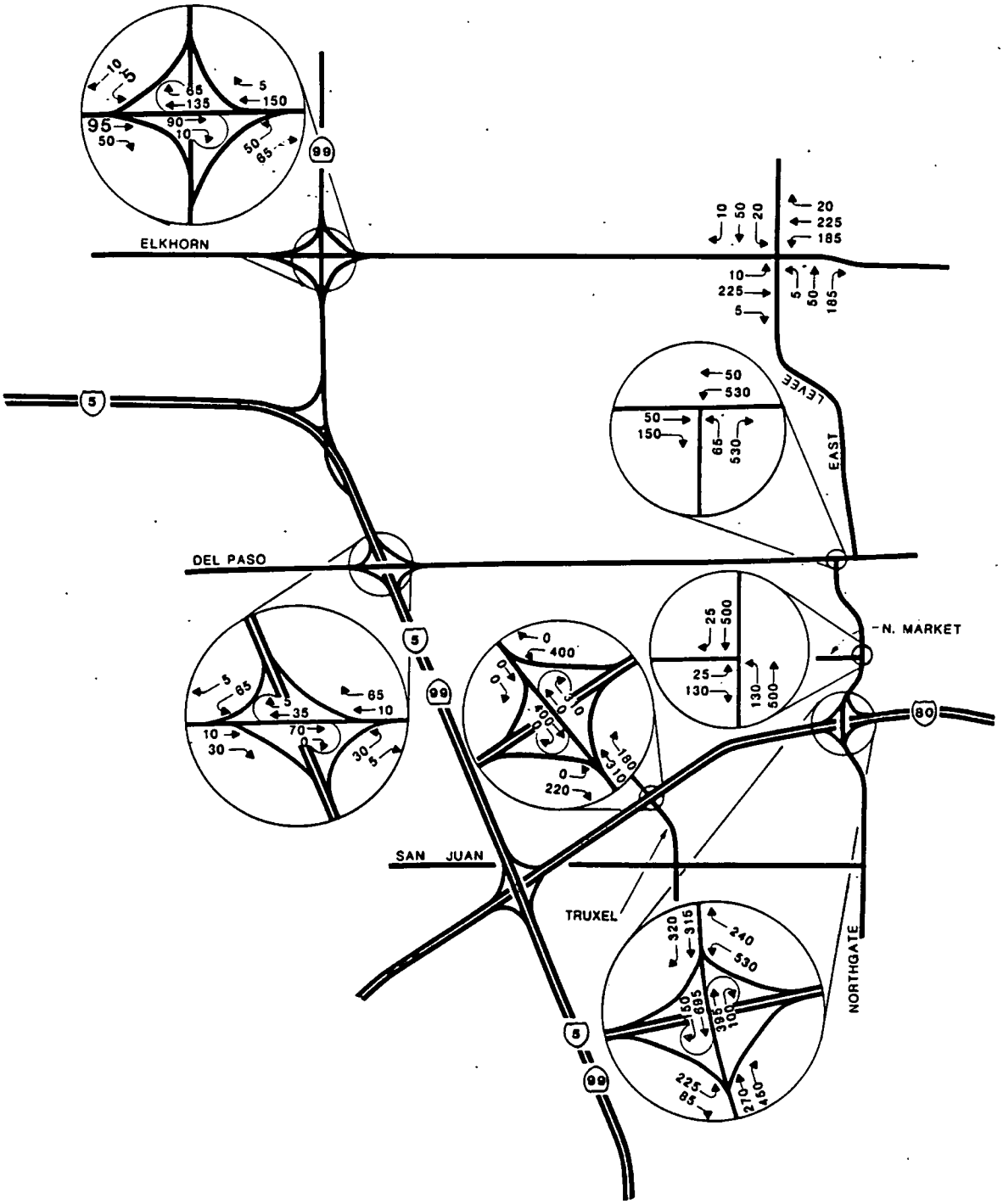
NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE

SUNDAY 12 - 1 PM TRAFFIC

EXHIBIT E-117



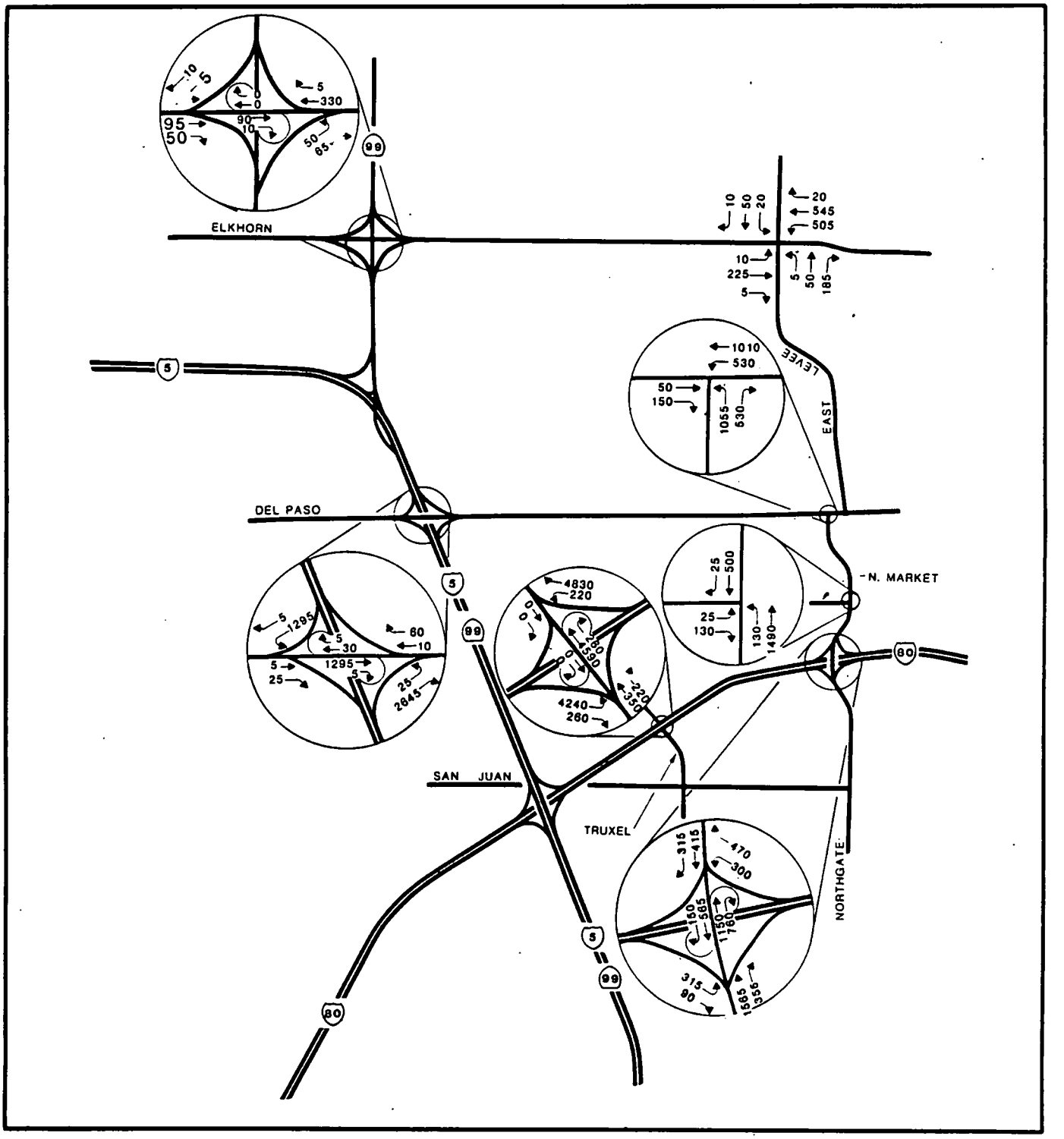
NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE

SUNDAY 4 - 5 PM TRAFFIC

EXHIBIT E-118



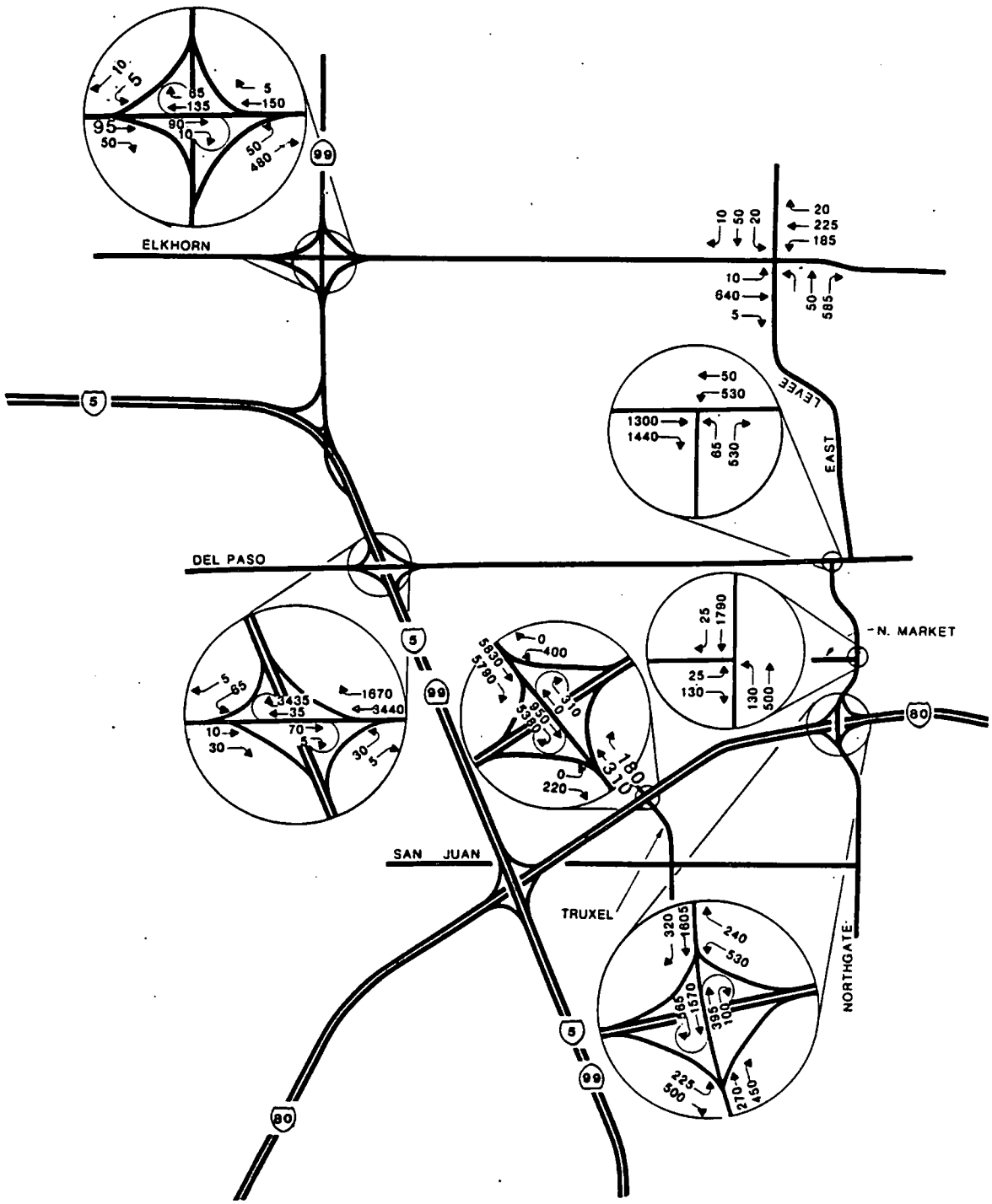
NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS STADIUM / ARENA PROJECT

SUNDAY 12 - 1 PM TRAFFIC (UNMITIGATED)

EXHIBIT E-119



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS STADIUM / ARENA PROJECT

SUNDAY 4 - 5 PM TRAFFIC (UNMITIGATED)

EXHIBIT E-120

Impacts

The proposed street and highway system in the North Natomas area will not adequately support the Stadium/Arena proposal under the conditions assumed. As Exhibit E-123 indicates, six intersections will experience unacceptable operating conditions associated with Levels of Service "E" and "F", for at least one and a half to two hours before and after events, even with signalization. These intersections are: Northgate/North Market, Northgate/Del Paso, Truxel/I-80 eastbound ramps, Truxel/I-80 westbound ramps, Del Paso/I-5 northbound ramps and Elkhorn/East Levee. In addition the Del Paso/I-5 southbound ramps will operate at LOS "D" even with signalization, during the inbound peak hour. The remaining intersections will operate at LOS "C" or better. Although signalization was assumed at all intersections, the Elkhorn intersections with Highway 99 northbound and southbound ramps will not likely require signalization.

The impacts of the proposed project on freeway ramps is summarized in Exhibit E-124. Assumed ramp capacity (1,500 vehicles per lane) will be exceeded on seven ramps. These ramps are:

Truxel Road/I-80 Interchange

- Westbound Off Ramp
- Southbound to Westbound On Ramp
- Eastbound Off Ramp
- Southbound to Eastbound On Ramp

Del Paso/I-5 Interchange

- Westbound to Southbound On Ramp
- Northbound Off Ramp
- Westbound to Northbound On Ramp

The impacts of the proposed project on adjacent freeways are summarized in Exhibit E-126. As shown, the capacity of the basic freeway segment will be exceeded on Interstate 80 at the following locations:

East of Interstate 5	-	Eastbound (12 - 1 PM)
		Westbound (4 - 5 PM)
East of Truxel	-	Eastbound (4 - 5 PM)
		Westbound (12 - 1 PM)
East of Northgate	-	Eastbound (4 - 5 PM)
		Westbound (12 - 1 PM)

Basic freeway capacity is not exceeded on Interstate 5 in the unmitigated condition. As developed later in this text, the addition of the Stadium Boulevard interchange on Interstate 5, a required mitigation, will produce traffic volume in excess of capacity on I-5. This evaluation is based on the maximum service volumes presented in Exhibit E-16 contained in the Existing Conditions section.

EXHIBIT E-123
Future Base Plus Stadium/Arena Project
Intersection Levels of Service

INTERSECTION	SUNDAY AM (12 - 1 PM) FUTURE BASE V/C	FUTURE BASE LOS	SUNDAY AM (12 - 1 PM) FUTURE+PROJECT V/C	FUTURE+PROJECT LOS	SUNDAY PM (4 - 5 PM) FUTURE BASE V/C	FUTURE BASE LOS	SUNDAY PM (4 - 5 PM) FUTURE+PROJECT V/C	FUTURE+PROJECT LOS
NORTHGATE/I-80 RAMPS (EB)	.29	"A"	.64	"B"	.31	"A"	.61	"B"
NORTHGATE/I-80 RAMPS (WB)	.26	"A"	.70	"B"-"C"	.31	"A"	.71	"C"
NORTHGATE/N.MARKET	.46	"A"	1.06	"F"	.46	"A"	1.37	"F"
NORTHGATE/DEL PASO	.46	"A"	1.73	"F"	.46	"A"	1.26	"F"
TRUXEL/I-80 RAMPS (EB)	.09	"A"	1.49	"F"	.13	"A"	.43	"A"
TRUXEL/8-80 RAMPS (WB)	.07	"A"	1.60	"F"	.13	"A"	2.08	"F"
DEL PASO/I-5 RAMPS (SB)	.05	"A"	.87	"D"	.06	"A"	.06	"A"
DEL PASO/8-5 RAMPS (NB)	.04	"A"	.45	"A"	.04	"A"	1.17	"F"
ELKHORN/S.R. 99 RAMPS (SB)	.05	"A"	.16	"A"	.05	"A"	.05	"A"
ELKHORN/S.R. 99 RAMPS (NB)	.08	"A"	.19	"A"	.08	"A"	.37	"A"
ELKHORN/EAST LEVEE	.47	"A"	.89	"D"-"E"	.47	"A"	1.01	"F"

EXHIBIT E-124

Future Base Plus Stadium/Arena Project

Ramp Levels of Service

	SUNDAY AM (12 - 1 PM)				SUNDAY PM (4 - 5 PM)			
	FUTURE BASE		FUTURE+PROJECT		FUTURE BASE		FUTURE+PROJECT	
INTERCHANGE	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
I-80 @ NORTHGATE								
WB OFF RAMP	.30	"A"	.51	"B"	.51	"B"	.51	"B"
NB NORTHGATE TO WB ON RAMP	.06	"A"	.51	"B"	.07	"A"	.07	"A"
SB NORTHGATE TO WB ON RAMP	.21	"A"	.21	"A"	.21	"A"	.21	"A"
EB OFF RAMP	.27	"A"	.27	"A"	.21	"A"	.48	"B"
SB NORTHGATE TO EB ON RAMP	.10	"A"	.10	"A"	.10	"A"	.38	"A"
NB NORTHGATE TO EB ON RAMP	.24	"A"	.24	"A"	.30	"A"	.30	"A"
I-80 @ TRUXEL								
WB OFF RAMP	.15	"A"	3.37	"F"	.27	"A"	.27	"A"
NB TRUXEL TO WB ON RAMP	.17	"A"	.17	"A"	.21	"A"	.21	"A"
SB TRUXEL TO WB ON RAMP	.00	N/A	.00	"A"	.00	N/A	3.90	"F"
EB OFF RAMP	.17	"A"	3.00	"F"	.15	"A"	.15	"A"
SB TRUXEL TO EB ON RAMP	.00	N/A	.00	"A"	.00	N/A	3.60	"F"
NB TRUXEL TO EB ON RAMP	.15	"A"	.15	"A"	.12	"A"	.12	"A"
I-5 @ DEL PASO								
SB OFF RAMP	.04	"A"	.87	"D"	.05	"A"	.05	"A"
WB DEL PASO TO SB ON RAMP	.01	"A"	.01	"A"	.00	"A"	2.30	"F"
EB DEL PASO TO SB ON RAMP	.02	"A"	.02	"A"	.02	"A"	.02	"A"
NB OFF RAMP	.02	"A"	1.78	"F"	.02	"A"	.02	"A"
EB DEL PASO TO NB ON RAMP	.01	"A"	.01	"A"	.00	"A"	.00	"A"
WB DEL PASO TO NB ON RAMP	.04	"A"	.04	"A"	.04	"A"	1.10	"F"

(continued)

EXHIBIT E-124 (continued)
Future Base Plus Stadium/Arena Project
Ramp Levels of Service

INTERCHANGE	SUNDAY AM (12 - 1 PM) FUTURE BASE V/C	FUTURE BASE LOS	FUTURE+PROJECT V/C	FUTURE+PROJECT LOS	SUNDAY PM (4 - 5 PM) FUTURE BASE V/C	FUTURE BASE LOS	FUTURE+PROJECT V/C	FUTURE+PROJECT LOS
SR 99 @ ELKHORN								
SB OFF RAMP	.01	"A"	.01	"A"	.01	"A"	.01	"A"
WB ELKHORN TO SB ON RAMP	.04	"A"	.26	"A"	.03	"A"	.03	"A"
EB ELKHORN TO SB ON RAMP	.03	"A"	.03	"A"	.04	"A"	.04	"A"
NB OFF RAMP	.08	"A"	.08	"A"	.08	"A"	.36	"A"
EB ELKHORN TO NB ON RAMP	.01	"A"	.01	"A"	.01	"A"	.01	"A"
WB ELKHORN TO NB ON RAMP	.01	"A"	.01	"A"	.01	"A"	.01	"A"

EXHIBIT E-126

Future Base Plus Stadium/Arena Project

Freeway Levels of Service

LOCATION/# LANES	SUNDAY 12 - 1 PM				SUNDAY 4 - 5 PM			
	FUTURE BASE		FUTURE+PROJECT		FUTURE BASE		FUTURE+PROJECT	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
INTERSTATE 80								
EAST OF I-5								
WESTBOUND/3	.36	"A"	.36	"A"	.66	"B"-"C"	1.63	"F"
EASTBOUND/3	.35	"A"	1.07	"F"	.32	"A"	.32	"A"
EAST OF TRUXEL								
WESTBOUND/3	.35	"A"	1.16	"F"	.65	"B"-"C"	.65	"B"-"C"
EASTBOUND/3	.35	"A"	.35	"A"	.29	"A"	1.19	"F"
EAST OF NORTHGATE								
WESTBOUND/3	.36	"A"	1.11	"F"	.68	"B"-"C"	.68	"B"-"C"
EASTBOUND/3	.37	"A"	.37	"A"	.34	"A"	1.24	"F"
INTERSTATE 5								
NORTH OF I-80								
NORTHBOUND/3	.31	"A"	.75	"C"	.37	"A"	.37	"A"
SOUTHBOUND/3	.31	"A"	.31	"A"	.37	"A"	.94	"D"
N. OF STADIUM BLVD.								
NORTHBOUND/3	.31	"A"	.75	"C"	.37	"A"	.37	"A"
SOUTHBOUND/3	.31	"A"	.31	"A"	.37	"A"	.94	"D"
NORTH OF DEL PASO								
NORTHBOUND/3	.32	"A"	.32	"A"	.37	"A"	.64	"B"-"C"
SOUTHBOUND/3	.32	"A"	.53	"B"	.37	"A"	.37	"A"

Mitigations

Mitigation measures will be required to reduce the impacts of the project on area intersections and freeway ramps. The mitigation measures discussed below result in the peak hour Levels of Service at the intersections and ramps listed in Exhibit E-128. Exhibit E-129 presents mitigated Levels of Service on freeway segments. Mitigated traffic volumes are shown in Exhibits E-131 and E-132.

1. Stadium Boulevard/I-5 Interchange. Construction of an interchange at Stadium Boulevard/I-5 is required under the peak conditions assumed for this analysis. The interchange should include a two lane directional on ramp (westbound to southbound) and a two lane off-ramp (northbound to eastbound).

2. North Market Extension to Northgate. North Market Boulevard should be extended from the project site to Northgate to increase utilization of the Northgate/I-80 interchange. A four lane roadway section is required.

3. Northgate/I-80 Interchange. An additional lane should be installed on the westbound off-ramp. In addition, an additional northbound lane should be constructed on Northgate for northbound traffic entering Northgate Boulevard from the westbound ramp.

4. North Market/Northgate. At this intersection, a total of two through lanes and two left turn lanes are required. Two through lanes are also required on the southbound intersection approach. Separate left and right turn lanes are required on the eastbound North Market Boulevard approach, and the right turn lane must extend into a third southbound lane on southbound Northgate Boulevard. Mitigated Levels of Service are "C" inbound and "D" outbound.

5. Northgate/Del Paso. At this intersection a total of one through lane and two left turn lanes are required on the westbound Del Paso approach. A total of two left turn lanes and a right turn lane are necessary on the northbound Northgate approach. A total of two through lanes and a right turn lane are required on the eastbound Del Paso approach. The resulting mitigated Levels of Service are "D" and "B" during the inbound and outbound peak hours respectively.

EXHIBIT E-128

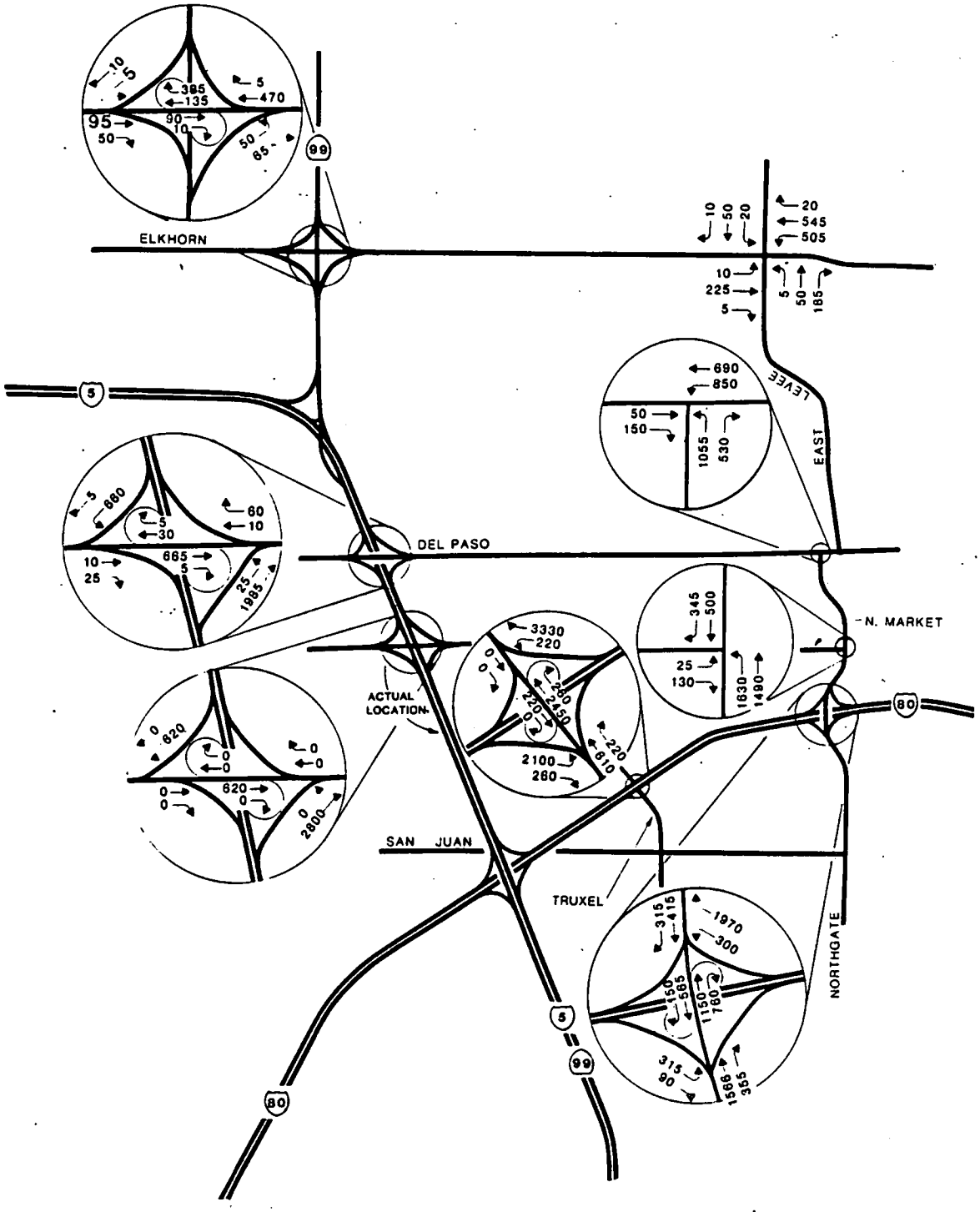
Future Base Plus Stadium/Arena Project

Mitigated Intersection/Ramp Levels of Service

MITIGATION LOCATION	SUNDAY 12 - 1 PM INBOUND PEAK HOUR WITHOUT MITIGATION V/C	LOS	WITH MITIGATION V/C	LOS	SUNDAY 4 - 5 PM OUTBOUND PEAK HOUR WITHOUT V/C	LOS	WITH V/C	LOS
NORTHGATE/NORTH MARKET	1.06	"F"	.76	"C"	1.37	"F"	.87	"D"
NORTHGATE/DEL PASO	1.73	"F"	.85	"D"	1.26	"F"	.66	"B"
TRUXEL/I-80 RAMPS (EB)	1.49	"F"	.90	"D"-"E"	1.43	"F"	.32	"A"
TRUXEL/I-80 RAMPS (WB)	1.60	"F"	.82	"D"	2.08	"F"	.84	"D"
ELKHORN/EAST LEVEE	.89	"D"-"E"	.49	"A"	1.01	"F"	.76	"C"
I-80 @ TRUXEL WB OFF RAMP	3.37	"F"	1.19	"F"	N/A		N/A	
I-80 @ TRUXEL SB TO WB ON RAMP	N/A		N/A		3.90	"F"	1.07	"F"
I-80 @ TRUXEL EB OFF RAMP	3.00	"F"	.79	"C"	N/A		N/A	
I-80 @ TRUXEL SB TO EB ON RAMP	N/A		N/A	"C"	3.60	"F"	1.27	"F"
I-5 @ DEL PASO NB OFF RAMP	1.78	"F"	.67	"C"	N/A		N/A	
I-5 @ DEL PASO WB TO NB ON RAMP	N/A		N/A		1.10	"F"	1.00	"E/F"
I-80 @ NORTHGATE WB OFF RAMP	.51	"B"	.75	"C"	N/A		N/A	

EXHIBIT E-129
Future Base Plus Stadium/Arena Project
Mitigated Freeway Levels of Service

LOCATION	# OF LANES W/OUT MIT.	# OF LANES WITH MIT.	SUNDAY 12 - 1 PM INBOUND PEAK HOUR WITHOUT MITIGATION V/C	WITHOUT MITIGATION LOS	WITH MITIGATION V/C	WITH MITIGATION LOS	SUNDAY 4 - 5 PM OUTBOUND PEAK HOUR WITHOUT MITIGATION V/C	WITHOUT MITIGATION LOS	WITH MITIGATION V/C	WITH MITIGATION LOS
INTERSTATE 80										
EAST OF I-5										
WESTBOUND	3	4	.36	"A"	.27	"A"	1.62	"F"	.96	"D/E"
EASTBOUND	3	4	1.07	"F"	.71	"C"	.32	"A"	.32	"A"
EAST OF TRUXEL										
WESTBOUND	3	4	1.16	"F"	.91	"D"	.65	"B/C"	.73	"C"
EASTBOUND	3	3	.35	"A"	.35	"A"	1.19	"F"	.93	"D"
E. OF NORTHGATE										
WESTBOUND	3	4	1.11	"F"	.83	"C/D"	.67	"B/C"	.51	"B"
EASTBOUND	3	4	.37	"A"	.27	"A"	1.24	"F"	.79	"C"
INTERSTATE 5										
NORTH OF I-80										
NORTHBOUND	3	4	.75	"C"	.83	"C"	.37	"A"	.27	"A"
SOUTHBOUND	3	5	.31	"A"	.19	"A"	.94	"D"	.82	"C"



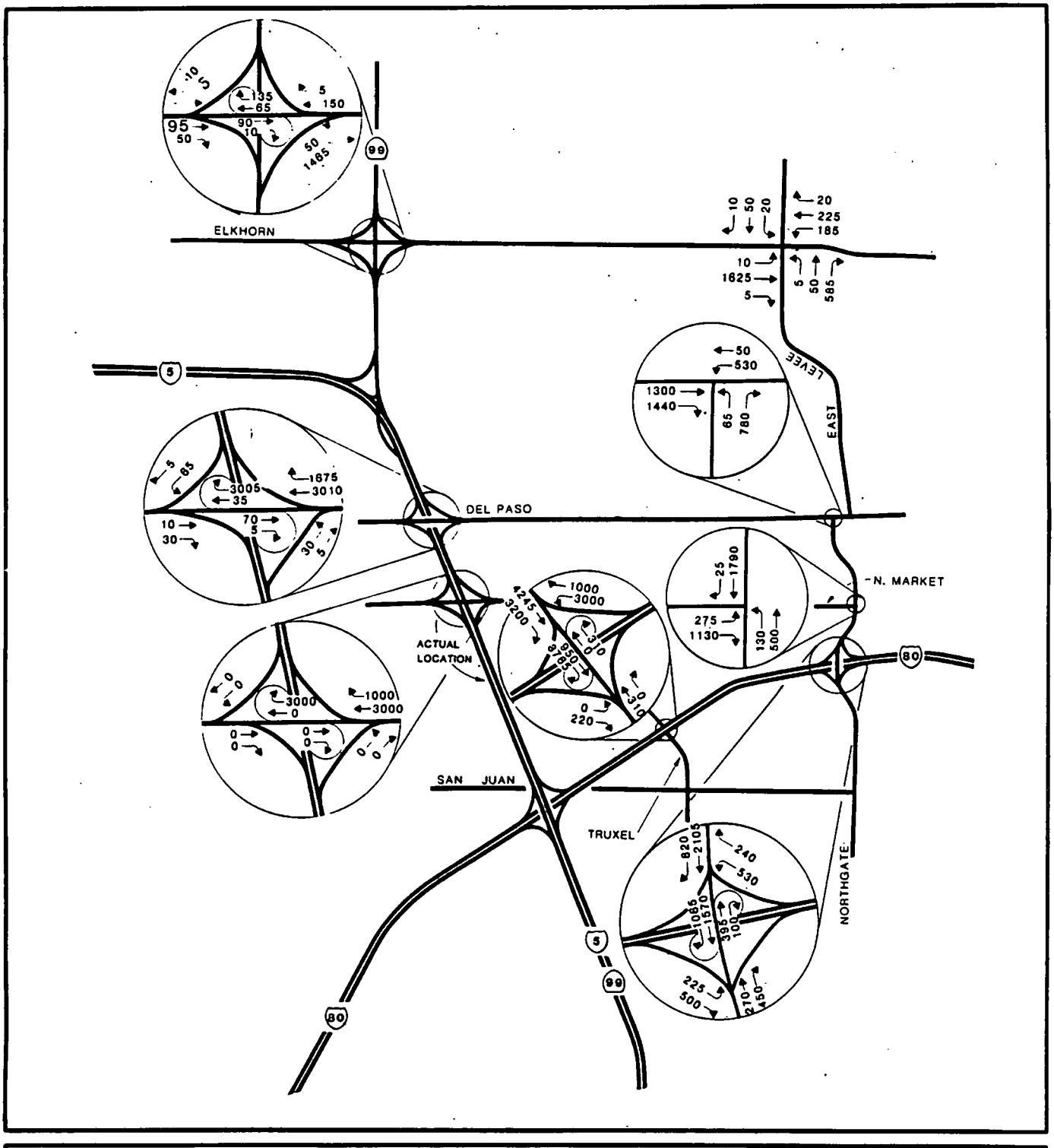
NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS STADIUM / ARENA PROJECT

SUNDAY 12 - 1 PM TRAFFIC (WITH MITIGATIONS)

EXHIBIT E-130



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS STADIUM / ARENA PROJECT

SUNDAY 4 - 5 PM TRAFFIC (WITH MITIGATIONS)

EXHIBIT E-131

6. Elkhorn/East Levee. An exclusive left turn lane and one through lane are required on the westbound approach. A free right turn lane is required on the northbound approach and this lane must extend into an eastbound auxilary lane. Two through lanes and an exclusive left turn lane are necessary on the eastbound approach. The resulting Levels of Service are "A" and "C" during the inbound and outbound peak hours, respectively.

7. Truxel/I-80 Interchange. Major improvements will be required at this location even if the North Market/I-5 interchange is constructed. Under the assumed peak conditions, a total of seven (7) travel lanes will be required over Interstate 80 (four southbound and three northbound). At the eastbound ramp intersection a two lane on ramp from southbound Truxel to eastbound I-80 is required. The eastbound off ramp must be widened to two lanes at the freeway junction, and to a three lane approach (two left turns and one right turn) at the intersection. Two through lanes northbound and two through lanes plus two lanes leading to the on ramps southbound are required. Under these conditions, LOS "D"-"E" and "A" result during inbound and outbound peak hours, respectively.

   At the westbound ramps intersection, a total of two left turn lanes and two right turn lanes are required on the westbound off ramp approach. In addition, each right turn lane must continue into a separate auxilary lane northbound into the site. On the southbound approach, a total of two exclusive right turn lanes and four through lanes are required, resulting in a ten (10) lane street section north of the intersection. Two through lanes and a right turn lane are required on the northbound approach. In addition, the southbound to westbound on ramp must be widened to a two lane ramp.

   Levels of Service "D" results in both peak hours under these conditions.

8. Del Paso/I-5 Interchange. The northbound off ramp and westbound to southbound on ramp must each be widened to accommodate an additional ramp lane.

9. Interstate 80. Under mitigated conditions an additional travel lane will be necessary on westbound I-80 in the study area. An additional eastbound travel lane is necessary west of the Truxel interchange and east of the Northgate interchange.

10. Interstate 5. The construction of the Stadium Way interchange will increase the volume of project traffic using Interstate 5. An additional northbound lane and two additional southbound lanes are required on I-5 south of the Truxel interchange under the assumed operating conditions. CalTrans has indicated in the past; however, that only one additional lane in each direction can be accommodated. Assuming four (4) southbound lanes, the Level of Service during the outbound peak hour (4 - 5 PM) is "F" (V/C = 1.02).

11. Northgate Boulevard. A six lane street section would be necessary north of Interstate 80.

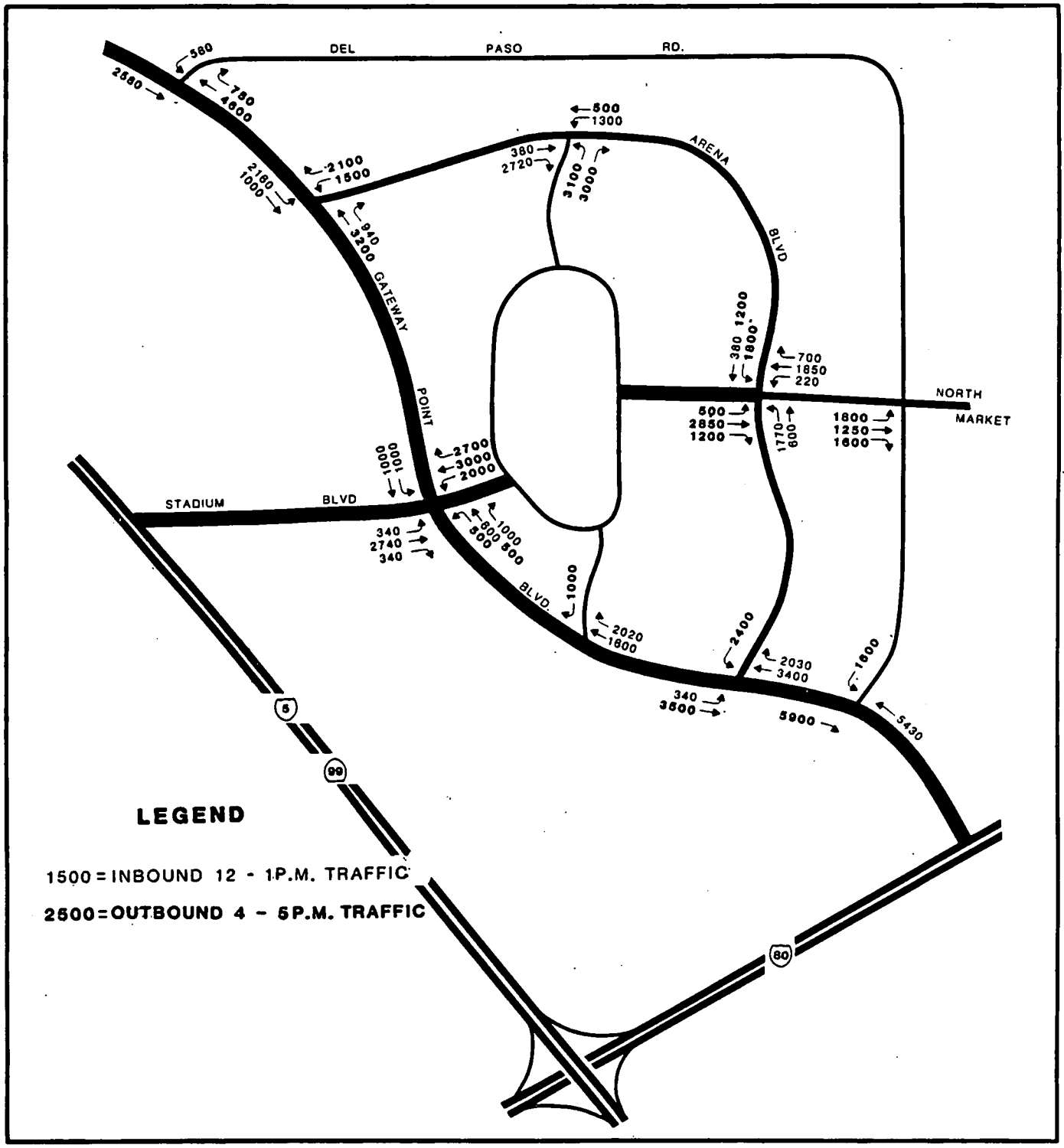
12. Del Paso Road. East of the project a four lane section would be necessary.

13. Elkhorn Boulevard. A four lane street section would be required east of S.R. 49.

Internal Circulation

Exhibit E-134 indicates projected inbound and outbound traffic volumes on the project's internal street system under the assumed mitigated conditions. Utilizing the street sections presented by the project proponents, the resulting Levels of Service indicated in Exhibit E-135 range from "A" to "F".

Under the assumed conditions further improvements to traffic operations during the outbound peak hour, will require temporary manual lane controls to increase capability.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

STADIUM / ARENA

PEAK HOUR TRAFFIC VOLUMES

EXHIBIT E-134

EXHIBIT E-135

Internal Street System Levels of Service

LOCATION	ASSUMED GEOMETRICS NB	SB	EB	WB	INBOUND V/C	INBOUND LOS	OUTBOUND V/C	OUTBOUND LOS
GATEWAY POINT/ DEL PASO ROAD	4 THRU 1 RGHT	4 THRU 1 LEFT		1 RGHT 2 LEFT	.66	"B"	.81	"C/D"
GATEWAY POINT/ LOOP ROAD (NO.)	5 THRU 1 RGHT	4 THRU 2 LEFT		2 RGHT 2 LEFT	.76	"C"	.98	"E"
GATEWAY POINT/ STADIUM BLVD.	4 THRU 2 LEFT 1 RGHT	2 THRU 2 LEFT 1 RGHT	4 THRU 1 LEFT 1 RGHT	4 THRU 2 LEFT 1 RGHT	.94	"E"	1.27	"F"
GATEWAY POINT/ LOOP ROAD (SO.)	4 THRU 0 LEFT 2 RGHT	5 THRU 2 LEFT 0 RGHT		2 LEFT 2 THRU 1 RGHT	.72	"C"	1.33	"F"
GATEWAY POINT/ DEL PASO ROAD	4 THRU 1 RGHT	5 THRU 2 LEFT		2 LEFT 1 RGHT	.76	"C"	1.39	"F"
LOOP ROAD/ N. PARKING ACCESS	2 LEFT 2 RGHT		2 THRU 2 RGHT	3 THRU 2 LEFT	.59	"A"	1.20	"F"
LOOP ROAD/ NORTH MARKET	3 THRU 2 LEFT 1 RGHT	3 THRU 2 LEFT 1 RGHT	4 THRU 1 LEFT 1 RGHT	4 THRU 1 LEFT 1 RGHT	.95	"E"	1.13	"F"

B. GATEWAY POINT

Project Description

The proposed Gateway Point project is a multi-use community located east of Interstate 5, north of Interstate 80 (formerly 880), south of Del Paso and west of the Sacramento City limits. The project will contain approximately 1,410 acres of mixed land uses which includes a 170 acre sports complex, 850 acres of M-50 manufacturing, 105 acres of community commercial and 35 acres of highway commercial, 140 acres of high density residential development, and 110 acres of open space.

The sports complex includes a 60,000 seat stadium, 18,000 seat arena, a 5,000 "seat" capacity amphi-plaza and parking facilities for over 20,000 automobiles and buses. Access to the sports complex is provided by four access points; Stadium Boulevard (proposed I-5 interchange), Del Paso Boulevard, North Market Boulevard and Truxel Boulevard (proposed I-80 interchange).

The M-50 manufacturing/industrial development is located throughout the project site. A portion of industrial development encircles the sports complex in order for shared parking.

Both the highway commercial and community-commercial development are located at visible and easily accessible locations such as the Truxel/I-80 interchange and the Stadium Boulevard/I-5 interchange. Four neighborhood commercial areas are proposed which are located at opposite ends of the two residential areas.

The 3,080 dwelling units of residential development is divided into two neighborhoods, approximately 1,320 d.u. (60 acres) to the north and 1,760 d.u. (80 acres) to the south. High density housing such as apartments and time share condominiums is proposed for Gateway Point project. The population of this community is estimated to be 4,743.

The open space area will surround the Natomas East Drainage Canal which is contained in the General Plan as well as provide each residential area with a community park and parkway corridor.

. The project site is estimated to include a total of 43,300 jobs.

The 1,140 acre project is linked to four primary freeway interchanges, two existing and two proposed. The area has access from all compass directions: north, south, east and west. Major access from the northwest corner of the project is provided by the existing I-5/Del Paso interchange. Two proposed interchanges will provide access from the west and south which are the I-5/Stadium Boulevard interchange and I-80/Truxel Boulevard interchange. Additional access will be provided from the east, Del Paso Boulevard and North Market and from the south, San Juan Road.

TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

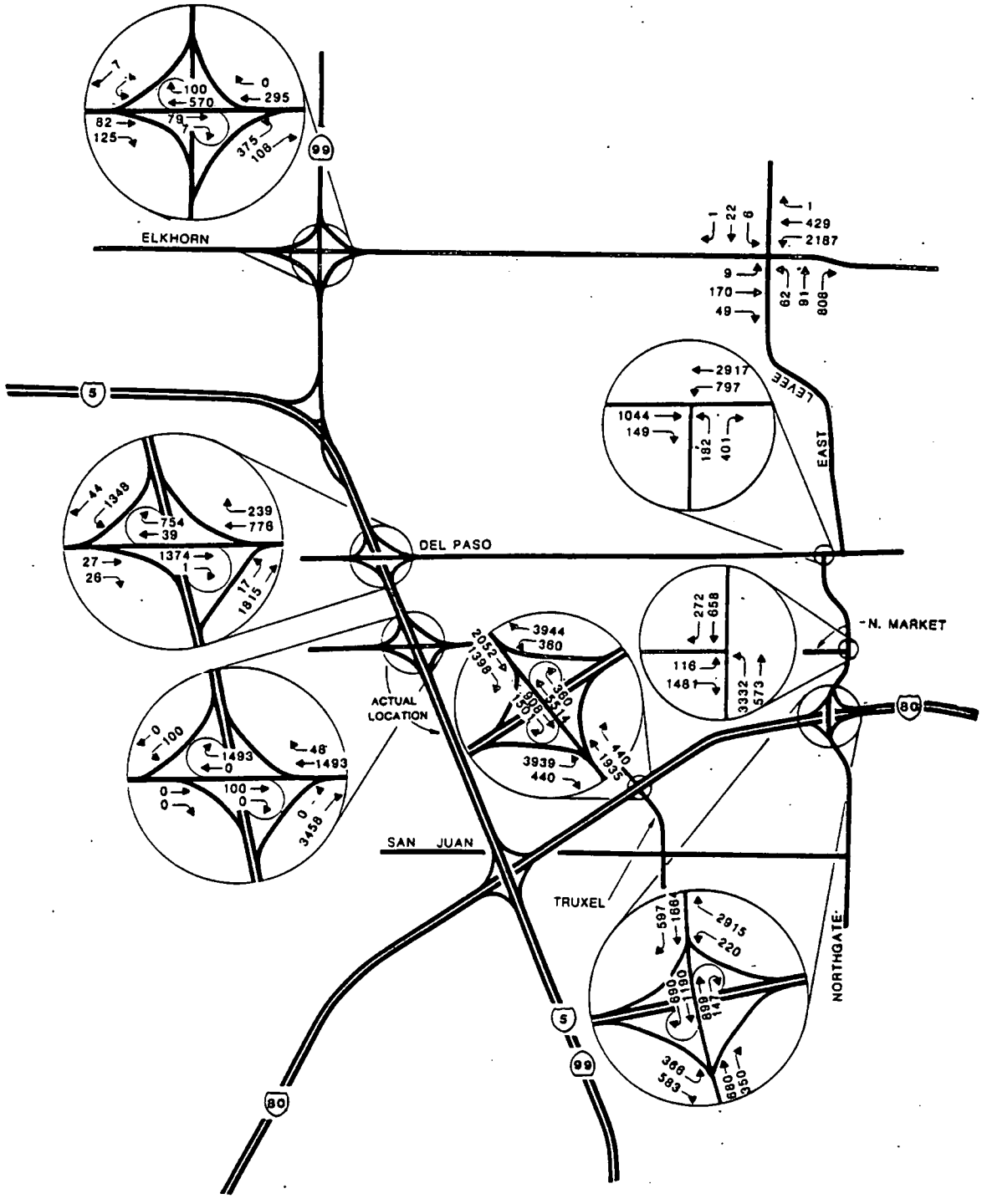
Based upon the trip generation rates presented earlier, the 1,410 acre Gateway Point development proposal will generate 31,260 AM (23,178 inbound and 8,082 outbound) and 29,938 PM (11,128 inbound and 18,810 outbound) peak hour trips. The variety of land uses of the Gateway Point project will have the potential for interaction. Residents can be expected to shop at the neighborhood commercial sites and the industrial development will provide on-site employment opportunities. Because of this "mixed-use", as many as 2,500 AM trips and 2,395 PM peak trips generated by the project will remain internal to the site based on the distribution discussed previously. Exhibits E-138 and E-139 depict the projected peak hour volumes.

Based upon the trip distribution assumptions presented previously, traffic was distributed and assigned to the existing street system. The approximate trip assignment was 14 percent of the trips assigned to use Elkhorn and Del Paso/Main, 10 percent assigned to I-80/Northgate interchange via North Market, 46 percent assigned to the proposed I-80/Truxel interchange, 18 percent assigned to the proposed I-5/Stadium interchange, and 12 percent assigned to I-5/Del Paso interchange.

IMPACTS

Off-Site Intersections

Additional capacity will be required for the Gateway Point project. As presented in Exhibit E-140, eight of the eleven intersections analyzed will experience unacceptable operating conditions in the AM peak hour and



NORTH NATOMAS COMMUNITY PLAN

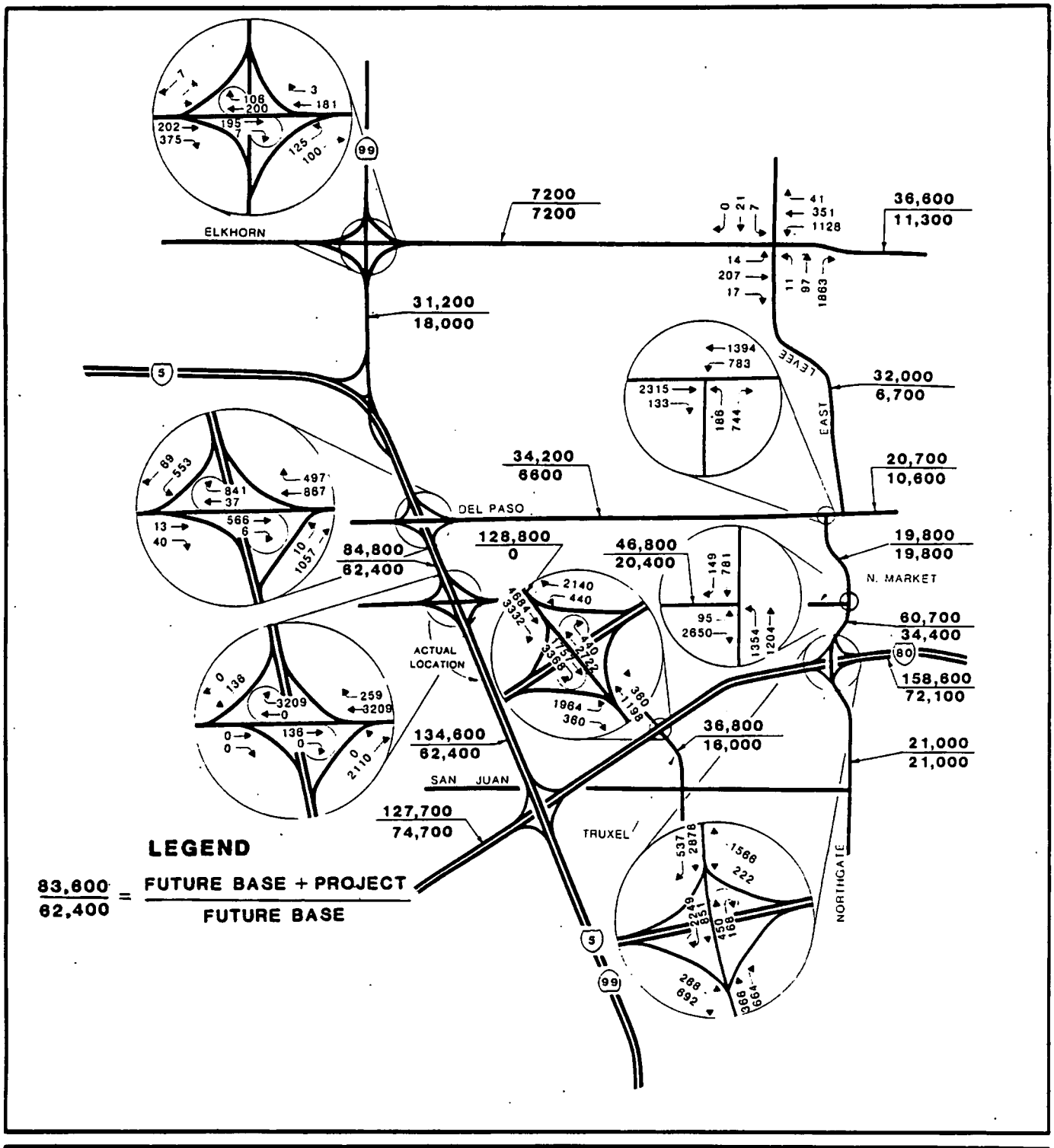
Sacramento, California

FUTURE BASE PLUS GATEWAY PROJECT

AM PEAK HOUR TRAFFIC

(OFF-SITE INTERSECTIONS)

EXHIBIT E-138



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS GATEWAY PROJECT

DAILY AND PM PEAK HOUR TRAFFIC

(OFF-SITE INTERSECTIONS)

EXHIBIT E-139

EXHIBIT E-140
Future Base Plus Gateway Project
Peak Hour Level of Service

INTERSECTION	AM				PM			
	WITHOUT MITIGATION		WITH MITIGATION		WITHOUT MITIGATION		WITH MITIGATION	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
EAST LEVEE/ELKHORN	2.40	"F"	.99	"E"	2.34	"F"	.56	"A"
DEL PASO/NORTHGATE	2.73	"F"	.81	"D"	2.30	"F"	.95	"E"
NORTHGATE/NORTH MARKET	2.88	"F"	1.40	"F"	2.40	"F"	2.40	"F"
NORTHGATE/I-80 WB RAMPS	2.50	"F"	.47	"A"	2.00	"F"	.75	"C"
NORTHGATE/I-80 EB RAMPS	.79	"C"	N/A		.75	"C"	N/A	
TRUXEL/I-80 WB RAMPS	4.47	"F"	.90	"D/E"	2.99	"F"	.98	"E"
TRUXEL/I-80 EB RAMPS	1.96	"F"	1.37	"F"	1.24	"F"	.87	"D"
DEL PASO/I-5 NB RAMPS	1.67	"F"	.32	"A"	.99	"E"	.30	"A"
DEL PASO/I-5 SB RAMPS	.91	"E"	.46	"A"	.38	"A"	.20	"A"
ELKHORN/HWY 99 NB RAMPS	.35	"A"	N/A		.15	"A"	N/A	
ELKHORN/HWY 99 SB RAMPS	.19	"A"	N/A		.07	"A"	N/A	

seven intersections are below the acceptable limits during the PM peak hour. During the AM peak hour, seven of the eight intersections will experience LOS "F", total breakdown, and one intersection, Del Paso/I-5 southbound.

SB ramps will experience LOS "E", severe congestion. The same seven intersections will experience LOS "F" during the PM peak hour and Del Paso/I-5 SB ramp intersection will experience LOS "A".

Signalization was assumed at all intersections; however, Elkhorn/Highway 99 ramp intersections will not likely require signalization.

Freeway Segments

A comparison of peak hour Levels of Service for future base and future base plus Gateway project conditions on six freeway segments is presented in Exhibit E-143. As shown, deterioration from LOS "B" to LOS "F" occurred at three locations:

1. I-80, east of I-5

   PM - WESTBOUND
   AM - EASTBOUND

2. I-80, east of Northgate

   PM - WESTBOUND

3. I-5, north of I-80

   AM, PM - NORTHBOUND
   PM - SOUTHBOUND

At one location, the Level of Service remained "F" on I-80, east of Truxel, westbound during the AM peak hour and eastbound during the PM peak hour.

Freeway Ramps

The Levels of Service were calculated at four interchanges for each on/off ramp. As shown in Exhibit E-144, the resulting Levels of Service are unacceptable at three interchanges at the following individual ramps:

1. I-80 @ Northgate

   AM, PM - OFF-RAMP

2. I-80 @ Truxel

   AM, PM - WB OFF-RAMP
   PM - SB TRUXEL TO WB ON RAMP
   AM, PM - EB OFF-RAMP
   AM, PM - SB TRUXEL TO EB ON RAMP

3. I-5 @ Del Paso

   AM - NB OFF-RAMP

EXHIBIT E-143
Gateway Project
Freeway Levels of Service

LOCATION	AM PEAK HOUR				PM PEAK HOUR			
	FUTURE BASE		FUTURE + PROJECT		FUTURE BASE		FUTURE + PROJECT	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
INTERSTATE 80								
EAST OF I-5								
WESTBOUND	.91	"D"	1.33	"F"	.41	"B"	1.16	"F"
EASTBOUND	.34	"A"	1.22	"F"	.83	"C"	1.38	"F"
EAST OF TRUXEL								
WESTBOUND	.91	"D"	1.75	"F"	.41	"B"	.96	"D"
EASTBOUND	.34	"A"	.82	"C"	.83	"C"	1.61	"F"
EAST OF NORTHGATE								
WESTBOUND	.88	"D"	2.12	"F"	.40	"A"	1.12	"F"
EASTBOUND	.32	"A"	.82	"C"	.81	"C"	1.93	"F"
INTERSTATE 5								
NORTH OF I-80								
NORTHBOUND	.54	"B"	1.44	"F"	.50	"B"	1.16	"F"
SOUTHBOUND	.50	"B"	.88	"D"	.54	"B"	1.22	"F"
NORTH OF STADIUM BLVD.								
NORTHBOUND	.54	"B"	.85	"C/D"	.50	"B"	.72	"C"
SOUTHBOUND	.50	"B"	.65	"B"	.54	"B"	.71	"C"
NORTH OF DEL PASO								
NORTHBOUND	.55	"B"	.60	"B"	.51	"B"	.64	"B"
SOUTHBOUND	.51	"B"	.76	"C"	.55	"B"	.68	"C"

EXHIBIT E-144

Future Base Plus Gateway Project

Ramp Levels of Service

	AM PEAK HOUR				PM PEAK HOUR			
	FUTURE BASE		FUTURE+PROJECT		FUTURE BASE		FUTURE+PROJECT	
INTERCHANGE	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
I-80 @ NORTHGATE								
WB OFF RAMP	.59	"B"	2.10	"F"	.59	"B"	1.19	"F"
NB NORTHGATE TO WB ON RAMP	.10	"A"	.10	"A"	.11	"A"	.11	"A"
SB NORTHGATE TO WB ON RAMP	.40	"A"	.40	"A"	.36	"A"	.36	"A"
EB OFF RAMP	.63	"B"	.63	"B"	.63	"B"	.63	"B"
SB NORTHGATE TO EB ON RAMP	.08	"A"	.46	"B"	.41	"B"	1.57	"B"
NB NORTHGATE TO EB ON RAMP	.23	"A"	.23	"A"	.44	"B"	.44	"B"
I-80 @ TRUXEL								
WB OFF RAMP	.24	"A"	2.87	"F"	.59	"B"	1.72	"F"
NB TRUXEL TO WB ON RAMP	.24	"A"	.24	"A"	.29	"A"	.29	"A"
SB TRUXEL TO WB ON RAMP	.00	N/A	.93	"D"	.00	N/A	2.22	"F"
EB OFF RAMP	.29	"A"	2.91	"F"	.63	"B"	1.55	"F"
SB TRUXEL TO EB ON RAMP	.00	N/A	1.00	"E"	.00	N/A	2.25	"F"
NB TRUXEL TO EB ON RAMP	.29	"A"	.29	"A"	.24	"A"	.24	"A"
I-5 @ DEL PASO								
SB OFF RAMP	.07	"A"	.90	"D"	.06	"A"	.41	"B"
WB DEL PASO TO SB ON RAMP	.04	"A"	.50	"B"	.01	"A"	.56	"B"
EB DEL PASO TO SB ON RAMP	.02	"A"	.02	"A"	.03	"A"	.03	"A"
NB OFF RAMP	.02	"A"	1.22	"F"	.03	"A"	.71	"C"
EB DEL PASO TO NB ON RAMP	.00	"A"	.00	"A"	.00	"A"	.00	"A"
WB DEL PASO TO NB ON RAMP	.03	"A"	.16	"A"	.08	"A"	.33	"A"

(Continued)

EXHIBIT E-144 (continued)
Future Base Plus Gateway Project
Ramp Levels of Service

	AM PEAK HOUR				PM PEAK HOUR			
	FUTURE BASE		FUTURE+PROJECT		FUTURE BASE		FUTURE+PROJECT	
INTERCHANGE	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
SR 99 @ ELKHORN								
SB OFF RAMP	.00	"A"	.00	"A"	.00	"A"	.00	"A"
WB ELKHORN TO SB ON RAMP	.07	"A"	.07	"A"	.07	"A"	.07	"A"
EB ELKHORN TO SB ON RAMP	.08	"A"	.08	"A"	.25	"A"	.25	"A"
NB OFF RAMP	.32	"A"	.32	"A"	.15	"A"	.15	"A"
EB ELKHORN TO NB ON RAMP	.00	"A"	.00	"A"	.00	"A"	.00	"A"
WB ELKHORN TO NB ON RAMP	.00	"A"	.00	"A"	.00	"A"	.00	"A"

MITIGATION MEASURES - OFF SITE INTERSECTIONS

Where necessary, feasible mitigation measures have been identified to relieve potentially significant traffic impacts. The improvement in Volume to Capacity ratios and Levels of Service are summarized in Exhibit E-140. As will be evident in the review of the exhibit, not all intersections have been mitigated to acceptable levels. A brief discussion of each street and intersection mitigation and the resulting improvement in traffic condition is described in the following:

1. North Market Boulevard. An eight lane street section is necessary from the project boundary to Northgate Boulevard.

2. Northgate Boulevard. A ten lane street section would be necessary between Interstate 80 and the North Market Boulevard intersection.

3. Levee Road. This roadway would have to be reconstructed at a six lane section.

4. Del Paso Boulevard. A six lane section is necessary west of east Levee Road, and a four lane section should be constructed east of East Levee Road.

5. Elkhorn Boulevard. A six lane roadway section should be installed east of the East Levee Road intersection.

6. Truxel Road. South of Interstate 80, a six lane street section will be required.

7. East Levee/Elkhorn Installation of a traffic signal and reconstruction of the intersection will improve the Level of Service to "A", free flow, during the PM peak hour and "E", severe congestion, during the AM peak hour. To obtain this improved LOS, installation of exclusive dual right turn lanes on the northbound East Levee approach will be necessary. Construction of four through travel lanes on Elkhorn with dual right turn lanes on the westbound approach will also be necessary. To improve the PM peak LOS, realignment of the intersection should be considered in order to accommodate the heavy left turn westbound traffic.

8. Del Paso/Northgate Installation of a traffic signal and widening Del Paso to six lanes with dual left turn lanes on the westbound Del Paso approach and a right turn lane on the eastbound approach will be necessary to improve the LOS to "E" in the PM peak hour and "D", significant congestion, in the AM peak hour. It will also be necessary to install an exclusive right turn lane on the northbound Northgate approach to accommodate the heavy PM peak traffic.

9. Northgate/North Market There are no mitigation measures identified which would not require major reconstruction. Signalization was assumed with the following improvements which will facilitate the operation of the intersection but Level of Service will remain at "F", total breakdown, stop-and-go operations.

   - Dual left turn lanes on the northbound Northgate approach.

   - Two additional through lanes on both northbound and southbound Northgate approaches.

   - Exclusive right turn lanes on the eastbound North Market approach.

10. Northgate/I-80 WB Ramps Widening Northgate Boulevard to six through lanes and exclusive dual right turn lanes on the westbound off-ramp approach will improve the LOS to "C", light congestion during the PM peak hour and LOS "A", free flow, during the AM peak hour.

11. Northgate/I-80 EB Ramps The intersection will operate at an acceptable LOS of "C" with existing lane geometrics; however, installation of dual right turn lanes on the southbound approach to eastbound I-80 will be necessary to eliminate the potential of traffic backing through the Northgate/I-80 WB ramp intersection.

12. Truxel/I-80 EB/WB Ramps The City recommends maximum of six travel lanes on an interchange overcrossing. Based on this mitigation measure, both ramp intersections will operate at LOS "F". To obtain an acceptable LOS at the EB ramp intersection and an improved LOS at the WB ramp intersection, it will be

necessary to construct a total of nine lanes on the overcrossing, six (3 southbound and 3 northbound) through travel lanes and three (2 southbound and 1 northbound) right turn lanes, to improve operations at both intersections.

13. I-80 EB Ramp Five through lanes and a free right turn on the northbound Northgate approach along with four through lanes and dual right turn lanes on the southbound approach will improve the PM peak operations to LOS "D/E" and AM peak operations to LOS "E". It will also be necessary to install exclusive right turn lanes on the westbound off-ramp approach.

14. I-80 WB Ramp Three through lanes and dual right turn lanes on the southbound approach as well as three through lanes and a free right turn ramp lane on the northbound approach will improve the LOS at this location. Construction of three left turn lanes on the eastbound off-ramp approach will improve the LOS from "F", V/C = 1.24 to "D", V/C = 0.87 during the PM peak hour, and during the AM peak hour LOS from "F", V/C = 1.96 to "F", V/C - 1.37. To further mitigate this location in the PM peak hour, five through travel lanes will be necessary on the northbound approach to obtain V/C = 1.19, LOS "F".

15. Del Paso/I-5 SB Ramps Signalization will be required with the construction of dual left turn lanes on the southbound off-ramp approach to obtain LOS "A" during both peak periods.

16. Del Paso/I-5 NB Ramps Exclusive dual right turn lanes will be required on the northbound I-5 off-ramp approach to improve the LOS from "F", V/C = 0.99 to "A", V/C = .30 during the PM peak hour and in the Am peak hour from LOS "F", V/C = 1.67 to LOS "A", V/C = 0.30. Signalization is alsonecessary.

17. Stadium/I-5 NB Ramps This proposed interchange will require signalization along with three through travel lanes and a free right turn lane on the westbound Stadium Boulevard approach and one through lane on the eastbound approach. One left turn lane and exclusive dual right turn lanes will be necessary on the northbound off-ramp approach to obtain LOS "C" and LOS "A" during the PM and AM peak hour, respectively. The dual right lanes will merge with the one through lane to obtain 3 eastbound travel lanes east of this intersection.

18. Stadium/I-5 SB Ramps This intersection will not require signalization but dual right turn lanes on the westbound approach will be necessary to avoid traffic queuing into the I-5 NB ramp intersection. One through travel lane on the eastbound and westbound approaches and a right turn lane on the eastbound Stadium Boulevard approach along with a free right turn lane and a left turn lane on the southbound I-5 off-ramp will also be necessary.

ON-SITE MITIGATION MEASURES

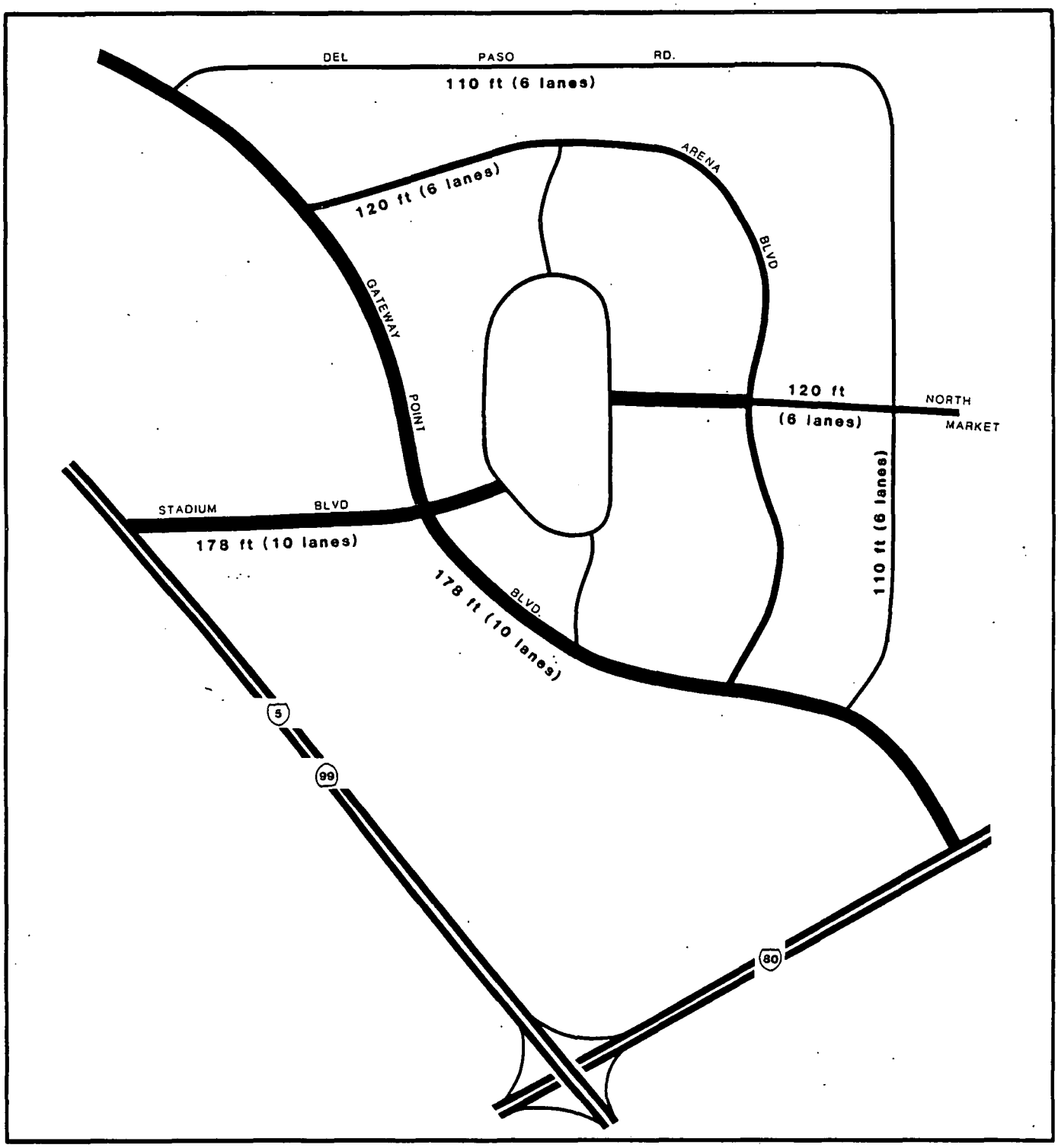
Six major on-site intersections were analyzed using the applicant's proposed street system. Exhibit E-150 presents the necessary street widths and the maximum number of lanes that can be accommodated proposed by the applicant. There were no mitigations identified that can improve four intersections to an acceptable level. Exhibit E-152 presents the on-site peak hour Levels of Service. Heavy left turn movements were the critical movements at most unacceptable intersections, and the assumed dual left turn lanes could not accommodate the heavy traffic. Triple left turn lanes could most likely achieve acceptable operating conditions but are not recommended at on-site locations. A brief discussion of each intersection mitigation and the resulting improvement in traffic condition is described in the following:

1. Gateway/Del Paso Based on the applicant's proposed street system, this intersection will operate at LOS "D" and LOS "A" during the AM and PM peak hour, respectively. Eight through travel lanes (4 southbound and 4 northbound), dual left turn lanes on the southbound Gateway Point approach and a northbound right turn lane will be required. It will also be necessary to construct dual left turn lanes and one right turn lane on the Del Paso westbound approach.

2. Gateway/Stadium There are no mitigations identified that can improve operations to an acceptable limit. The following mitigations were analyzed but the Level of Service remained "F":

    - Dual left turn lanes on both Stadium Boulevard approaches, and on the northbound Gateway Point Boulevard approach.

    - Single left turn lane on the southbound Gateway Point Boulevard approach.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

GATEWAY POINT

PROPOSED STREET SYSTEM

EXHIBIT E-150

- Ten through travel lanes (5 northbound and 5 southbound) on Gateway Point Boulevard.

- Six through travel lanes (3 eastbound and 3 westbound) on Stadium Boulevard.

- Exclusive single right turn lanes on both Gateway Point Boulevard approaches, and on the westbound Stadium Boulevard approach.

- Exclusive dual right turn lanes on the eastbound Stadium Boulevard approach.

3. Gateway/Arena Boulevard At this intersection, the resulting LOS from the mitigation measures identified will be LOS "D" and LOS "F" in the AM and PM peak hour periods, respectively. Ten through travel lanes (5 lanes each direction) on Gateway Point Boulevard and six through travel lanes (3 lanes each direction) on Arena Boulevard will be necessary along with dual left turn lanes and right turn lanes on all approaches. No mitigation measures were identified to improve operations to acceptable limits during the PM peak hour.

4. Stadium/Unknown North-South Street There are no mitigation measures identified that can improve operations to acceptable limits. The following mitigations were analyzed but the Levels of Service remained "F" due to the heavy left turn movements:

   - Construction of ten through travel lanes (5 lanes each direction) on Stadium Boulevard.

   - Construction of dual left turn lanes of all approaches.

   - Construction of two shared through plus right lanes (1 lane each direction) on the unknown north/south street.

   - Construction of right turn lanes on both Stadium Boulevard approaches.

5. Arena Boulevard/North Market The resulting LOS from construction of four through travel lanes (2 lanes each direction) on North Market and two shared through plus right lanes (1 lane each direction) on Arena Boulevard will be LOS "C" during both peak hour periods. Single left turn lanes and single right turn lanes will be required on both North Market Boulevard approaches, and a single left turn lane on the northbound Arena Boulevard approach.

6. North Market/Unknown North-South Street The LOS remained "F" during the AM peak hour with the identified mitigations: construction of six through travel lanes (3 lanes each direction) on both North Market and the unknown north/south street; dual left turn lanes on both North Market approaches and on the southbound approach, and single left turn lane on the northbound approach; and, right turn lanes on all approaches. During the PM peak hour, the resulting Level of Service was "D", significant congestion but acceptable.

EXHIBIT E-152
On-Site Future Base Plus Gateway Project
Peak Hour Level of Service

INTERSECTION	LOS AM PEAK V/C	AM PEAK LOS	PM PEAK V/C	PM PEAK LOS
GATEWAY POINT/DEL PASO	.81	"D"	.82	"D"
NORTH MARKET/UNKNOWN N/S STREET	1.26	"F"	.82	"D"
NORTH MARKET/ARENA BOULEVARD	.76	"C"	.79	"C"
GATEWAY POINT/STADIUM BOULEVARD	1.22	"F"	1.27	"F"
GATEWAY POINT/ARENA BOULEVARD	.85	"D"	1.34	"F"
STADIUM BOULEVARD/UNKNOWN N/S STREET	1.56	"F"	1.43	"F"

C. KETSCHER PROPERTY

PROJECT DESCRIPTION

The Ketscher Property development proposal contains 173 acres of M-50 manfacturing, 79 acres of commercial/commercial and 5 acres of high density residential. The development would support the employment of 10,155 persons and a residential population of 169.

The project proposes to have direct access only to Del Paso Boulevard.

As mentioned in the Basic Assumptions section of this portion of the report, the individual project evaluation, apart from the Community plan, was to meet the requirements prescribed under CEQA. Therefore, the proposed land uses and densities may appear inappropriate or inconsistant with the assumed street system to support such development.

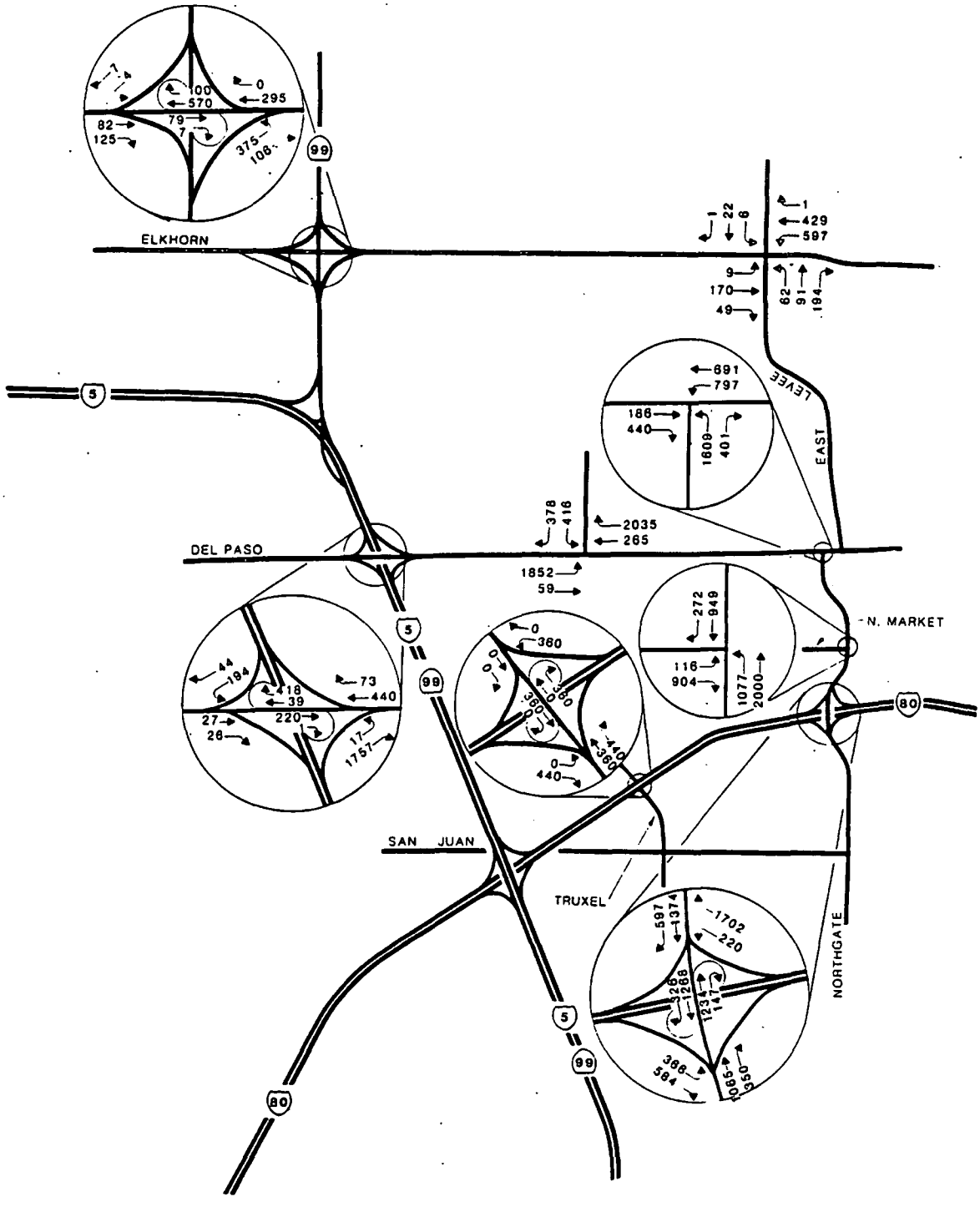
TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

Based upon the trip generation rates presented earlier, as shown in Exhibit E-101, the Ketscher Property development proposal will generate 4,980 AM and 5,077 PM peak hour trips. The 4,980 AM trips include 299 internal and 4,681 external trips, of which 3,887 are inbound and 794 are outbound. The 5,077 PM trips include 305 internal and 4,772 external trips, of which 1,600 are inbound and 3,172 are outbound. Shown in Exhibits E-154 and E-155 are the projected peak hour volumes.

Based upon the trip distribution and street network assumptions presented previously, traffic was distributed and assigned to the existing street system in the North Natomas areas. While all site access is initially via Del Paso Boulevard, approximately 5% of the AM and PM trips were assigned to Del Paso Boulevard east of Northgate, 10% to Elkhorn Boulevard, 25% to Interstate 80, 44% to Interstate 5, 10% to Northgate and the remaining 6% to the internal street system.

IMPACTS

The existing street system in the North Natomas area will not adequately support the development of the Ketscher Property as proposed. As Exhibit E-157 indicates, seven intersections will experience unacceptable



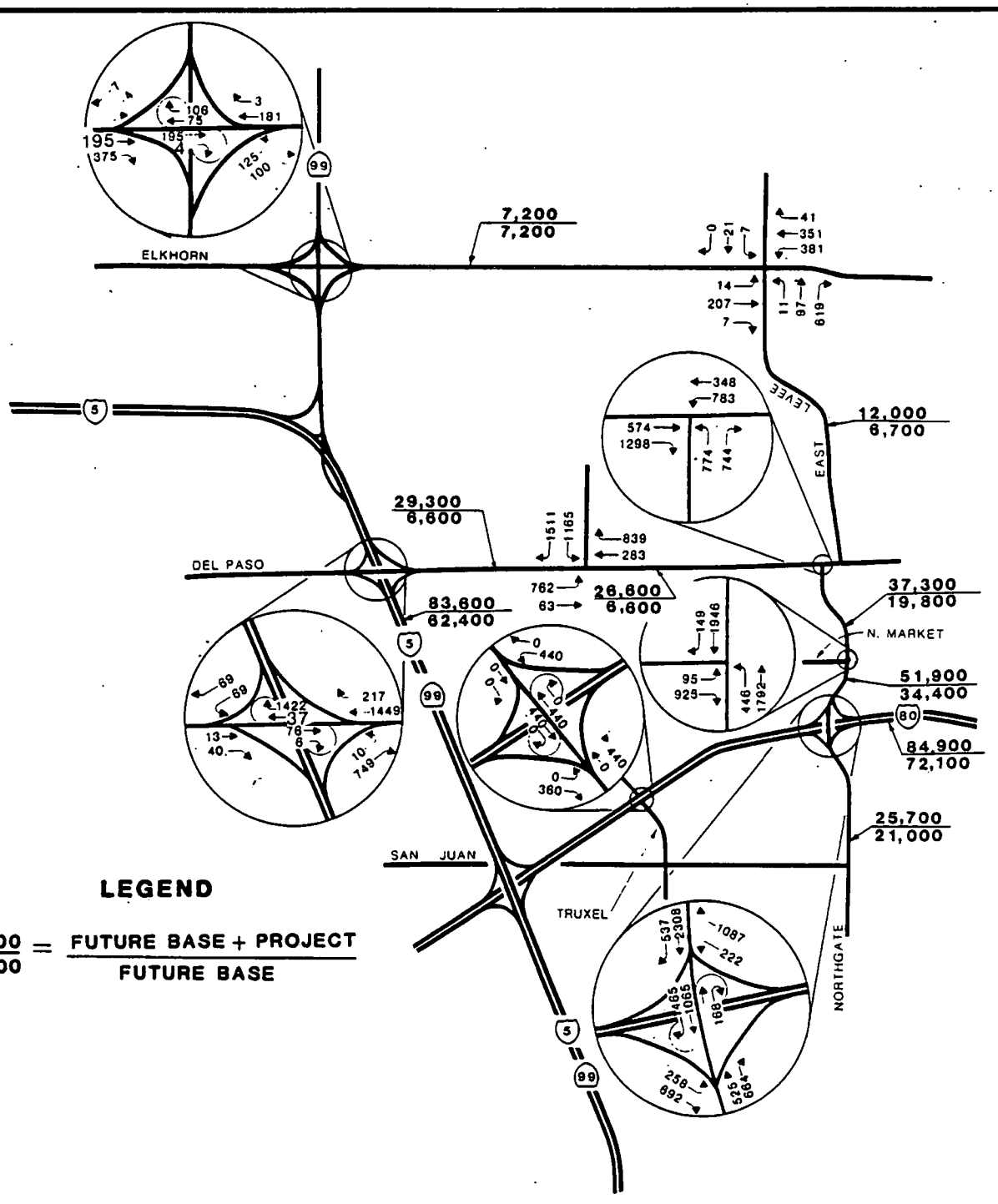
NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS KETSCHER PROJECT

AM PEAK HOUR TRAFFIC

EXHIBIT E-154



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS KETSCHER PROJECT

DAILY AND PM PEAK HOUR TRAFFIC

EXHIBIT E-155

operating conditions associated with LOS "D", "E" and "F", even with signalization. These intersections are Del Paso/Northgate, Northgate/North Market, Northgate/I-80 WB ramps, Northgate/I-80 EB ramps, East Levee and Elkhorn, Del Paso/I-5 NB ramps and the project entrance at Del Paso Boulevard. These unacceptable operating conditions at the intersections occur during both peak hours except at the Del Paso/I-5 NB ramp intersection where LOS drops to "A". The remaining intersections will operate at LOS "C" or better. Although signalization was assumed at all intersections, the Del Paso intersections with I-5 southbound ramps, and the Elkhorn intersections with Highway 99 northbound and southbound ramp will not likely require signalization.

As shown in Exhibit E-158, the freeway segments are still acceptable with the addition of Ketscher project.

Exhibit E-159 compares the future base and future base plus project for the freeway ramps. As shown, at two freeway segments the LOS is below the acceptable limits:

I-80 @ Northgate

AM, PM - WB OFF-RAMP
PM - EB ON-RAMP

I-5 @ Del Paso

PM - WB DEL PASO TO SB ON RAMP
AM - NB OFF-RAMP

EXHIBIT E-157
Future Base Plus Ketscher Project
Peak Hour Level of Service

INTERSECTION	AM				PM			
	WITHOUT MITIGATION		WITH MITIGATION		WITHOUT MITIGATION		WITH MITIGATION	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
E. LEVEE/ELKHORN	0.92	"E"	0.83	"D"	1.01	"F"	0.59	"A"
DEL PASO/NORTHGATE	2.19	"F"	0.91	"E"**	1.74	"F"	0.75	"C"
NORTHGATE/N. MARKET	1.43	"F"	0.79	"C"	1.91	"F"	0.84**	"D"
NORTHGATE/I-80 WB RAMPS	1.56	"F"	0.89	"D"*	0.93	"E"	0.59	"A"
NORTHGATE/I-80 EB RAMPS	0.81	"D"	0.62	"B"	0.82	"D"	0.59	"A"
DEL PASO/I-5 NB RAMPS	1.24	"F"	0.66	"B"	0.52	"A"	0.50	"A"
DEL PASO/I-5 SB RAMPS	0.14	"A"	0.14	"A"	0.05	"A"	0.05	"A"
ELKHORN/HWY 99 NB RAMPS	0.35	"A"	0.35	"A"	0.15	"A"	0.15	"A"
ELKHORN/HWY 99 SB RAMPS	0.20	"A"	0.20	"A"	0.25	"A"	0.25	"A"
DEL PASO/PROJECT ENTRANCE	3.04	"F"	0.89	"D/E"**	2.05	"F"	0.77	"C"

* Need to provide 4 through lanes to lower to "C".

** Further mitigation not possible within geometric constraints assumed for this analysis.

EXHIBIT E-158

Future Base Plus Ketscher Project

Freeway Levels of Service

LOCATION/# LANES	AM PEAK HOUR				PM PEAK HOUR			
	FUTURE BASE		FUTURE + PROJECT		FUTURE BASE		FUTURE + PROJECT	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
INTERSTATE 80								
EAST OF I-5								
WESTBOUND/3	.91	"D"	.91	"D"	.41	"A/B"	.41	"B"
EASTBOUND/3	.34	"A"	.34	"A"	.83	"C"	.83	"C"
EAST OF TRUXEL								
WESTBOUND/3	.91	"D"	.91	"D"	.41	"A/B"	.41	"B"
EASTBOUND/3	.34	"A"	.34	"A"	.83	"C"	.83	"C"
EAST OF NORTHGATE								
WESTBOUND/3	.88	"D"	.92	"D"	.40	"A/B"	.48	"B"
EASTBOUND/3	.33	"A"	.50	"B"	.81	"C"	.95	"D"
INTERSTATE 5								
NORTH OF I-80								
NORTHBOUND/3	.54	"B"	.83	"C"	.50	"B"	.62	"B"
SOUTHBOUND/3	.50	"B"	.55	"B"	.54	"B"	.77	"C"
NORTH OF STADIUM BLVD.								
NORTHBOUND/3	.54	"B"	.83	"C"	.50	"B"	.62	"B"
SOUTHBOUND/3	.50	"B"	.55	"B"	.54	"B"	.77	"C"
NORTH OF DEL PASO								
NORTHBOUND/3	.55	"B"	.83	"C"	.55	"B"	.57	"B"
SOUTHBOUND/3	.51	"B"	.58	"B"	.51	"B"	.52	"B"

EXHIBIT E-159

Future Base Plus Ketscher Project

Ramp Levels of Service

	AM				PM			
	FUTURE BASE		FUTURE+PROJECT		FUTURE BASE		FUTURE+PROJECT	
INTERCHANGE	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
I-80 @ NORTHGATE								
WB OFF RAMP	.59	"B"	1.28	"F"	.59	"B"	.87	"D"
NB NORTHGATE TO WB ON RAMP	.10	"A"	.10	"A"	.11	"A"	.11	"A"
SB NORTHGATE TO WB ON RAMP	.40	"A/B"	.40	"A"	.36	"B"	.36	"A"
EB OFF RAMP	.63	"B/C"	.63	"B"	.63	"B/C"	.63	"B"
SB NORTHGATE TO EB ON RAMP	.07	"A"	.22	"A"	.41	"A/B"	.98	"E"
NB NORTHGATE TO EB ON RAMP	.23	"A"	.23	"A"	.44	"B"	.44	"B"
I-80 @ TRUXEL								
WB OFF RAMP	.24	"A"	.24	"A"	.29	"A"	.29	"A"
NB TRUXEL TO WB ON RAMP	.24	"A"	.24	"A"	.29	"A"	.29	"A"
SB TRUXEL TO WB ON RAMP	.00	N/A	.00	N/A	.00	N/A	.00	N/A
EB OFF RAMP	.29	"A"	.29	"A"	.24	"A"	.24	"A"
SB TRUXEL TO EB ON RAMP	.00	N/A	.00	N/A	.00	N/A	.00	N/A
NB TRUXEL TO EB ON RAMP	.29	"A"	.29	"A"	.24	"A"	.24	"A"
I-5 @ DEL PASO								
SB OFF RAMP	.07	"A"	.16	"A"	.06	"A"	.09	"A"
WB DEL PASO TO SB ON RAMP	.04	"A"	.28	"A"	.01	"A"	.95	"D"
EB DEL PASO TO SB ON RAMP	.01	"A"	.01	"A"	.03	"A"	.03	"A"
NB OFF RAMP	.03	"A"	1.18	"F"	.03	"A"	.51	"B"
EB DEL PASO TO NB ON RAMP	.00	"A"	.00	"A"	.01	"A"	.00	"A"
WB DEL PASO TO NB ON RAMP	.02	"A"	.05	"A"	.08	"A"	.14	"A"

(continued)

EXHIBIT E-159 (continued)
Future Base Plus Ketscher Project
Ramp Levels of Service

INTERCHANGE	AM				PM			
	FUTURE BASE		FUTURE+PROJECT		FUTURE BASE		FUTURE+PROJECT	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
SR 99 @ ELKHORN								
SB OFF RAMP	.01	"A"	.01	"A"	.01	"A"	.01	"A"
WB ELKHORN TO SB ON RAMP	.07	"A"	.07	"A"	.07	"A"	.07	"A"
EB ELKHORN TO SB ON RAMP	.08	"A"	.08	"A"	.25	"A"	.25	"A"
NB OFF RAMP	.07	"A"	.07	"A"	.15	"A"	.15	"A"
EB ELKHORN TO NB ON RAMP	.00	"A"	.01	"A"	.00	"A"	.01	"A"
WB ELKHORN TO NB ON RAMP	.00	"A"	.01	"A"	.00	"A"	.01	"A"

MITIGATIONS

It is possible that roadway and intersection improvements can be made which would support traffic generated by the Ketscher Property development proposal. The purpose of this section is to identify these improvements. As indicated earlier, the intersections of Del Paso/Northgate, Northgate/North Market, Northgate/I-80 WB ramps, Northgate/I-80 EB ramps, E. Levee/Elkhorn, Del Paso/I-5 NB ramps, and the Project Entrance at Del Paso require mitigation. Following is a discussion of each of these locations and the improvements necessary to support development of the Ketsher Property. Exhibit E-157 also summarizes the Levels of Service with mitigation.

1. Northgate Boulevard An eight lane street section will be necessary north of Interstate 80.

2. Del Paso Road A six lane section is necessary east of Interstate 5.

3. Del Paso/Northgate In addition to signalization, an additional left turn lane should be constructed to create dual left turn lanes on the northbound Northgate approach. Additionally, dual left turn lanes should be constructed, providing two left and two through lane on the westbound Del Paso approach. On the eastbound approach a total of two through and two right turn lanes are required. However, the resulting AM Level of Service cannot be improved beyond LOS "E".

4. Northgate/North Market Along with signalization, Northgate Boulevard should be expanded to provide six through travel lanes (three in each direction) with dual left turn lanes on the northbound approach. On the North Market approach, dual right turn lanes should also be provided.

5. Northgate/I-80 WB Ramps Along with signalization of the intersection, dual free, right-turn lanes should be provided to facilitate the westbound to northbound move off the freeway ramp. An additional through lane is required on each Northgate approach.

6. Northgate/I-80 EB Ramps In addition to signalization, dual right turn lanes should be created to facilitate thhe eastbound to southbound move off the freeway ramp. To allow safe merging, Northgate Boulevard south of the intersection should be widened to three southbound lanes for a distance of at least 1,300 feet before transition back to two lanes.

7. E. Levee/Elkhorn Along with signalization, an exclusive westbound left turn lane and a free right turn lane northbound should be constructed.

8. Del Paso/I-5 NB Ramps An additional right turn lane (dual right) from the northbound off-ramp should be installed.

9. Project Entrance/Del Paso Along with signazlization, dual left turn lanes and dual right turn lanes should be provided from Del Paso into the Project Entrance. To accommodate outbound flow from the Project Entrance, dual left and right-turn lanes should be provided. Del Paso Boulevard from I-5 to Northgate should also be widened to four through travel lanes.

D. SCHUMACHER-IVERSON PROPERTY

PROJECT DESCRIPTION

The Schumacher-Iverson Property development proposal includes 480 acres of M-50 manfacturing and 30 acres of highway/commercial. Also included in the property is 44 acres of greenbelt, for a project total of 554 acres. The development would support the employment of 22,500 persons.

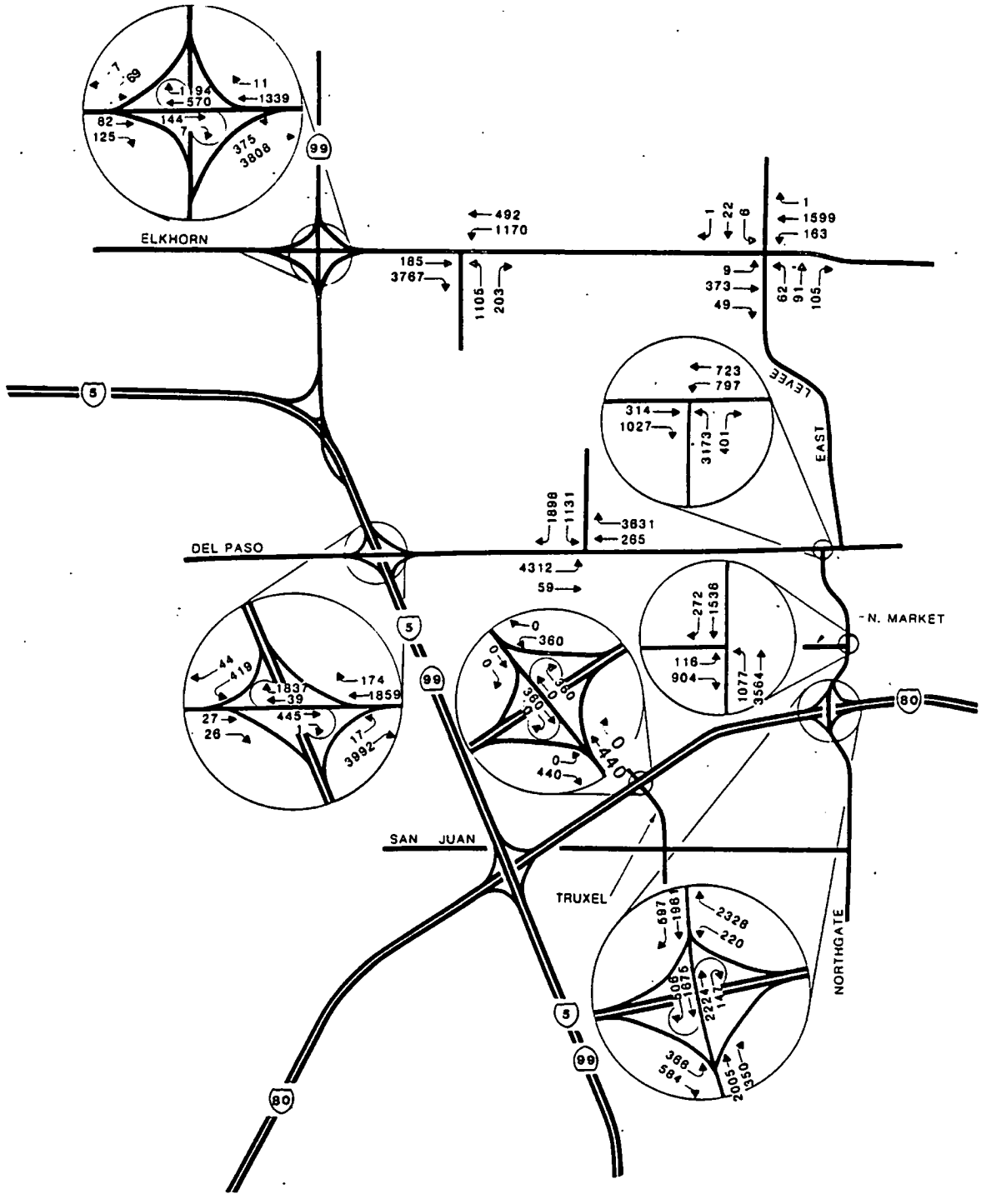
The project proposes to have access to both Del Paso Boulevard and Elkhorn Boulevard.

As mentioned in the Basic Assumptions section of this portion of the report, the individual project evaluation, apart from the Community plan, was to meet the requirements prescribed under CEQA. Therefore, the proposed land uses and densities may appear inappropriate or inconsistant with the assumed street system to support such development.

TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

Based upon the trip generation rates presented earlier, as shown in Exhibit E-101, the Schumacher-Iverson property development proposal will generate 18,122 AM and 15,981 PM peak hour trips. The 18,122 AM trips include 906 internal and 17,215 external trips, of which 12,881 are inbound and 4,335 are outbound. The 15,981 PM trips include 799 internal and 15,182 external trips, of which 5,400 are inbound and 9,782 are outbound. The projected peak hour volumes are shown in Exhibits E-164 and E-165.

Based upon the trip distribution and street network assumptions presented previously, traffic was distributed and assigned to the existing street system in the North Natomas areas. Approximately 1/3% of the AM and PM trips are expected to use the project entrance on Elkhorn Boulevard and 2/3 will use the Del Paso Boulevard entrance. The resulting trip assignment is 58% to I-5 South of the project, 11% to I-80 east of the project, 11% to Northgate Boulevard, 5% to Del Paso Boulevard, 8% to Elkhorn Boulevard, 3% to I-5 north of the project and 5% internal.



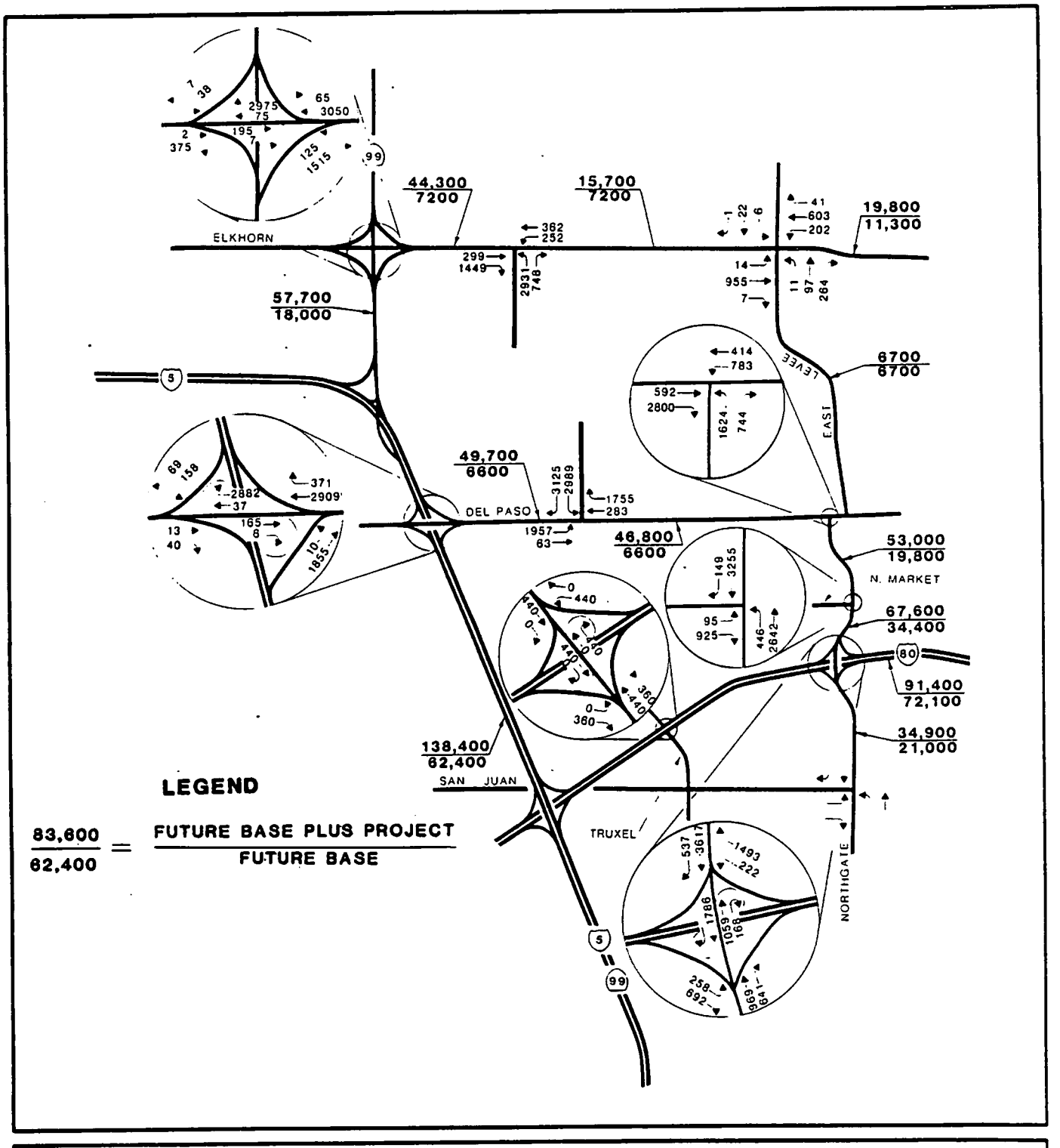
NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS SCHUMACHER PROJECT

AM PEAK HOUR TRAFFIC

EXHIBIT E-164



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS SCHUMACKER PROJECT

DAILY AND PM PEAK HOUR TRAFFIC

EXHIBIT E-165

IMPACTS

The existing street system in the North Natomas area will not adequately support the development of the Schumacher-Iverson Property as proposed. As Exhibit E-168 indicates, 11 intersections will experience unacceptable operating conditions associated with LOS "D", "E" and "F", even with signalization. These intersections are:

E. LEVEE/ELKHORN
DEL PASO/NORTHGATE
NORTHGATE/NORTH MARKET
NORTHGATE/I-80 WB RAMPS
NORTHGATE/I-80 EB RAMPS
DEL PASO/I-5 NB RAMPS
DEL PASO/I-5 SB RAMPS
ELKHORN/HWY 99 NB RAMPS
ELKHORN/HWY 99 SB RAMPS
DEL PASO/PROJECT ENTRANCE
ELKHORN/PROJECT ENTRANCE

These unacceptable operating conditions at the intersections occur during both peak hours except at the Elkhorn/SR 99 NB and EB ramp intersection where LOS drops to "D". The remaining intersections will operate at LOD "C" or better. Although signalization was assumed at all intersections, the Del Paso intersections with I-5 northbound and southbound ramps, the Elkhorn intersections with Highway 99 northbound and southbound ramps and the project entrance at Elkhorn Boulevard will not likely require signalization.

ExhibitE-169 compares Future Base Levels of Service on freeway ramps with and without this project. As shown, capacity will be exceeded on six ramps:

I-80 @ Northgate

AM, PM - WESTBOUND OFF-RAMP
PM - SOUTHBOUND NORTHGATE TO EASTBOUND ON-RAMP

I-5 @ Del Paso

AM, PM - WESTBOUND DEL PASO TO SOUTHBOUND ON-RAMP
AM, PM - NORTHBOUND OFF-RAMP

SR 99 @ Elkhorn

PM - WESTBOUND ELKHORN TO SOUTHBOUND ON-RAMP
AM, PM - NORTHBOUND OFF-RAMP

Exhibit E-171 compares Future Base Levels of Service on Basic Freeway Segments with and without this project. As shown, capacity is exceeded at five.

I-80 Eastbound

PM - East of Northgate

I-5 Northbound

AM, PM - South of Del Paso
AM - North of Del Paso

I-5 Southbound

AM, PM - South of Del Paso
PM - North of Del Paso

EXHIBIT E-168

Future Base Plus Schumacher-Iverson Property

Peak Hour Level of Service

INTERSECTION	AM				PM			
	WITHOUT MITIGATION		WITH MITIGATION		WITHOUT MITIGATION		WITH MITIGATION	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
E. LEVEE/ELKHORN	1.36	"F"	0.70	"B/C"	1.05	"F"	0.59	"A"
DEL PASO/NORTHGATE	3.51	"F"	1.51	"F"	1.98	"F"	1.05	"F"
NORTHGATE/N. MARKET	2.45	"F"	0.92	"E"	2.79	"F"	0.98	"E"
NORTHGATE/I-80 WB RAMPS	2.29	"F"	0.57	"A"	1.35	"F"	0.88	"D"
NORTHGATE/I-80 EB RAMPS	0.95	"E"	0.79	"C"	1.06	"F"	0.68	"B"
DEL PASO/I-5 NB RAMPS	2.79	"F"	0.42	"A"	1.95	"F"	0.65	"B"
DEL PASO/I-5 SB RAMPS	0.29	"A"	N/A		0.12	"A"	N/A	
ELKHORN/HWY 99 SB RAMPS	0.29	"A"	0.29	"A"	0.06	"A"	0.06	"A"
ELKHORN/HWY 99 NB RAMPS	2.57	"F"	0.56	"A"	2.03	"F"	0.76	"C"
DEL PASO/PROJECT ENTRANCE	N/A		0.86	"D"	N/A		1.22	"F"
ELKHORN/PROJECT ENTRANCE	N/A		2.00	"F"	N/A		1.82	"F"

EXHIBIT E-169

Future Base Plus Schumacher-Iverson Property

Ramp Levels of Service

	AM				PM			
	FUTURE BASE		FUTURE+PROJECT		FUTURE BASE		FUTURE+PROJECT	
INTERCHANGE	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
I-80 @ NORTHGATE								
WB OFF RAMP	.59	"B"	1.70	"F"	.59	"B"	1.15	"F"
NB NORTHGATE TO WB ON RAMP	.10	"A"	.10	"A"	.11	"A"	.11	"A"
SB NORTHGATE TO WB ON RAMP	.40	"A/B"	.40	"A/B"	.42	"B"	.42	"B"
EB OFF RAMP	.63	"B/C"	.63	"B/C"	.63	"B/C"	.63	"B/C"
SB NORTHGATE TO EB ON RAMP	.07	"A"	.33	"A"	.41	"A/B"	1.37	"F"
NB NORTHGATE TO EB ON RAMP	.23	"A"	.23	"A"	.44	"B"	.44	"B"
I-80 @ TRUXEL								
WB OFF RAMP	.24	"A"	2.87	"F"	.59	"B"	1.72	"F"
NB TRUXEL TO WB ON RAMP	.24	"A"	.24	"A"	.29	"A"	.29	"A"
SB TRUXEL TO WB ON RAMP	.00	N/A	.93	"D"	.00	N/A	2.22	"F"
EB OFF RAMP	.29	"A"	2.91	"F"	.63	"B"	1.55	"F"
SB TRUXEL TO EB ON RAMP	.00	N/A	1.00	"E"	.00	N/A	2.25	"F"
NB TRUXEL TO EB ON RAMP	.29	"A"	.29	"A"	.24	"A"	.24	"A"
I-5 @ DEL PASO								
SB OFF RAMP	.07	"A"	.31	"A"	.06	"A"	.15	"A"
WB DEL PASO TO SB ON RAMP	.04	"A"	1.22	"F"	.01	"A"	1.01	"F"
EB DEL PASO TO SB ON RAMP	.00	"A"	.00	"A"	.03	"A"	.03	"A"
NB OFF RAMP	.03	"A"	2.67	"F"	.03	"A"	1.24	"F"
EB DEL PASO TO NB ON RAMP	.00	"A"	.00	"A"	.01	"A"	.01	"A"
WB DEL PASO TO NB ON RAMP	.02	"A"	.02	"A"	.08	"A"	.25	"A"

(continued)

EXHIBIT E-169 (continued)

Future Base Plus Schumacher/Iverson Project

Ramp Levels of Service

INTERCHANGE	AM FUTURE BASE V/C	AM FUTURE BASE LOS	AM FUTURE+PROJECT V/C	AM FUTURE+PROJECT LOS	PM FUTURE BASE V/C	PM FUTURE BASE LOS	PM FUTURE+PROJECT V/C	PM FUTURE+PROJECT LOS
SR 99 @ ELKHORN								
SB OFF RAMP	.01	"A"	.01	"A"	.01	"A"	.03	"A"
WB ELKHORN TO SB ON RAMP	.07	"A"	.07	"A"	.07	"A"	1.98	"F"
EB ELKHORN TO SB ON RAMP	.08	"A"	.81	"C"	.25	"A"	.25	"A"
NB OFF RAMP	.07	"A"	2.54	"F"	.15	"A"	1.09	"F"
EB ELKHORN TO NB ON RAMP	.00	"A"	.00	"A"	.00	"A"	.00	"A"
WB ELKHORN TO NB ON RAMP	.00	"A"	.00	"A"	.00	"A"	.05	"A"

EXHIBIT E-171

Future Base Plus Schumacher-Iverson Property

Freeway Levels of Service

LOCATION/# LANES	AM				PM			
	FUTURE BASE		FUTURE + PROJECT		FUTURE BASE		FUTURE + PROJECT	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
INTERSTATE 80								
EAST OF I-5								
WESTBOUND/3	.91	"D"	.91	"D"	.41	"A/B"	.41	"A/B"
EASTBOUND/3	.34	"A"	.34	"A"	.83	"C"	.83	"C"
EAST OF TRUXEL								
WESTBOUND/3	.91	"D"	.91	"D"	.41	"A/B"	.41	"A/B"
EASTBOUND/3	.34	"A"	.34	"A"	.83	"C"	.83	"C"
EAST OF NORTHGATE								
WESTBOUND/3	.88	"D"	1.16	"F"	.40	"A/B"	.54	"B/C"
EASTBOUND/3	.33	"A"	.40	"A/B"	.81	"C"	1.05	"F"
INTERSTATE 5								
NORTH OF I-80								
NORTHBOUND/3	.54	"B"	1.82	"F"	.50	"B"	1.03	"F"
SOUTHBOUND/3	.50	"B"	.97	"E"	.54	"B"	1.49	"F"
NORTH OF STADIUM BLVD.								
NORTHBOUND/3	.54	"B"	1.82	"F"	.50	"B"	1.03	"F"
SOUTHBOUND/3	.50	"B"	.97	"E"	.54	"B"	1.49	"F"
NORTH OF DEL PASO								
NORTHBOUND/3	.55	"B"	1.18	"F"	.55	"B"	.83	"C"
SOUTHBOUND/3	.51	"B"	.75	"C"	.51	"B"	1.01	"F"

MITIGATIONS

It is not possible that conventional roadway and intersection improvements can be made which would mitigate the impacts of the Schumacher-Iverson Property development proposal. The purpose of this section is to identify these improvements which have been tested. Following is a discussion of each location and the improvements which were considered. Exhibit E-168 also summarizes the Levels of Service with mitigation at each intersection.

1. Northgate Boulevard A ten lane section would be required between Interstate 80 and the Del Paso Road intersection.

2. Del Paso Road An eight lane street section would be required East of Interstate 5.

3. Elkhorn Boulevard A ten lane street section would be necessary west of the project entrance, while a four lane facility is necessary east of the project entrance.

4. East Levee/Elkhorn Installation of a traffic signal and four through travel lanes (2 lanes each direction) on eastbound and westbound Elkhorn approaches wil be required to mitigate this intersection to an acceptable level. A left turn lane on the westbound approach along with a right turn lane on the northbound East Levee approach will also be necessary.

5. Del Paso/Northgate There are no mitigations identified which would not require major reconstruction. Signalization was assumed with the following improvements which will facilitate the operation of the intersection but the Level of Service will still remain "F";

    - Four through travel lanes (2 lanes each direction) on both Del Paso approaches.

    - Dual left turn lanes on the westbound Del Paso approach.

    - Exclusive dual right turn lanes on the eastbound Del Paso approach.

- Dual left turn lanes on the northbound Northgate approach.

6. Northgate/North Market Widening Northgate to six through travel lanes (3 lanes each direction) with dual left turn lanes on the northbound Northgate approach and an exclusive right turn lane on the eastbound Northgate approach to obtain LOS "E" during both peak periods. Signalization is also required.

7. Northgate/I-80 WB Ramps Widening Northgate to six through travel lanes (3 lanes each direction) and exclusive dual right turn lanes on the westbound off-ramp approach will improve operations to LOS "A" and LOS "D" during the AM and PM peak hour, respectively. The on and off ramps should be widened to create two lane ramp connections at the freeway.

8. Northgate/I-80 EB Ramps It will be necessary to convert the right turn lane on the eastbound approach to an exclusive right turn lane and install exclusive dual right turn lanes on the southbound Northgate approach to the eastbound on ramp. These lanes must be continued to the freeway junction.

9. Del Paso/I-5 NB Ramps An additional through lane on the westbound Del Paso approach with exclusive dual right turn lanes on the northbound off-ramp approach will be required to obtain an acceptable level. Signalization is also required. The off-ramp must also be widened to provide a two lane connection to the freeway. Even with this widening, AM peak hour traffic will exceed dual ramp capacity.

10. Del Paso/I-5 SB Ramps Signalization will be required with the construction of dual right turn lanes on the westbound approach to southbound I-5 on-ramp to obtain LOS "A" during both peak periods. The dual right turn lanes will be necessary to avoid traffic queuing through the Del Paso/I-5 NB ramp intersection and must be continued to the ramp/freeway junction.

11. Elkhorn/Hwy 99 SB Ramps Signalization will be required with the construction of dual right turn lanes off the westbound approach to southbound I-5 on-ramp to obtain LOS "A" during both peak periods. The dual right turn lanes will be necessary to avoid traffic queuing through the NB ramp intersection. Dual ramp lanes must extend to the freeway.

12. Elkhorn/Hwy 99 NB Ramps An additional through travel lane on the Elkhorn westbound approach and exclusive dual right turn lanes on the northbound approach will be necessary to obtain LOS "A" during the AM peak hour and LOS "C" during the PM peak hour period. The northbound off-ramp must be widened to provide a two lane connection to the freeway.

13. Elkhorn Project Driveway This driveway cannot adequately accommodate project traffic even with the following conventional mitigation measures (LOS "F" results):

    - Four through travel lanes (2 lanes each direction) on Elkhorn.

    - Exclusive dual right turn lane on the eastbound approach.

    - Dual left turn lanes and a single free right lane on the northbound, outbound approach with four inbound lanes.

    - Dual left turn lanes on the westbound Elkhorn approach.

14. Del Paso Project Driveway Similarly, there are no conventional mitigations identified which would improve the operations above LOS "F". The following mitigations were identified:

    - Four through travel lanes (2 lanes each direction) on Del Paso.

    - Exclusive dual right turn lanes on the westbound Del Paso approach.

    - Dual left turn lanes on the eastbound Del Paso approach.

    - Four outbound lanes, dual left turn lanes and exclusive dual right turn lanes and four inbound lanes.

15. Interstate 80 An additional travel lane is required in each direction on I-80 east of Northgate Boulevard. The resulting Level of Service would be "D" (V/C = .87) in the AM peak and "C" (V/C = .79) during the Pm.

16. Interstate 5 Northbound Interstate 5 would require three additional travel lanes south of Del Paso to accommodate the project. An additional northbound travel lane would be required north of Del Paso. Two additional southbound lanes are necessary south of Del Paso, and one additional southbound lane is required north of Del Paso. CalTrans has indicated in the past, however, that only one additional lane can be accommodated in each direction. If only one lane is added, Level of Service "F" will result south of Del Paso Boulevard during the AM (northbound) and PM (southbound).

E. PAYNE PROPERTY

PROJECT DESCRIPTION

The Payne Property development proposal includes 13 acres of M-50 manfacturing, 31 acres of office/business, 48 acres of low density residential. Also included in the property is 27 acres of greenbelt, for a project total of 323 acres. The development would support the employment of 1,515 persons and a residential population of 4,824.

The project proposes to have access to both Del Paso Boulevard and Elkhorn Boulevard.

As mentioned in the Basic Assumptions section of this portion of the report, the individual project evaluation, apart from the Community plan, was to meet the requirements prescribed under CEQA. Therefore, the proposed land uses and densities may appear inappropriate or inconsistant with the assumed street system to support such development.

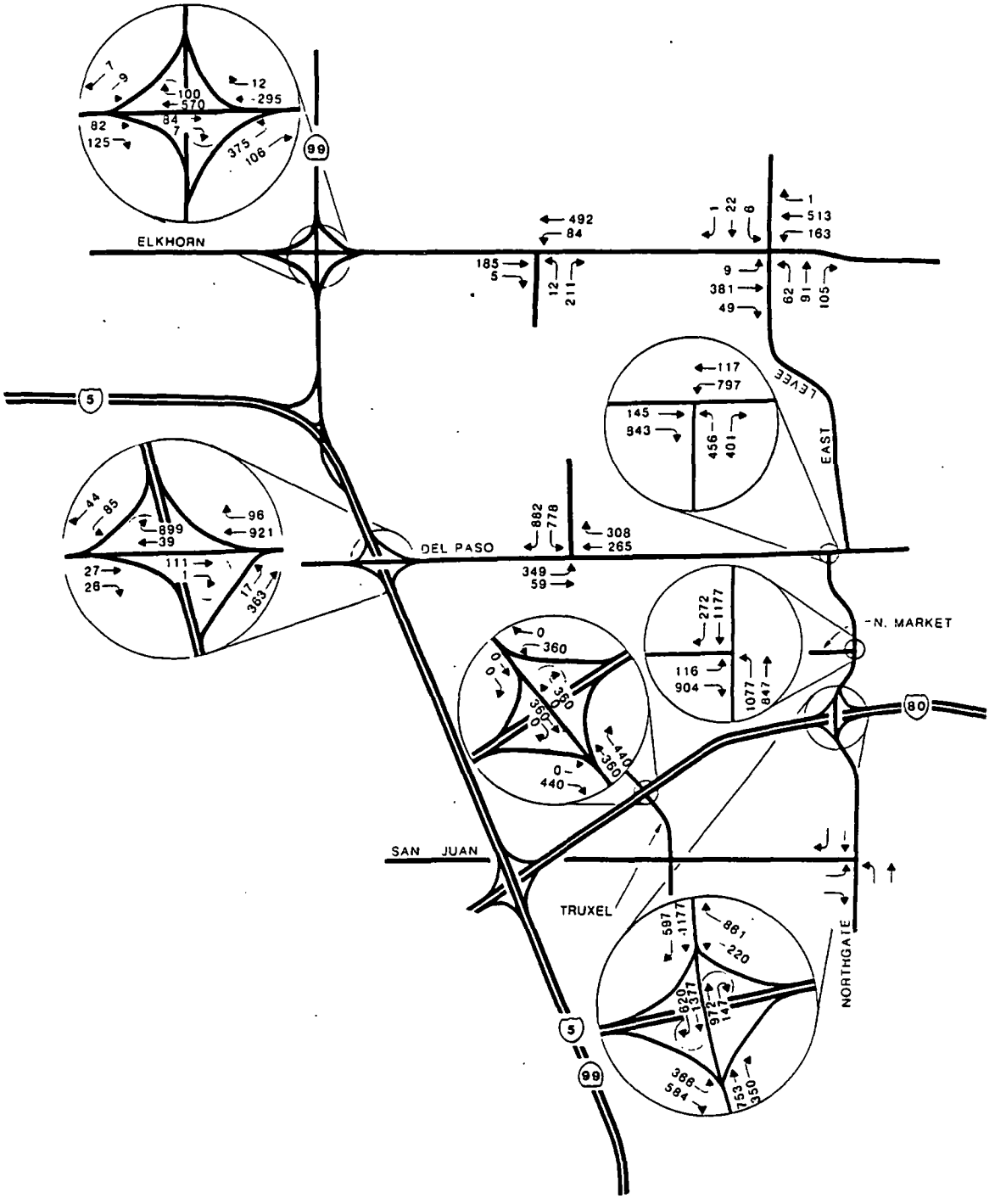
TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

Based upon the trip generation rates presented earlier, as shown in Exhibit E-101, the Payne Property development proposal will generate 2,724 AM and 4,329 PM peak hour trips. The 2,724 AM trips include 54 internal and 2,670 external trips, of which 773 are inbound and 1,897 are outbound. The 4,329 PM trips include 87 internal and 4,247 external trips, of which 2,494 are inbound and 1,748 are outbound. Exhibits E-177 and E-178 depict the AM and PM peak hour traffic volumes.

Based upon the trip distribution and street network assumptions presented previously, traffic was distributed and assigned to the existing street system in the North Natomas areas. Approximately 88% of the AM and PM trips were assigned to Del Paso Boulevard, 10% to Elkhorn Boulevard and the remaining 2% to the internal street system.

IMPACTS

The existing street system in the North Natomas area will not adequately support the development of the Payne Property as proposed. As Exhibit E-181 indicates, five intersections will experience unacceptable operating



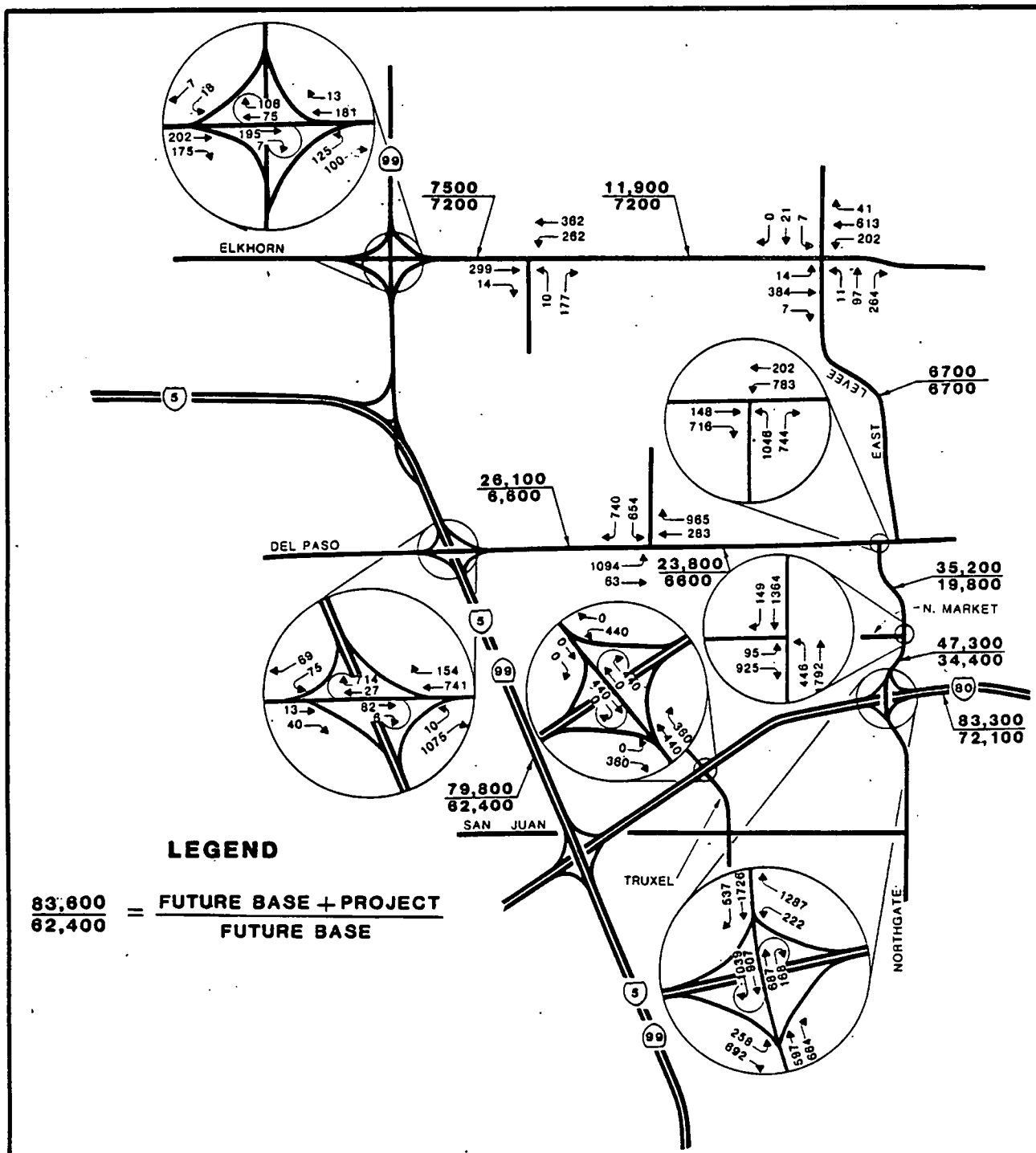
NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS PAYNE PROJECT

AM PEAK HOUR TRAFFIC

EXHIBIT E- 177



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS PAYNE PROJECT

DAILY AND PM PEAK HOUR TRAFFIC

EXHIBIT E-178

conditions associated with LOS "D", "E" and "F", even with signalization. These intersections are Del Paso/Northgate, Northgate/North Market, Northgate/I-80 WB ramps, Northgate/I-80 EB ramps and the project entrance at Del Paso Boulevard. These unacceptable operating conditions at the intersections occur during both peak hours except at the Northgate/I-80 EB ramp intersection where LOS drops to "D". The remaining intersections will operate at LOS "C" or better. Although signalization was assumed at all intersections, the Del Paso intersections with I-5 northbound and southbound ramps, the Elkhorn intersections with Highway 99 northbound and southbound ramps and the project entrance at Elkhorn Boulevard will not likely require signalization.

Exhibit E-181 compares peak hour ramp Levels of Service with and without the Payne Project. As shown, the only ramp impacted is at the I-80/Northgate interchange. The westbound off-ramp at this location is projected to exceed capacity during the PM peak hour.

Exhibit E-182 lists Future Base Levels of Service on Basic Freeway Segments with and without the Payne Project. The Level of Services on eastbound and westbound I-80 east of Northgate Boulevard are "D" during the PM and AM peak hour, respectively.

EXHIBIT E-180

Future Base Plus Payne Project

Peak Hour Level of Service

INTERSECTION	AM				PM			
	WITHOUT MITIGATION		WITH MITIGATION		WITHOUT MITIGATION		WITH MITIGATION	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
E. LEVEE/ELKHORN	0.63	"B"	0.63	"B"	0.67	"B"	0.67	"B"
DEL PASO/NORTHGATE	1.23	"F"	0.71	"C"	1.47	"F"	0.71	"C"
NORTHGATE/N. MARKET	2.22	"F"	0.78	"C"	1.70	"F"	0.78	"C"
NORTHGATE/I-80 WB RAMPS	0.90	"E"	0.61	"B"	1.09	"F"	0.69	"B"
NORTHGATE/I-80 EB RAMPS	0.85	"D"	0.65	"B"	0.76	"C"	0.76	"C"
DEL PASO/I-5 NB RAMPS	0.34	"A"	0.34	"A"	0.74	"C"	0.74	"C"
DEL PASO/I-5 SB RAMPS	0.07	"A"	0.07	"A"	0.06	"A"	0.06	"A"
ELKHORN/HWY 99 NB RAMPS	0.35	"A"	0.35	"A"	0.15	"A"	0.15	"A"
ELKHORN/HWY 99 SB RAMPS	0.20	"A"	0.20	"A"	0.26	"A"	0.26	"A"
DEL PASO/PROJECT ENTRANCE	1.20	"F"	0.49	"A"	2.00	"F"	0.71	"C"
ELKHORN/PROJECT ENTRANCE	0.53	"A"	0.53	"A"	0.51	"A"	0.51	"A"

EXHIBIT E-181

Future Base Plus Payne Project

Ramp Levels of Service

INTERCHANGE	AM FUTURE BASE V/C	AM FUTURE BASE LOS	AM FUTURE+PROJECT V/C	AM FUTURE+PROJECT LOS	PM FUTURE BASE V/C	PM FUTURE BASE LOS	PM FUTURE+PROJECT V/C	PM FUTURE+PROJECT LOS
I-80 @ NORTHGATE								
WB OFF RAMP	.59	"B"	.72	"C"	.59	"B"	1.01	"F"
NB NORTHGATE TO WB ON RAMP	.10	"A"	.10	"A"	.11	"A"	.11	"A"
SB NORTHGATE TO WB ON RAMP	.40	"A/B"	.40	"A/B"	.36	"A"	.36	"A"
EB OFF RAMP	.63	"B/C"	.63	"B"	.63	"B/C"	.63	"B"
SB NORTHGATE TO EB ON RAMP	.07	"A"	.41	"A/B"	.41	"A/B"	.69	"C"
NB NORTHGATE TO EB ON RAMP	.23	"A"	.23	"A"	.44	"B"	.44	"B"
I-5 @ DEL PASO								
SB OFF RAMP	.07	"A"	.09	"A"	.06	"A"	.10	"A"
WB DEL PASO TO SB ON RAMP	.04	"A"	.06	"B"	.01	"A"	.48	"B"
EB DEL PASO TO SB ON RAMP	.00	"A"	.00	"A"	.03	"A"	.03	"A"
NB OFF RAMP	.03	"A"	.25	"A"	.03	"A"	.73	"B"
EB DEL PASO TO NB ON RAMP	.00	"A"	.00	"A"	.01	"A"	.01	"A"
WB DEL PASO TO NB ON RAMP	.02	"A"	.05	"A"	.08	"A"	.10	"A"

EXHIBIT E-182

Future Base Plus Payne Project

Freeway Levels of Service

LOCATION/# LANES	AM				PM			
	FUTURE BASE		FUTURE + PROJECT		FUTURE BASE		FUTURE + PROJECT	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
INTERSTATE 80								
EAST OF I-5								
WESTBOUND/3	.91	"D"	.91	"D"	.41	"A/B"	.41	"A/B"
EASTBOUND/3	.34	"A"	.34	"A"	.83	"C"	.83	"C"
EAST OF NORTHGATE								
WESTBOUND/3	.88	"D"	.91	"D"	.40	"A/B"	.51	"B"
EASTBOUND/3	.33	"A"	.41	"A/B"	.81	"C"	.88	"D"
INTERSTATE 5								
NORTH OF I-80								
NORTHBOUND/3	.54	"B"	.60	"B"	.50	"B"	.67	"C"
SOUTHBOUND/3	.50	"B"	.50	"B"	.54	"B"	.65	"B/C"
NORTH OF DEL PASO								
NORTHBOUND/3	.55	"B"	.56	"B"	.55	"B"	.56	"B"
SOUTHBOUND/3	.51	"B"	.51	"B"	.51	"B"	.52	"B"

MITIGATIONS

It is possible that roadway and intersection improvements can be made which would support traffic generated by the Payne Property development proposal. The purpose of this section is to identify these improvements. As indicated earlier, the intersections of Del Paso/Northgate, Northgate/North Market, Northgate/I-80 WB ramps, Northgate/I-80 EB ramps and the Project Entrance at Del Paso. Following is a discussion of each of these locations and the improvements necessary to support development of the Payne Property. Exhibit E-180 also summarizes the Levels of Service with mitigation.

1. Northgate Boulevard An eight lane street section would be required between Interstate 80 and North Market Boulevard. A six lane section would be necessary north of North Market Boulevard.

2. Del Paso Road A four lane street section would be required.

3. Del Paso/Northgate In addition to signalization, an additional left turn lane should be constructed to create dual left turn lanes on the northbound Northgate approach. Additionally, dual left turn lanes should be constructed, providing two left and one through lane on the westbound Del Paso approach.

4. Northgate/North Market Along with signalization, Northgate Boulevard should be expanded to include six through travel lanes (three in each direction) with dual left turn lanes on the northbound approach. On the North Market approach, dual right turn lanes should also be provided.

5. Northgate/I-80 WB Ramps Along with signalization of the intersection, dual free, right-turn lanes should be provided to facilitate the westbound to northbound move off the freeway ramp. Two WB off-ramp lanes should extend back to the freeway/RAMP junction. This improvement should only be constructed if Northgate is widened to six through lanes.

6. Northgate/I-80 EB Ramps In addition to signalization, dual right turn lanes should be created to facilitate the eastbound to southbound move off the freeway ramp. To allow safe merging, Northgate Boulevard should be widened to three southbound lanes for a distance of at least 1,300 feet before transition back to two lanes.

7. Project Entrance/Del Paso Along with signazlization, dual left turn lanes and dual right turn lanes should be provided from Del Paso into the Project Entrance. To accommodate outbound flow from the Project Entrance, dual left and right-turn lanes should be provided. Del Paso Boulevard from I-5 to Northgate should also be widened to four through travel lanes.

F. FONG RANCH

PROJECT DESCRIPTION

The Fong Ranch is a mixed use development proposal which includes 95 acres of M-50 manufacturing, 5 acres of community commercial and 18 acres of highway commercial, for a total of 118 acres. The total employment of the site is estimated to be 4,965.

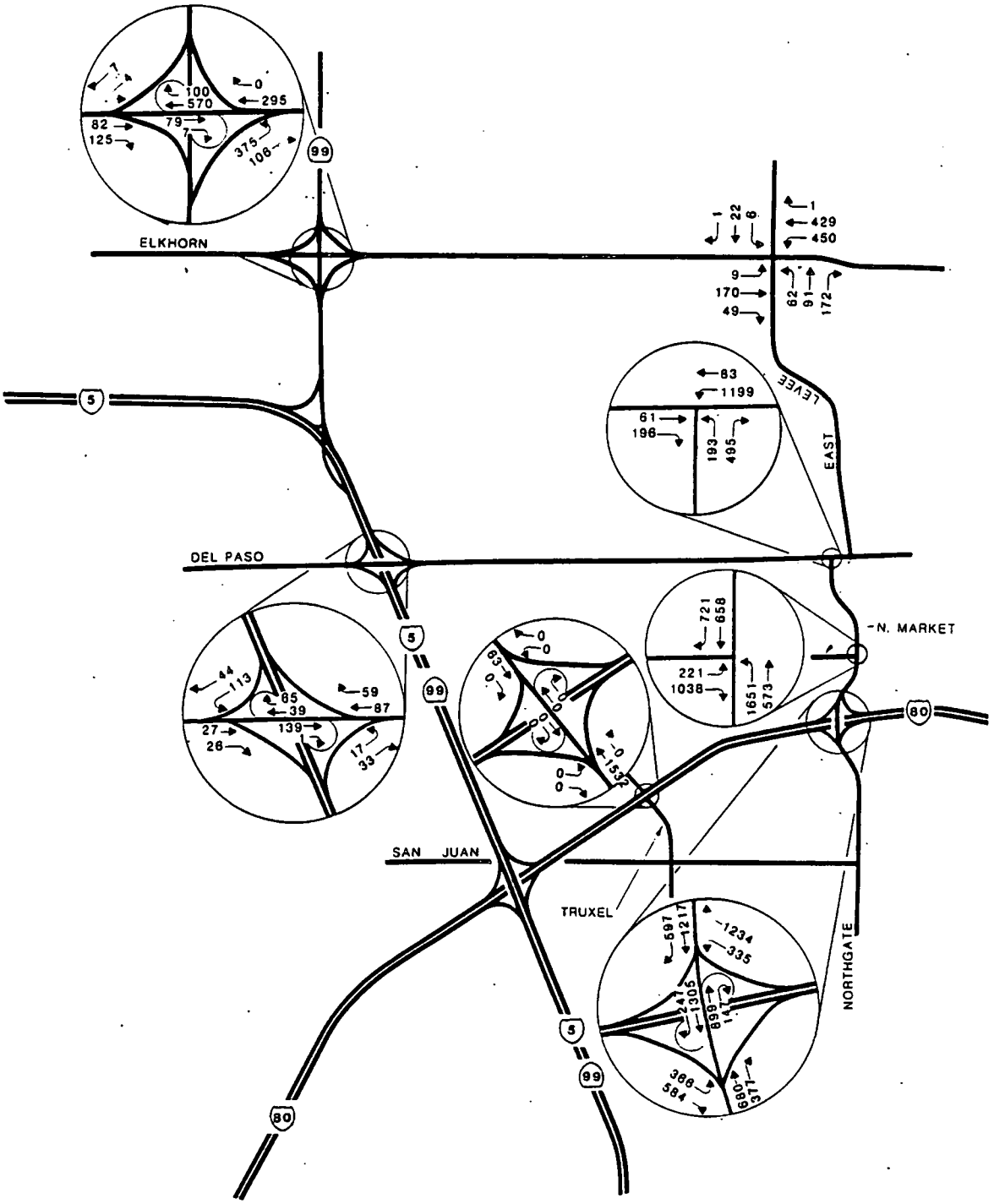
Access is provided to the Fong Ranch from Truxel Road on an overcrossing only and from North Freeway Boulevard, which via North Market Boulevard and Northgate Boulevard connects to the Northgate/Interstate 80 interchange.

As mentioned in the Basis Assumptions section of this portion of the report, the individual project evaluation was to meet the requirements presecribed under CEQA and therefore, the proposed land uses and densities may appear inappropriate or inconsistant with the assumed street system to support such development.

TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

Based upon the trip generation rates presented earlier, as shown in Exhibit E-101 the Fong Ranch development proposal will generate 3,214 AM and 2,719 PM peak hour trips. The 3,214 AM trips include 64 internal and 3,150 external trips, of which 2,554 are inbound and 596 are outbound. During the PM peak hour, 54 trips are internal, 910 trips travel inbound and 1,809 trips, outbound. Shown in Exhibits E-186 and E-187 are the projected AM and PM peak hour volumes.

Based upon the trip distribution and street network assumptions presented previously, traffic was distributed and assigned to the assumed street system in the North Natomas area. Approximately 10% of the trips were assigned to the Truxel Road, 31% to the North Freeway Boulevard route and the remaining 4% to the internal street system, and 48% of AM trips were assigned to Truxel Road, and 48% to the North Freeway Boulevard route with the remaining 4% assigned to the internal street system.



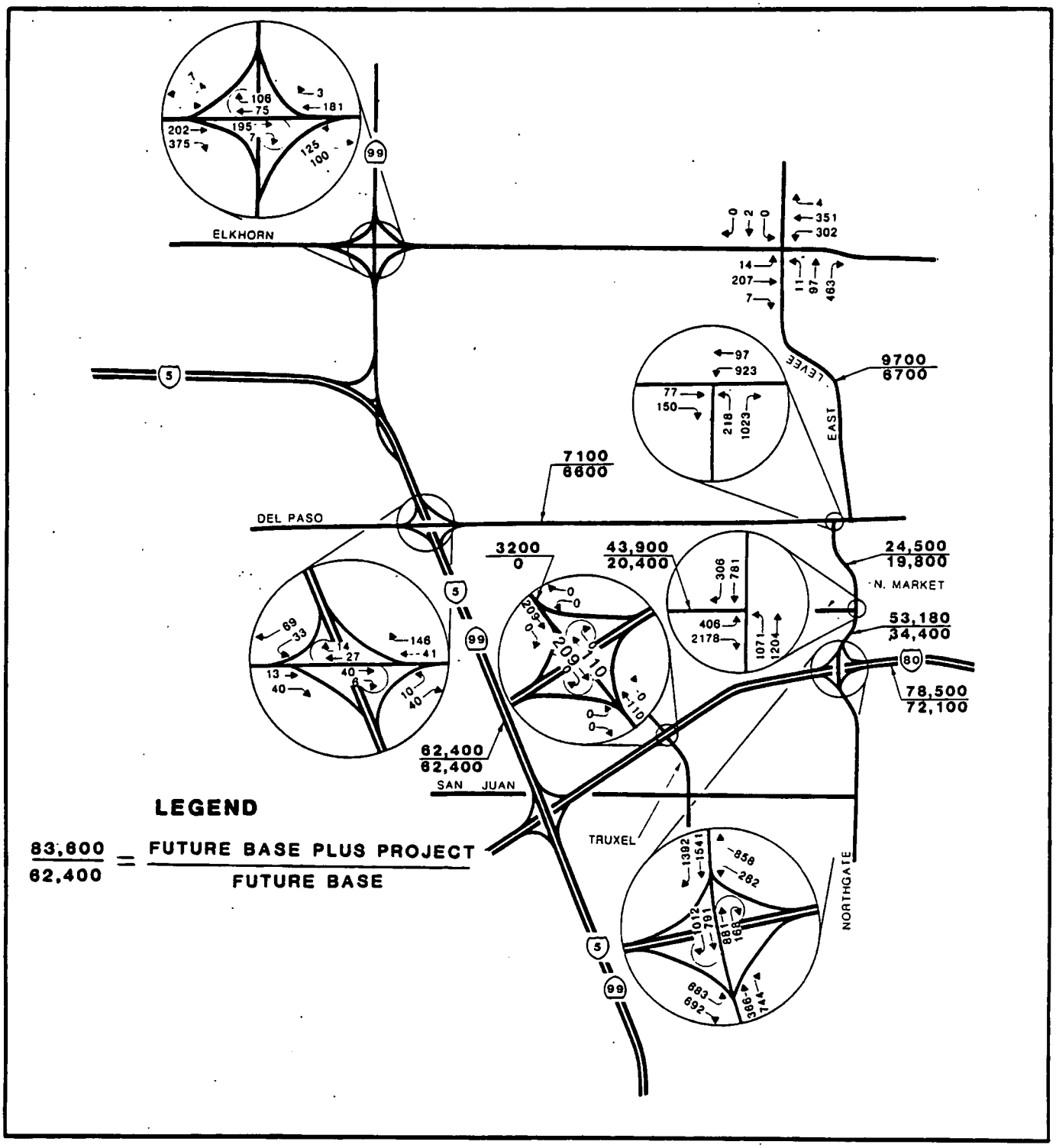
NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS PROJECT

AM PEAK HOUR TRAFFIC

EXHIBIT E-186



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

FUTURE BASE PLUS FONG PROJECT

DAILY AND PM PEAK HOUR TRAFFIC

EXHIBIT E-187

IMPACTS

The existing street system in the North Natomas area will not adequately support the Fong Ranch development proposal. As ExhibitE-190 indicates, five intersections will experience unacceptable operating conditions associated with Levels of Service "E" and "F", even with signalization. These intersections are Northgate/Del Paso, Northgate/North Market, and Northgate/I-80 westbound and eastbound ramps. In addition, the East Levee/Elkhorn intersection will operate at Level of Service "D", even with signalization, during both the AM and PM peak hours. The remaining intersections will operate at LOS "C" or better. Although signalization was assumed at all intersections, the Del Paso intersections with I-5 northbound and southbound ramps and the Elkhorn intersections with Highway 99 northbound and southbound ramps will not likely require signalization.

Exhibit E-190 compares freeway ramp utilization with and without the Fong Project. During the morning peak hour both off-ramps at Interstate 80/Northgate exceed capacity (LOS "F" V/C = 1.05 WB, 1.16 EB). All other ramps are expected to operate below capacity.

Exhibit E-191 compares Levels of Service on basic freeway segments with and without the proposed project. As shown, AM peak hour traffic volumes approach capacity on westbound I-80 east of I-5 (LOS "E" V/C = 99 and LOS "D/E" V/C = .96) on eastbound I-80 east of I-5.

EXHIBIT E-189
Future Base Plus Fong Project
Peak Hour Level of Service

INTERSECTION	AM WITHOUT MITIGATION V/C	AM WITHOUT MITIGATION LOS	AM WITH MITIGATION V/C	AM WITH MITIGATION LOS	PM WITHOUT MITIGATION V/C	PM WITHOUT MITIGATION LOS	PM WITH MITIGATION V/C	PM WITH MITIGATION LOS
E. LEVEE/ELKHORN	0.81	"D"	0.70	"B"	0.83	"D"	0.65	"C"
DEL PASO/NORTHGATE	1.08	"F"	0.63	"B"	0.92	"E"	0.77	"C"
NORTHGATE/N. MARKET	1.69	"F"	0.83	"D"	1.40	"F"	0.57	"A"
NORTHGATE/I-80 WB RAMPS	1.12	"F"	0.75	"C"	0.72	"C"	0.72	"C"
NORTHGATE/I-80 EB RAMPS	0.82	"C"	0.82	"C"	0.72	"C"	0.72	"C"
DEL PASO/I-5 NB RAMPS	0.07	"A"	0.07	"A"	0.10	"A"	0.10	"A"
DEL PASO/I-5 SB RAMPS	0.09	"A"	0.09	"A"	0.03	"A"	0.03	"A"
ELKHORN/HWY 99 NB RAMPS	0.35	"A"	0.35	"A"	0.15	"A"	0.15	"A"
ELKHORN/HWY 99 NB RAMPS	0.19	"A"	0.19	"A"	0.25	"A"	0.25	"A"

EXHIBIT E-190

Future Base Plus Fong Project

Ramp Levels of Service

	AM				PM			
	FUTURE BASE		FUTURE+PROJECT		FUTURE BASE		FUTURE+PROJECT	
INTERCHANGE	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
I-80 @ NORTHGATE								
WB OFF RAMP	.59	"B"	1.05	"F"	.59	"B"	.75	"C"
NB NORTHGATE TO WB ON RAMP	.10	"A"	.10	"A"	.11	"A"	.11	"A"
SB NORTHGATE TO WB ON RAMP	.40	"A/B"	.59	"A"	.42	"B"	.93	"D"
EB OFF RAMP	.63	"B/C"	1.16	"F"	.63	"B/C"	.91	"D"
SB NORTHGATE TO EB ON RAMP	.07	"A"	.17	"A"	.41	"A/B"	.49	"B"
NB NORTHGATE TO EB ON RAMP	.23	"A"	.25	"A"	.44	"B"	.49	"B"
I-5 @ DEL PASO								
SB OFF RAMP	.07	"A"	.10	"A"	.06	"A"	.07	"A"
WB DEL PASO TO SB ON RAMP	.04	"A"	.04	"A"	.01	"A"	.01	"A"
EB DEL PASO TO SB ON RAMP	.00	"A"	.00	"A"	.03	"A"	.03	"A"
NB OFF RAMP	.03	"A"	.03	"A"	.03	"A"	.03	"A"
EB DEL PASO TO NB ON RAMP	.00	"A"	.01	"A"	.01	"A"	.01	"A"
WB DEL PASO TO NB ON RAMP	.02	"A"	.02	"A"	.08	"A"	.10	"A"

EXHIBIT E-191
Future Base Plus Fong Project
Freeway Levels of Service

LOCATION/# LANES	AM				PM			
	FUTURE BASE		FUTURE + PROJECT		FUTURE BASE		FUTURE + PROJECT	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
INTERSTATE 80								
EAST OF I-5								
WESTBOUND/3	.91	"D"	.96	"D/E"	.41	"A/B"	.48	"B"
EASTBOUND/3	.34	"A"	.54	"B"	.83	"C"	.90	"D"
EAST OF NORTHGATE								
WESTBOUND/3	.88	"D"	.99	"E"	.40	"A/B"	.44	"B"
EASTBOUND/3	.33	"A"	.36	"A"	.81	"C"	.89	"D"
INTERSTATE 5								
NORTH OF I-80								
NORTHBOUND/3	.54	"B"	.54	"B"	.50	"B"	.50	"B"
SOUTHBOUND/3	.50	"B"	.50	"B"	.54	"B"	.54	"B"
NORTH OF DEL PASO								
NORTHBOUND/3	.55	"B"	.55	"B"	.55	"B"	.56	"C"
SOUTHBOUND/3	.51	"B"	.52	"B"	.51	"B"	.51	"B"

MITIGATIONS

It is possible that roadway and intersection improvements can be made which would support traffic generated by the Fong Ranch development proposal. The purpose of this section is to identify these improvements. As indicated earlier, the intersections of Del Paso/Northgate, Northgate/North Market, Northgate/I-80 westbound and eastbound ramps and East Levee/Elkhorn experience unacceptable operating conditions. An additional travel lane in each direction on Interstate 80 would be required to achieve LOS "C".

Following is a discussion of each of these locations and the improvements necessary to support development of the Fong Ranch. Exhibit E-189 also summarizes the Levels of Service with mitigation.

1. Northgate Boulevard A ten lane street section would be necessary between Interstate 80 and North Market Boulevard. North of Northgate Boulevard, a four lane section is required.

2. North Market Boulevard An eight lane section would be required.

3. East Levee/Elkhorn - Along with siganlization a right turn lane should be added to the East Levee northbound approach. Level of Service would improve from "D" during both peak hours to "B" and "C", respectively for the AM and PM peak hours.

4. Del Paso/Northgate One improvement, other than signalization, is required: addition of a westbound approach lane to provide one lane for left turns only and one lane for left turn and through traffic. These improvements will raise the Level of Service at this location from "F" and "E" to "B" and "C" in the AM and PM peak hours, respectively.

5. Northgate/North Market Additional through lanes are required in both the northbound and southbound directions on Northgate along with the addition of another left turn lane (creating dual lanes) for the northbound to westbound movement. Right and left turn lanes must be added to North Market, providing exclusive right turn lanes, and dual left turn lanes. With these

improvements, the Level of Service changes from "F" in both peak hours to "D" and "C" in the AM and PM peak hours, respectively. To further mitigate the AM peak hour traffic condition but still not change the LOS from "D", additional through travel lanes will be required such that six through travel lanes will be provided plus full turn channelization at the intersection.

6. Northgate/I-80 Westbound Ramps Widening and restriping of the ramp to provide dual right turn lanes and a single left turn lane would raise the Level of Service from "F" to "C" in the AM peak hour. A two lane off-ramp extending to the freeway is required.

7. Northgate/I-80 Eastbound Ramps Installation of an exclusive right turn lane on the westbound off-ramp will be required to improve from LOS "F" and "C" during the AM and PM peak hour, respectively to "A" during both periods. A two lane off-ramp extending to the freeway is required.

F. AIR QUALITY -- THE SETTING

The North Natomas Study Area lies within the Sacramento Valley which is bounded by the coastal ranges to the west and the Sierra Nevada to the east. A sea level gap in the Coast Range -- the Carquinez Strait -- is located 50 miles southwest, and the intervening terrain is very flat. The prevailing wind direction at Sacramento is southwesterly, resulting from marine breezes through the Carquinez Strait. During winter when the sea breeze diminishes northerly winds occur more frequently, but southerly winds still predominate.

AIR POLLUTION POTENTIAL

The term "air pollution potential" refers to the atmosphere's relative ability to transport and dilute pollutants. This potential is determined by the frequency and speed of winds and by the stability of the atmosphere. Stability refers to the tendency of the atmosphere to suppress or enhance vertical mixing. An extremely stable atmosphere is one where temperature increases with height, known as inversion conditions.

The potential for air pollution is greatest for non-photochemical pollutants in fall and winter when winds are lowest and inversions are most frequent. For photochemical pollutants, temperature and sunshine also are important. The combination of light winds, warm temperature, sunshine, and a stable atmosphere needed for formation of photochemical pollutants is most probable in the late summer and fall.

POLLUTION STANDARDS

The Clean Air Act of 1967, as amended, established air quality standards for several pollutants. These standards are divided into primary standards which are designed to protect the public health and secondary standards which are intended to protect the public welfare from effects such as visibility reduction, soiling, nuisance, and other forms of damage. In addition the State of California has adopted its own standards.

The State standards are durations of time for specific contaminant levels which are designed to avoid adverse effects with a margin of safety. Appendix F-1 describes these standards.

CURRENT AIR QUALITY

Major sources of air pollutants in the Sacramento area are vehicle exhausts, solvent use, pesticide application, petroleum processing, transfer and storage, industrial processes and agricultural and waste burning. The automobile is the largest single source category for carbon monoxide, hydrocarbons, and oxides of nitrogen. The major source of particultate matter is construction and demolition.

A summary of air quality data from the Sacramento area is shown in Exhibit F-3. Data from 1981-1983 are shown for monitoring sites in the Sacramento Area operated by the Sacramento County Air Pollution Control District and the California State Air Resources Board.

Exhibit F-3 shows that the standards for ozone and total suspended particulates currently are exceeded in the Study Area. Carbon monoxide also is a problem in certain areas of Sacramento near the intersecton of major roadways. Levels of other pollutants normally do not exceed either State or Federal standards.

In 1977 the US Environmental Protection Agency designated the Sacramento Air Quality Maintenance Area as a non-attainment area for two pollutants: carbon monoxide and ozone. This was based on continued violations of the Federal primary standards for these pollutants. Improvement in levels of these pollutants has occurred in the past several years, (see Exhibit F-3) but the standards are still not met.

Carbon Monoxide

Carbon monoxide is a local pollutant in that high concentrations are found only very near the source. The major source of carbon monoxide, a colorless, odorless, poison gas, is automobile traffic. Elevated concentrations, therefore, usually are found near areas of high traffic volumes. Violations of the carbon monoxide standards are limited to central Sacramento.

Ozone

Ozone is a regional photochemical pollutant with entirely different characteristics from carbon monoxide. Ozone is not emitted directly to the atmosphere by any source but is the result of a complex chemical reaction in

EXHIBIT F-3

Summary of Air Quality Data 1981 - 1983

Pollutant	Year	Monitoring Site: North Highlands[1/]	Del Paso Manor[2/]	Citrus Heights[3/]
		Number of Days Exceeding Standard		
Carbon Monoxide	1981	0	--	0
	1982	0	5	0
	1983	0	1	0
Ozone	1981	11	9	12
	1982	8	4	1
	1983	4	9	4
		Annual Geometric Mean (Micrograms/cubic meter)		
Total Suspended Particultates	1981	--	61	67
	1982	47	46	55
	1983	41	43	50

Source: California Air Quality Data Annual Summary, Volumes XIII-XV, Calfornia Air Resources Board, 1982-1984.

1/ Located at 7823 Blackfoot Way, Approximately five miles east of the Study Area

2/ Located at 2701 Avalon Drive, approximately 12 miles southeast of the Study Area

3/ Located at 7400 Sunrise Boulevard, approximately ten miles east and north of the Study Area

the atmosphere in the presence of sunlight. The major pollutants involved in this reaction, known as ozone precursors, are hydrocarbons and oxides of nitrogen. The sources of these precursor pollutants are numerous and widespread, and the major sources are vehicles, industrial processes, combustion, solvents, and paints.

Because of the time delay of several hours involved in the formation of ozone, ozone concentrations are much more uniform over an area, with the highest concentrations found downwind of the urban area. Ozone also can be transported long distances by wind so that ozone created by Sacramento emissions may affect other areas of the Sacramento Valley and the Sierra Nevada, and ozone from the San Francisco Bay Area may be transported to the Sacramento area.

Sacramento Air Quality Plans

The Federal Clean Air Act requires that regional plans be prepared for non-attainment areas showing how the Federal standards are going to be attained by 1987. The Sacramento Area Council of Governments and member government agencies have prepared programs designed to reduce emissions in the region through stationary source controls, transportation control measures, and mobile source controls. The region involved and the Sacramento Air Quality Maintenance Area is shown in Exhibit F-5. Analysis predicts that the carbon monoxide standard will be met by 1987. Substantial improvement in ozone levels is predicted by 1987 but not sufficient to reach the Federal standard, due to higher than expected population growth rates and less than expected effectiveness of control measures. [1]

A recent update to the 1982 Sacramento Air Quality Plan [2] found that a trend analysis for ozone indicated that current control measures now implemented throughout the region have been sufficient to prevent a further deterioration in air quality, but an additional 25 percent reduction in ozone levels will be necessary to acheive the federal ambient air quality standard. Population growth is cited as another problem, in that actual population growth in the period 1979 to 1985 exceeded the projections used in the Air Quality Plan. The actual population of Sacramento exceeds the originally projected population by about four percent, increasing the amount of reduction in ozone precursors needed to bring about attainment of the ozone standard.

The Clean Air Act defines reasonable further progress as "annual incremental reductions in emissions .. which are sufficient ... to provide for

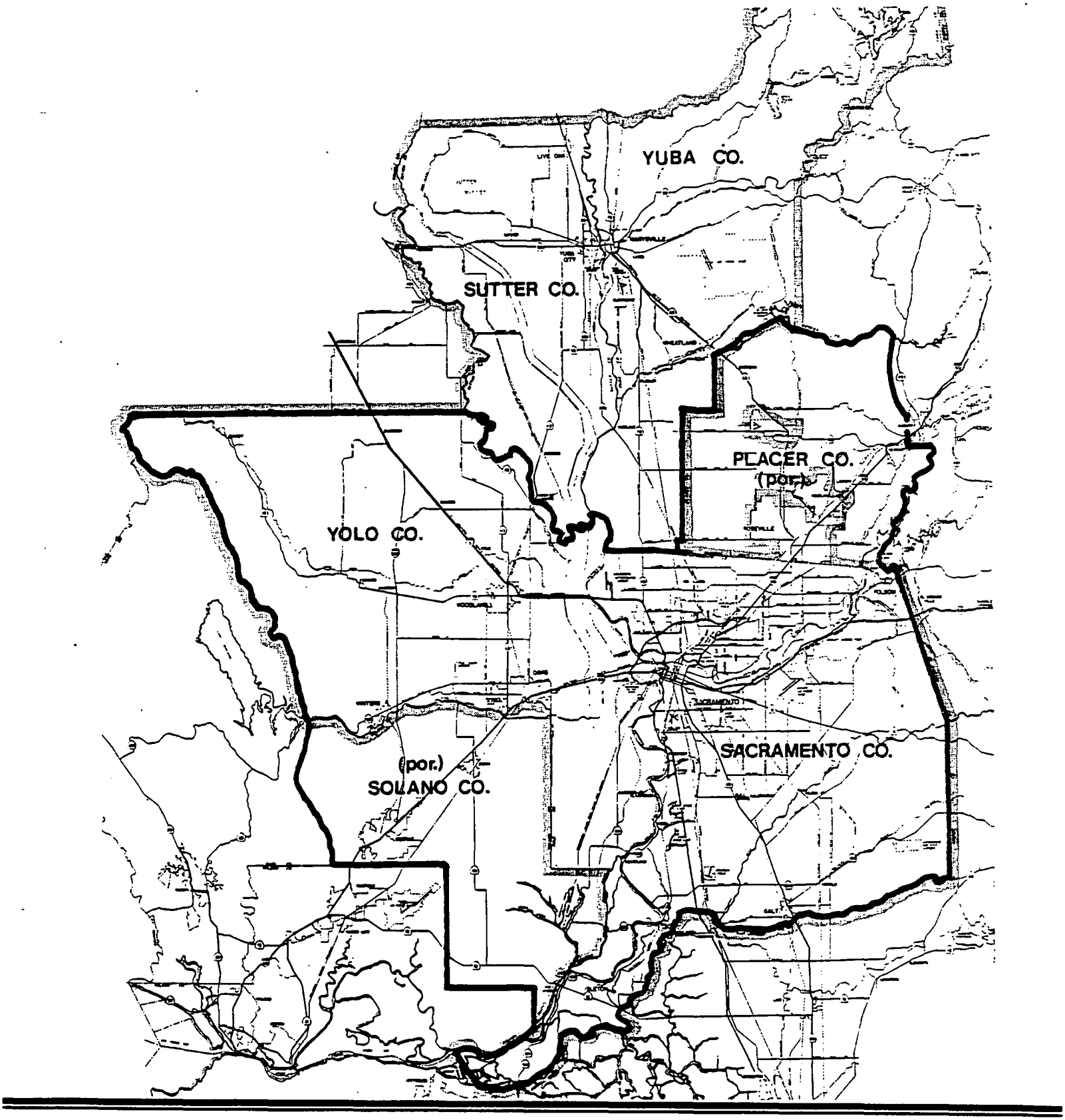


EXHIBIT F-5
AIR QUALITY MAINTENANCE AREA BOUNDARY

Boundary

0 5 10 Miles

Source: Sacramento Area Council of Governments

attainment of the applicable national ambient air quality standard by the date required ...", which for Sacramento is 1987. Because the Air Quality Plan does not predict attainment of the standard by 1987, "reasonable further progress is not being made" but "there has been, and will continue to be, an effort to mitigate the air quality impacts of new development in the Sacramento area and to develop new air quality control measures". [3]

F. AIR QUALITY -- THE IMPACTS

Implementation of any one of the North Natomas Community Plan alternatives (A through E) would affect air quality of the greater Sacramento area in numerous ways. Land use changes would eliminate existing sources of pollution (mainly agricultural) and introduce new point, area, and mobile sources of air pollutants. Point sources are discrete outlets for pollutants such as stacks and vents and usually are associated with industrial land uses. Area sources refer to more dispersed release of pollutants, such as combustion exhaust from space and water heaters, the evaporation of solvents or other volatile substances, or the sporadic generation of pollutants from open burning. Mobile sources are cars, trucks, and buses which release exhaust gases and have evaporative losses of fuel.

Pollutant sources also are commonly categorized into direct and indirect sources. Direct sources are point or area sources where the release of pollutants occurs on site. Indirect sources are land uses which do not directly cause emissions but attract vehicular traffic which generates pollutants. In this case, the release of pollutants is dispersed over the roadway system with very little of the pollutant release on site.

DIRECT EMISSION CHANGES

Alternatives A through E would introduce new direct sources into the Study Area while removing existing sources. For Alternative A, the Study Area would remain primarily agricultural with far fewer direct sources than Alternatives B, C, D and E. For Alternatives B, C, D and E proposed residential, commercial, office, and industrial land uses would replace agricultural uses. The direct sources associated with residential uses are domestic solvent use, domestic pesticide use, and fuel combustion for space and water heating, and cooking. Direct emissions from commercial and office uses mainly are fuel combustion for space and water heating, and dry cleaning and solvent use.

Industrial sources would depend greatly on the types of industrial processes which are developed within the Study Area. No information is available on what these industrial processes eventually might be, so the exact amount of emissions cannot be predicted. Rough estimates of industrial emissions have been prepared, however, based on industry-wide microelectronics' emission factors based on acreage.

Direct emissions associated with the land uses under each alternative are shown in Exhibit F-8. The derivation of these emissions is described in Appendix F-1.

Five Individual Applications

For Alternative E, the impacts shown in Exhibit F-9 would be attributable to the individual applications in approximately the following percentages:

Gateway Point		41	percent
Schumacher-Iverson		23	percent
Reid-Ketscher		8	percent
Fong Ranch		4	percent
Payne	less than	1	percent

INDIRECT EMISSION CHANGES

The land use changes associated with each alternative would have an indirect impact on vehicular emissions by attracting new traffic and changing the operating characteristics on roadways. These additional emissions would not occur just within the Study Area but would be spread over the entire transportation system. Total project-related mobile emissions have been calculated based upon trip generation, trip length, and average speeds for each alternative generated by the MINUTP travel model.

These parameters and emission factor assumptions are described in Appendix F-1. The resulting analysis for the year 2005 is shown in Exhibit F-9. The emissions in Exhibit F-9 reflect an assumed 15 percent reduction in reactive organic gases from automobiles due to the the current Inspection and Maintenance Program. Carbon monoxide emissions similarly have been reduced by 20 percent.

EXHIBIT F-8

Year 2005 Direct Emissions from North Natomas Land Uses

(tons/day)

Source	Pollutant [1/]	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Agriculture	CO	1.8	0.9	0.7	0.7	-
	NOX	0.1	0.1	-	-	-
	SOX	-	-	-	-	-
	ROG	0.6	0.2	0.1	0.1	-
	TSP	0.9	0.7	0.2	0.2	-
Residential	CO	-	0.1	0.1	0.1	0.1
	NOX	-	0.2	0.2	0.2	0.3
	SOX	-	-	-	-	-
	ROG	-	0.3	0.4	0.4	0.5
	TSP	-	-	-	-	-
Industrial	CO	-	-	-	-	-
	NOX	-	0.1	0.2	0.2	0.2
	SOX	-	-	-	-	-
	ROG	1.3	3.9	5.3	6.5	6.3
	TSP	-	-	-	-	-
Total	CO	1.8	1.0	0.8	0.8	0.1
	NOX	0.1	0.4	0.4	0.4	0.5
	SOX	-	-	-	-	-
	ROG	1.9	4.4	5.8	7.0	7.3
	TSP	0.9	0.7	0.2	0.2	-

1/ Legend:
CO = Carbon Monoxide
NOX = Oxides of Nitrogen
SOX = Sulfur Oxides
ROG = Reactive Organic Gases
TSP = Total Suspended Particulates

Source: Donald Ballanti

EXHIBIT F-9

Year 2005 Project Related Mobile Emissions

(tons per day)

Pollutant	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Carbon Monoxide (CO)	9.4	31.9	41.0	52.4	67.1
Oxides of Nitrogen (NOX)	1.1	3.6	4.5	5.6	7.2
Sulfur Oxides (SOX)	0.1	0.5	0.7	0.8	1.1
Reactive Organic Gases (ROG)	0.9	3.3	4.2	5.4	6.9
Total Suspended Particulates (TSP)	0.2	0.7	0.9	1.1	1.4

Source: Donald Ballanti

LOCAL SCALE IMPACTS

Sacramento is a non-attainment area for carbon monoxide, although carbon monoxide is not a problem everywhere in the region, only in certain areas near major intersections. Because the major source of carbon monoxide in Sacramento is automobiles, the highest levels of carbon monoxide will be found in areas of the heaviest traffic. Since the generation of carbon monoxide by automobiles decreases as vehicle speed increases, maximum concentrations of carbon monoxide are likely to be found near major congested intersections.

The Caline 3 dispersion model developed by the California Department of Transportion was used to analyze future carbon monoxide levels at seven intersections and interchanges in and near the Study Area. As much as possible, it was attempted to use the worst-case assumptions and methodology for modeling used for non-attainment planning for the region. [4] A worst-case analysis is appropriate because it is under such conditions that high levels of carbon monoxide occur. A description of the methodology and assumptions is contained in Appendix F-1. Calculations of estimated worst-case concentrations were made at distances of 7 and 10 meters from the edge of the roadways. The results for the calculation at a distance of 7 meters is shown in Exhibits F-11 and F-12. Exhibit F-11 shows worst-case 1-hour average concentrations, and Exhibit F-12 shows worst-case 8-hour average concentrations.

The intersections analyzed in Exhibits F-11 and F-12 were selected because they would carry the highest volumes and would have the lowest levels of service in the Study Area. For both averaging times, predicted levels would be well below all state and federal standards for all alternatives. This is consistent with the modeling conducted for the non-attainment program which indicates attainment of the carbon monoxide standard at the most congested and heavily travelled intersections in Sacramento by 1987 and continued decline in concentrations through 1995. [5]

REGIONAL SCALE IMPACTS

The effect of land use changes on regional air quality is not simple to quantify. Changes in land use naturally would affect land use elsewhere in the region. For example, the direct and indirect emissions in Exhibit F-8 and F-9 are associated with the proposed land uses in the Study Area, but can not be considered to be totally new growth because development in North Natomas would absorb a certain amount of growth which otherwise would have

EXHIBIT F-11

Worst-Case 1-Hour Carbon Monoxide Concentrations[1/]

(parts per million)

Intersection/Interchange	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Truxel Road/North Market Boulevard	-	7.5	6.9	7.9	8.3
Truxel Road/Del Paso Road	-	6.6	6.5	7.4	6.4
Del Paso Road/N-S Road (west)	-	5.8	6.5	6.7	7.4
Del Paso Road/N-S Road (east)	-	5.6	7.1	6.1	6.4
Northgate Boulevard/ North Market Boulevard	7.2	6.9	5.2	5.6	6.0
Truxel Road/I-80	5.9	7.5	8.1	8.4	8.3
Northgate Boulevard/ I-80	6.3	6.9	6.3	6.6	6.8

1/ Federal 1-hour standard is 35 parts per million
State 1-hour standard is 20 parts per million

Source: Donald Ballanti

EXHIBIT F-12

Worst-Case 8-Hour Carbon Monoxide Concentrations[1/]

(parts per million)

Intersection/Interchange	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Truxel Road/North Market Boulevard	-	4.2	4.0	4.4	4.6
Truxel Road/Del Paso Road	-	3.8	3.8	4.2	3.7
Del Paso Road.N-S Road (west)	-	3.5	3.8	3.9	4.2
Del Paso Road/N-S Road (west)	-	3.4	4.1	3.6	3.7
Northgate Boulevard/North Market Road	4.1	4.0	3.2	3.4	3.6
Truxel Road/I-80	3.5	4.2	4.5	4.6	4.5
Northgate Boulevard/ I-80	3.7	4.0	3.7	3.8	3.9

1/ Federal 8-hour standard is 9.3 parts per million
State 8-hour standard is 9.1 parts per million

Source: Donald Ballanti

occurred elsewhere in the region as well as stimulate additional growth in the region.

According to the growth forecasts prepared by McDonald & Associates and further discussed in Section C of this EIR development in North Natomas is expected to also induce substantial additional growth in manufacturing and industrial uses, office construction, and population within the region compared with Alternative A. Emissions generated by this additional growth are what would affect future regional air quality. Alternatives B, C, D, and E would result in additional regional growth as well.

The MINUTP regional transportation model generated data on regional trip generation, average travel speed, and mean trip length which was used to estimate the net increase in regional mobile emissions for each alternative. Taking Alternative A as a base case, the total increase in regional Vehicle Miles Travelled was calculated. These results were multiplied by emission factors adjusted for the average system-wide mean speed in order to obtain daily pollutant increases. The inputs to this calculation are included in Appendix F-1.

For Alternative E, the proportion of the total impact due to each individual application is as follows:

Gateway Point	35 percent
Schumacher-Iverson	20 percent
Reid-Ketscher	06 percent
Payne	05 percent
Fong	04 percent

Direct emissions from residences, industrial land use, and office space were calculated in the same manner as in Exhibit F-8. The resulting net increase (above the Alternative A base case) in regional emissions for Alternatives B through E are shown in Exhibit F-14. The decrease in agricultural emissions eliminated by development in North Natomas also is shown and included in the calculation of the net change.

Exhibit F-14 shows that Alternatives B, C, D, and E would result in net increases in regional emissions of carbon monoxide, oxides of nitrogen, sulfur oxides, and reactive organic gases. A net decrease would occur for total suspended particulates. It should be noted that the emissions in Exhibit F-14 represent full buildout for Alternatives B and C, but not for Alternatives D and E. For Alternatives D and E the predictions are for the amount of development that could be reasonably built by the year 2005.

EXHIBIT F-14

Net Change in Year 2005 Regional Emissions by Alternative

From Alternatives A Base Case --(tons/day)

Source	Pollutant [1/]	Alternative B	Alternative C	Alternative D	Alternative E
Motor Vehicles	CO	9.9	18.6	26.3	29.3
	NOX	1.0	1.1	1.3	1.5
	SOX	0.1	0.2	0.3	0.3
	ROG	1.1	2.0	2.7	2.9
	TSP	0.2	0.3	0.3	0.4
Residential	CO	-	-	-	-
	NOX	-	-	-	-
	SOX	-	-	-	-
	ROG	0.1	0.1	0.1	0.1
	TSP	-	-	-	-
Industrial	CO	-	-	-	-
	NOX	-	-	-	-
	SOX	-	-	-	-
	ROG	1.4	1.4	1.4	1.4
	TSP	-	-	-	-
Agricultural	CO	(0.8)	(2.1)	(2.2)	(2.8)
	NOX	-	(0.1)	(0.1)	(0.1)
	SOX	-	-	-	-
	ROG	(0.2)	(0.5)	(0.5)	(0.7)
	TSP	(0.2)	(0.7)	(0.7)	(0.9)
Total	CO	9.1	16.5	24.1	26.5
	NOX	1.0	1.0	1.2	1.4
	SOX	0.1	0.1	0.3	0.3
	ROG	2.4	3.0	3.5	3.7
	TSP	0.0	(0.4)	(0.4)	(0.5)

1/ Legend:
CO = Carbon Monoxide
NOX = Oxides of Nitrogen
SOX = Sulfur Oxides
ROG = Reactive Organic Gases
TSP = Total Suspended Patriculates

Source: Donald Ballanti

The most significant of the emission changes shown in Exhibit F-14 would be that of reactive organic gases (ROG) and oxides of nitrogen (NOX), two ozone precursors. Although both pollutants are involved in the formation of ozone, modeling has shown that control of reactive organics is more efficient in reducing ozone than control of oxides of nitrogen. This is the strategy used in non-attainment planning for Sacramento. [6] The predicted increases in emissions of reactive organics range from 2.4 tons/day for Alternative B to 3.7 tons/day for Alternative E.

The latest published projections of reactive organic gases emissions in the Sacramento Nonattainment Area predict that, with current controls now in place, will reach a minimum of 119 tons per day in 1987 and increase after this time (see Exhibit F-16). Based on computer simulations of ozone formation and dispersion, the level of emission needed to attain the ozone standard is estimated at 87 tons per day. Estimated reactive organic emissions by 1995 are projected to reach 129 tons per day (in the absence of new controls and accounting for a four percent increase in population over that used in the Air Quality Plan). [7] Projections beyond 1995 are not currently available.

The increasing difference between the projected emissions and the level emissions required to attain the ozone standard indicate that ozone will be a persistent problem in the future in Sacramento. More stringent controls on stationary and mobile sources will be required if Sacramento is to grow at the predicted rates and still make progress towards attaining the ozone standard. Because the adoption, funding and effectiveness of air pollution controls is uncertain, attainment of the ozone standard in Sacramento is also uncertain.

Reactive organic emissions from the Study Area would equal from 2.7 to 4.2 percent of the 87 tons/day emission total associated with attainment of the standard.

The effect of Alternatives B through E would be to increase ozone levels in the Sacramento area by roughly 3 to 4 percent. This would result in delaying the attainment of the ozone standard (if it can be attained) or would contribute to its continued violation. Because of uncertainty with future controls and their effectiveness it is not possible to predict whether or not development in the Study Area would make attainment of the ozone standard impossible or how long it would delay attainment. Furthermore, since the ambient air quality standards are health related, the implementation of Alternative B, C, D, or E would contribute to continued adverse effects on health associated with ozone which include irritation of

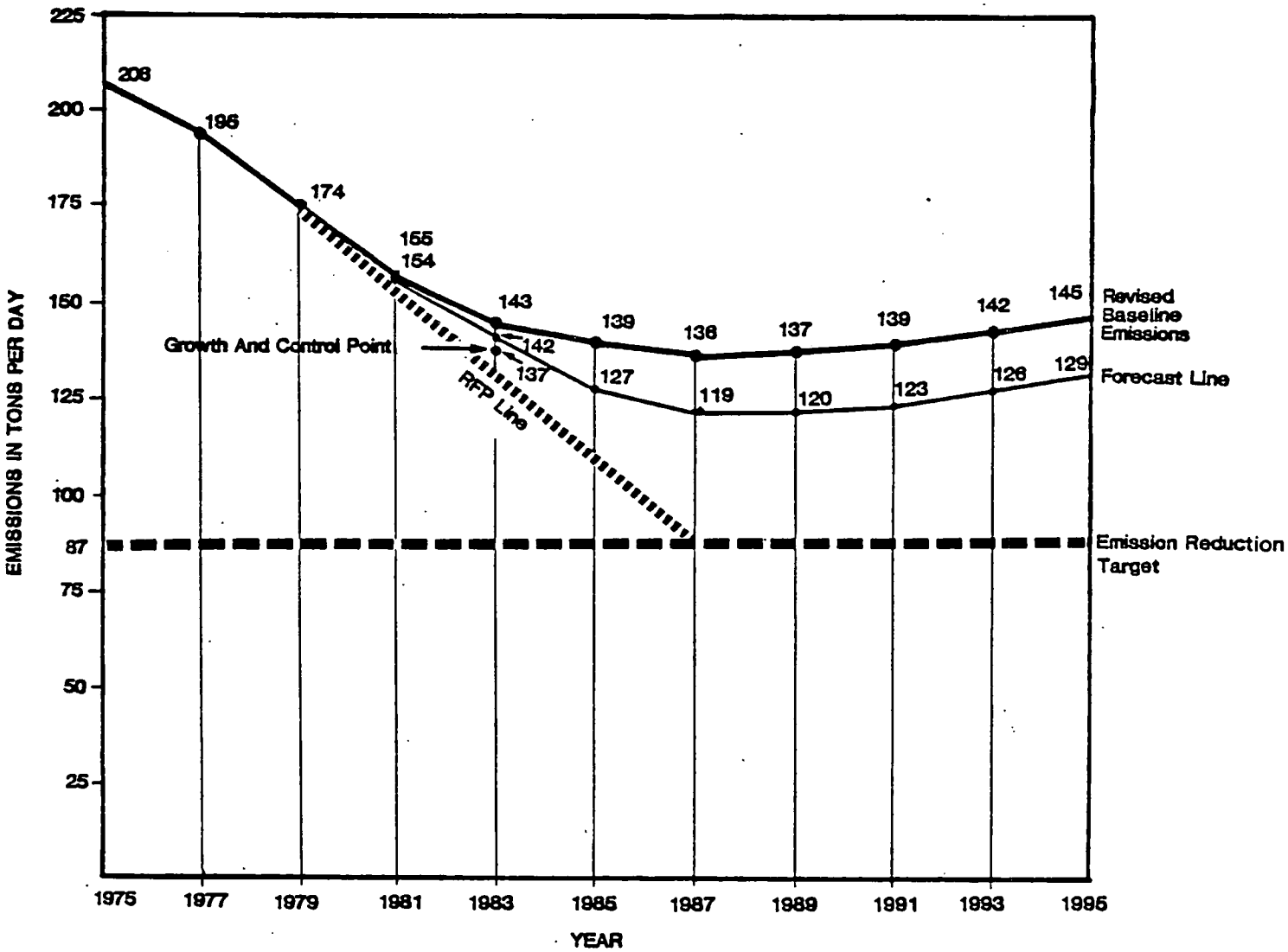


FIGURE F-16
REACTIVE ORGANIC GAS EMISSIONS IN PLACER, SACRAMENTO AND YOLO COUNTIES

In Tons Per Day - Average Annual Day
Revised Baseline Conditions
Forecast Line and Growth and Control Point

Source: Sacramento Area Council of Governments

the eyes and mucous membranes, damage to lung tissues, and aggravation of chronic conditions such as asthma, bronchitus, or emphysema. Ozone levels in the Sacramento area are also high enough to potentially cause damage to sensitive plants and crops such as citrus, grapes and flowers.

CONSISTENCY WITH THE REGIONAL AIR QUALITY PLAN

Implementation of Alternative A would be consistent with the Regional Air Quality Plan. Alternatives B through E technically are inconsistent with the Non-Attainment Plan (NAP) because they were not included in the statistical assumptions which formed the basis of the 1982 Sacramento Air Quality Plan. Explicit land use assumptions for North Natomas, however, only were made in preparation of the gridded emission data which were used as input to the ozone modeling for the years 1979 and 1987. None of the five Community Plan alternatives would substantially alter existing North Natomas land uses by 1987 and as a result any inconsistencies would not affect the 1987 projected ozone concentrations.

Regional emission projections beyond 1987 used in non-attainment planning have been based on general projections of population, employment and industrial activity and not on explicit land use or development assumptions. Again, the projections were found to be approximately four percent low for the period 1979 to 1985. [8] Development of North Natomas would be inconsistent with the Air Quality Plan to the extent that it would affect total regional growth in population, employment, and industry. The five percent increase in population inducted by development of North Natomas and the three to four percent increase in regional emissions would be inconsistent with the Plan's goal of reducing emissions to the level necessary to attain the ozone standard.

Inconsistency with the 1982 Air Quality Plan could be eliminated by revising the Plan to include development of North Natomas. The roughly three to four precent increase in regional emissions of reactive organics would require revision of the Plan's control strategies to offset this increase. Such strategies might include increased vehicle inspection, stricter transit and carpool ordinances, or additional controls on minor air pollution sources currently not under control. The difficulty in accomplishing this is evident because the Plan currently does not predict attainment of the ozone standard by 1987, as required by the Clean Air Act, and ozone levels are predicted to increase in the absence of stricter controls after 1987. [9]

The predicted failure to attain the ozone standard in Sacramento by 1987 authorizes the Environmental Protection Agency to impose certain penalties or sanctions. One type of sanction is a ban on the construction of major new stationary sources of air pollutants. The second type of sanction is to prohibit the use of Federal funding for transportion (such as freeway interchanges), sewer, or air pollution control projects.

Current Environmental Protection Agency policy is that sanctions will not be imposed if an area makes "reasonable efforts" to attain the Federal standard. "Reasonable efforts" are defined in terms of stationary control measures, transportation control measures, mobile source controls, emission offsets for new major stationary sources and land use control measures. Whether the development of North Natomas under Alternatives B through E would be a threat to continued "reasonable efforts" to attain the standard is uncertain, but it is certain that approval of one of these alternatives would require that additional and more stringent control measures be implemented on a regional basis to show progress towards meeting the ozone standard.

Exhibit F-19 provides a summary of anticipated air quality impacts.

F. AIR QUALITY -- MITIGATION MEASURES

The Sacramento Area Air Quality Plan for the City of Sacramento [10] and the County of Sacramento [11] contain the strategies designed to attain Federal air quality standards in Sacramento by 1987. Later documentation indicates that actual attainment of standards by this date is not likely. [12] Nevertheless, the Air Quality Plan contains several requirements (described below) that would be applied to new developments which would affect development of the Study Area. In addition, several air quality mitigation strategies (described below) which currently are not in the Air Quality Plan should be integrated into the Community Plan proposed for adoption. The transportation control measures and land use measures below would to applicable to all five Community Plan alternatives (A through E) as well as the five individual applications.

TRANSPORTATION CONTROL MEASURES

Ordinances based on the Air Quality Plan require that new developments and new major employers provide incentives for ridesharing, transit and bicycle use. The Plan's ridesharing measures would require all major new employers

EXHIBIT F-19

Summary of Anticipated Air Quality Impacts for Five Alternatives

Direct Impacts	Significant	Potentially Significant
Development would introduce new direct air emission sources while removing some existing agricultural sources.		A, B, C, D, and E
Land use changes would have an indirect impact on vehicular emissions by attracting new traffic.		B, C, D, and E
Net increases in regional emissions of carbon monoxide, oxides of nitrogen, sulfur oxides, and reactive organic gases. Net decrease for total suspended particulates.	B, C, D, and E	
Increase in ozone levels in the Sacramento area by roughly three to four percent.	B, C, D, and E	
Inconsistent with 1982 Sacramento Air Quality Plan (Non-Attainment Plan)	B, C, D, and E	

to provide specific minimum incentives and facilities for ridesharing, including preferential parking for carpools. New developments also would be required to provide secure parking for bicycles and provide for transit amenities. Developers also are allowed to reduce their required parking for automobiles in exchange for including additional bicycle and transit amenities. The Plan also provides that sufficient right-of-way be provided along new arterial roads or along realigned arterial roads if those roads are in the Sacramento Bikeways Master Plan or the Regional Transit Plan.

The application of these measures together with the extension of transit to the Study Area can be expected to reduce trip generation by about 15 percent and air pollutant generation by an equivelant amount. Transit and ridesharing would account for the bulk of the reduction.

LAND USE MEASURES

Because of stringent controls on vehicle emissions in California, the bulk of the emissions from an auto trip occur during the first few minutes of travel when the engine is cold and the emissions controls are not effective. This means that measures to reduce vehicle trips rather than reduce Vehicle Miles Travelled are more effective. Land use provisions which would be applicable to all five Community Plan alternatives (A through E) and each of the five individual applications and which can reduce vehicle trips include:

- Bicycle paths and lanes which connect residences to shopping, employment, and as recreation areas.
- Mixed land uses which provide banking, restaurants and child care facilities within walking distance of employment centers and residential areas.
- Creation of transit oriented neighborhoods rather than automobile oriented.
- Zoning which results in housing prices compatible with the salary structure of local major employers.
- Major open space and recreation facilities within close proximity to housing.

Because motor vehicle emission rates rise as vehicle speed is reduced, measures to improve traffic flow normally are considered air quality mitigation measures. Land development should be predicated on the timely funding, construction and/or improvements for freeways and arterials in order to avoid unwanted congestion and delay.

REGIONAL MITIGATION MEASURES

The following are additional measures that the City and County could support and promote as additional measures to offset project impacts. These measures require action by other agencies as well as by the City and County. Some of these measures are being considered as part of Reasonable Further Programs towards meeting the ozone standard within the Sacramento Area Air Quality Plan.

- Adopt an annual motor vehicle inspection program to replace the current biennial program.

- Adopt more stringent vehicle inspection standards.

- Amend current City/County trip reduction ordinances to remove the voluntary aspect and accelerate compliance schedules or adopt a mandatory TSM ordinance similiar to that of the City of Pleasanton (see Appendix F-2).

- Develop with the Regional Transit District a regional land use ordinance to ensure consideration and funding for future transit needs. An example of such a mitigation measure would be a transit fee on new development.

- Develop parking and automobile-commute disincentive programs such as pay parking for major employers.

- Request that the Sacramento County Air Pollution Control District adopt control regulations for the semiconductor manufacturing industry similar to those of the Bay Area Air Quality Management District (see Appendix F-3).

1 Attainment of National Ambient Air Quality Standards in the Sacramento Area, Sacramento Area Council of Governments, July, 1982.

2 Report on Reasonable Further Progress During Calendar Year 1983, Sacramento Area Council of Governments, March, 1985.

3 Ibid.

Memorandum from Andrew Ranzieri, Manager Air Quality Modeling Section, Air Resource Board, to Technical Review Committee for the Update 1982 NAP for Sacramento, May, 1980 and Memorandum from Andrew Ranzieri, Manager, Air Quality Modeling Section, Air Resources Board, to Wayne Shijo, Associate Planner, Sacramento Area Council of Governments, July 20, 1982.

5 Memo to Wayne Shijo, op. cit.

6 Attainment of National Ambient Air Quality Standards in the Sacramento Area, op. cit.

7 Report on Reasonable Further Progress During Calendar Year 1983, Sacramento Area Council of Governments, March, 1985.

8 Don Ballanti conversation with Wayne Shijo, Associate Planner, Sacramento Area Council of Governments, March 22, 1985.

9 Attainment of National Ambient Air Quality Standards in the Sacramento Area, op. cit.

10 City of Sacramento Air Quality Plan, City of Sacramento, November, 1981.

11 Air Quality Plan, Sacramento Area Council of Governments, October, 1981.

12 Attainment of National Ambient Air Quality Standards in the Sacrmaento Area, op. cit.

G. NOISE -- THE SETTING

The major existing noise sources in the Study Area are the Sacramento Metropolitan Airport, Interstates 5 and 80, the Union Pacific Railroad (formerly the Western Pacific Railroad), and, to a lesser extent, local city streets.

Typical noise levels measured in the environment and industry are shown in Exhibit G-2.

Existing annual average noise levels within the Study Area are shown in Exhibit G-3. The noise levels contributed by the airport sources have not been combined with the noise levels contributed by the highway sources. This is because the Sacramento County Airport Land Use Commission uses Community Noise Equivalent Level (CNEL) to describe aircraft noise operations while the City and County of Sacramento use the day/night average noise level (L_{dn}) to describe community noise levels. The major difference between these two measurement methods is that CNEL assesses a 5-decibel (dB) weighting penalty to operations which occur in the evening (7:00 PM to 10:00 PM) while the L_{dn} has no penalty assessed on evening activities. Both measurement methods penalize nighttime (10:00 PM to 6:00 AM) hours by 10 dBs. The purpose of these penalties is to account for people's increased sensitivity to noise which occurs at night. [1]

The noise level data for Metro Airport were taken from the Sacramento Metropolitan Airport Master Plan. The street and highway noise levels were obtained as follows:

- Noise levels for interstate highways were calculated on the basis of 1983 traffic volume, speed, and truck information supplied by Caltrans.

- Traffic volume, speed, and truck percentage information for local streets was obtained from the City of Sacramento.

NOISE CRITERIA

Two sets of noise impact criteria were used in this study.

The first set of criteria are contained in the Noise Elements of the City's and County's General Plans. Appendix G-2 provides the land use compatibility goals of the City and County as contained in their respective Noise Elements. City and County goals (which are identical) provide maximum

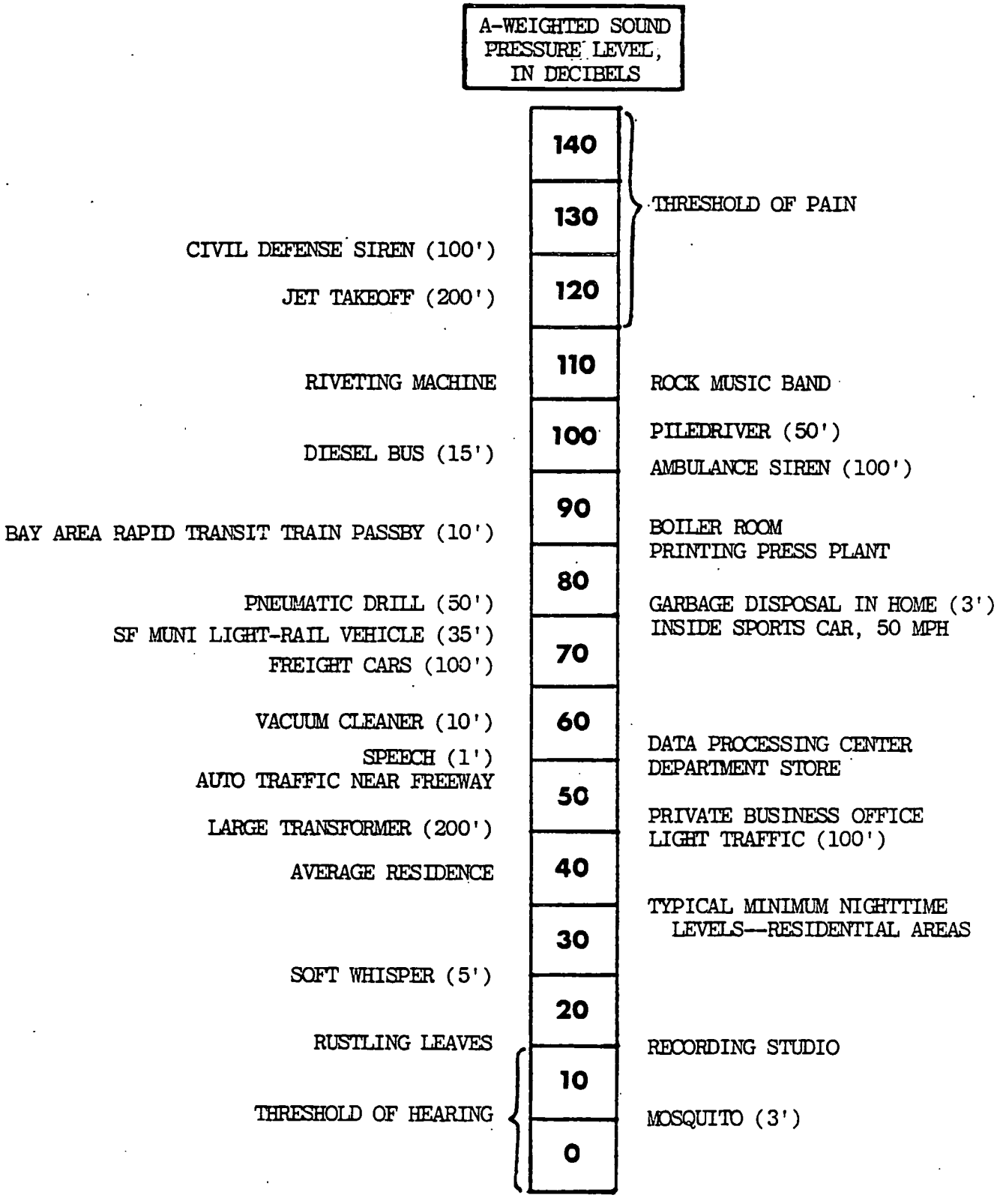


EXHIBIT G-2
TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

(100') = DISTANCE IN FEET BETWEEN SOURCE AND LISTENER

Source: Charles M. Salter Associates

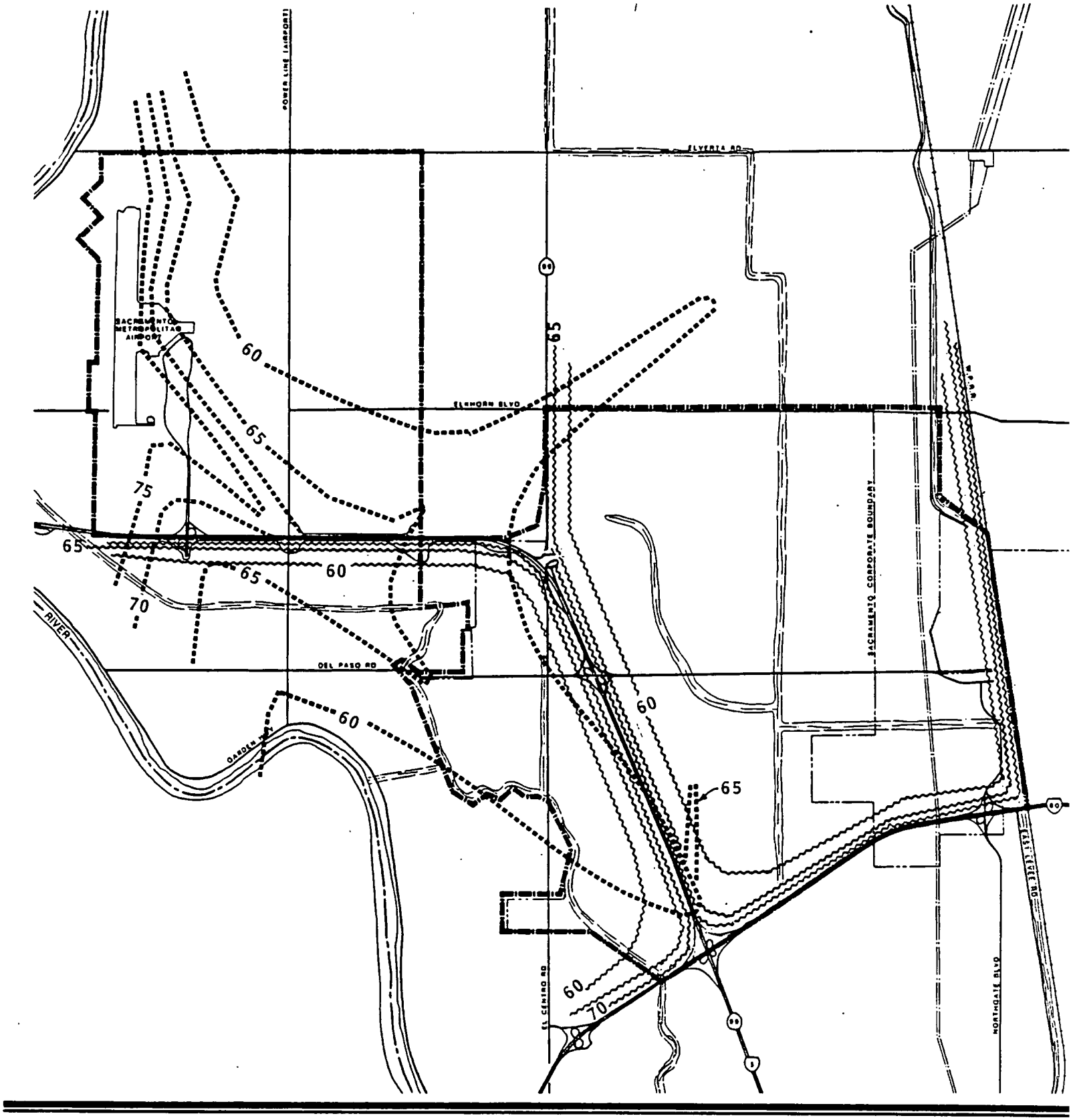


EXHIBIT G-3
EXISTING NOISE CONTOURS

---------- CNEL ----------

~~~~~~~~~~ L_{dn} ~~~~~~~~~~

0 3200 6400 Ft.

Source: Charles M. Salter Associates
~~~~~~~~~~

outdoor sound levels with which various land uses would be compatible, and also describe where noise mitigation measures should be undertaken if noise exceeds the levels deemed satisfactory.

The City's land use compatibility guidelines do not apply to areas adjacent to freeways. Noise levels for these areas are based on compatibility guidelines adopted by the Federal Highway Administration (FHWA) which define conditions where noise barriers should be constructed along freeways.

The second set of criteria covers areas subject to aircraft noise. Those criteria are contained in the Metropolitan Airport Comprehensive Land Use Plan (CLUP), and the CLUP's land use compatibility policies for aircraft noise are presented in Appendix G-3.

G. NOISE -- THE IMPACTS

Alternatives A through E have been analyzed to evaluate:

- The exposure of future residents and occupants of the Study Area to noise.

- The exposure of existing and proposed land uses outside the Study Area to increased noise levels generated from development in North Natomas.

Three major noise issues would affect the compatibility of future land uses with the Study Area's noise environment. They are:

- North Natomas is and will continue to be exposed to noise generated by aircraft operations at Metro Airport.

- Land uses in North Natomas would be exposed to noise generated on existing and future surface transportation facilities, including freeways, major arterials, light rail transit, and railroads.

- Alternatives B through E would include a sports complex. The noise associated with the loudspeaker system in the open air stadium could affect adjacent residents.

Exhibit G-5 summarizes the anticipated noise impacts related to the five Community Plan alternatives.

EXHIBIT G-5

Summary of Anticipated Noise Impacts for Five Alternatives

Direct Impacts	Significant	Potentially Significant
Some residential land use designated west of I-5 would be in an area where the CNEL would exceed 60 dB from airport operations.	C, D, and E	
Land uses along major roadways would be exposed to noise levels in excess of those deemed satisfactory by the City.		A, B, C, D, and E
If properly designed, industrial uses adjacent to roadways may be compatible with future noise levels.		A, B, C, D, and E
With proper design, it would be possible to design residential units along the roadways to provide an acceptable interior noise level.		B, C, D, and E
In some residential areas, such as along I-5, it would be very difficult to achieve an appropriate outdoor noise environment.	B, D, and E	
Residential uses within the 40 dBA contour of the stadium would result in annoyance to those residents.		B, C, D, and E

AIRCRAFT NOISE EXPOSURE

The compatibility of occupied developments with airport noise has been the subject of controversy for many years, and a great deal of information has been compiled on how much airport noise is tolerable for various land uses. While noise clearly affects all types of land use, the greatest controversy regarding acceptable noise levels is related to residential use.

The major problem in determining acceptability is that land use guidelines generally establish the upper limit of acceptability. Airports have found that residential development in noise zones considered to be "compatible", however, has resulted in lawsuits against airports or, at a minimum, in significant numbers of complaints about airport noise. In this context the Sacramento County Department of Airports is concerned about development of residential land uses in the North Natomas Study Area, including areas which would be considered appropriate by the Land Use Commission's own development guidelines. [2] This concern is based on the noise complaints which the Department of Airports periodically receives from South Natomas residents who live south of I-80 and east of I-5. Consequently, the Department is particularly concerned about residential development of land west of I-5 and encroachment on the take-off and landing patterns of Metro Airport. The Department has indicated that it would vigorously oppose any residential development in North Natomas west of I-5.

The Metro Airport Comprehensive Land Use Plan (CLUP) adopted by Sacramento County contains guidelines for determining the compatibility of various land uses with Metro Airport noise. [3] As shown by the CLUP, residential development is the most sensitive of all land uses to aircraft noise. Other uses decline in sensitivity from educational facilities to commercial development, industrial use, open space, agriculture, and recreational areas. The CLUP guidelines indicate that residential land uses should be avoided in areas where airport noise contributes to a CNEL of 60 dB or higher and that residential units should be insulated to reduce indoor noise to acceptable levels where the CNEL is between 55 and 60 dB.

The City also has guidelines to determine the compatibility of various land uses with community noise. [4] Under the City's guidelines, residential development (with no special noise insulation requirements) is acceptable where outdoor noise levels do not exceed an L_{dn} of 60 dB. If the L_{dn} exceeds 60 dB, then residential use should be permitted only after a careful study and inclusion of protective measures if needed. Other types of development are considered acceptable in areas where noise levels exceed an L_{dn} of 60 dB.

There is a significant difference between the Airport's and the City's guidelines for evaluating the compatibility of residential land uses with aircraft noise. The airport guidelines recommend that residential land use should be avoided if the CNEL exceeds 60 dB. They further recommend noise insulation of homes where the CNEL is between 55 and 60 dB. The City, on the other hand, would recommend no noise insulation up to an L_{dn} of 60 dB and would allow residential land uses above an L_{dn} of 60 dB as long as noise insulation measures are included in the dwellings. A recent study conducted in Toronto, Canada supports the airports more stringent guidelines. This study is described in more detail in the following paragraphs.

A study conducted in Toronto, Canada in 1981 evaluated the percentage of people "highly annoyed" by different levels of aircraft noise. This study found that approximately 12 percent of people who experience airport noise levels of 55 dBs CNEL were highly annoyed. When airport noise reaches 60 dBs CNEL, approximately 27 percent of people are highly annoyed. Since the Toronto study evaluated people living in homes of "normal" construction and without assuming mitigation measures for North Natomas, between 12 and 27 percent of people living in the Study Area would be highly annoyed by aircraft noise.

Based on the above information, the following design criteria is suggested for evaluating the compatibility of the proposed residential land uses with aircraft noise. The outdoor noise level in the residential development around the airport should be at or below a CNEL of 60 dB. While this level of outdoor noise is generally acceptable, instantaneous maximum indoor noise levels generated by individual aircraft passing over dwellings often are high enough to interfere occasionally with sleep, television watching, talking or other indoor activities. For this reason, it is recommended that maximum indoor noise levels due to individual aircraft flyovers not exceed 50 dBA where the CNEL is between 55 and 60 dB. This would result in noise levels indoors and outdoors that would be consistent with both the City's and Airport Land Use Commission's goals and would result in noise levels indoors and outdoors that would be considered acceptable by the majority of the population.

It is more difficult to generalize about single event criteria for office, commercial, educational, and civic land uses. In these areas, however, it generally is desirable to keep maximum noise levels below 60 dBA and less than 55 dBA in educational facilities. (Mitigation measures are recommended below to ensure that these levels are achieved for future development in the Study Area.)

Exhibits G-9, G-10, G-11, G-12 and G-13 show the location of the 60-dB CNEL noise contour for Metro Airport by the year 1990. The year 1990 contour is used because this is the latest year for which information is available. The location of the airport noise contour shown on these exhibits differs slightly from the location shown on the five alternative land use plans. When reviewing the future airport noise exposure, Charles M. Salter Associates noted that there had been an error in translating the noise exposure contours from the environmental assessment prepared for the proposed parallel runway to the Airport Land Use Commission Guidelines. Mr. Larry Kozub of the Sacramento Department of Airports has indicated that the contours contained in the environmental assessment are those that are to be used to make the noise and land use compatibility evaluations for this EIR. [5] While the 55-dB CNEL contour for Metro Airport has not been identified, preliminary calculations indicate that the majority of the Study Area would be exposed to an aircraft CNEL of between 55 and 60 dBs.

Alternatives A and B

Alternatives A and B do not designate residential land use in areas where the CNEL would exceed 60 dB. Alternatives A and B would not, therefore, designate residential uses in an area considered incompatible with airport noise by the Airport Land Use Commission.

Alternatives C, D and E

Alternatives C, D, and E do designate residential land use in an area where the CNEL would exceed 60 dB. Medium density residential in Alternative C and medium and high density residential in Alternatives D and E located just north of Del Paso Road and west of I-5 would be in an area considered incompatible with airport noise by the Airport Land Use Commission. None of the alternatives would locate educational or commercial facilities in areas exposed to noise in excess of compatible levels, but Alternatives C, D, and E would concentrate large amounts of residential development west of I-5.

It should also be noted that while the Airport Land Use Commission Guidelines require that the compatibility of proposed land uses be assessed against the noise exposure anticipated in the year 1990 after the installation of a parallel runway at Metro Airport, the airport noise exposure in that portion of the North Natomas Study Area west of Interstate 5 is presently exposed to a CNEL of greater than 60 dB. Until the noise

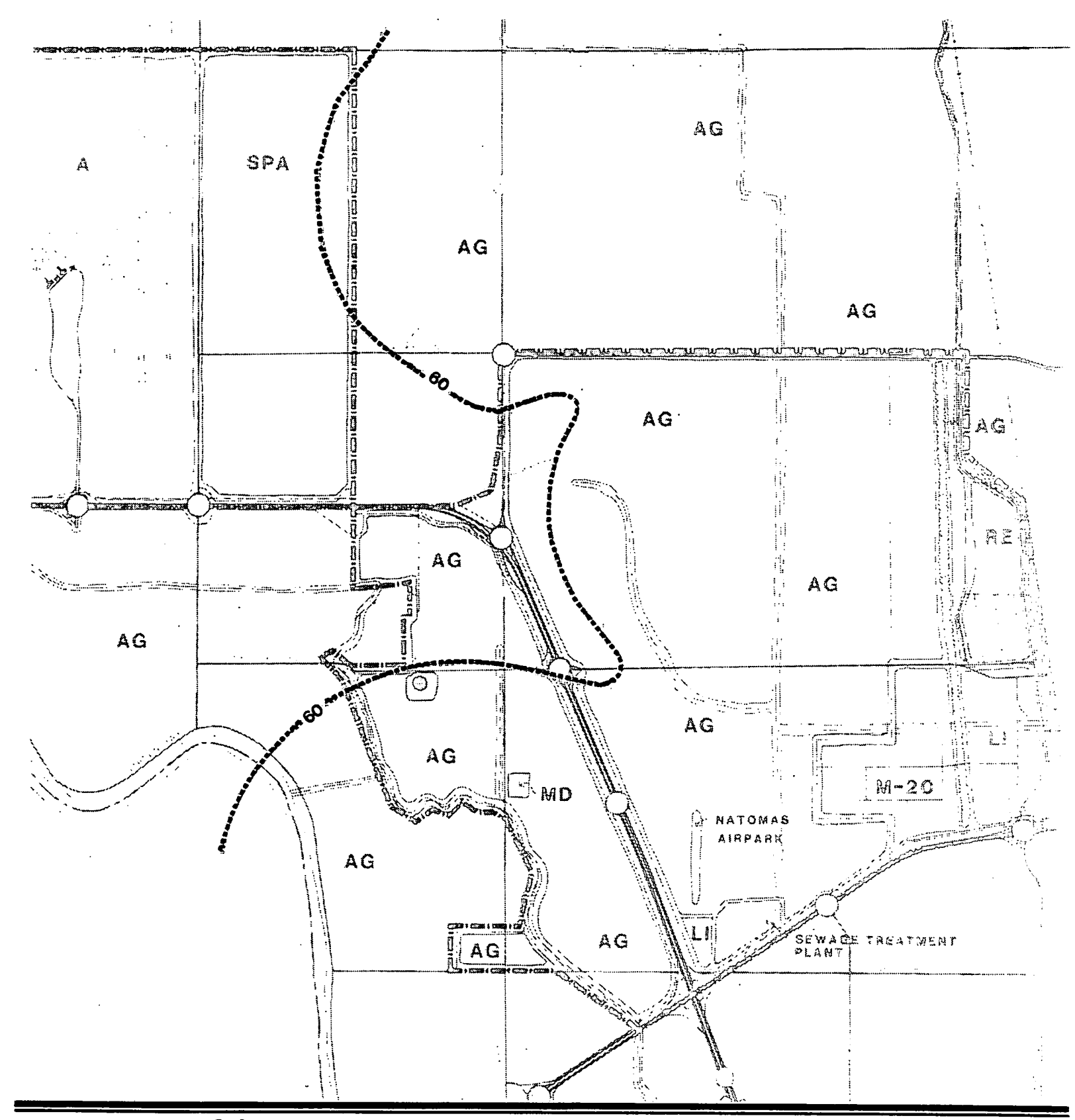


EXHIBIT G-9
METRO AIRPORT NOISE AREA - ALTERNATIVE A

..... 60-dB CNEL Noise Contour

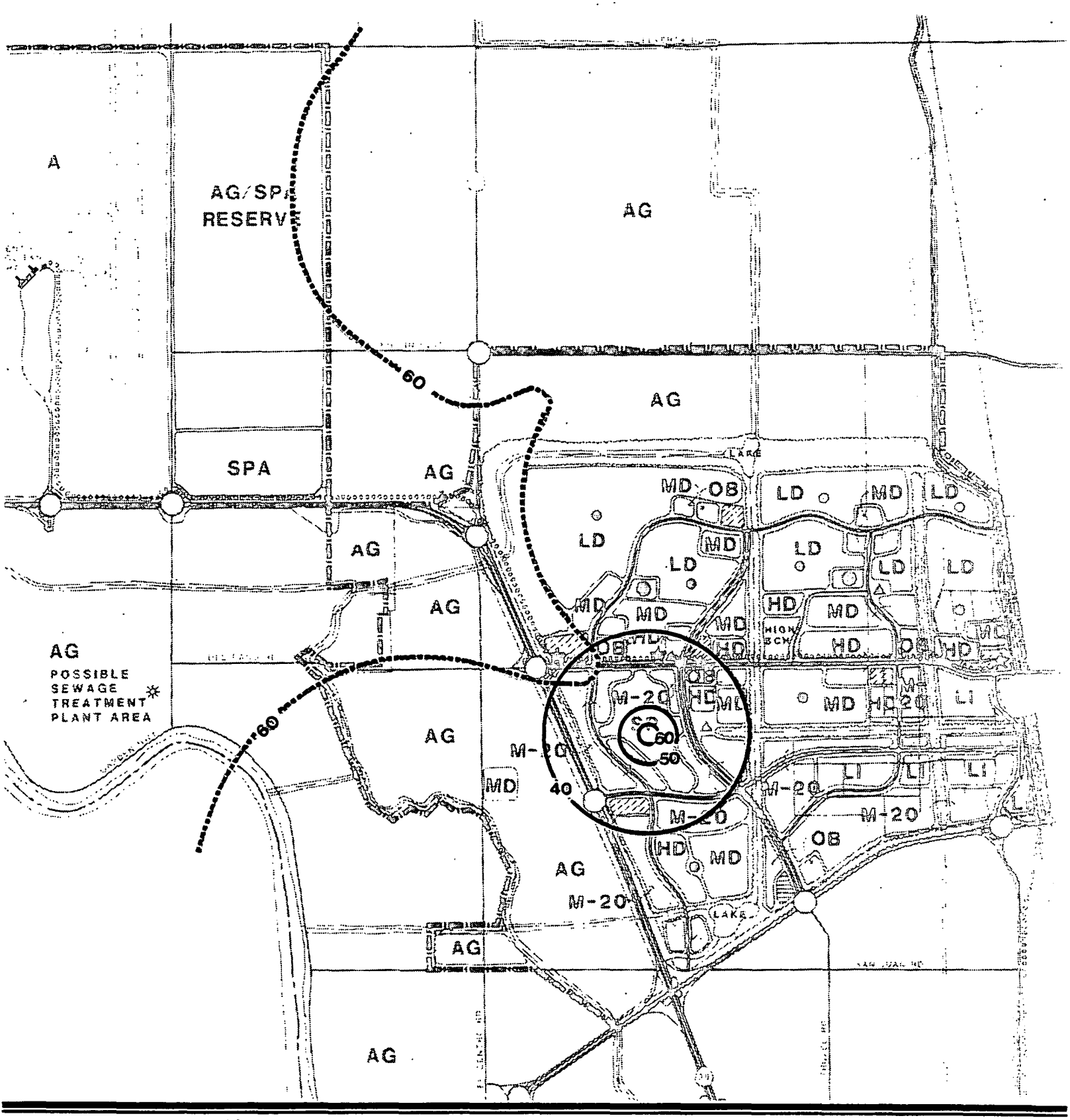


EXHIBIT G-10
METRO AIRPORT NOISE AND STADIUM IMPACT AREA
ALTERNATIVE B

60-dB CNEL Noise Contour

60 A-Weighted Instantaneous Maximum Sound Level Contour

0 3200 6400 Ft.

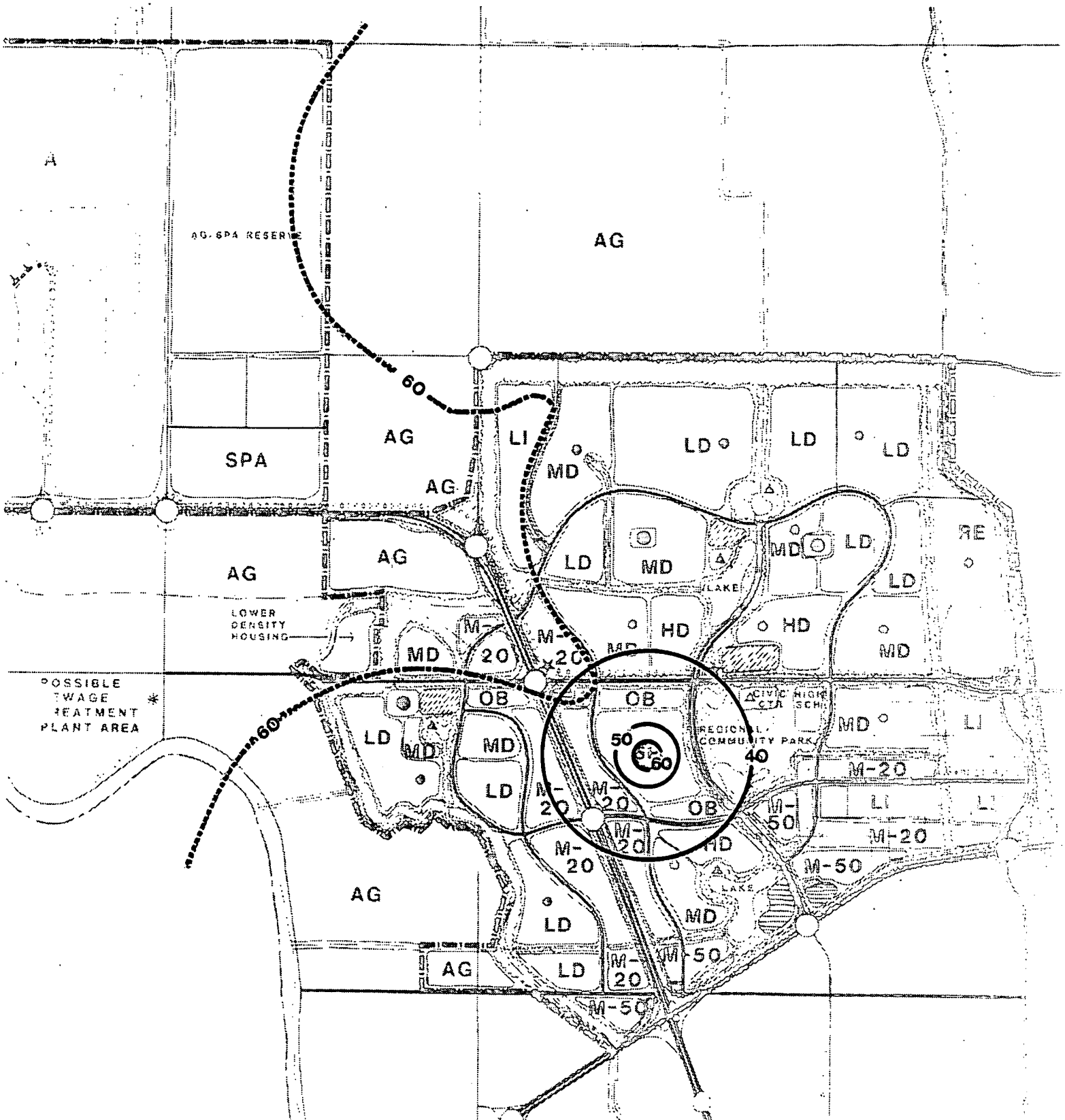


EXHIBIT G-11
METRO AIRPORT NOISE AND STADIUM IMPACT AREA
ALTERNATIVE C

60-dB CNEL Noise Contour

60 A-Weighted Instantaneous Maximum Sound Level Contour

0 3200 6400 Ft.

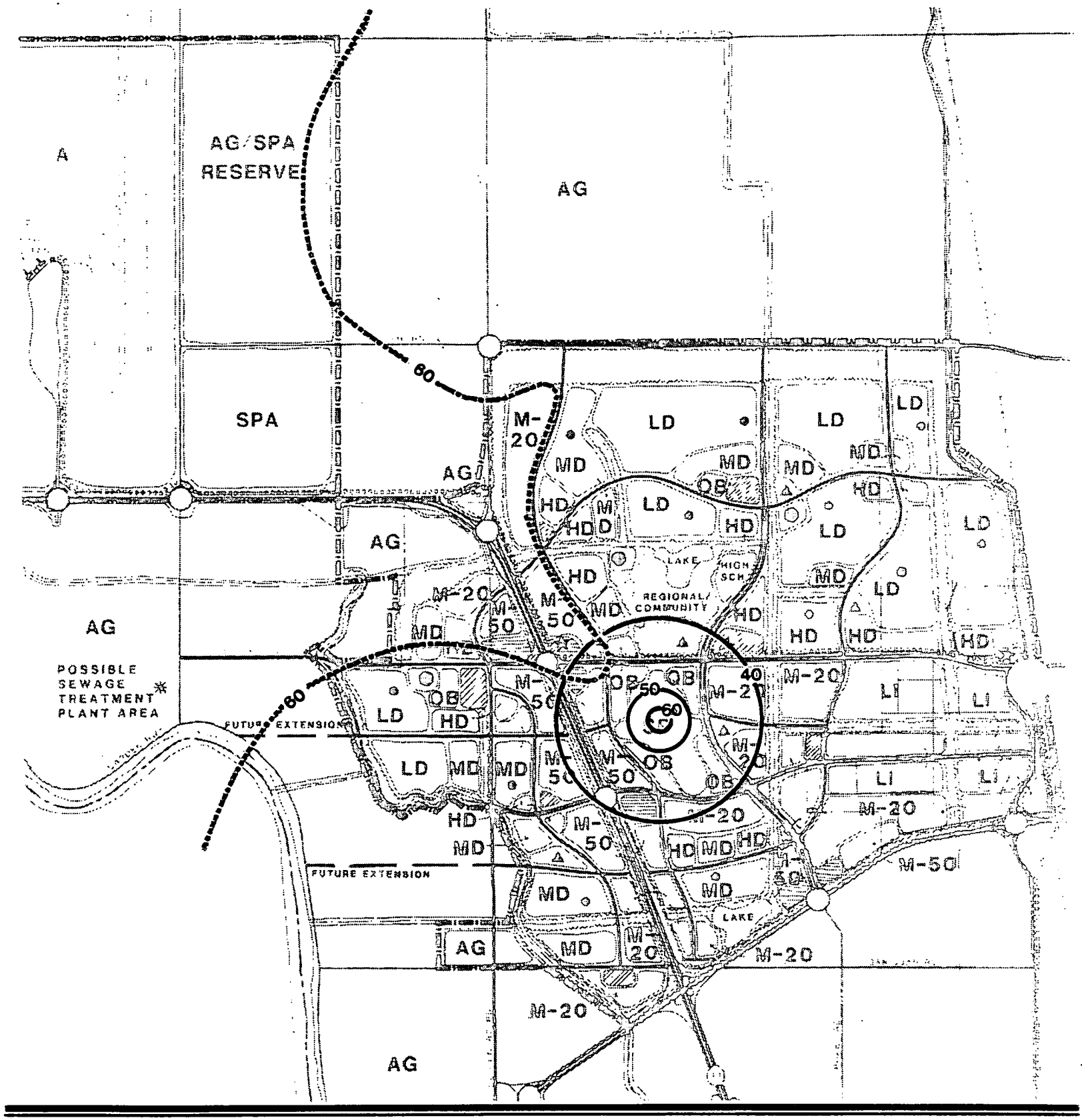


EXHIBIT G-12
METRO AIRPORT NOISE AND STADIUM IMPACT AREA
ALTERNATIVE D

60-dB CNEL Noise Contour

60 A-Weighted Instantaneous Maximum Sound Level Contour

0 3200 6400 Ft.

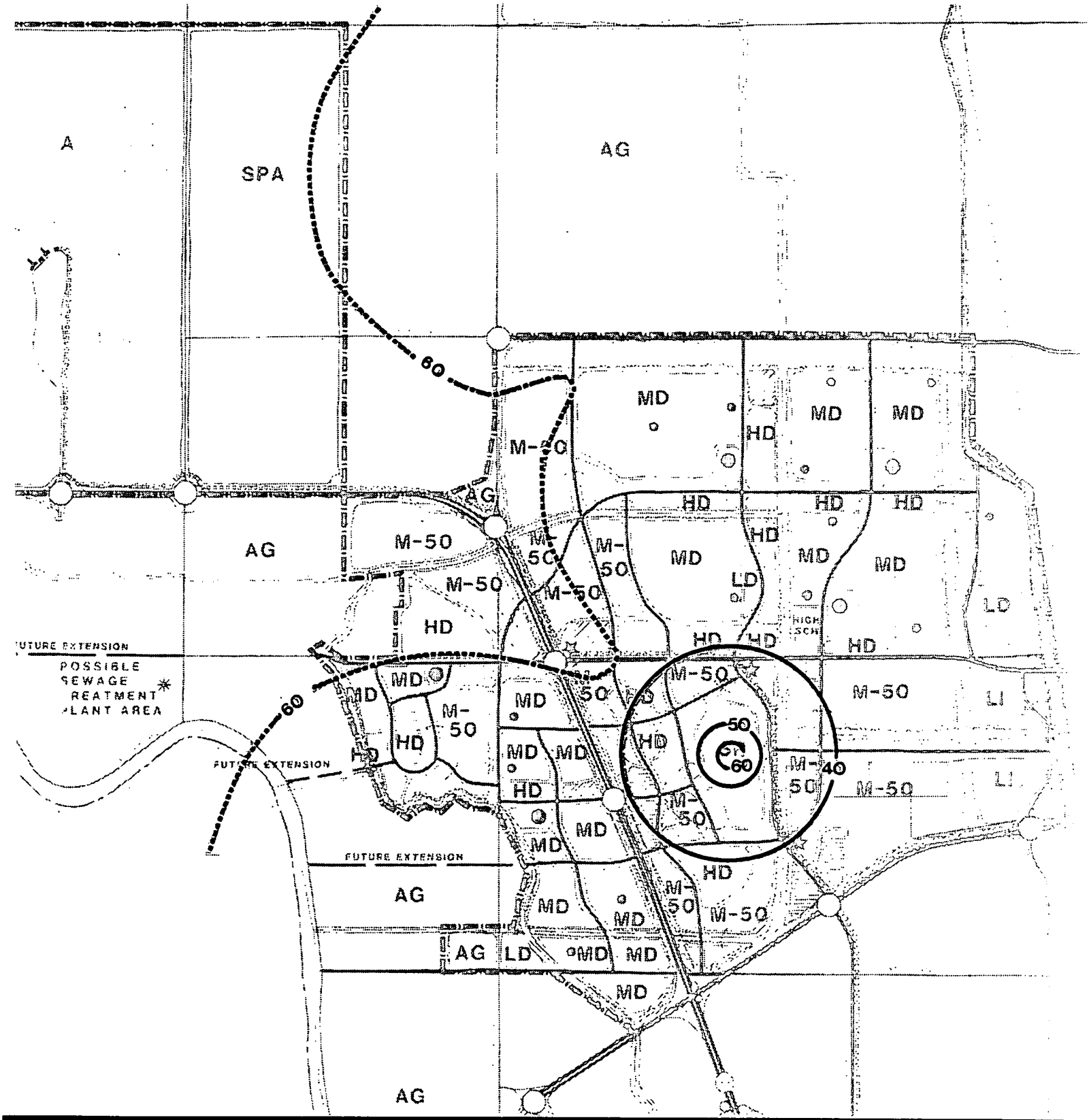


EXHIBIT G-13
METRO AIRPORT NOISE AND STADIUM IMPACT AREA
ALTERNATIVE E

..... 60-dB CNEL Noise Contour

60 A-Weighted Instantaneous Maximum Sound Level Contour

0 3200 6400 Ft.

level in this portion of the Study Area decreases to that anticipated, any residences developed here would be exposed to noise levels that would be considered by the Airport Land Use Commission to be incompatible with residential uses.

SURFACE TRANSPORTATION NOISE

Alternatives A, B, C, D and E

All five Community Plan alternatives would result in development which would be exposed to noise generated by surface transportation facilities, although the alternatives propose land uses with different sensitivities to noise when located adjacent to major transportation corridors. The City's noise guidelines were developed primarily to deal with problems of surface transportation noise and provide the basis for assessing the compatibility of various land uses with different levels of community noise.

Each alternative provides a different roadway system and, except for Alternative A, a light rail transit line. The 60, 65, 70, and 75-dB L_{dn} noise contours were developed for each major street and the light rail line on the basis of anticipated traffic speed, percentage of heavy trucks, and daily travel patterns. [6] These contours were compared with the land uses proposed under each alternative. Land uses which would be exposed to noise levels in excess of levels considered "satisfactory" by the City's noise guidelines were identified. The results of this analysis are summarized on Exhibits G-15, G-16, G-17, G-18 and G-19. The distances to the 60, 65, 70, and 75-dB L_{dn} noise contours along major arterials are listed for each alternative in Appendix G-4.

The information regarding the noise generated by the proposed light rail transit line was taken from the "Noise Impact Report, Sacramento Light Rail Transit System" prepared by the California Department of Transportation, District 03, July 1982. Based on this information it was calculated that the L_{dn} for four-car trains traveling at 37 miles per hour at 7-1/2 minute headways would be 60 dB at a distance of 100 feet from the center of the tracks. The sound level generated by the light rail vehicles would decrease by approximately four decibels for every doubling of distance away from the tracks. When preparing Exhibits G-16, G-17, G-18 and G-19 the contribution of the light rail line noise was added to the contribution of the noise emanating from local surface streets.

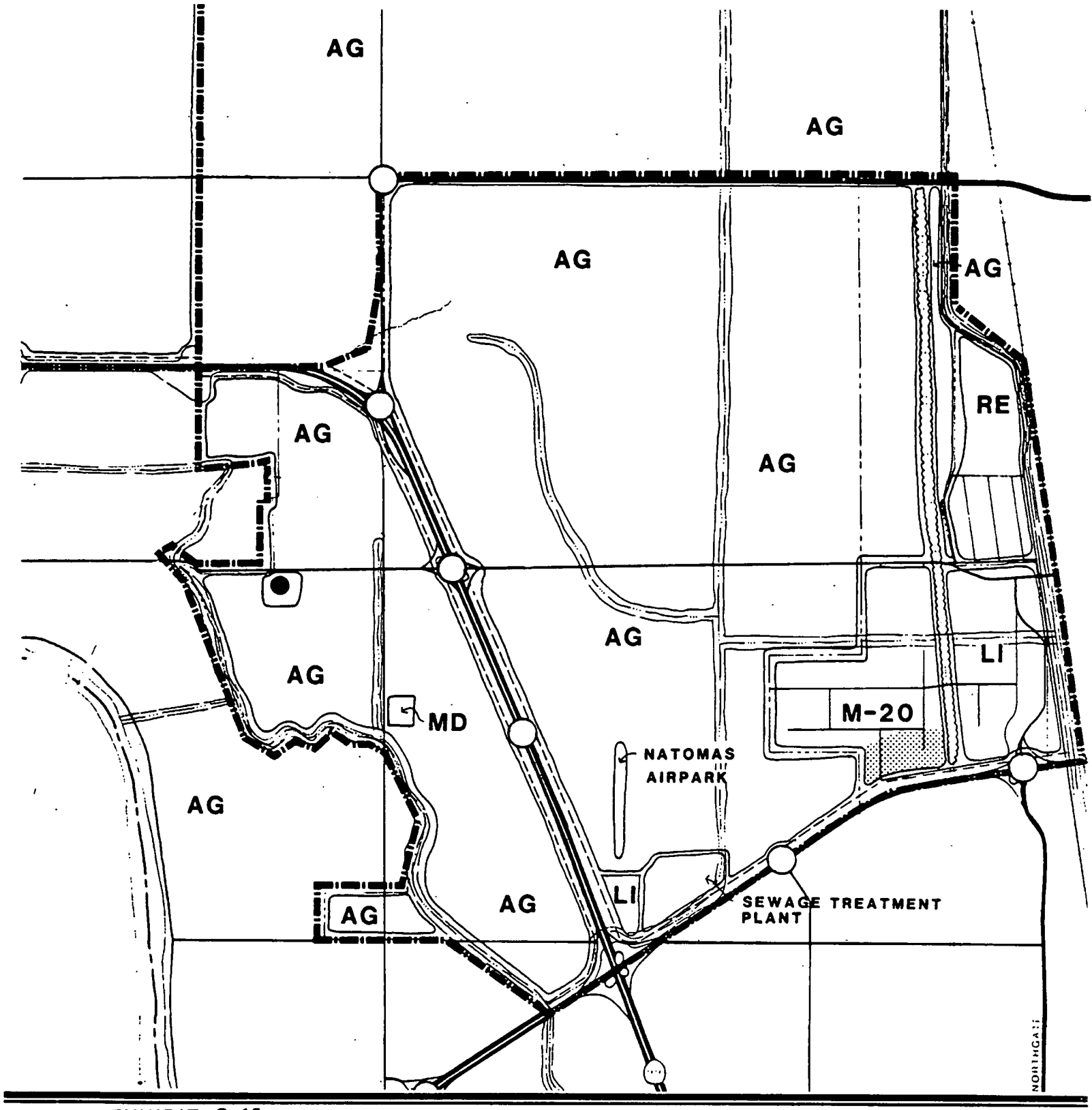


EXHIBIT G-15
SURFACE TRANSPORTATION NOISE - ALTERNATIVE A

Noise Impact Area

0 3200 6400 Ft.

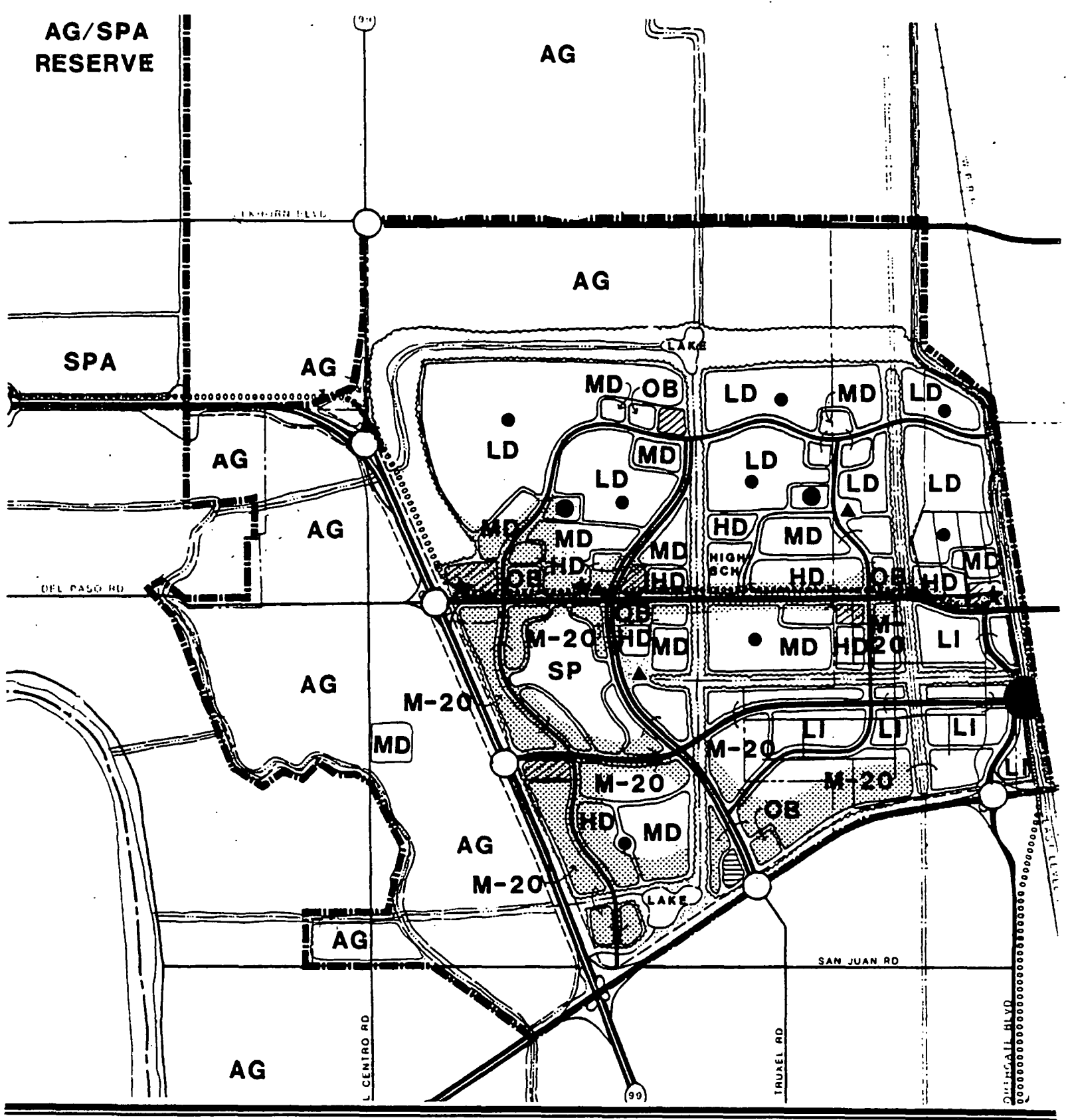


EXHIBIT G-16
SURFACE TRANSPORTATION NOISE - ALTERNATIVE B

Noise Impact Area

0 3200 6400 Ft.

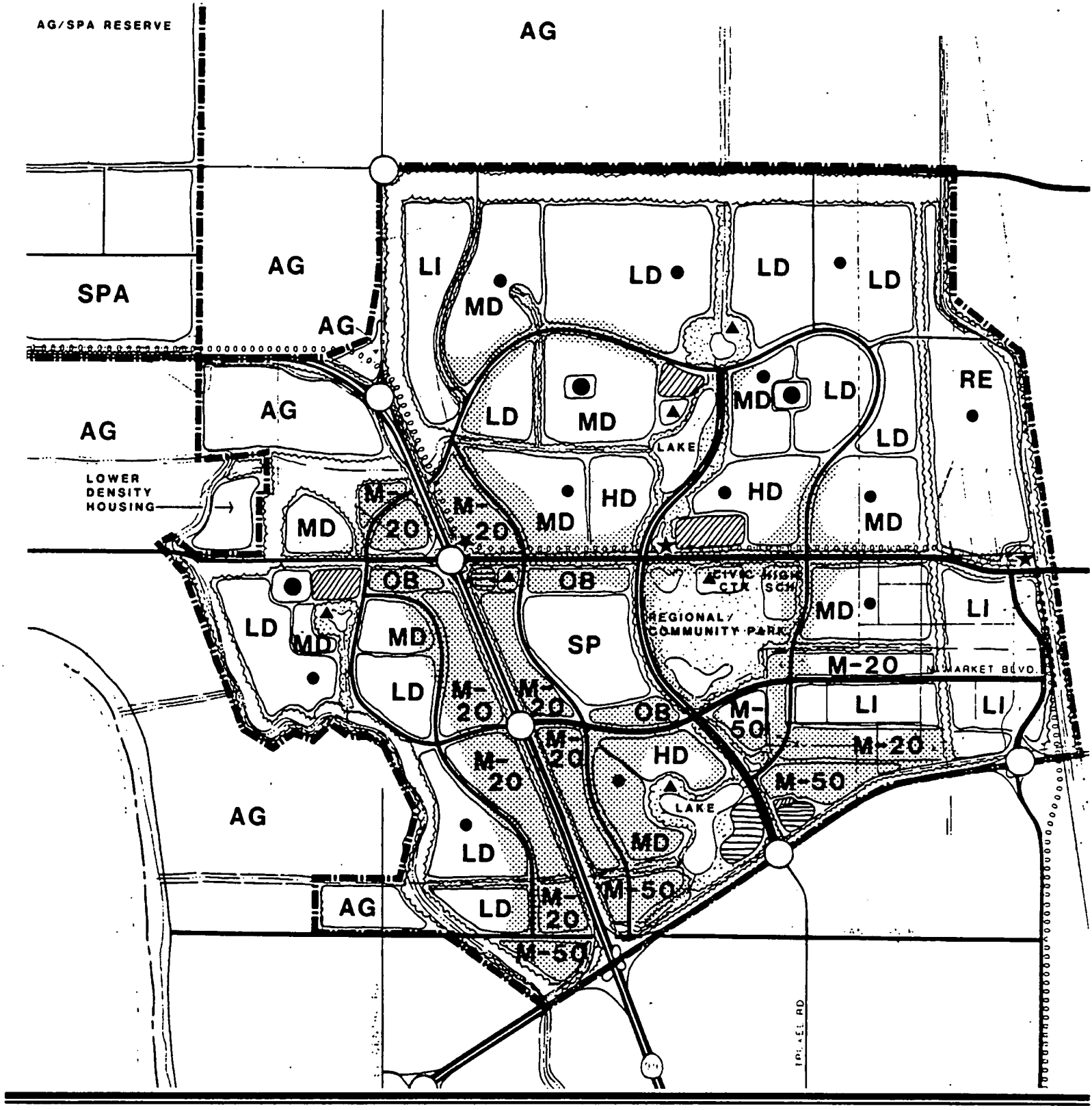


EXHIBIT G-17
SURFACE TRANSPORTATION NOISE - ALTERNATIVE C

Noise Impact Area

0 3200 6400 Ft.

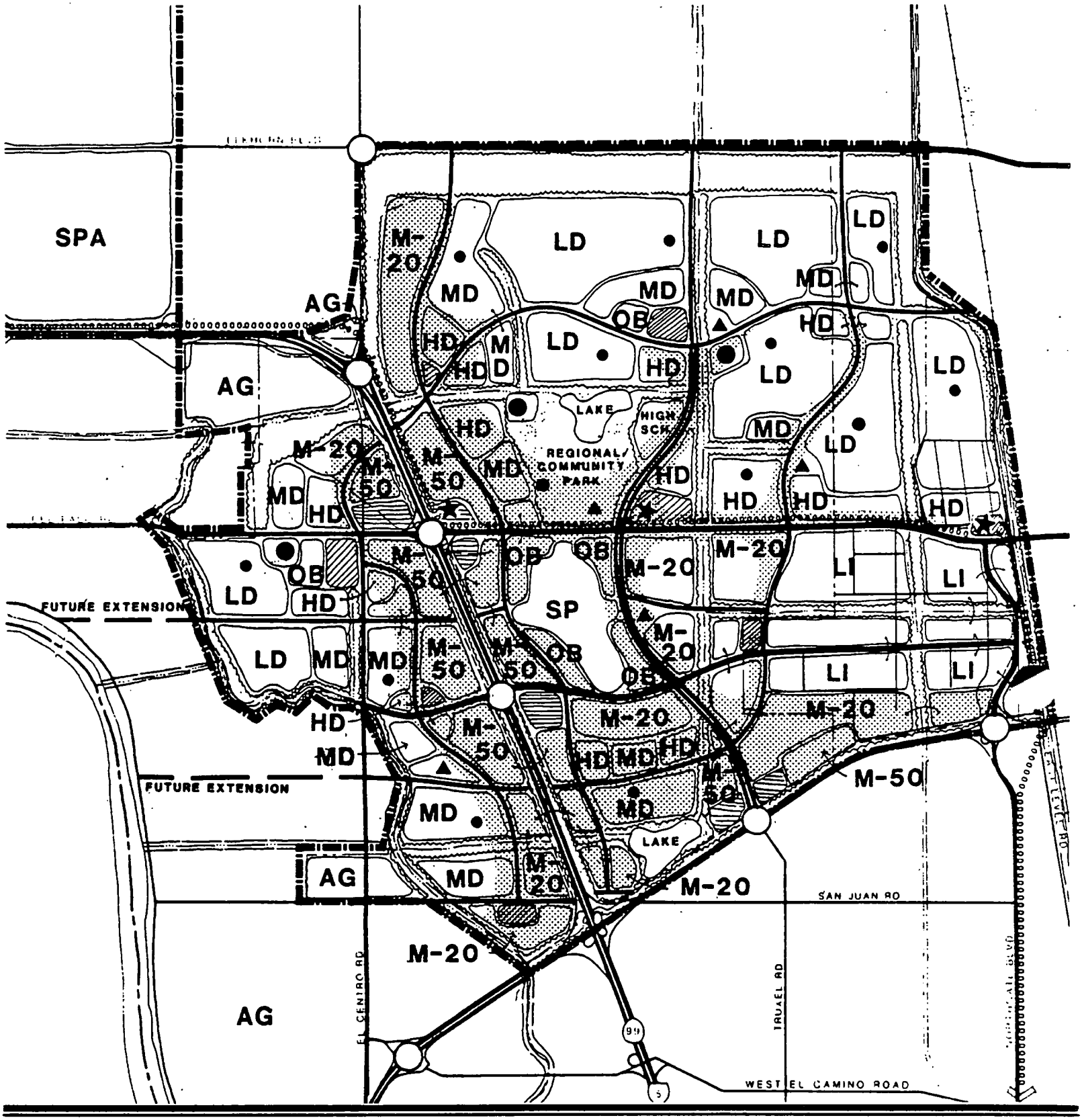


EXHIBIT G-18
SURFACE TRANSPORTATION NOISE - ALTERNATIVE D

Noise Impact Area

0 3200 6400 Ft.

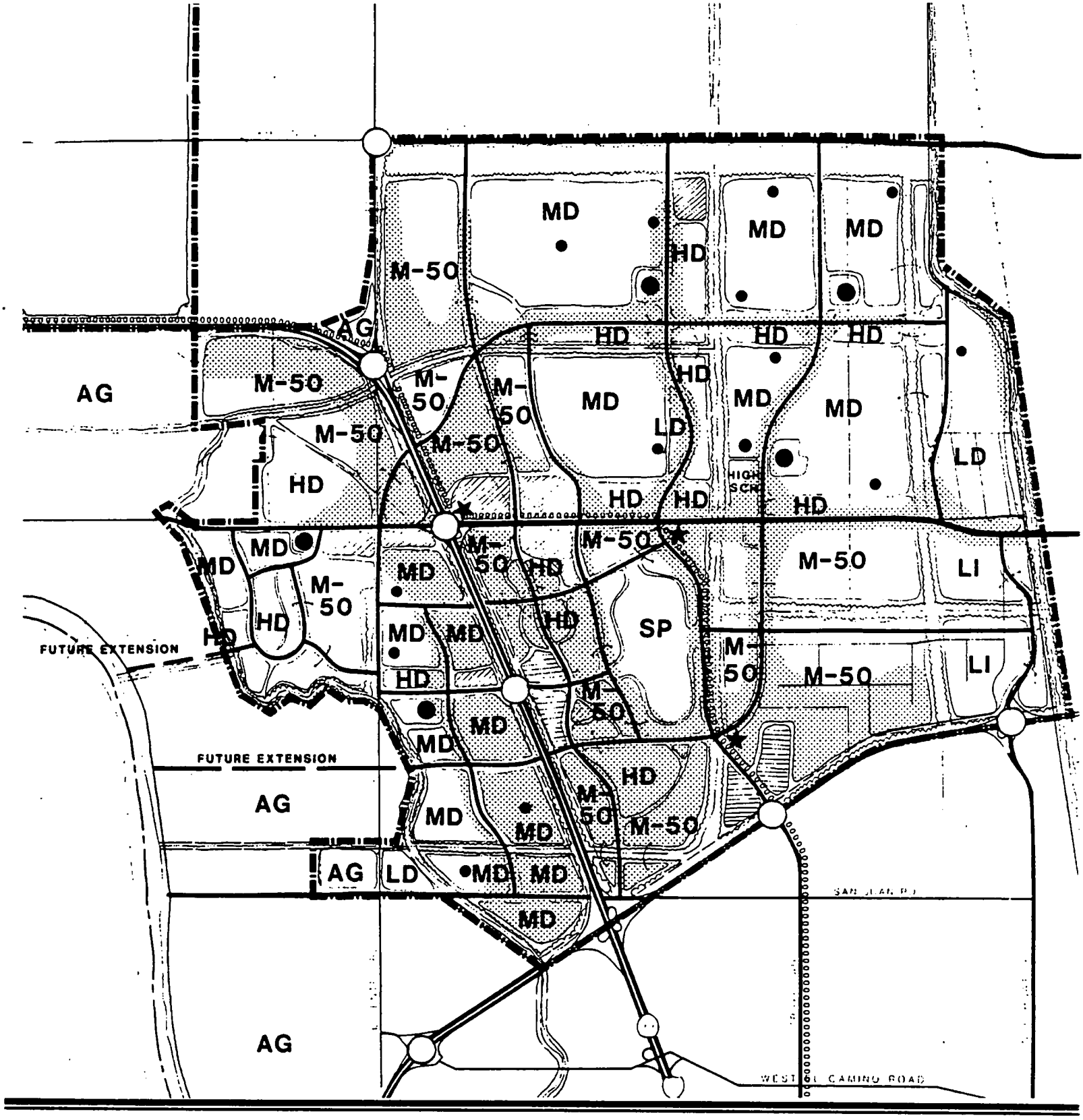


EXHIBIT G-19
SURFACE TRANSPORTATION NOISE - ALTERNATIVE E

Noise Impact Area

0 3200 6400 Ft.

The shaded areas on Exhibits G-15, G-16, G-17, G-18 and G-19 show the land uses which would be exposed to noise levels in excess of those deemed satisfactory by the City. Those areas that are not shaded indicate land uses which would not be exposed to noise levels in excess of those deemed satisfactory by the City. The maps should not be interpreted to mean, however, that these land uses are inappropriate. Rather, they indicate areas where mitigation measures should be considered, based on an analysis of detailed site plans. For example, manufacturing, research, and development uses located adjacent to major thoroughfares most likely would be compatible with the future noise environment. These primarily are indoor uses, and because of Sacramento's climate, buildings would be expected to be designed with fixed windows and air conditioning. In most locations these buildings would provide an acceptable interior noise environment without special sound-rated windows, although some buildings located very close to freeways and major arterials might require sound-rated windows. The type of windows required would depend on the actual outdoor noise level, the percentage of the building facade which has windows (versus solid walls), and orientation. Exhibits G-15, G-16, G- 17, G-18 and G-19 indicate the areas, therefore, where noise analyses should be performed for specific development projects.

It is more difficult to generalize about the compatibility of residential uses proposed by the five alternatives. Although the City does not differentiate acceptable noise levels according to residential density, buyer expectation clearly does: people purchasing rural estate or single-family homes in low density developments generally would expect quieter outdoor noise levels than those purchasing high-density, urban-type units. In many cases, particularly along major arterials, it would be possible to provide outdoor noise levels at or below the City's goal by providing adequate setbacks from roads and, possibly, by building sound walls, berms, or fences. There also are areas, however, where it may not be possible to achieve the City's outdoor noise goal even with construction of large sound walls. This would occur, for example, in residential areas proposed along Interstate 5. It should be noted that while it may be difficult to achieve an appropriate outdoor noise environment in these areas, the dwelling units themselves can be designed to provide an acceptable interior noise environment through the use of sound-rated exterior window/wall construction. For example, a typical dweling with the windows open would provide a reduction in outdoor noise levels of about 15 dB. When the windows are closed, the reduction in noise level between outdoor and indoors would be 20 to 25 dB depending upon the window type. Greater noise reduction can be achieved by using sound-rated windows which provide greater transmission loss than standard windows and by building a sound-rated

exterior wall. The type of construction chosen would depend upon the exterior noise environment and the goal for interior noise levels. It is the job of the acoustical engineer to design and select the construction for the exterior building facades in dwelling units in noiser environments.

Exhibits G-15, G-16, G-17, G-18 and G-19 also show that other sensitive uses (schools, libraries, medical centers, etc.) would be located in areas where the noise levels would be higher than considered satisfactory by the City. While it would be desirable to relocate these uses away from major noise sources, it also would be possible to provide an acceptable interior noise environment for these uses through proper design. Each use would have to be studied on an individual basis.

SPORTS COMPLEX NOISE

Alternatives B, C, D and E

The major potential noise source associated with the sports complex proposed by Alternatives B through E would be the loudspeaker system at the open air stadium. While plans are not available for the stadium or its sound system the potential noise impacts from the sound system were evaluated assuming that:

- The sound system would consist of a central cluster located behind the center field fence (when the stadium is in a baseball configuration).
- The stadium would be enclosed on all sides.

These features are typical of modern stadia, such as the Oakland Coliseum (Alameda County).

The sound power associated with a "central system" would be somewhat higher than that of a "distributed system". [7] In order to provide adequate sound coverage, the average sound pressure level at the most distant point in the stadium should be approximately 85 dBA. Exhibits G-10, G-11, G-12 and G-13 show the location of the 60, 50, and 40 dBA maximum instantaneous A-weighted sound level contours. [8] The contours also represent the noise levels which would result when music is played between innings of a baseball game or during a rock concert.

Given the background noise environment in the vicinity of the sports complex upon build-out of the Study Area, the 40 dBA maximum A-weighted sound

pressure level contour for stadium noise represents the point at which sound activity at the stadium would be barely audible inside a typical dwelling unit with the windows open at night. Because of the type of noise associated with the stadium (that is, rock music, announcer, etc.), this type of facility would generally elicit more complaints at a given sound level than would relatively benign types of noises such as vehicle noise. Complaints can be expected when the noise levels exceeds the background noise level by about five dB. Because of the potential adverse community response associated with the sports complex, a conservative approach has been incorporated into this EIR by using the 40 dBA outdoor noise level as a cut-off beyond which no annoyance or complaints would be expected. Sound levels as a result of activity at the stadium would be inaudible outside of the Study Area and would not be expected to result in complaints.

IMPACT ON EXISTING LAND USES

North Natomas is separated from development in other communities by I-80. Noise generated with development of the Study Area, including noise from the sports complex, generally would be masked by noise of traffic on I-80. The major noise impact outside of the Study Area from implementing Alternatives B through E would be the increased traffic noise levels along streets and highways in surrounding areas due to additional traffic using these routes.

Using the results of the regional traffic study prepared for this EIR, the potential increase in traffic noise levels has been calculated for each of the roads studied. The analysis showed that traffic noise along all the streets studied would increase in the future regardless of the alternative selected. This increase is due primarily to growth in the Sacramento metropolitan area and would not be affected significantly by North Natomas traffic. With the exception of I-5 between Garden Highway and I-80 in fact, the differences in noise levels between alternatives is insignificant. The noise environment essentially would be the same, therefore, whichever alternative is chosen. Alternatives B through E, however, would result in measurable differences in noise levels along I-5 between Garden Highway and West El Camino. Compared with the noise levels which would result from Alternative A, the following increases would be expected on this segment of I-5:

- Alternative B would result in average noise levels 1 dB higher than under Alternative A.

- Alternatives C and D would result in average noise levels 2 dBs higher than under Alternative A.

- Alternative E would result in noise levels 3 dBs higher than under Alternative A.

A 1- to 3-dB increase in traffic noise levels generally is not significant. Due to the relatively high traffic volumes and, therefore, the high noise levels presently generated along this segment of I-5, however, these increases, while not significant, would tend to aggravate an existing problem.

FIVE INDIVIDUAL APPLICATIONS

Individual noise analyses have not been prepared for each of the five individual applications. It was determined that it woud be more accurate to assess the cumulative noise impacts of development in the Study Area for Alternative E which incorporates the five individual applications than to analyze each land use application seperately.

Some general comments about the five individual applications can, however, be made. None of the five applications designate residential land uses within an area where aircraft noise would exceed a CNEL of 60 dB. All five applications would, however, designate land uses that likely would be exposed to noise levels in excess of those deemed satisfactory by the City. Traffic noise on I-80 would likely affect land use in the Gateway Point and Fong projects. Traffic noise on I-5 would likely affect land uses in the Gateway Point and Schumacher-Iverson projects. Traffic noise from arterial streets would likely affect land uses in the Payne and Reid-Ketscher projects.

As discussed under the sports complex analysis, residents living in dwelling units within the 40 dBA contour of the stadium in the Gateway Point project could experience some annoyance from stadium noise.

G. NOISE -- MITIGATION MEASURES

The following mitigation measures are general in nature and are designed to ensure that every land use to be developed would be compatible with adjacent land uses and with the future on-site noise environment.

Alternatives A, B, C, D and E.

- A detailed acoustical analysis should be required for any land use which potentially would be incompatible with outdoor noise limits specified by the requirements of the City's Noise Element, or which is located within the Noise Impact Areas shown on Exhibits G-15 through G-19.

- Development exposed to surface transportation noise should be designed to be consistent with the goals of the City General Plan. Residential land uses should be developed such that there is some usable outdoor space assoicated with the development that provides an exterior noise level that does not exceed an L_{dn} of 60 dB. Indoor noise levels should not exceed an L_{dn} of 45 dB. Each development proposal should be reviewed to ensure compliance with these goals.

Alternatives B, C, D and E

- In order to avoid stadium noise annoyance to future residents residential land uses should not be designated within the 40 dBA maximum instantaneous A-weighted sound level contour of the stadium.

Alternatives C, D and E

- Because of the potential impacts from aircraft noise and in view of the Sacramento County Department of Airport's concerns, residential land uses should not be allowed west of I-5. In the event that it is determined to allow residential use west of I-5, development should not proceed until it can be documented that aircraft noise in this area does not exceed a CNEL of 60 dB.

- As discussed in the impact section, measures should be taken to ensure that instantaneous maximum indoor noise levels generated by individual aircraft passing over dwelling units do not interfere with sleep, television watching, talking or other indoor activities. Aircraft generated maximum A-weighted sound levels inside dwelling units, therefore, should be mitigated through design and construction so that they do not exceed 50 dBA in an habitable room.

1 Environmental acoustics concepts and terminology are discussed in Appendix G-1.

2 Letter from the Sacramento County Department of Airports to the City of Sacramento Planning Department, September 6, 1984.

3 The guidelines are presented in Appendix G-3.

4 City of Sacramento General Plan Noise Element. These guidelines are presented in Appendix G-2.

5 Charles M. Salter Associates conversation with Larry Kozub, Sacramento Department of Airports, March, 1985.

6 Roadway noise was calculated using a traffic noise model developed by the Federal Highway Administration (FHWA). The light rail vehicle noise levels were calculated on the basis of the study, "Noise Impact Report, Sacramento Light Rail Transit System", prepared by the California Department of Transportation (Caltrans), District 03, July, 1982.

7 A distributed system consists of small speakers located throughout the seating area. Each speaker covers a small area and, therefore, requires less power. Because of problems encountered in locating the speakers -- they typically are mounted on poles which interfere with sight lines -- a distributed system is not a popular sound system in an outdoor stadium.

8 These contours take into the account the defraction of the sound over the lip of the stadium under worst-case meteorological conditions.

H. PUBLIC FACILITIES AND SERVICES -- THE SETTING, IMPACTS, AND MITIGATION MEASURES

WATER -- THE SETTING

The principal references used to prepare this section were two reports prepared by Dewante and Stowell, Consulting Engineers, entitled, "Water Study North Natomas Area", December, 1984 and "Supplement to Report on Water Study North Natomas Area", April, 1985. A copy of each report is available for review at the City of Sacramento Planning Department.

The City of Sacramento currently does not provide any surface water to lands within the Study Area. Surface water supplies from the Sacramento and American rivers are diverted under water rights permits obtained by the City and are firmed by a permanent contract with the US Bureau of Reclamation. The authorized places of use under the City's water rights do not encompass the entire metropolitan area. Any service area outside of the City's corporate boundaries that intends to use surface water would need to contract with the US Bureau of Reclamation or with the City, to the extent the area is within the places of use designated in the City's water rights permits (see Exhibit H-2). In order to perfect these rights, the City must put the Sacramento River rights to full use by December 1, 1988, and the American River rights by December 1, 2030.

Current City policy on water service to unincorporated areas within the water rights boundaries which have not annexed to the City are as follows: [1]

- Water covered by the City's water rights may be used by the unincorporated area through a contractual agreement with the City to purchase the water.

- Annexation is required for service to the area by the City.

Currently Metro Airport, the SPA and the Northgate unincorporated portions of the Study Area are excluded from the City's water rights boundaries.

The requirement to annex unincorporated areas in order for the City to provide water service would not preclude joint water projects of the City and a non-City entity which would provide service to the unincorporated area. [2]

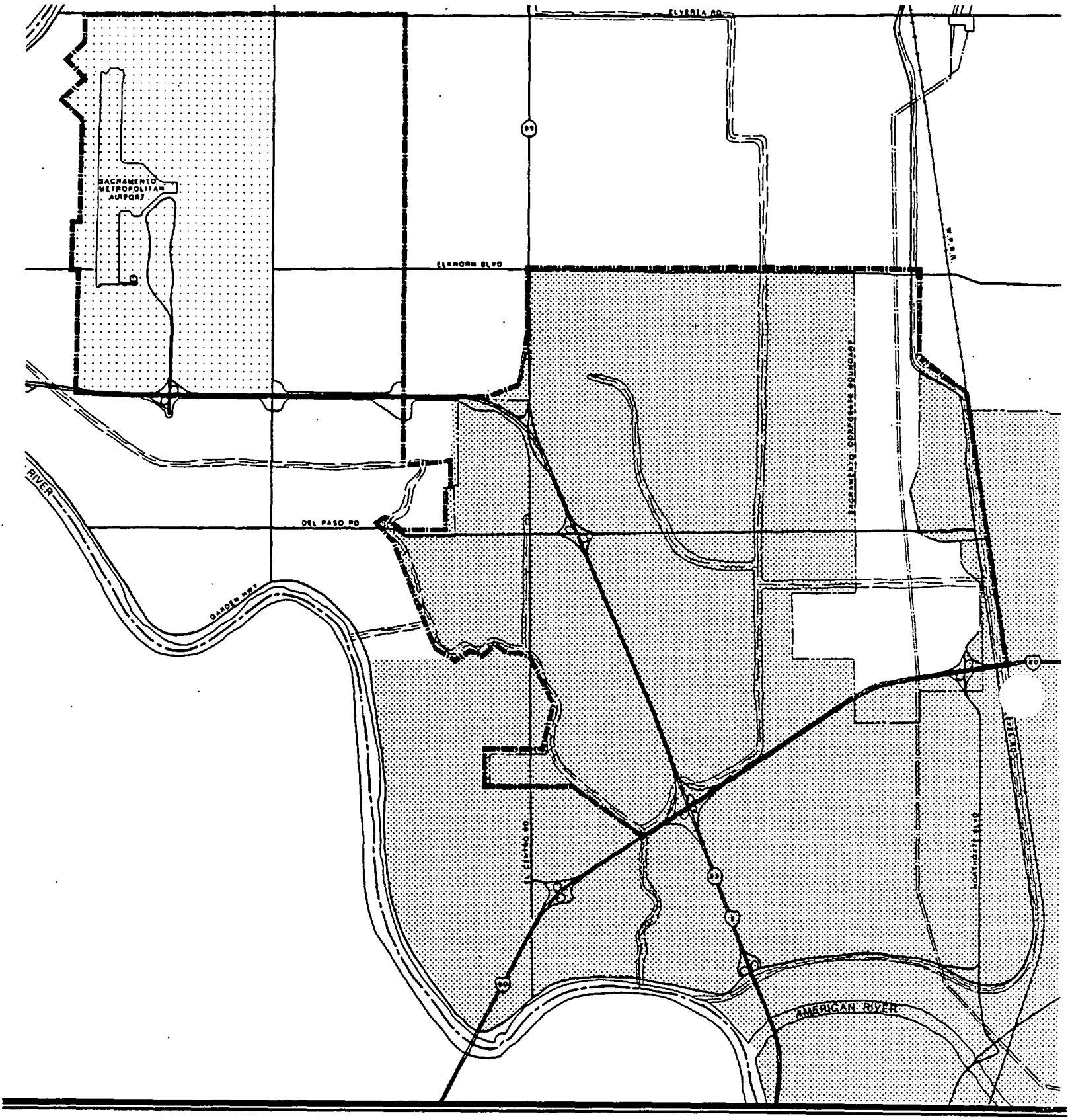


EXHIBIT H-2
CITY OF SACRAMENTO WATER RIGHTS AREA

Airport

Properties within City of Sacramento Water Rights Boundaries

0 3200 6400 Ft.

The City's water rights from both the Sacramento and American Rivers enables it to use 326,800 acre feet annually. In 1984 the City used approximately 90,000 acre feet (see Exhibit H-4).

In the unincorporated part of the Study Area County policy is to create special water service districts to accommodate urban development. Three such districts currently provide limited service in the Study Area: the Sacramento Metropolitan Airport, Northgate Water Maintenance District, and Rio Linda County Water District.

The Natomas Central Mutual Water Company supplies surface water for irrigation purposes to a large area including portions of the North Natomas Study Area. The Company has water rights of 130,200 acre feet per year from the Sacramento River for this purpose.

WATER -- THE IMPACTS

Alternatives A, B, C, D and E

Estimated water consumption by developed uses in the Study Area for each of the five Community Plan alternatives is shown in Exhibit H-5. Because of uncertainty about specific types and distribution of uses in the Study Area, especially how M-50 and M-20 lands would be developed, these estimates are approximate and should be viewed with caution. For example, if the M-50 lands developed with all high technology manfacturing without any office development the water consumption for the M-50 lands could be twice as high as shown in Exhibit H-5.

The water requirements shown in Exhibit H-5 only include developed areas and exclude areas designated for parks, open space, greenbelt areas, agricultural areas, buffers, and drainage areas. According to the Dewante and Stowell report irrigation water for such areas, where required, would be obtained from groundwater or irrigation surface water sources.

The design of the water supply facilities would be based on average maximum day demands. Design of the water supply facilities for Metro Airport and the sports complex, however, must be considered separately because of special factors involved. Metro Airport's domestic requirements are not specifically related to the airport's total area. In addition, surface water is available for major irrigation uses. The sports complex would have a large demand during several hours. This large demand could be met most economically with adequate storage capacity. It is assumed that landscaping

EXHIBIT H-4

City of Sacramento
Surface Water Rights

River	Water Rights		1984 Use	
	Maximum Diversion Rate (cfs) 1/	Maximum Annual Use (acre feet) 2/	Maximum Diversion Rate (cfs)	Annual Use (acre feet)
Sacramento	225	81,800	134	40,000
American	675	245,000	131	50,000
TOTAL	900	326,800	265	90,000

1/ CFS = Cubic Feet Per Second.

2/ One acre-foot equals 325,829 gallons.

Source: Report on Water Study North Natomas Area, Dewante and Stowell, December, 1984.

EXHIBIT H-5

Water Demands -- Average Maximum Day
(million gallons per day)

Land Use	Average Maximum Day (gallons/ acre) 1/	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Employers						
M-50	6,500	0	0	1.72	3.76	16.92
M-20	5,500	2.44	5.86	5.12	5.94	0
Light Industrial	4,500	1.57	1.83	2.86	3.11	1.31
SPA	3,500	8.89	1.11	2.22	2.22	8.89
Office/Business	5,500	0	0.56	0.85	1.19	0
Community Commercial	4,000	0	0.46	0.51	0.71	1.12
Highway Commercial	5,500	0	0.10	0.44	0.84	0.77
Sports Complex	2,250	0	0.57	0.57	0.57	0.57
Subtotal		**12.90**	**10.49**	**14.29**	**18.34**	**29.58**
Residential						
Rural Estate	4,000	1.52	0	1.90	0	0
Low Density	7.800	0	9.91	15.04	13.87	2.73
Medium Density	8,000	0.37	6.10	11.39	8.57	20.22
High Density	8,200	0	3.12	3.12	6.60	8.02
Subtotal		**1.89**	**19.13**	**31.45**	**29.04**	**30.97**
Civic/Public						
Schools	7,000	0.10	0.90	1.20	1.20	1.57
Other	2,250	0.18	0.41	0.63	0.46	0
Subtotal		**0.28**	**1.31**	**1.83**	**1.71**	**1.57**
Airport 2/		**1.30**	**1.30**	**1.30**	**1.30**	**1.30**
TOTAL		16.37	32.23	48.87	50.39	63.42
Percent of 1984 Annual City Surface Water Use 3/		20%	40%	61%	63%	79%

1/ Supplement to Report on Water Study North Natomas Area, Dewante and Stowell, April, 1985, page 6.

2/ Airport water requirement for domestic use and indicental landscaping is 1.3 million gallons per day (mgd)(maximum day). Airport to provide own peaking storage. Other irrigation from irrigation system.

3/ See Exhibit H-4.

water requirements for the sports complex would not be concurrent with maximum domestic demands and that the landscape requirements would be less than the maximum domestic requirements.

The City of Sacramento has adequate water rights to serve development in the Study Area. These rights include:

- All areas within the water rights boundaries set by the permit to appropriate unappropriated water.

- Areas annexed to the City, even if presently located outside the water rights boundaries set in the permit.

This is a very dependable supply and is adequate to serve development in North Natomas. As shown in Exhibit H-5, Alternative E results in the highest water demand of the five alternatives, representing 79 percent of the current 1984 annual City surface water use of 90,000 acre feet. When the water demand for Alternative E at buildout is added to the current 1984 use, the total consumption would represent 22 percent of the City's maximum annual permitted use of 326,800 acre feet.

It would be necessary to acquire water rights to serve unincorporated portions of the Study Area outside the City's water rights boundaries. The Bureau of Reclamation has acquired rights in both the Sacramento and American Rivers through its reclamation projects. Purchase of water from the Bureau is the most feasible source of surface water for use in the parts of the Study Area which are not located in the City's water rights service area. While the Bureau currently has a moratorium on new contracts to sell water from the Sacramento River this moratorium may be lifted in the near future. [3] This water could be treated and delivered through the City's water facilities.

Five Individual Applications

The estimated water consumption by developed uses is shown in Exhibit H-7 for each of the five individual applications. Due to its size, the Gateway Point project would consume significantly more water than the other four projects.

EXHIBIT H-7

Water Demands -- Average Maximum Day -- Five Individual Applications
(gallons per day)

Land Use	Average Maximum Day (gallons/ acre) 1/	Gateway Point	Fong Ranch	Payne	Schumacher Iverson	Reid Ketscher
Employers						
M-50	6,500	6.68	0.78	0.11	3.96	1.43
Light Industrial	4,500	0.29	0	0	0	0
Community Commercial	4,000	0.71	0.17	0.16	0.15	0.40
Sports Complex	2,250	0.48	0	0	0	0
Subtotal		**8.16**	**0.95**	**0.27**	**4.11**	**1.83**
Residential						
Low Density	7,800	0	0	0.37	0	0
High Density	8,200	1.15	0	1.67	0	0.04
Subtotal		**1.15**	**0**	**2.04**	**0**	**0.04**
TOTAL		9.31	0.95	2.31	4.11	1.87

1/ Supplement to Report on Water Study North Natomas Area, Dewante and Stowell, April, 1985, page 6.

Source: Nichols • Berman

Recommended Water System

Dewante and Stowell has developed water supply systems to serve Alternatives A, B, C, D and E. In Alternative A the 2,000 acre SPA would be supplied water from a groundwater supply system. Fourteen (14) wells would be dispersed throughout the SPA. No transmission facilities would be necessary. Other development within Alternative A would continue to be served as at presnt, and no new facilities are proposed.

The recommended water supply system for Alternative C is shown in Exhibit H-9. The major features of the system are as follows:

- Expansion of the existing Sacramento River Treatment Plant to provide an additional capacity of 49 million gallons per day (mgd) to meet the estimated average maximum day demand.

- Modification of the existing Sacramento River intake to permit the diversion of the necessary water.

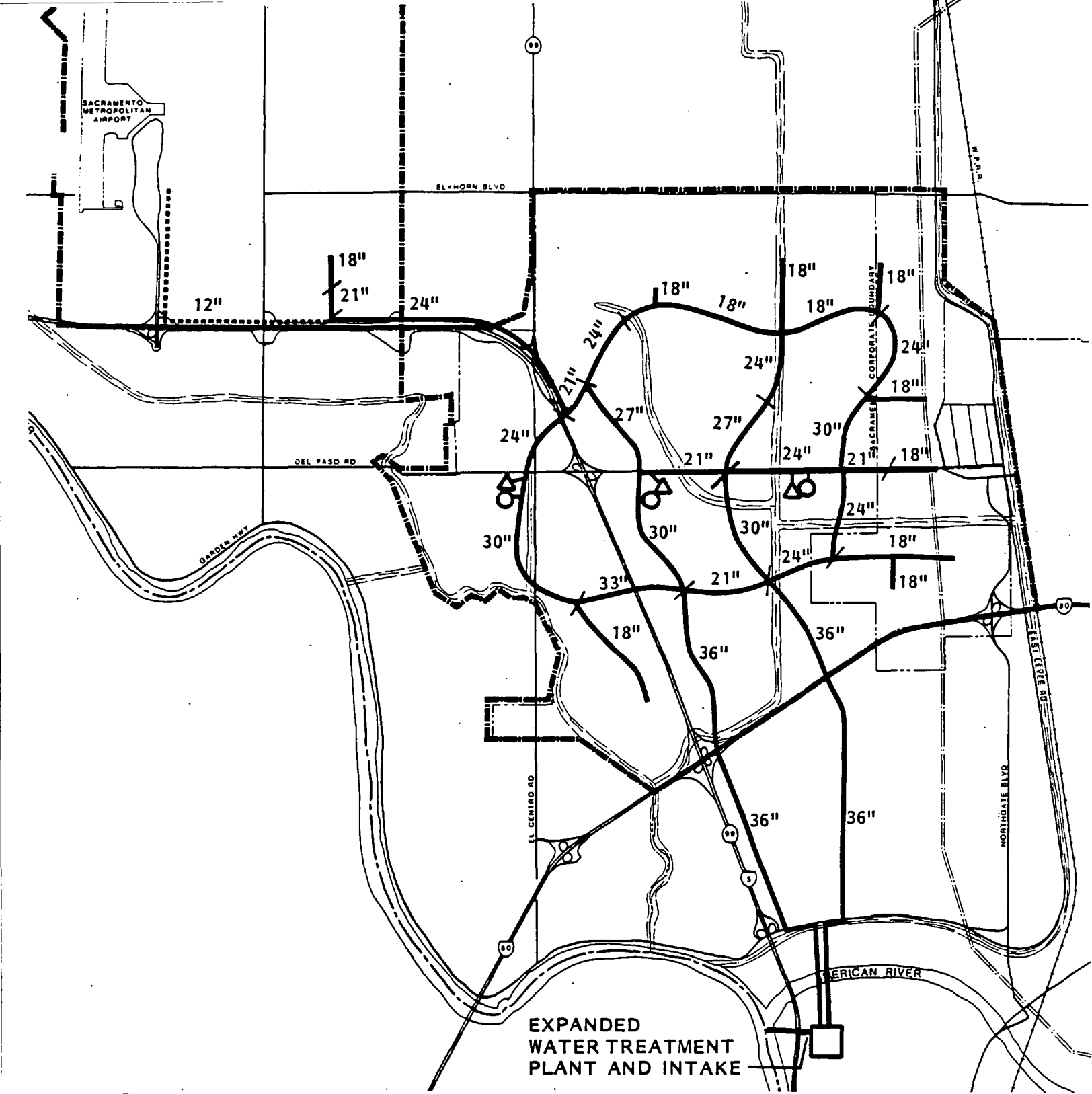
- Peak water demands would be met from storage facilities. A total of 10 million gallons of storage is required to meet the peak demands. Water would be stored at one four-million gallon and two three-million gallon storage facilities.

- Two parallel transmission mains from the treatment plant across the American River and the Natomas East Main Drainage Canal would be provided. Use of parallel mains would permit staged development of the water system and would reduce early costs.

- The transmission main crossings of the American River and the East Natomas Main Drainage Canal would be built underwater and would consist of concrete-lined and heavy concrete-coated steel pipes.

- Additional water storage would be required to meet peak demands at Metro Airport. This would be provided as part of the Airport water supply system, however, and is not included in the recommended Community Plan system.

- For service to the Metro Airport and the SPA, surface water would have to be purchased from the Bureau of Reclamation and "wheeled" through the City of Sacramento Treatment Plant.



Source: Dewante and Stowell

EXHIBIT H-9
PROPOSED WATER SYSTEM
NORTH NATOMAS COMMUNITY PLAN

36" Transmission Mains

12" Transmission Main to Airport
(Not included in Project)

Storage Tank and Booster Pump Station

0 3200 6400 Ft.

The recommended water supply systems for Alternatives B, D and E would be similiar to Alternative C. Facilities such as the water treatment plant, storage facilities and transmission lines would have to be sized to meet the estimated average maximum day demand of the particular alternative.

WATER -- MITIGATION MEASURES

Alternatives A, B, C, D and E

- The "Water Study North Natomas Area" findings should be reviewed when a preferred Community Plan alternative is adopted with particular attention to the study's findings on water requirements, sizing of water facilities, and costs.

- The Community Plan should incorporate specific water conservation policies. Such policies would require future development to:

  -- Use drought tolerant plants for landscaping.
  -- Install efficient means of irrigation, such as drip irrigation.
  -- Install low-flow plumbing facilities.

- The recommended water system does not include the irrigation of buffer strips, greenbelts, parks, and other undeveloped portions of the Study Area. Consideration should be given to using water from the Natomas Central Mutual Water Company for this purpose. The Natomas Central Mutual Water Company would be willing to consider providing water for this purpose to the Study Area. [4]

SEWAGE -- THE SETTING

The principal references used to prepare this section were two reports by CH2MHill entitled, "Sacramento Sewerage Expansion Study for the North Natomas Area", January, 1985 and "North Natomas Sewerage Facility Requirements", April 4, 1985. A copy of each report is available for review at the City of Sacramento Planning Department.

The Sacramento Regional County Sanitation District (SRCSD) was established in 1974 by ten sanitation districts and sewer maintaince districts located primarily in unincorporated areas of Sacramento County, the City of Sacramento, the City of Folsom and the County of Sacramento. The SRCSD is responsible for operating all regional interceptors and wastewater treatment

plants in the District. The local wastewater systems in and around the City of Sacramento are operated by two entities: the City of Sacramento and County Sanitation District No. 1.

Only scattered sections of the Study Area presently are within the the service area of the SRCSD. These areas were exempted from a US Environmental Protection Agency (EPA) growth restriction agreement which was signed in 1979 as part of a grant awarded to the Regional Sanitation District to assist in its construction of the Natomas Interceptor System. The grant prohibits provision of sewer service in the North Natomas area in an effort by EPA to protect prime agricultural lands from premature conversion to urban use. This prohibition is effective for 20 years from the date of the agreement and requires a penalty payment if connections are allowed during that period. The SRCSD estimated that the current amount of the penalty would be $5.8 million. EPA's grant, however, calls for review of this condition every five years in order to determine its applicability in light of then existing policies.

Existing SRCSD facilities in the Study Area include the Natomas Interceptor and Natomas Pump Station. The Natomas Interceptor is one of four interceptors built to transport sewage to the Regional Treatment Plant. The Natomas Pump Station is located north and east of the I-5/I-80 interchange. The Pumping Station currently has a capacity of 11.9 million gallons per day (mgd). During the past winter, peak use of the Pump Station was 5.6 mgd. The Pump Station is planned to be expanded to 18.7 mgd in the future in order to serve growth expected in South Natomas. This expansion does on take into account future development in North Natomas, and will be required regardless of what occurs in the Study Area.

The Regional Wastewater Treatment Plan is designed to accommodate a dry weather flow of 150 mgd. Estimated dry weather flow in 1985 is 130 mgd and the capacity of the plant is expected to be reached in 1990. [5] The District has plans to increase the capacity of the Regional Plant and anticipates that the additional capacity would be on-line by 1990.

Planning and development for the SRCSD system did not assume development in North Natomas within the next 20-year planning period.

SEWAGE -- THE IMPACTS

Alternatives A, B, C, D and E

Estimated sewage flows from Alternatives A through E are shown in Exhibit H-13. In Exhibit H-13 commercial, office and civic land uses are provided for in the unit flow rate for residential properties.

CH2MHill initially evaluated five alternatives for the treatment and disposal of sewage generated by development in North Natomas. The alternatives were as follows:

- Alternative 1 -- Convey North Natomas sewage to the existing Regional Wastewater Treatment Plant and discharge to the Sacramento River below Freeport.

- Alternative 2 -- Construct a new treatment plant in the North Natomas area and discharge effluent to the Sacramento River in the North Natomas area year-around.

- Alternative 3 -- Construct a new treatment plant in the North Natomas area, provide land in the North Natomas area for agricultural reuse of treated water in the summer, and discharge to the Sacramento River in the winter.

- Alternative 4 -- Identical to Alternative 3 except the agricultural reuse lands would be located in the Yolo Bypass rather than in the North Natomas area.

- Alternative 5 -- Construct a new treatment plant in the North Natomas area and use all of the efffluent for agricultural reuse.

Based on its analysis, CH2MHill stated that Alternatives 1 and 2 would be the most cost effective alternatives.

On January 8, 1985 the Sewerage Expansion Study was presented to the Board of Directors of the Sacramento Regional County Sanitation District. In discussing the recommended alternatives, Board members expressed concerns over the year-around discharges of effluent into the Sacramento River in the Natomas area. That alternative ultimately was rejected. The Board directed its staff to consider only Alternative 1, the conveyance of North Natomas' sewage to the existing Regional Wastewater Treatment Plant for treatment and discharge to the Sacramento River below Freeport. [6] As a

EXHIBIT H-13

Sewage Flow -- Average Dry Weather Flow

(million gallons per day)

Land Use	Unit Flow Rate 1/	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Residential	125 gallons per person per day	1.79	5.22	7.99	8.22	9.58
MRD (less office)	5,000 gallons/ acre/day	1.40	3.36	3.45	4.54	5.12
Light Industrial	3,250 gallons/ acre/day	0.89	1.04	1.62	1.77	0.75
SPA	1,500 gallons/ acre/day	3.00	0.37	0.75	0.75	3.00
Sports Complex	0.10 mgd	0.00	0.10	0.10	0.10	0.10
Airport	0.32 mgd	0.32	0.32	0.32	0.32	0.32
TOTAL		7.40	10.41	14.23	15.70	18.87

Sewage Flow -- Peak Wet Weather Flow

(million gallons per day)

Land Use	Peaking Factor 2/	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Residential	2.4	4.30	12.53	19.18	19.73	22.99
MRD	1.5	2.10	5.04	5.17	6.81	7.68
Light Industrial	2.0	1.78	2.08	3.24	3.54	1.50
SPA	2.4	7.20	0.89	1.80	1.80	7.20
Sports Complex	-	5.00	5.00	5.00	5.00	5.00
Airport	-	0.96	0.96	0.96	0.96	0.96
TOTAL		21.34	26.50	35.35	37.84	45.33

1/ Sacramento Sewerage Expansion Study for North Natomas, CH2MHill, January, 1985, page 3-5. Commercial, office, and civic land uses are provided for in the unit flow rate for residential properties.

2/ Ibid., page 3-6

Source: Nichols • Berman

result the "Possible Sewage Treatment Plant Area" designated on Alternatives B through E is no longer valid.

The major features of the sewage plan, in order to implement Alternative 1, are as follows:

- Construction of a sewage collection system within the Study Area adequately sized to accommodate projected flows.

- Construction of an interceptor system to convey sewage flows to the Regional Plan beyond what were previously projected. The Natomas Interceptor, the Dry Creek Interceptor and the Northeast Interceptor would all require modification.

- Expansion of the Regional Plan to accommodate projected flows.

Five Individual Applications

Estimated average dry weather and peak wet weather sewage flows for each of the five individual applications are shown in Exhibit H-15. Except for the Payne project, the MRD uses would be the most significant sewage generating uses for the individual applications. In Exhibit H-15 commercial, office and civic land uses are provided for in the unit flow rate for residential properties.

Interim Facilities

Adoption of Alternatives B, C, D, or E likely would require provision of interim wastewater treatment until long-term facilities are constructed. It would be possible to convey North Natomas' sewage to the existing Regional Wastewater Treatment Plant in existing interceptors with expansion of the Natomas Pumping Station -- an expansion which would be required whether or not development occurs in North Natomas. Based upon expected growth in the District without North Natomas plus additional growth in North Natomas assuming a 20-year linear buildout CH2MHill estimated that the existing interceptor system has approximately six years of capacity before expansion would be necessary. If growth in North Natomas or other portions of the District occurs at a more rapid rate than projected additional facitilites would be needed sooner.

EXHIBIT H-15

Sewage Flow -- Average Dry Weather Flow -- Five Individual Applications

(million gallons per day)

Land Use	Unit Flow Rate 1/	Gateway Point	Fong Ranch	Payne	Schumacher-Iverson	Reid-Ketscher
Residential	125 gallons per person per day	0.59	0.00	0.97	0.00	0.02
MRD (less office)	5,000 gallons/ acre/day	2.02	0.24	0.03	1.20	0.43
Light Industrial	3,250 gallons/ acre/day	0.13	0.00	0.00	0.00	0.00
Sports Complex	0.10 mgd	0.10	0.00	0.00	0.00	0.00
TOTAL		2.84	0.24	1.00	1.20	0.45

Sewage Flow -- Peak Wet Weather Flow

(million gallons per day)

Land Use	Peaking Factor 2/	Gateway Point	Fong Ranch	Payne	Schumacher-Iverson	Reid-Ketscher
Residential	2.4	1.42	0.00	2.33	0.00	0.05
MRD	1.5	3.03	0.36	0.04	1.80	0.64
Light Industrial	2.0	0.26	0.00	0.00	0.00	0.00
Sports Complex	-	5.00	0.00	0.00	0.00	0.00
TOTAL		9.71	0.36	2.37	1.80	0.69

1/ Sacramento Sewerage Expansion Study for the North Natomas Area, CH2MHill, January, 1985, page 3-5. Commercial, office, and civic land uses are provided for in the unit flow rate for residential properties.

2/ Ibid., page 3-6.

Source: Nichols • Berman

The CH2MHill study assumed that it would be possible to allow new sewer connections in the North Natomas area. Such connections would require a change in the EPA grant conditions. EPA has been contacted to determine its criteria for considering a change in its grant condition. EPA has stated that it would consider changing the conditions "if the grantee could show that, with all environmental trade-offs taken into account, there would be a net positive impact in the environment by implementing such a change".

SEWAGE -- MITIGATION MEASURES

Alternatives B, C, D and E

- The possible sewage treatment plant site designated on Alternatives B through E should not be included in the Community Plan adopted for North Natomas.

- If the Community Plan recommended for adoption includes development in excess of Alternative A, the Sacramento Regional County Sanitation District should apply to the EPA for a change in the grant conditions related to the Natomas Interceptor System.

- Should the City and County decide to adopt Alternative B, C, D, or E, the CH2MHill recommendation -- to require sewage facilities to be "on-line" before capacity in the existing system is used fully -- should be implemented.

POLICE PROTECTION -- THE SETTING

The City of Sacramento provides police protection to the incorporated areas of the Study Area, and Sacramento County is responsible for sheriff protection in the unincorporated portion of the Study Area.

City of Sacramento

Police protection is provided from the City's downtown central station. The Police Department has divided the City into four geographic patrol areas, each of which is divided into several patrol districts. North Natomas is located in District 40 which also includes South Natomas.

Each of the City's patrol districts is staffed by one patrol unit at any given time, except during the early morning hours when the citywide staffing level is somewhat reduced. It takes seven police officers to staff one patrol unit over a 24-hour period. In addition, traffic units and, in some cases, crime suppression units may be available to respond to first priority calls where life is in danger or a serious crime is in progress.

The average response time Citywide to a first priority call is approximately 7.5 to 8 minutes. Response times to priority two calls (calls involving less serious crimes in progress or crimes which have just occurred) and priority three calls (calls for services which largely are after the fact) are 20 to 25 minutes and up to one hour or more, respectively. [7]

There were 512 sworn officers in Sacramento in 1984, a ratio of 1.69 sworn officers per 1,000 residents. In addition to residential population, it is estimated that 93,700 more people work in the City each day. The total number of workers and residents results in a ratio of 1.29 sworn officers per 1,000 people. The Police Department believes that this officer per 1,000-person ratio needs to be improved significantly in order to provide high quality service. For the purposes of this EIR, however, all estimates are based on the 1.69 per 1,000 persons ratio.

County of Sacramento

The North Natomas area is located in Patrol District 1 which extends northwest to include Rio Linda and North Highlands. Officers assigned to Patrol District 1 could respond to calls originating from anywhere in North Highlands, Rio Linda, and North Natomas. The number of officers assigned to Patrol District 1 ranges from a low of three during the late swing shift to a high of five during the day watch. [8]

Although statistics are not available for North Natomas to measure service expended in this area, it is known that the Sheriff's Department responds to burglary, vandalism, and alarm calls with some regularity in the Northgate industrial area.

Ten (10) full-time officers currently are assigned to Metro Airport. These officers are available for emergencies, crowd control, parking enforcement, and other law enforcement problems which arise on airport property.

The current ratio of sheriff officers to County residents is 0.81 officer per 1,000 people.

POLICE PROTECTION -- THE IMPACTS

Alternatives A, B, C, D and E

The impacts from development envisaged by Alternatives A through E would vary greatly depending on the mix of land uses and the design of individual projects. The impacts on both the City Police Department and County Sheriff Department generally could be reduced by proper land use design. Specific development projects, however, may have inherent problems which would increase the likelihood of criminal activity or make it difficult for emergency response. Two examples of these potential problems are as follows:

- Office, commercial, and other business uses often are not compatible with residential uses unless they are separated by solid buffers, such as eight-foot masonry walls or streets.

- Residential developments which back onto greenbelts have led to increased demands for police services. People who commit crimes, such as residential burglary or assaults on residents, can hide in greenbelts. Greenbelts also can provide an easy means of getaway and conceal juveniles who are drinking or using drugs which would lead to demands for police services.

When the Police or Sheriff's Departments participate in the planning process, development plans generally can be prepared which can reduce opportunities for crimes to take place.

Exhibit H-19 lists the additional sworn personnel needed by the City of Sacramento Police Department and the Sacramento County Sheriff Department which would result from implementation of Alternatives A, B, C, D, or E. The estimated number of additional sworn personnel needed is based on existing ratios of officers per 1,000 people. The estimates are general since they do not take into account special requirements of a concentrated area of high technology industry or efforts to reduce demands for police services through site design of individual projects.

These estimates also are based on continued service in the Study Area by the City's and County's respective departments. Should development proceed in North Natomas, it may be advantageous to rearrange the service areas for the departments in order to provide police services more economically. It may make sense, for example, for the City Police Department to serve the

EXHIBIT H-19

Additional Sworn Police Personnel 1/

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
For Airport Expansion					
• Sheriff Department	10	10	10	10	10
For Remaining Area					
• Sheriff Department	5	5	7	8	14
• City Police Department	3	63	94	100	113
TOTAL	18	78	111	118	137

1/ Based on existing ratio of officers per 1,000 people. For this City this ratio is 1.69, and for the County it is 0.81.

Source: Nichols • Berman

Northgate industrial area which currently is served by the Sheriff's Department. Such reorganization could reduce the total number of officers needed to provide service to the Study Area.

Both the Sheriff's and Police Departments have identified specific areas of concern over the Community Plan alternatives. They are as follows:

- Expansion of Metro Airport would require the Sheriff's Department to assign additional officers to the airport. A larger staff also would require larger officer facilities.

- The greater the increase in population within the City, the more likely it would be that the County would experience "spillover" problems.

- Generally, as population density increases, criminal activity would be expected to increase. The increased densities of the alternatives, therefore, may have a direct impact on the level of police services needed.

- The sports complex would require police services in addition to those identified in Exhibit H-19. The type of development surrounding the sports complex would affect the required level of police services significantly. For example, Alternative E (with the largest amount of residential development adjacent to the Sports Complex) would require more police service than Alternatives B, C, or D.

- As development proceeds throughout the City, Sacramento would need to build a police substation. The timing of a new substation would be influenced greatly by citywide budget constraints, annexations of other areas to the city, and the completion date, size, and configuration of a new downtown police department complex.

Five Individual Applications

The five indiviudal applications would place demands on the City Police Department for police service. Each application would require additional sworn personnel to meet the additional demands. Because of its size the Gateway Point project would require more police services than the Fong Ranch, Payne, Schumacher-Iverson or Reid-Ketscher projects. The City normally estimates the need for additional personnel based on a ratio of officers to residential population. This method may underestimate the demand for police services for the five individual applications, especially

for Fong Ranch, Schumacher-Iverson and Reid-Ketscher due to the increase in police services generated by office and commercial development. Based upon an initial review of the five individual applications, the primary concern the police department would have with each application is the need to seperate residential uses from office, commercial and other business uses. For each application, the police department would prefer that residential uses be separated from office and commercial uses by a soild buffer such as a masonry wall or an arterial street.

Each of the five individual applications propose high technology industry which have special police problems associated with it. For example, crime associated with high technology industries include industrial espionage and employee theft. Training of officers in the investigation of high tech crime and the prevention of high tech crime would be required if the Police Department was expected to handle these types of crime incidents.

As discussed above the sports complex would require services in addition to the demands normally assoicated with a project the size of Gateway Point. The major demand would result from the need for traffic control immediately before and after events. It should also be noted that the Police Department assumes that security inside the stadium and arena would be provided by private security forces and not the City. [9] There also is a concern with the number of medium density residential uses proposed in close proximity to the sports complex. The Police Department believes that residential uses, especially non-owner occupied units, close to the sports complex would lead to a high incidence of crime in the area. [10]

POLICE PROTECTION -- MITIGATION MEASURES

Alternatives A, B, C, D and E

- Consideration should be given to reorganizing the service area boundaries of the City Police Department and County Sheriff Department to allow for a more efficient deployment of personnel within the Study Area. Annexation of unincorporated areas to the City would also allow for a more efficient deployment of police personnel within the Study Area.

- Demands on the City Police and County Sheriff Departments can be reduced through proper land use, street, and project development designs. The locations of parks and schools, design of streets and culs-de-sac, pedestrian access, and lighting all are significant

factors which would determine the impacts of development on police services. The Police and Sheriff Departments should participate in the review of proposed developments within their respective jurisdictions in order to suggest changes or improvements to designs.

- The Community Plan proposed for adoption should include land use design guidelines which, if implemented, would help reduce service demands on both the City Police and County Sheriff Departments.

FIRE PROTECTION -- THE SETTING

The Study Area is served by the City of Sacramento Fire Department. The Fire Department updated its 1971 Master Plan in July, 1980 in order to respond to significantly increased demands for protection in South Natomas. The Master Plan recommended that the City take over the Natomas Fire District. Until October, 1984 the Natomas Fire District provided protection to the unincorporated portion of North Natomas. The City, however, has absorbed the Natomas Fire District into the Sacramento City Fire Department. The City increased staffing at the two stations previously under the Natomas Fire District's jurisdiction from two to three firefighters. By March, 1986, the City will increase staffing at the North Market Station to four firefighters. The Master Plan also recommended the relocation of Station 15 from its interim facility on Truxel Road to a permanent facility west of I-5 and south of I-80. It is anticipated that Station 15 will be relocated to its permanent facility on El Camino just west of I-5 within the next two years. The relocated station would have one additional truck company.

Exhibit H-23 lists fire stations and equipment available for response in North Natomas.

The City of Sacramento maintains an excellent Insurance Service Organization (ISO) service rating of 2. [11] This rating partly is based on the City standard of providing a fire station within two miles of any urban development. This standard results in an acceptable response time of three to four minutes.

FIRE PROTECTION -- THE IMPACTS

The City of Sacramento Fire Department was contacted for its preliminary assessment of fire services which would be needed for the five Community Plan alternatives. [12] For all five alternatives fire protection would

EXHIBIT H-23

North Natomas Available Fire Services

Station Number	Location	Type	Available Equipment
3 (formerly Natomas Fire District)	West Elkhorn (North Natomas)	Engine	3 engines 2 water trucks
18 (formerly Natomas Fire District)	North Market (North Natomas)	Engine	2 engines
15	Newborough and Truxel (South Natomas)	Engine	1 engine 1 water truck

NOTE: The nearest Hazardous Materials Unit to the Study Area is located at Station 20 (Arden and Del Paso).

Source: Nichols • Berman

continue to be provided by Station 18 and the relocated Station 15. In addition to Stations 15 and 18, the following fire services would be needed:

Alternative A

Development within the Special Planning Area (SPA) proposed by Alternative A would require the relocation of Station 3 to the area near the entrance of Metro Airport and the construction of a new fire station in the northeast corner of the SPA on Elverta Road. Equipment at the new fire station would include one engine, one truck, and one water truck.

Alternative B

Alternative B would require the relocation of Station 3 to the area near the entrance to Metro Airport plus the construction of a new fire station near the Del Paso Road and El Centro Road intersection. Equipment at the new fire station would include one engine, one truck, and one water truck. Development of high technology industry probably would require the Fire Department to acquire an additional Hazardous Materials Unit which would be located at the new fire station at Del Paso and El Centro Roads.

Alternatives C and D

Similar to Alternative B, Alternatives C and D both would require the relocation of Station 3 to the Metro Airport entrance and the construction of a new fire station at Del Paso and El Centro Roads. In addition to these facilities a second new fire station would be required at Elkhorn and Ernst. Equipment would include a Hazardous Materials Unit at the Del Paso-El Centro Road station and one engine company at the Elkhorn-Ernst station.

Alternative E

In addition to the fire stations and equipment required by Alternatives C and D, Alternative E would require a new station at the northeast corner of the SPA on Elverta Road. This station would be equipped with one engine company and one truck company.

Five Individual Applications

In addition to Stations 15 and 18, the five individual applications would likely require construction of one new fire station. The location would depend upon the extent and amount of development approved. It is possible that if the Fong project was the only project approved service could be provided by Station 18 and no new station would be necessary.

The two main concerns that the Fire Department would have with the stadium would be to ensure that there is adequate access for emergency vehicles and adequate water to meet fire-flow requirements. [13]

FIRE PROTECTION -- MITIGATION MEASURES

Alternatives A, B, C, D and E

- Based on Fire Department recommendations, the Community Plan which is adopted should include specific locations for new and/or relocated fire stations as discussed in the impact section of this EIR.

- The Community Plan should include policies which tie the construction of new fire facilities to the phasing of development.

SOLID WASTE -- THE SETTING

Agricultural, industrial, and some residential solid wastes currently are generated in the Study Area. Approximately 657 tons of solid waste are generated in the incorporated part of the Study Area annually, and 568 tons are generated annually in the unincorporated portion of the Study Area. [14]

The City of Sacramento collects solid waste generated in the incorporated area of North Natomas and disposes of it in the City landfill located at 28th Avenue and C Street. The landfill originally was scheduled to reach capacity in early 1985. In September, 1984, however, the landfill was expanded by 27.5 acres to extend its site-life for another three years. Approximately 730 tons per day of waste are disposed in the City landfill.

The City currently is studying long-term solutions to dispose of solid waste. One option would be to build a combined landfill and waste-energy facility in southeast Sacramento. The useful life of the landfill alone

would be a minimum of 25 years, and that of a combined landfill and waste-energy facility would be 35 to 40 years. A second option would be to use County waste transfer stations and dispose of solid wastes at County facilities.

Solid waste generated in the unincorporated portion of the Study Area is collected and disposed at the County landfill site located at Kiefer Boulevard and Grant Lane Road. The site-life of this facility is approximately through year 2005. Approximately 1,140 tons of waste are disposed at the County facility daily.

City and County landfill site capacity figures are based on population projections which do not include development of North Natomas.

SOLID WASTE -- THE IMPACTS

Alternatives A, B, C, D and E

The estimated amount of solid waste expected to be generated with implementation of Alternatives A through E is shown in Exhibit H-27. These projections indicate that anticipated solid waste generation would range from 162 tons per day (Alternative A) to 569 tons per day (Alternative E). The 569 tons per day for Alternative E is 78 percent of the current City wide daily disposal at the City landfill.

Alternatives A through E would result in the generation of a significant amount of solid waste. It is unlikely that development in North Natomas would affect the City's existing landfill significantly -- primarily because the landfill is likely to reach capacity prior to any substantial amount of development occurring in the Study Area.

The solid waste generated in North Natomas, together with other current and future developments in the City and County, would place additional pressure on both jurisdictions to develop new landfill sites and/or transfer stations sooner than originally projected.

Current planning for landfills does not consider the potential increase in solid waste which would result from development in North Natomas. Development in the Study Area, therefore, would shorten the life expectancy of City and County landfills.

EXHIBIT H-27

Solid Waste Generation [1/]

Alternative A	Measuring Unit	Tons Per Day
Office/Commercial/Light Industrial	25,917,500 square feet	129
High Technology	8,400 employees	29
Residential	1,613 residents	4
Total Alternative A		162
Alternative B		
Office/Commercial/Light Industrial	106,432,250 square feet	53
High Technology	20,130 employees	70
Sports Complex	200 acres 2/	2
Residential	41,766 residents	104
Total Alternative B		229
Alternative C		
Office/Commercial/Light Industrial	17,850,500 square feet	89
High Technology	22,260 employees	78
Sports Complex	200 acres 2/	2
Residential	63,907 residents	160
Total Alternative C		329
Alternative D		
Office/Commercial/Light Industrial	22,112,750 square feet	111
High Technology	31,800 employees	111
Sports Complex	200 acres 2/	2
Residential	65,792 residents	164
Total Alternative D		388
Alternative E		
Office/Commercial/Light Industrial	43,160,000 square feet	216
High Technology	45,450 employees	159
Sports Complex	200 acres 2/	2
Residential	76,626 residents	192
Total Alternative E		569

1/ Except for Sports Complex, generation factors are based on Draft EIR, South Natomas Community Plan, Jones and Stokes, 1985, Exhibit H-10. Those generation factors are as follows:

- Office/Commercial/Light Industrial — 1 pound/100 square feet/day
- High Technology — 7 pounds/employee/day
- Residential — 5 pounds/capita/day

2/ Sports Complex generation factors are based on Nichols • Berman conversation with Dale Dye, Alameda County-Oakland Coliseum, and Tom Freguila, Oakland Scavengers, February, 1985. The generation factor is 8,823 cubic yards per year.

Source: Nichols • Berman

Five Individual Applications

The estimated amount of solid waste expected to be generated by the five individual applications is shown in Exhibit H-29.

The City would be responsible for the collection of soild waste from the sports complex. The level of service required would depend upon the timing of events and the number of events. The City would provide service to the sports complex in a manner similiar to the service it now provides to the convention complex. The City would work together with the developers of the sports complex to install proper refuse containers and compactors in order to reduce the volume of solid waste. [15]

SOLID WASTE -- MITIGATION MEASURES

Alternatives A, B, C, D and E

- The Sacramento County Solid Waste Management Plan should be revised to reflect increased solid waste generated from the Study Area based on the adopted Community Plan alternative.

- The Community Plan alternative which is adopted should include policies aimed at reducing solid waste. One method to reduce amounts of solid waste is separation at the generator (residence, apartments, offices, industries) and at community recycling centers. The Community Plan could include a policy which would require a curbside separation program in North Natomas. As part of the expansion of collection service to the Study Area, the City and County could require haulers (both public and private) to provide curbside pickup of recyclable materials.

HAZARDOUS MATERIALS AND WASTE -- THE SETTING

There is a distinction between hazardous materials and hazardous wastes. Hazardous materials are substances which have not been used or, if used, are recycled in manufacturing processes. Broadly speaking, hazardous wastes are spent byproducts for which manufacturers have no further use. Hazardous wastes are further defined as:

EXHIBIT H-29

Solid Waste Generation for Five Individual Applications 1/

Application	Measuring Unit	Tons Per Day
Gateway Point		
Office/Commercial/Light Industrial	7,174,812 square feet	36
High Technology Industry	18,214 employees	64
Residential	4,743 residents	12
Sports Complex	170 acres 2/	2
Total Gateway Point		**114**
Fong Ranch		
Office/Commercial/Light Industrial	955,125 square feet	5
High Technology Industry	2,137 employees	7
Total Fong Ranch		**13**
Payne		
Office/Commercial/Light Industrial	381,375 square feet	2
High Technology Industry	292 employees	1
Residential	7,768 residents	19
Total Payne		**22**
Schumacher-Iverson		
Office/Commercial/Light Industrial	4,050,000 square feet	20
High Technology Industry	10,800 employees	38
Total Schumacher-Iverson		**58**
Reid-Ketscher		
Office/Commercial/Light Industrial	2,073,375 square feet	10
High Technology Industry	3,892 employees	14
Residential	169 residents	0
Total Reid-Ketscher		**24**

1/ Except for sports complex, generation factors are based on Draft EIR, South Natomas Community Plan, Jones and Stokes, 1985, Exhibit H-10. Those generation factors are as follows:

- Office/Commercial/Light Industrial — 1 pound/100 square feet/day
- High Technology Industry — 7 pounds/employee/day
- Residential — 5 pounds/capita/day

2/ Sports Complex generation factors are based on Nichols • Berman conversation with Dale Dye, Alameda County-Oakland Coliseum, and Tom Freguila, Oakland Scavengers, February, 1985. The generation factor is 8,823 cubic yards per year.

Source: Nichols • Berman

- Toxic, flammable, combustible, reactive, corrosive, or may cause substantial injury, serious illness, or harm to humans, domestic livestock, or wildlife. OR

- The waste or a component of the waste is a material listed by the State Department of Health Services (DHS) as hazardous or extremely hazardous. (Approximately 700 materials are listed by DHS.) [16]

Hazardous wastes are regulated by the California State Department of Health Services (DHS) and State Water Quality Control Board (SWQCB), and their transportation is regulated by the US Department of Transportation (DOT) and California Highway Patrol (CHP).

Federal and State standards have been set to manage hazardous wastes. The Resource Conservation and Recovery Act (RCRA) of 1984 set minimum national standards. In California, waste materials are regulated under both the Hazardous Waste Control Law which is administered by the DHS and the Porter-Cologne Water Quality Act which regulates waste discharges and is administered by the State Water Quality Control Board.

The RCRA authorizes California to apply functionaly equilvant State laws instead of RCRA requirements to: [17]

- Identify hazardous waste.
- Regulate generators and transporters.
- Formulate status standards for sites previously designated as interim sites.
- Grant permits for storage tanks and containers.

Transportation of hazardous wastes and materials is regulated by the US Department of Transportation (DOT) and is enforced by the California Highway Patrol (CHP). In cases of accidents and potential health threats, the Sacramento Emergency Response Plan provides procedures for responding to spills and accidents involving hazardous wastes and materials. The City's Fire Department has a Hazardous Material Response Team (Haz Mat Team) and a mutual aid agreement with the County to respond to incidents. The Hazardous Material Team nearest to the Study Area is located at City Fire Station 20 (Arden and Del Paso Road).

Since there are no existing Class I disposal sites in the Sacramento area hazardous wastes which may be generated in the Study Area would be collected by private collectors and transferred outside Sacramento County to the IT Corporation Class I Disposal Site in Benicia, the Kettleman Hills Class I

Disposal Site in Kings County, or the Casmalia site near Santa Barbara. [18] A hazardous waste transfer station, operated by the American Environmental Management Corporation since 1982, is located in the eastern area of Sacramento County. [19]

The following State and local agencies have jurisdiction over hazardous materials and waste management, including ordinances for planning, incident response (spills), and operations and enforcement (without regulatory power):

- Agricultural Commissioner -- regulates application of pesticides, protection of workers, storage of pesticides, and inspection.
- Air Pollution Control District -- monitoring.
- Department of Airports -- incident response, enforcement for airport operations.
- Building Inspection -- enforcement and operations.
- Emergency Services -- incident response and operations.
- Health Department -- incident response, enforcement, and operations.
- Planning Department -- planning and solid waste management (incident response, enforcement, and operations).
- Water Quality Control Board -- incident response, enforcement, and operations.
- Department of Water Resources -- incident response.

Potential harm from production, storage, transport and treatment, and disposal of hazardous materials and wastes has been documented in many communities. Leaks of underground storage tanks at high technology industries (which handle some of the most toxic chemicals known) have caused concern. Other discoveries of soil and water contamination were found to result from gasoline storage and other types of "small generator" wastes.

In response to these storage concerns, State Assembly Bill 1362 was passed and took effect on January 1, 1984. This law preempts local government from enacting new ordinances for underground tank storage. Prior to the January, 1984 deadline, however, Sacramento County adopted its own ordinance (SCC No.

573) to address these concerns. The City of Sacramento also adopted a similar ordinance (83-152).

Both the City and County ordinances established standards for the construction and monitoring of facilities used to store hazardous substances underground and established a permit procedure for the use of these facilities. By law the City and County ordinances can not be less strigent than the AB 1362 standards.

The City and County also have adopted Hazardous Materials Disclosure ordinances. While the two ordinances essentially are identical, the two differences are:

- The County Health Department is responsible for implementing the ordinance in unincorporated areas while the City Fire Department has responsibility in the City of Sacramento.

- The County's ordinance exempts pesticides, fuels, and fertilizers used solely in agricultural production or for livestock and by pest control operators hired by agricultural producers to apply the materials.

These ordinances require any business or person who uses or handles hazardous materials to make annual public disclosures of those chemicals, including radioactive materials, which are used or handled.

In 1983 Sacramento County revised its Solid Waste Management Plan and added a Hazardous Waste Element. [20] The Element states that the major hazardous waste problems involve the handling of hazardous wastes by on-site generators and users, inadequate disposal facilities, poorly located disposal facilities, use of inappropriate disposal facilities, and spills associated with the transportation of hazardous wastes to disposal and other facilities.

The Element is not a plan of action, but rather it recommends the direction the County should take as it attempts to solve hazardous waste problems.

HAZARDOUS MATERIALS AND WASTES -- THE IMPACTS

Alternatives A, B, C, D and E

Industrial development proposed for the Study Area by the Community Plan alternatives likely would use hazardous materials and would generate

hazardous wastes. Because the specific types of manufacturing and light industrial development which would be located in North Natomas are not known, it is not possible to predict the amount and nature of hazardous materials or wastes which may be used or generated within the Study Area.

It is known, however, that the manufacture of many products used in day-to-day living results in the production of hazardous wastes. Exhibit H-34 lists common products and potential hazardous wastes generated during their manufacturing processes. It is likely that some or all of these wastes would be generated in the M-50, M-20, light industrial, and SPA districts of Alternatives A, B, C, D, and E.

Although it is not possible to predict the amount of hazardous waste to be generated by implementation of Alternatives A through E, it is estimated that approximately 151,000 tons of hazardous waste currently are generated in Sacramento County every year. Of this amount, 128,000 tons are managed on-site, and 23,000 tons are sent off-site for disposal. [21] The major components of the hazardous waste currently generated in Sacramento are corrosives, acid, and alkaline solutions containing heavy metals, drilling muds, and aqueous solutions containing organic residues. [22]

Development as proposed in Alternatives A through E would result in increased generation of hazardous wastes and in generation of additional kinds of wastes. For example, high technology industries likely would generate additional corrosives, acid solutions with heavy metals, aqueous solutions with heavy metals, and spent etching and plating solutions.

Of the hazardous wastes expected to be generated in the Study Area, it is likely that some would be managed on-site -- treatment, storage, and disposal facilities would be located on the industrial site where the waste is produced. Other hazardous waste would be sent to off-site hazardous waste management facilities.

Hazardous wastes which are managed on-site would be subject to the City and County's existing ordinances which regulate underground storage of hazardous substances. Neither ordinance, however, provides for hazardous waste disposal sites. It is expected that hazardous wastes to be sent off-site would be handled by a private contractor, such as the American Environmental Management Company. (This company is a State-licensed hauler of hazardous wastes and also operates a State-licensed transfer station in Sacramento County.) Individual industries would contract with this or a similar company to dispose of hazardous wastes. In these situations, wastes first would be trucked to a transfer station where they would be combined with

EXHIBIT H-34

Common Products and Potential Hazardous Wastes Generated During the Manufacturing Process

Products We Use	Potential Hazardous Wastes
Plastics	Organic chloride compounds, organic sludges
Pesticides	Organic chlorine compounds, organic phosphate compounds, organic sludges
Medicines	Organic solvents and residues, heavy metals (e.g., mercury, nickel, etc,)
Electrical	Cyanides, heavy metal sludges, caustics, solvents
Paints	Heavy metal solutions, pigments, organic residues
Metals	Heavy metals, flourides, and cyanides; acid and alkaline solutions; solvents, pigments, abrasives, oils, and phenols
Textiles	Heavy metal solutions, dyes, organic chlorine compounds, solvents

Source: Draft Hazardous Waste Management Plan, State of California Hazardous Waste Management Council, January, 1984

other hazardous wastes and then trucked to an existing Class I disposal site outside Sacramento County.

The problem of hazardous substances should not be dealt with on a case-by-case basis but rather in a comprehensive manner with complete cooperation between the City and County. As discussed in the setting section above, both the City and County have taken positive steps to reduce the impacts of hazardous substances.

In order to develop a comprehensive program, the County Planning Department made several recommendations in 1984 regarding hazardous substances management. [23] The County found that, although existing regulations cover the entire spectrum of hazardous substances handling, areas remain where local regulation could be effective. [24] These areas include:

- Additional controls are necessary for both above and below ground storage facilities. Double containment should be required for both. Gasoline storage tanks should not be excluded.

- As part of any local permitting process, the operator must provide a Hazardous Waste Management Plan which would include an approved storage plan, a map of the facility, and an approved transportation handling and route plan. In addition, a training program for new employees and an ongoing training program for other employees should be required.

- Most existing regulations only are concerned with relatively large quantities, and the "small generator" is exempt. (A "small generator" generates less than 500 pounds of hazardous waste per month.) The issue is that there are numerous small users who in aggregate handle significant amounts of hazardous substances.

- There is a need, especially on the local level, for improved communication between regulators. Local regulations should be well coordinated and should serve as many interests as possible.

- A subject which is avoided almost entirely by hazardous substances' regulations has been land use, specifically the relationship between hazardous substance handling and surrounding land uses. Land uses where hazardous materials are used or hazardous wastes are generated must be located with an awareness of surrounding land uses. The potential for disasters can be avoided through proper land use planning.

In summary, the use of hazardous materials and the generation of hazardous wastes within the Study Area pose several concerns. In addition to worker safety, the transportation, storage, and disposal of hazardous materials and wastes pose several safety concerns. Furthermore, the use of hazardous materials could result in significant air, surface water, and groundwater quality impacts. Air quality impacts are discussed in Section F (Air Quality), and surface and groundwater quality impacts are discussed in Section M (Hydrology and Water Quality).

Five Individual Applications

The impact of the five individual applications in regard to hazardous materials and wastes would be the same as the impacts for the five Community Plans discussed above. Since all five applications propose devlopment of high technology industry each project would be likely to use hazardous materials and generate hazardous wastes.

HAZARDOUS MATERIALS AND WASTES -- MITIGATION MEASURES

Alternatives A, B, C, D and E

- The Community Plan alternative which is adopted should include standards for separating potentially reactive groups of industries and for assessing the potential for downwind recipients of emissions. Interface of land uses where hazardous substances are used and generated should be minimized with residential, public, and open space uses in order to reduce potential exposure. One way to accomplish this would be to establish buffer zones to contain the disposal of toxins to "safety zones". The sizes of the zones should be determined and incorporated into site plans for individual projects. The size of the zones could only be determined on a case-by-case basis based upon the type of industry and the chemicals proposed to be used.

- The Community Plan's traffic circulation should be designed in consideration of the types of hazardous materials to be transported and the ability of the Haz Mat Team to respond. Collectors or transporters of hazardous materials and/or wastes should be restricted from residential neighborhoods and school areas.

- In the absence of a comprehensive countywide plan, Hazardous Substance Management Plans should be required of all appropriate industries to be located in the Study Area. The plans would need to demonstrate that

adequate safety precautions have been taken for the storage and handling of hazardous materials and/or wastes, including:

-- Proper on-site management.
-- Proper transportation.
-- Properly designed and outfitted disposal facilities.
-- Source reduction and recovery.
-- Measures to prevent hazardous wastes from entering sanitary sewers.
-- Programs to reduce spills of hazardous substances during transport.

SCHOOLS -- THE SETTING

The Study Area primarily is served by the Natomas Union School District (Kindergarten through Grade 8) and the Grant Joint Union District (Grades 9 through 12). Small portions of the Study Area also are served by the Rio Linda, Robla, and Del Paso Heights School Districts.

Elementary Schools

The Natomas Union School District provides facilities for Kindergarten through eighth grade (K-8). The District operates the American Lake School, located in South Natomas, which has temporary facilities for Kindergarten through second grade (K-2) and permanent facilities for Grades 3 through 6. Middle school children (Grades 7-8) within the Natomas Union School District attend Natomas Union School, located on Del Paso Road west of I-5. The Natomas Union School is the only school physically located within the Study Area.

The Natomas Union School District plans to construct additional permanent facilities at the American Lake School site. When completed this school will provide facilities for Kindergarten through Grade 8. Although the District is experiencing rapid enrollment increases due to growth in South Natomas, no date has been set for completion of the American Lake School. [25]

High Schools

Grant Joint Union High School District serves the Study Area. In addition to providing high school facilities to students in the District, the Grant District provides middle school facilities (Grades 7 and 8) to the Del Paso, North Sacramento, and Robla Districts.

Grant High School presently provides facilities for students in Grades 10 through 12, and Rio Tierra Junior High School serves students in Grades 7 through 9. Rio Linda Senior High School serves students in Grades 9 through 12 and currently is operating close to capacity.

The District anticipates moderate growth in enrollment through the year 2000 due to growth in South Natomas. Based on this growth in South Natomas the District expects that it will need a new high school in South Natomas for the 1989-1990 school year. The District currently owns a 25-acre site in South Natomas (at Truxel and Bannon) and proposes to build a high school accommodating approximately 1,000 students. It is possible that this school could be expanded to 1,500 students to accommodate growth from development in North Natomas. [26]

SCHOOLS -- THE IMPACTS

Alternatives A, B, C, D and E

Exhibit H-39 shows the number of students expected to be generated by development according to the five alternatives. This EIR analysis assumed that all children in Kindergarten through Grade 8 would attend schools in the Natomas Union School District. It is possible that there may be some excess capacity in the other school districts (Rio Linda, Robla, and Del Paso Heights) in the immediate area to accommodate some of the students generated by development in North Natomas. It is unlikely, however, that there would be a significant amount of excess capacity in these districts given the projections for growth in areas served by these districts. Furthermore, a change in the existing district boundaries probably would be necessary to make optimum use of any excess capacity. This analysis, therefore, provides a worst-case evaluation for the Natomas District.

Natomas Union School District

Due to the small number of students generated in Alternative A, no additional elementary or junior high schools would be necessary. It is assumed that these additional students would be accommodated in existing or already planned facilities. Alternative A indicates that the Natomas Union School on Del Paso Road would continue in operation.

EXHIBIT H-39

Projected Student Yields [1/]

Community Plan Student Generation Figures	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Grades K-6	191	5,140	7,750	8,145	8,821
Grades 7-8	63	1,734	2,594	2,807	3,439
Subtotal	254	6,874	10,344	10,952	12,260
Grades 9-12	33	836	1,281	1,266	969
Number of Schools Proposed					
Elementary [2/]	0	8	12	13	14
Junior High [3/]	1	2	3	3	5
Senior High [4/]	0	1	1	1	1
Natomas Union School District Generation Figures					
Grades K-8	220	5,700	8,690	8,810	8,248

1/ See Exhibit H-41 for a comparison of student generation rates used in preparing the Community Plan and those recommended by the Natomas Union School District.

2/ Based on one elementary school per 600 students.

3/ Based on one junior high school per 900 students.

4/ Based on one senior high school per 1,000 students.

Source: Nichols • Berman

Alternatives B through E would require from eight (8) to 14 elementary schools and from two (2) to five (5) junior high schools, depending on the alternative selected. Alternatives C, D, and E would maintain the Natomas Union School in operation. Alternative B, however, would eliminate the Natomas Union School on the west side of I-5. Elimination of the Natomas Union School would require the Natomas District to provide replacement facilities. This replacement facility is shown on the east side of I-5 in Alternative B since this Alternative proposes no residential development on the west side of I-5.

It should be noted that student generation factors used by the Natomas District are different from those used in the preparation of the Community Plan alternatives. The District's generation factors result from an in-depth study it conducted on current and projected student generation rates primarily in the South Natomas area. [27] Exhibit H-41 compares the generation factors used in the Community Plan with those recommended by the District. The District's generation factors for Rural Estate and Low Density housing are similar to those used in the Community Plan; the District's factors for Medium and High density housing, however, are significantly less than those used in the Community Plan.

Exhibit H-41 also shows the number of Kindergarten through Grade 8 students which would be expected from each alternative, based on the Natomas District's generation factors. A comparison of student yields shows that using the District's generation rates would result in a lower number of students than the number projected by the Community Plan. The result would be a reduced number of elementary and junior high schools needed to accommodate the expected students.

The five Community Plan alternatives used a figure of six acres for each elementary school site in order to determine the total acreage necessary to provide for school facilities in the Study Area. The Natomas Union School District, however, uses an average school site size of 10 acres of which eight acres are classified as "usable acres" for elementary school sites. [28] A six-acre site would be too small for a typical elementary school. As a result the additional acreage necessary for the Community Plan alternatives would be 32 acres for Alternatives B, 48 acres for Alternative C, 52 acres for Alternative D and 56 acres for Alternative E.

EXHIBIT H-41

Comparison of Student Generation Rates -- Community Plan and Natomas Union School District

	Rural Estate	Low Density	Medium Density	High Density
Community Plan				
Grades K-6	0.34	0.34	0.20	0.20
Grades 7-8	0.09	0.09	0.08	0.08
Total	0.43	0.43	0.28	0.28
Grades 9-12	0.08	0.08	0.02	0.02
Natomas Union School District				
Grades K-8	0.460	0.460	0.184	0.175

Source: Nichols • Berman

Grant Joint Union High School District

For effective operations, the Grant Joint Union High School District prefers to operate a high school with a minimum of 1,000 students. Alternative A would have a minimal impact on the District since new students would be accommodated by existing facilities. Alternatives C and D, each of which would generate approximately 1,300 students, both would require construction of a new high school. Alternative E (969 students) also would be expected to require a new high school, and it is assumed that the District would make a minor boundary adjustment to achieve the 1,000-student minimum. Alternative B would be the most difficult for the District because it would require a transfer of approximately 160 students via a boundary change in order to meet the 1,000-student minimum.

It is assumed that high school students would be housed at existing sites at least in the early years of development in the Study Area. This would require the District to buy relocatable classrooms to be placed at existing school sites in order to accommodate the increasing student enrollment. This also would require the purchase of school buses and would involve busing of students until the new high school is built.

Five Individual Applications

Exhibit H-43 shows the expected student yield for the five individual applications. Since the Fong and the Schumacher-Iverson projects contain no residential uses, they would not generate any students. Both the Gateway Point and Payne projects individually would generate enough students to warrant an elementary school. It should be noted that the Gateway Point project proposed a number of timeshare condominiums. If this concept is sucessful the number of students generated by this project could be significantly less than shown in Exhibit H-43. The Payne project would generate almost enough students to require a second elementary school. The Gateway Point, Payne, and Reid-Ketscher projects all would generate junior high school students to the Natomas Union School District and high school students to the Grant Joint Union High School District. These students would need to be accommodated in existing facilities.

EXHIBIT H-43

Student Yield for Five Individual Applications

Generation Rates 1/		Gateway Point		Fong Ranch		Payne		Schumacher-Iverson		Reid-Ketscher	
		Units	Students	Units	Students	Units	Students	Units	Students	Units	Students
Rural Estate & Low Density											
Grades K-6	0.34	0	0	0	0	336	114	0	0	0	0
Grades 7-8	0.09	0	0	0	0	336	30	0	0	0	0
Subtotal			0		0		144		0		0
Grades 9-12	0.08	0	0	0	0	336	27	0	0	0	0
Medium & High Density											
Grades K-6	0.20	3,080	616	0	0	4,488	898	0	0	110	22
Grades 7-8	0.08	3,080	246	0	0	4,488	359	0	0	110	9
Subtotal			862		0		1,257		0		31
Grades 9-12	0.02	3,080	62	0	0	4,488	90	0	0	110	2

1/ Students per unit, based on Community Plan Generation Rates.

SCHOOLS -- MITIGATION MEASURES

Alternatives A, B, C, D and E

- The Community Plan proposed for adoption should use student generation rates for Grades K through 8 which are mutually agreed upon by the City and the Natomas Union School District.

- The proposed size of each elementary school should be increased to 10 acres as requested by the District.

- If Alternative B is selected as the prefered alternative, a replacement site for the Natomas Union School should be designated east of I-5.

PARKS AND RECREATION -- THE SETTING

There presently are no parks or other recreational services in either the City or County portions of the Study Area. Furthermore, there are no parks or other recreational services currently proposed in any portion of the Study Area.

The City of Sacramento recently has adopted a Master Plan for Park Facilities and Recreation Services. [29] The Master Plan provides the City with goals, objectives, policies, and actions for the next ten years. The Plan divides the City into 11 community planning areas and the Study Area is located in Planning Area 10. The Master Plan does not propose any new park facilities for North Natomas since it was prepared under the assumption that North Natomas would not be available for devlopment.

The Master Plan establishes standards for City-owned recreation sites, and these standards would be applicable to the City's portion of the Study Area. The City's standard provides for a total of 10 acres of City parks per 1,000 people. These 10 acres are divided among neighborhood, community, and city regional parks, as follows:

	Radius to Serve (miles)	Size (acres)	Standard (acres/1,000 people)
Neighborhood Park	0.5 mile	2-10 acres	2.5 acres/1,000
Community Park	3.0 miles	6-60 acres	2.5 acres/1,000
City Regional Park	30 minutes driving time	Greater than 75 acres	5.0 acres/1,000

As shown above, the City's standards include location, accessibility, and proximity to other facilities having recreational potential in addition to minimum acreage amounts. The Master Plan also provides standards for City Parkways and Landscaped and Dedicated Open Spaces.

Both the City and the County have adopted the Sacramento Bikeways Master Plan as part of their respective General Plans. [30] The Bikeway Plan provides direction for the development of a comprehensive system of safe bikeways within Sacramento County and provides the basis for coordination between the City and County for a countywide system.

The Sacramento Bikeway Master Plan diagram shows the following bikeways in and in the vicinity of the Study Area:

- On-street bikeways on El Centro Road, State Highway 99 north of I-5, Elkhorn Boulevard east of Highway 99, San Juan Road, Northgate Boulevard, and Garden Highway.

- An off-street bikeway along the Natomas East Main Drainage Canal.

In adopting the bikeways plan, however, the City stated that the on-street bikeway along Highway 99 north of I-5 should be retained only until an alternative route is available. [31]

PARKS AND RECREATION -- THE IMPACTS

This EIR assumes that the entire residential population of North Natomas at buildout would be located within the City's jurisdiction [32], and, therefore, that only the City would be responsible for providing parks within the Study Area. This assumption means that there would be no impacts on Sacramento County for the provision of park and recreation facilities.

Alternatives A, B, C, D and E

Exhibit H-47 summarizes the park acreage requirements for each alternative based on the City's standard. Exhibit H-47 also lists the amounts of parkland proposed by each Community Plan alternative. Furthermore, Exhibit H-47 shows the park acreage deficiencies for each alternative based on the City standards. These deficiencies range from 16 acres for Alternative A to 765 acres for Alternative E. Based on the level of detail available, however, it is not possible to determine how much acreage has been allotted to the different types of parks by each alternative. It is expected that the Community Plan proposed for adoption would be revised from Alternatives A through E to include adequate park lands to meet the City's standards. [33]

In addition to acreage standards, the City has standards on location, accessibility, and proximity of parks to other recreational facilities. The level of detail of alternatives is not sufficient, however, to determine the actual consistency of the proposed parks with these other City standards.

Alternatives C and D designate a centrally-located regional/community park. The City's Department of Parks and Community Services has indicated that development of a centrally-located combined regional and community park adjacent to a high school and civic center is a good concept. [34] This concept would allow night-lighted activities, such as baseball, to be located near offices and industrial uses, thus avoiding conflicts with nearby residents.

Bikeways

A goal of the Draft Community Plan is to establish a bicycle trail system in the Study Area for both recreation and commuting. As proposed for Alternative C, the system would include both on- and off-street routes. Off-street routes would use the electrical transmission line easement, minor drainage canals, and the Natomas East Main Drainage Canal. On-street bike lanes also are proposed for selected roads within the Study Area.

The bikeway plan proposed for Alternative C would be consistent with the City's policy to develop a comprehensive, safe bikeway system. As proposed, the system could provide access to South Natomas and North Sacramento via the Natomas East Main Drainage Canal.

EXHIBIT H-47

Park Acreage Requirements Based on City of Sacramento Requirements

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Population	1,613	41,766	63,907	65,792	76,626
Neighborhood Parks (acres)	4	104	160	164	191
Community Parks (acres)	4	104	160	164	191
Regional Parks (acres)	8	208	320	328	383
TOTAL ACREAGE	16	416	640	645	765
Park Acreage in Proposed Land Use Plan	0	95	600	350	0
Acreage Deficiency	16	321	40	306	765

Source: Nichols • Berman

For a more detailed discussion of bikeways for all alternatives, see Section E (Transportation) of this EIR. Specific bikeways have been proposed in that section for Alternatives A, B, D and E.

Other Open Space

In addition to developed parks, each alternative contains some land designated as greenbelt, buffers, and drainages. The greenbelts refer to land abutting agriculture on the northern and western borders of the incorporated Study Area. The amount of greenbelt would range from no (0) acres in Alternative A to 950 acres in Alternative D. It is not clear from the Draft Community Plan exactly how the greenbelts would function to separate urban areas from agricultural areas and, thus, how effective they would be. It is anticipated, however, that the greenbelts would not be easily accessible and would not be used for active recreational use. [35] While it is unlikely that greenbelts themselves would be very effective in containing urbanization within the Study Area, the greenbelts would provide some additional visual open space and, if properly maintained, could be attractive. If not properly maintained, however, the greenbelts could be eyesores.

Buffers and drainages include drainage canals and maintenance areas, freeway open space corridors, the transmission line corridor, and the existing open space corridor along the eastern border of the Study Area. The amount of land designated as buffers and drainages ranges from 300 acres in Alternative A to 600 acres in Alternative C.

It appears that a conflict would result from the proposed use of drainageways as part of the open space plan by "making them into positive amenity features such as bike-hike corridors" as proposed in the Draft Community Plan. [36] This conflict arises due to the potential size of the drainageways, the need to provide adequate security along the drainageways, and the need to provide maintenance. These factors may make it difficult to make the drainageways positive amenities. The typical drainage cross-section contained in the Dewante and Stowell report, for example, shows a chain link fence on both sides in order to provide security. [37] It should be noted, however, that it would be possible to design the drainageways in order to make them positive amenities. For example, both the Sacramento and American rivers provide for both flood control and recreational needs without significant restrictions on public access due to fencing.

Similar to the greenbelt, the buffers and drainages would require a significant amount of maintenance to prevent areas from become unattractive visually.

Five Individual Applications

Exhibit H-50 summarizes the park acreage requirements for each of the five individual applications based on the City's standard. Exhibit H-50 also lists the amount of parkland or open space proposed by each individual application. The open space proposed in the Payne and Schumacher-Iverson projects is proposed as greenbelt and not as developed parkland. Likewise, the open space in the Gateway Point project does not appear to be developed parkland but rather as buffer areas between conflicting land uses or along drainageways. It would be necessary for the three individual applications which propose residential uses (Gateway Point, Payne and Reid-Ketscher) to be revised to include parkland in conformance with the City's standards.

PARKS AND RECREATION -- MITIGATION MEASURES

Alternatives A, B, C, D and E

- The City should amend its Master Plan for Park Facilities and Recreation Services to reflect the Community Plan adopted by the City for North Natomas.
- The Community Plan proposed for adoption should be revised to include adequate park acreages and locations to meet the City's standards.
- The Community Plan proposed for adoption should include bikeways consistent with the Sacramento Bikeway Master Plan.
- Programs for the establishment and maintenance of the greenbelts, buffers, and drainages should be included in the Community Plan.

LIBRARIES -- THE SETTING

There currently are no libraries in North Natomas. Residents primarily use the Rio Linda Library located on Oak Lane in the Mar-Val Shopping Center or the Central Library in downtown Sacramento.

EXHIBIT H-50

Park Acreage Requirements Based on City of Sacramento Requirements

	Gateway Point	Fong	Payne	Schumacher-Iverson	Reid-Ketscher
Population	4,743	0	7,768	0	169
Neighborhood Parks (acres)	11.8	0	19.4	0	less than 1 acre
Community Parks (acres)	11.8	0	19.4	0	less than 1 acre
Regional Parks (acres)	23.7	0	38.8	0	less than 1 acre
TOTAL ACREAGE	47.3	0	77.6	0	less than 2 acres
Park Acreage in Proposed Application	110.0	0	27.0	44.0	0
Acreage Surplus or (Deficiency)	52.7	0	(50.6)	44.0	less than 2 acres

Source: Nichols • Berman

The 1983 Library Master Plan does not provide for any library facilities in North Natomas. The Master Plan contains standards for the size of facilities and the type of services to be provided based on expected population.

LIBRARIES -- THE IMPACTS

The land use plans for Alternatives A and E do not indicate specific locations for a library within the Study Area. Alternatives B, C, and D each designate civic/public uses on their respective land use plans. Although a library would be included in the civic/public uses, no recommendation is made for a specific location for a library. One policy of the draft Community Plan, however, is the establishment of a civic center along Del Paso Road near Truxel Road. The Plan states that the civic center shall include facilities for a library.

The Sacramento Public Library and Information Service was contacted for its preliminary assessment of the library services needed for the five alternatives. [38] The library services needed for the alternatives would be as follows:

Alternative A

The proposed community-sized (12,000 square feet) South Natomas Branch could provide library services. No additional library service would be required.

Alternative B

The estimated population would require an 8,000- to 10,000-square foot facility, depending on meeting room space. It would be a full service branch with specialized children's and adult services and programs for all ages.

Alternatives C and D

A community-sized (12,000-square foot) branch library would be required. A possible location would be along Del Paso Road. A leased facility could be used as an interim site while population increased and the library is

constructed. Library services would include specialized children's and reference services as well as programs for all ages.

Alternative E

The estimated population would be at the upper limit of the population which can be served by a community-sized branch library. An additional 2,000 to 4,000 square feet may need to be added to have adequate seating and collection space.

For Alternatives B through E, a location on a major street, such as Del Paso Road would be preferred for the library. [39] The Sacramento Public Library prefers to locate libraries on major streets in order to provide easy access to and from the facilities. Locations such as these have been found to have higher use than libraries located on local streets where access is more circuitous. A location separate from a park also is preferred. This is because of the potential conflict between active recreational uses in the park and the more passive use of the library. The potential for parking conflicts if joint-use parking is employed also is of concern.

Five Individual Applications

It is unlikely that any of the five individual applications would require a seperate library. It is more likely that the proposed community-sized South Natomas Branch library could provide the necessary library services.

LIBRARIES -- MITIGATION MEASURES

Alternatives A, B, C, D and E

- The Community Plan alternative which is adopted should include specific policies regarding the location and timing of construction of a library. The size of the library and the facilities provided should be based on the standards contained in the Library Master Plan.

1 Report on Water Study North Natomas Area, Dewante and Stowell, December, 1984. page 2-4 and 2-5.
2 Ibid.
3 Report on Water Study North Natomas Area, op. cit., page 2-5.
4 Nichols-Berman conversation with Robert Winchester, Natomas Central Mutual Water Company, May, 1985.
5 Sacramento Sewerage Expansion Study for the North Natomas Area, CH2MHIII, January, 1985, page B-12.
6 Letter to the City of Sacramento from F. I. Hodgkins, Sacramento Regional County Sanitation District, February 11, 1985.
7 Draft EIR Airport Meadowview Community Plan, City of Sacramento, October, 1983, page H-6.
8 Nichols-Berman conversation with Merle Switzer, Sacramento County Sheriff's Department, May, 1985.
9 Nichols-Berman conversation with Mike Busch, City of Sacramento Police Department, May, 1985.
10 Nichols-Berman conversation with Jim Barclay, Sacramento Police Department, May, 1985.
11 The ISO rating is the accepted standard of service and rates overall services on a descending scale of 1 to 10.
12 Memo to Sacramento Planning Department from Sacramento Fire Department Regarding Additional Fire Protection Needs, March 13, 1985.
13 Nichols-Berman conversation with Dennis Smith, City of Sacramento Fire Department, May, 1985.
14 Sacramento County Solid Waste Management Plan, 1983 Revision, County of Sacramento, 1983.
15 Nichols-Berman conversation with Reg Young, City of Sacramento, May, 1985.
16 "Current and Future Directions in Technology and Business", Lyse Duhamel Helsing, Managing Hazardous Wastes, 1984.
17 Draft Hazardous Waste Management Plan, Hazardous Waste Management Council, State of California, January, 1984. In principle these State laws are functionally equivalent to EPA's regulations.
18 The new subchapter of Title 15 of the California Administrative Code. Title 23 provides new classification names. Class I Disposal Sites now will be referred to as Class I Waste Management Unit.
19 Sacramento County Solid Waste Management Plan, op. cit., page 11.
20 Sacramento County Solid Waste Management Plan, 1983 Revision, op. cit.
21 Draft Hazardous Waste Management Plan, State of California Hazardous Waste Management Plan, January, 1984, page 77.
22 Ibid., page 75.
23 Memo to Interested Parties From County of Sacramento Department of Planning and Community Development Regarding Hazardous Materials, March 12, 1984.
24 Ibid., page 13.
25 Nichols-Berman conversation with Brian Steele, Natomas Union School District, October 17, 1984.
26 Nichols-Berman conversation with Ira Carter, Grant Joint Union High School, October 11, 1984.
27 Report on Current and Projected Student Yield Rate and Estimate of School Facility Requirements in the South Natomas Community, David Wade and Associates, January, 1985.
28 Letter to Stephen Jenkins from Raff McDonald, District Superintendent,

January 9, 1985.

29 1984 Master Plan for Park Facilities and Recreation Services, City of Sacramento, June 1, 1984. Adopted by Sacramento City Council Resolution No. 84453, May 30, 1984.

30 Sacramento Bikeways Master Plan, Sacramento City-County Bikeway Task Force, January, 1977.

31 Ibid., page 18.

32 Memo to Selected City, County, and Other Government Agencies Requested to Prepare Fiscal Analyses of North Natomas Community Plan Alternatives from Stephen L. Jenkins, February 12, 1985,

33 Nichols-Berman conversation with Gene Robinson, City of Sacraemnto, May, 1985.

34 Memo to Steve Jenkins from Gene Robinson, Parks Superintendent, February 4, 1985.

35 Draft Community Plan, op. cit., pages 57-58.

36 Ibid., page 57.

37 Report on Drainage Study, North Natomas Area, Dewante and Stowell, op. cit., Figure 7-3.

38 Memo to City of Sacramento Regarding Capital Improvement Needs from Janet Larson, Sacramento Public Library and Information Service, February 28, 1985.

39 Nichols-Berman conversation with Janet Larson, Sacramento Public Library and Information Service, March, 1985.

I. PUBLIC HEALTH -- THE SETTING, IMPACTS, AND MITIGATION MEASURES

SOIL CONTAMINATION -- THE SETTING

The primary purpose of this section is to provide information on whether or not agricultural soils in general or at site-specific locations could be contaminated from agricultural practices involving the use of herbicides, pesticides and other chemicals in the Study Area.

General Pest Control Practices and Contamination Potential

Concern for the environmental and human safety and "best management practices" favor the use of non-persistent chemicals for the control of weeds, insects, and diseases on agricultural lands. Herbicides commonly used on crops in the Study Area are listed in Appendix I-1.

The use of persistent chemicals, particularly those which are soil applied, would be inconsistent with "best management practices" based upon the rotational cropping patterns used for row and field crops characteristic of the Study Area. This is due to the fact that if persistent chemicals were used this would limit the variety of crops that could be planted in rotation in the Study Area.

A cursory review of pest control practices was made with selected, knowledgeable, local agricultural authorities of the Sacramento County Agricultural Commissioners' Office, the Regional Water Quality Control Board, and licensed crop production advisers. The consensus of this review was that current agricultural pest control practices and those of the recent past pose little concern for general contamination of soils in the Study Area.

In a few site-specific locations (located outside the Study Area), the herbicide Ordram (molinate) has been detected in wells. These wells, however, were connected to the surface soils by permeable sand or gravel conduits. In other cases, the well head was improperly sealed. It is thought that no general contamination problem exists. [1]

Rice seedlings often have difficultly emerging from water because of algal growth. The warm water of the Natomas area favors this condition. The standard control method is to broadcast copper sulfate ($CuSO_4$) into the water of the rice fields. The immobility of the copper in soils with a high

clay content, such as those typical of the Study Area, confines this element to the surface layer of soil. At this time no evidence exists which would support concern for higher than normal levels of copper accumulated in soils of the Study Area where rice is grown.

A high water table is typical of the Study Area. The long-term but judicious use of nitrogenous fertilizers on all crops, especially on rice, suggests that nitrate (NO_3) could build up in the subsurface zones of soil or groundwater. At the present time, however, no evidence exists to support any concern for nitrate contamination. [2]

Rice Herbicides

The control of grass weeds in rice fields is a major cultural problem. Ordram (molinate) and Bolero (thiobencarb) are the two primary herbicides used to control these weeds. The environmental dynamics, however, of each chemical is different.

Various State agencies, the University of California, and the respective manufacturers of each chemical have conducted exhaustive tests on the environmental fate of each herbicide, particularly in water discharges from fields (see Appendix I-2).

Based on these tests, the State Water Resources Control Board directed its attention to water runoff contaminated by chemicals used on rice crops and paid no particular attention to soil persistence and contamination. [3] Regulations presently are in effect which provide for strict control of herbicide use and for water management practices in order to minimize discharge and mitigate adverse impacts to the water used for drinking, culinary purposes, and for recreational fisheries.

Irrigation and Drain Ditchbank Vegetation Control

Control of aquatic and ditchbank vegetation is important to the effective operation and maintenance of irrigation ditches and drains. Natomas Central Mutual Water Company and Reclamation District No. 1000 are responsible for vegetation control on their respective systems both within the Study Area and throughout the Natomas district.

According to the Natomas Central Mutual Water Company, persistent soil residue weed control chemicals (herbicides) currently are not being used and

are not intended to be used. Vegetation presently is controlled by mechanical methods, including burning. [4] When chemical control is required, glyphosate (Roundup) and paraquat are used. These herbicides are foliage-applied and have no residual soil activity when used in accordance with label instructions.

Reclamation District No. 1000 uses mechanical methods such as dragline, back-hoe, and burning to maintain its ditches and drains. According to the District, the herbicide Roundup is used only selectively and primarily to control willows. [5]

Natomas Air Park and Auxiliary Airstrips

An active agricultural pest control operation was based at Natomas Air Park until approximately five years ago when operations ceased. The airport now is used only for small private aircraft, and no agricultural activities are permitted.

When the aerial pest control operation was based at the airport it is very likely that rinsewater and washdown water containing undetermined levels of diluted pesticide chemicals were disposed of on-site.

According to the Central Valley Region of the California Regional Water Quality Control Board, there is a strong possibility of some level of on-site soil contamination as a result of these disposal activities. [6] Empty containers of pesticides are not thought to be buried on-site, but probably were disposed of by a drum recycling company after being triple-rinsed. It is the consensus of water quality authorities that possible contamination of the soil from pesticide chemicals at Natomas Air Park is not of an inordinate magnitude, although it would be necessary to assess the site in due time. [7]

Two auxiliary airstrips currently are being used for agricultural pest control operations one of which is located in the Study Area north of Del Paso Road and adjacent to the East Drainage Canal. This airstrip was established approximately two years ago and has been under close regulation and supervision by the Sacramento County Agricultural Commissioner. It is the opinion of regulatory personnel that soil contamination is of no concern at this airstrip. [8]

The second airstrip is located outside the Study Area on the northside of Elkhorn Boulevard on private property.

SOIL CONTAMINATION -- THE IMPACTS

Based on available information, there are two area of concern related to soil contamination in the Study Area. The first relates to the level of soil contamination from herbicides and pesticides at Natomas Air Park.

In January, 1985, the Department of Health Services (DOHS) Toxic Substances Control Division inspected the Natomas Air Park and collected ten soil samples and one liquid sample. The DOHS Hazardous Materials Laboratory analyzed the samples for chlorinated pesticides, herbicides, and organophosporous. A selected soil sample was also analyzed for aromatic compounds. The sampling plan and analytical results are provided in Appendix I-3. The DOHS detection of chlorinated pesticides and chlorophenoxy herbicides is consistent with the reported past use of this airport for agricultural aircraft operations.

Prior to their removal from agricultural use in 1971, DDT and numerous chlorinated hydrocarbon pesticides had been used effectively and extensively in crop protection and disease control. Although most of these pesticides generally are recognized as being quite persistent in the environment, several of them are relatively short-lived and degrade readily in soil. The two phenoxy herbicides (2,4,5-T and 2,4-D) are used widely for post-emergence control of broadleaf weeds in cereal crops, corn, and sorghum.

All of the pesticide and herbicide materials detected by DOHS either have been or currently are registered for agricultural use. In addition, all of these materials require a "use permit" from the local Agricultural Commissioner.

DOHS currently regards soil levels of any pesticide over one part per million (ppm) as a potential hazard. The concern is whether the levels of pesticides present would eventualy move into groundwater or whether these levels would cause problems with repeated or prolonged contact. DOHS' analysis of Natomas Air Park samples indicated that some of the subsamples exceed this limit. The need for more thorough assessment, however, and subsequent priorities for clean-up, if required, would be handled on a site-specific basis. Further assessment and action at Natomas Air Park is

awaiting consideration by the Site Mitigation Unit of DOHS' Toxic Substances Control Division.

The second area of concern is the level of thiobencarb (Bolero) in the surface soil of rice fields. Based on the information available at this time, it is not anticipated that there are harmful residues in the soils. This conclusion is based on the fact that both Bolero and Ordram are a "short" spectrum of chemicals with a relatively short life and not persistent in the environment with proper application and handling.

It is not likely that there would be a synergistic effect between these two chemicals because application at the same time is counterproductive and may, in fact, harm the recipient plants. In addition to this practical problem, regulations control the application, and label instructions indicate separate application.

While these are commonly accepted and approved practices, one should be aware of "midnight dumpers" who disregard the regulations and instructions. The nature of the farm operations in North Natomas, however, reduces the risk of undisciplined application. Enforcement by Agricultural Commissioner Deputies and threat of penalties and withdrawal of licenses appear to be adequate in preventing these abuses.

Concern that pollutants could build up in the soil prior to the more stringent regulations now in effect is countered somewhat by two facts. One is that older chemicals were not as sophisticated as current ones, and the other is that the structure of those chemicals is well known and could be identified in soils. Since soils are fairly aerobic, most degradation needed to "neutralize" these older compounds would have taken place.

Despite these general conclusions but because of the lack of specific data, it would be prudent to assess the level of thiobencarb (Bolero) in the surface soil of a typical rice field prior to any development in the Study Area in order to determine levels acceptable to State agencies.

In addition to soil contamination, it is the consensus of State agency representatives contacted for this EIR that there is little concern for groundwater contamination from agricultural practices involving the use of herbicides or pesticides. Rice field tailwater is discharged, however, to large surface drains and eventually reaches the Sacramento River. As a result two rice herbicides -- thiobencarb (Bolero) and molinate (Ordram) -- are present in drain water and aquatic organisms during the pesticide use season.

The California Department of Food and Agriculture has established rice herbicide regulatory procedures based on the environmental dynamics of these two herbicides. These regulatory procedures, involving both pesticide use and water management, are designed to minimize the presence of both herbicides in the environment. This nonpoint source of contamination is discussed in the Hydrology and Water Quality section.

SOIL CONTAMINATION -- MITIGATION MEASURES

Alternatives A, B, C, D and E

Prior to the approval of any development plans under Alternatives A, B, C, D, or E, the following measures should be undertaken to determine the level, if any, and significance of soil contamination within the Study Area.

- Soils located within the Natomas Air Park site, where pesticides and herbicides are known or suspected of having been stored, mixed, loaded, or rinsed, should be analyzed. Off-site samples from surrounding agricultural soils also should be analyzed to compare background levels with those found in soils at the airport site.

- The level of thiobencarb (Bolero) in the surface soil of a typical rice field should be assessed to determine if levels are acceptable to State agencies.

If unacceptable levels of soil contamination are found, specific mitigation measures would need to be developed and implemented prior to the development of any of the areas under question.

MOSQUITO ABATEMENT -- THE SETTING

The primary purpose of this section is to describe existing mosquito problems in North Natomas and the potential for pest impacts on residents and workers in the Study Area with future development. Information is provided on abatement programs and potential impacts on these programs in the Study Area.

The Sacramento-Yolo Mosquito Abatement District (SYMAD) was formed in 1946 and is responsible for controlling mosquitoes within Sacramento and Yolo Counties (see Exhibit I-7). The District covers 2,013 square miles and is

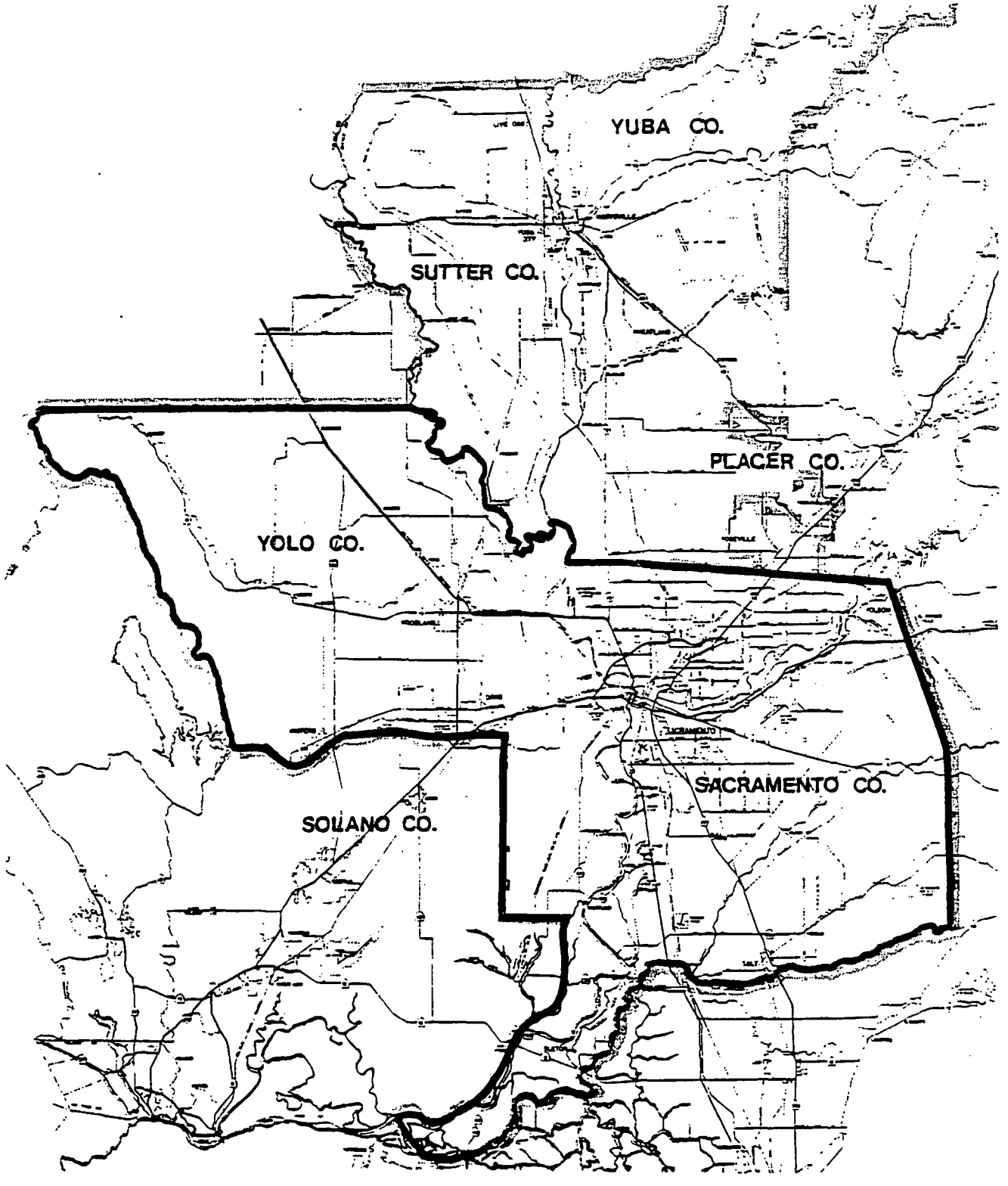


EXHIBIT I-7
SACRAMENTO-YOLO MOSQUITO ABATEMENT BOUNDARY

Boundary

0 5 10 Miles

the largest Mosquito Abatement District (MAD) in California. There have been no boundary changes since its formation.

The existing land uses within the District include airports, agriculture, urban areas (of which the City of Sacramento is the largest), and several small, rural towns.

Ninety (90) percent of land in the District is used for agriculture. Between 30,000 and 65,000 acres are used for rice cultivation [9], and the system of paddy rice culture provides standing water where mosquitoes can breed during the spring and summer. Additional agricultural lands are used for irrigated pasture, row crops, and field crops. In the Study Area, 9,700 acres of rice and pastures provide the most common locations for mosquito breeding.

Funds for SYMAD's operating budget come from property tax allocations. The District has 40 permanent employees. Operators are assigned to subareas in the District in order to keep track of mosquito sources within each area.

The Existing Mosquito Problem

Mosquitoes require control both as pests and as potential vectors of diseases to people and domestic animals.

Mosquitoes as Pests

While most mosquito species in California present no health threat, some can reach such high populations and can bite so fiercely that they pose a serious pest potential. With proper mosquito management techniques, extreme mosquito populations seldom are reached. Certain species, however, such as the floodwater mosquito (*Aedes melanimon*), pasture mosquito (*Ae. nigromaculis*), and the treehole mosquito (*Ae. sierrensis*), occasionally reach severe pest levels. There are cases reported where pasture mosquitoes reached such high numbers that dairy cows refused to leave the barn, and milk production was affected adversely.

Mosquitoes as Vectors

Mosquitoes probably are most well known for their ability to transmit diseases. In the SYMAD there is a potential for three mosquito-borne

diseases which affect people: malaria, western equine encephalitis, and St. Louis encephalitis.

Malaria has declined as a significant disease in California, and there are only sporadic local outbreaks. An. freeborni is the main vector of malaria in California. Although malaria is not endemic, the risk of secondary infections of this disease remains.

Two major forms of viral encephalitis occur in California -- western equine (WEE) and St. Louis encephalitis (SLE). Both occur in people, domestic animals, and in birds. Cx. tarsalis is the major suspected vector of both WEE and SLE in California. In the 1950's major epidemics of encephalitis occurred in California, but since 1954 the incidence of encephalitis has been low. In 1984, however, 26 cases of SLE were reported in southern California.

It has been noted that the decreased incidence of viral encephalitis corresponds to the introduction of organophosphate insecticides, such as parathion and malathion, and a corresponding reduction in Cx. tarsalis populations. The decreased incidence was disproportionate, however, to the reduction in vector populations. An important aspect in the transmission of WEE and SLE by Cx. tarsalis is that humans are not a preferred host. As vector populations are reduced, humans are used less, thereby reducing the transmission of the virus.

Another hypothesis for the lower incidence in encephalitis is that humans spend more time indoors at night, the major feeding period of Cx. tarsalis. The widespread use of air conditioners and television have both contributed to less outdoor activity in summer evenings.

Life Histories of Mosquitoes

All mosquitoes must use water to develop from the larval and pupal stages to adults. Eggs generally are laid on or near water, and a free living larva or "wriggler" soon hatches. When larval development is complete, the larva enters the pupal or "tumbler" stage. During this stage the mosquito metamorphoses from the aquatic, filter-feeding larva, into the terrestrial, flying adult. [10]

Female mosquitoes of most species require a blood meal for their eggs to develop. As a result female mosquitoes are the major pests to people and animals.

Specific aspects of the life histories of the principal pest mosquitoes in the Sacramento-Yolo Mosquito Abatement District are summarized below.

Anopheles freeborni was the principal vector of malaria in the 1800s and early 1900's in California. While it occurs throughout the Central Valley, it is more abundant in the north.

Wintering adult females lay the first eggs of the year in seepages, rain ponds, and other natural sources, and larvae begin to appear in mid-February. Larvae may be found in relatively clean, shallow, standing water, often associated with emergent vegetation and floating algae. Rice fields are regarded as the major source for this species in the North Natomas area, although the first broods of larvae are produced in other sources, such as natural low areas with spring remnants of flood waters and seepages before the rice fields are flooded. [11]

Rice fields cannot be used by An. freeborni until after they have been flooded and the rice plants have broken the surface of the water. (This reduces wave action and provides the smooth surface required for successful larvae cycles.) Six generations are produced each year.

In summer and fall this species becomes a major potential pest in the North Natomas area. Wintering females also come out of hibernation during warm winter days to take blood meals. It is during this period that the majority of service request calls to the SYMAD due to this species occur. [12]

An. freeborni feeds and is most active from early dusk to dawn, although it will feed in the daytime in winter. During the day it seeks shelter in sheds, shade trees, and orchards. Large numbers are readily attracted to lights. [13]

Culex tarsalis probably is the most abundant mosquito in California. It is found in a variety of habitats, including brackish marshes, freshwater impoundments, and mildly polluted wastewater. It is the principal vector of western equine (WEE) and St. Louis encephalitis (SLE). [14]

Larvae may be found from early March and are common through late September. Although rice fields are cited as the major source for Cx. tarsalis, adults appear before the fields are flooded. Studies have shown little correlation between Cx. tarsalis population numbers and rice field acreage in Sutter-Yuba MAD which seems to indicate that other sources also are important in production of this species. [15]

Adults mainly feed on birds but, later in the summer, will feed on mammals including people. Cx. tarsalis is a nocturnal feeder, and large numbers are attracted to lights and carbon dioxide. Few of the service request calls to SYMAD are due to this species.

The fertilized female overwinters, but unlike An. freeborni, it does not take blood meals during warm winter days. This species can travel distances of up to 10-15 miles with the wind. [16]

Aedes melanimon is common in recently flooded areas, such as rice fields, rural duck ponds (flooded for hunting), and sometimes in irrigated pastures where Ae. nigromaculis has become the most abundant species.

Adults can be aggressive biters of people and animals during the daytime. Mammals are its predominant hosts, although some feeding on birds does occur. Females infected with WEE and SLE have been found in California, but this species is regarded as only a secondary vector since it does not have adequate contact with infected birds. [17] Duck clubs and refuges are the major source for Ae. melanimon in the SYMAD. [18]

Aedes nigromaculis is widespread and abundant in the irrigated pastures of the Central Valley, often developing in synchrony with the flooding cycle of pastures. Although this species develops very high populations, little dispersal takes place, and this species usually is thought to be a localized problem species. The SYMAD treats this species as an important problem species due to the mosquitoes' aggressive biting habits. [19]

Due to the rapid development of Ae. nigromaculis larvae, close attention has to be paid to the irrigation patterns of pastures if larviciding is used as the principal means of control. The larvae's rapid developmental rate requires SYMAD operators to check pastures every 4 to 5 days to be sure to catch the larvae in stages susceptible to treatment. [20] Fifteen to 20 generations per year may develop, depending on irrigation frequency. The large number of generations can lead to high populations of this species if left untreated. [21]

Treatment for the Aedes species is primarily during the summer months for purposes of control.

Exhibit I-12 shows the general times of the year when mosquito species are most likely to bite people.

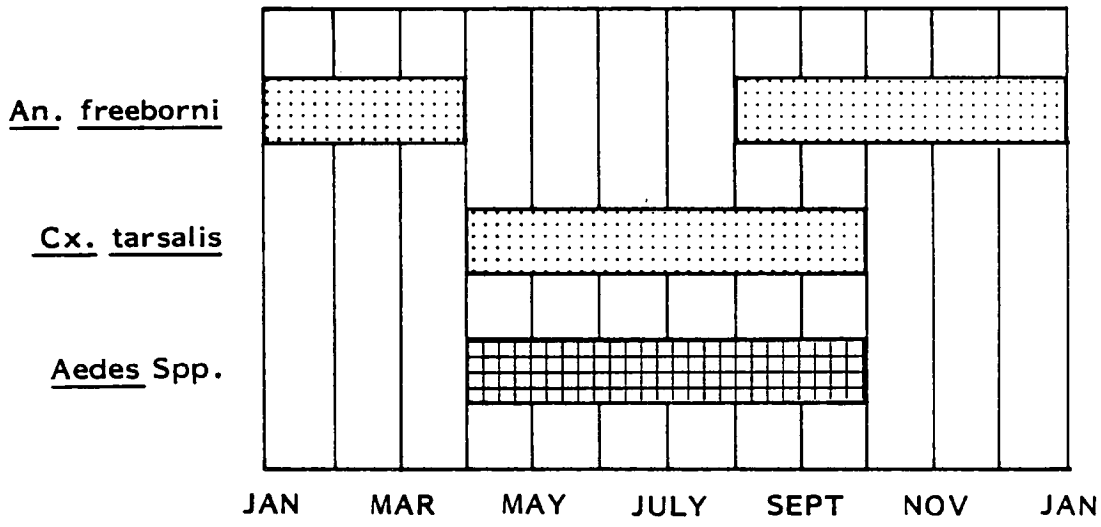


EXHIBIT I-12
BITING SEASONS OF MOSQUITO SPECIES IN SACRAMENTO-YOLO MOSQUITO ABATEMENT DISTRICT

Nocturnal Biters

Diurnal Biters

Mosquito Sources in the SYMAD

Permanent Sources

Although they occupy large areas, the relatively clean water of lakes, deep ponds, and reservoirs does not provide optimum habitat for mosquitoes. Most permanent bodies of water are stocked with game fish and mosquito fish and also provide habitat for other mosquito larvae predators. Wave action on the surface has been shown to be detrimental to egg-laying female mosquitoes. Flowing rivers similarly are not suitable for mosquito production, except when rivers flow over their banks and create breeding areas on floodplains. [22]

Temporary Sources

Mosquitoes are well adapted for taking advantage of temporary water sources. Their rapid reproductive rates enable them to complete their life cycles before the water evaporates and before other potential predators can colonize.

In the early Spring, high water along rivers occasionally inundates the floodplain, leaving remnants and seepage areas which produce the first broods of mosquitoes.

Irrigated crops. Onset of the irrigation season heralds the beginning of the mosquito season in the Sacramento Valley. Problems with mosquitoes occur in pastures, irrigated crops, and rice fields. [23]

Pastures. Mismanaged pastures may represent the major mosquito problem throughout the Central Valley and some zones of the SYMAD. Inexpensive water, which leads to a lack of incentives for water conservation, has led to cultural habits where some farmers allow tailwater to sit on fields. Pasture mosquitoes (Ae. nigromaculis) become a major pest in such situations.

Since pastures usually are remote from developed areas and because pasture mosquitoes do not venture far from the pasture, these mosquitoes mainly pose local problems. Less than 50 percent of the irrigated pastures in the SYMAD present any problem, and there is little pasture land in the North Natomas area.

Crops. When properly managed, irrigated crops do not produce appreciable amounts of mosquitoes. Areas where water is allowed to accumulate usually are not conducive to optimum crop production. Consequently, mosquito-related problems in irrigated crops are minor. The most common problems with irrigated crops arise from leaking irrigation pumps, weedy borrow pits, and seepage ditches.

Rice. Rice fields are the primary source of mosquitoes in the SYMAD. From 30,000 to 65,000 acres of rice are grown in the District annually, depending largely on a number of variables including commodity price, US government programs, such as Payment-In-Kind (PIK), actions by foreign governments, and weather. Out of 48,000 acres of rice district-wide in 1984, approximately 9,700 acres were located in the North Natomas area. [24] In average years approximately 18,000 acres of rice are grown in the North Natomas area.

Since rice field mosquitoes travel distances of up to twenty miles [25] and can be borne by wind to populated areas, rice fields in other counties also are important to the SYMAD abatement program. Colusa, Sutter, Yuba, Butte, and Glenn counties have over 400,000 acres of rice planted annually. [26]

Rice is grown in large units often exceeding 600 acres in size. Fields are levelled, and levees are placed along contours in order to control water levels. Fields are flooded in the spring for seeding. The water level often is dropped after initial flooding to assist seedlings struggle to emerge through the surface and to apply pesticides. After the rice reaches the surface, the water level gradually is raised to six to eight inches, and water is constantly added at the high end of the field and drained at the low end. After the rice sets seed, the field is drained about two weeks prior to harvest. [27]

Due to its extensive use of water, rice culture creates an ideal habitat for mosquito production. After harvest, the rice stubble is burned, and the field sometimes is reflooded for waterfowl habitat. This often produces a second hatch of Ae. melanimon.

Anopheles freeborni and Culex tarsalis are the predominant mosquito species of rice fields. Larvae of these species usually appear and increase in number through the summer after the rice has emerged above the water surface. Exhibit I-15 illustrates the development of mosquito larvae populations in a typical rice field. Following rice field flooding in April these is a hatch of Aedes eggs which produce a single generation of adults. With the emergence of the rice plants above the water surface Culex and Anopheles eggs are laid providing the larvae.

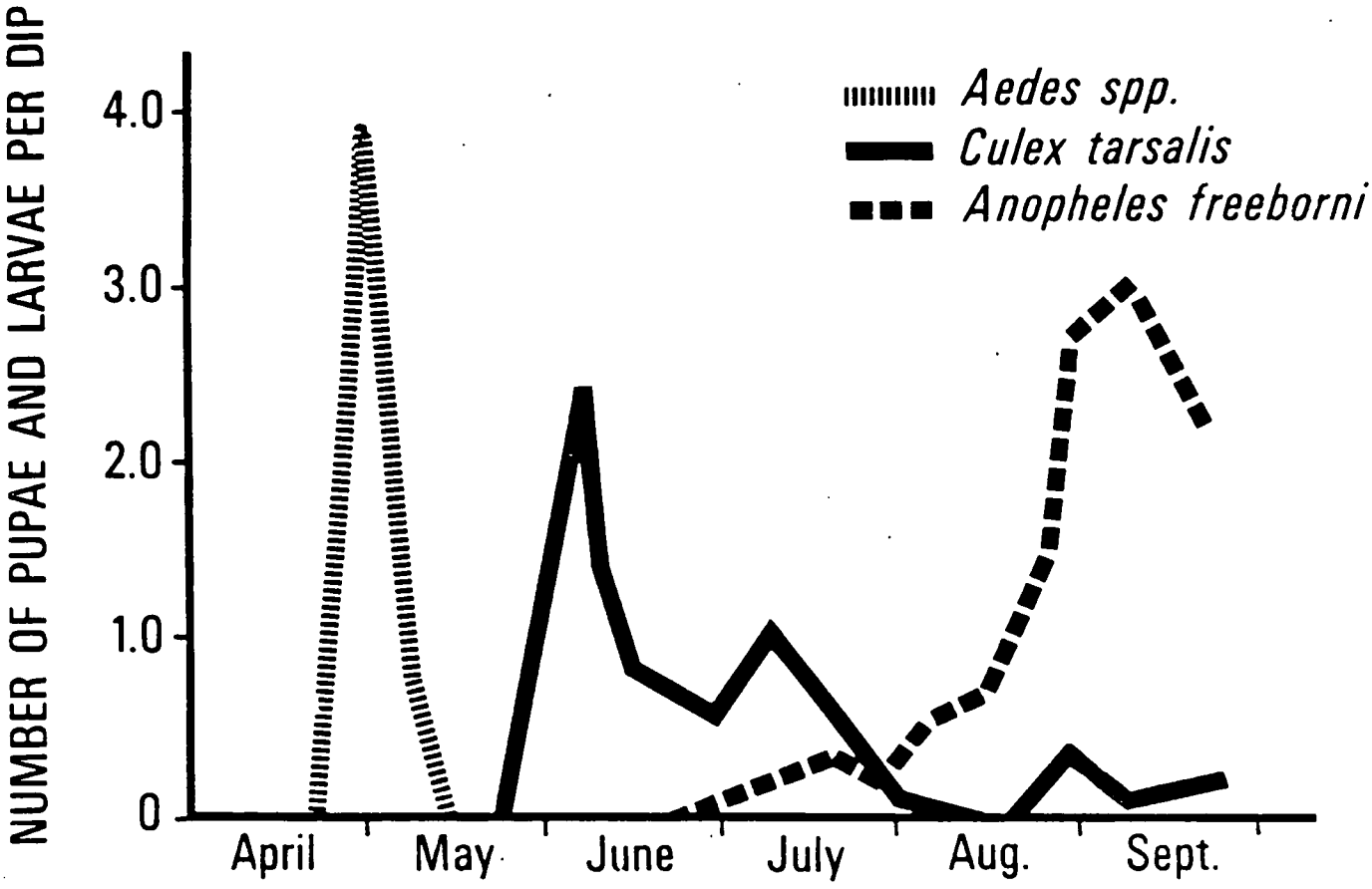


EXHIBIT I-15
SEMI-DIAGRAMMATIC REPRESENTATION OF THE SEASONAL FLUCTUATION IN ABUNDANCE OF MOSQUITOES IN CALIFORNIA RICE FIELDS

Source: R. K. Washino

Seepage ditches surround most rice fields. They collect water which seeps from the borrow pit of the rice field. These "sweat ditches" often produce large numbers of both An. freeborni and Cx. tarsalis. [28]

Several researchers have shown that some rice fields do not produce as many mosquitoes as others. In fact, relatively few fields are responsible for the majority of mosquitoes. [29] SYMAD uses light traps to montior adult mosquito populations. It is not known whether the light traps in North Natomas are capturing rice field mosquitoes originating in the Study Area or mosquitoes from other areas, such as Yolo County.

There also is some difference in mosquito populations between the first planting and the second crop. Older fields usually have more weeds, including cattails, barnyard grass, and willows, which create more favorable habitat for mosquito larvae and which often produce large populations of larvae earlier than in weeded fields. [30]

In addition to providing habitat favorable for mosquitoes, rice fields also are host to several other species of aquatic organisms, including predators of mosquito larvae. Backswimmers, diving beetles, damselfly nymphs, certain copepods, and flatworms are all potential mosquito predators. [31]

Mosquito Control Strategies

Natural Control

Rice fields provide habitat for mosquitoes and other aquatic organisms, many of which prey on mosquito larvae and exert some measure of control. Studies have shown that most rice fields do not produce appreciable numbers of mosquitoes, in many instances due to these natural controls. Aquatic insects, such as backswimmers, diving beetles, damselfly nymphs, and other invertebrates, such as flatworms, copepods, and hydras, all will prey on mosquito larvae.

Biological Control

Mosquito fish (Gambusia affinis) is the major biological control agent used in the SYMAD. In rice fields, 0.4 pounds of mosquito fish per acre are recommended to be planted. [32] Due to insufficient numbers of these fish, only 0.1 pound of fish per acre is planted in the SYMAD.

Fields located near residential areas are planted with mosquito fish first, and in 1984, 32,000 out of 48,000 acres in the SYMAD were planted with fish.

Studies have shown that mosquito fish prefer organisms other than mosquitoes, including mosquito predators. Because of these feeding habits, mosquito larvae are temporarily safe from predation until mosquito fish develop sufficient densities for adequate control. Few fish and many feeding opportunities are not effective in controlling mosquito populations. Many fish competing for available food however, means that the fish would be more likely to prey on mosquitoes. In order for mosquito fish to be effective, adequate numbers of fish must be planted. [33]

The SYMAD obtains mosquito fish from a variety of sources. Fish are raised in a SYMAD hatchery, in sewage oxidation ponds, in farm ponds, and in several ponds constructed by the SYMAD specifically for raising mosquito fish. (No hatcheries currently are located in the Study Area.) The SYMAD constructs one to two new fish rearing ponds annually. In the winter, maintenance of the ponds involves clearing brush and controlling weeds so that the fish can be collected efficiently from the ponds. [34]

The District raises approximately 1,500 to 4,700 pounds of fish annually to be released in rice fields. Each year in June and July the SYMAD hires ten summer aides to collect Gambusia from the hatcheries and ponds and to distribute them throughout the rice fields. In 1984, 1,500 pounds of fish were planted in the North Natomas area. Outlying fields, such as in north Yolo County, however, are not planted with fish due to their distance from residential areas. [35]

Source Reduction

Source reduction is the most permanent way to control mosquitoes. Within the SYMAD, source reduction usually involves improving the drainage of irrigated pastures or fields by digging new or clearing out existing drainage ditches, leveling fields, and installing pumps. The District is reimbursed for this work by the landowner only if the owner is found to be at fault. If the mosquito problem is caused by excessive runoff from another farmer's field, however, the SYMAD pays for the work.

In the past five years, 30 to 50 acres of mosquito sources have been eliminated in the District per year. About 3 to 5 acres of mosquito sources

are reduced in the Natomas area per year. The District recently purchased a second backhoe which is expected to double its source reduction work. [36]

Larvicides

The method used to kill immature mosquitoes in breeding sources (ponds, rice paddies, etc.) before they become adults is called "larviciding". This is the more effective method than killing adult mosquitoes ("adulticiding"), since the larval mosquitoes are killed before they can reproduce.

The SYMAD's most common method of killing mosquito larvae is to use larviciding oils. Mosquito larvae require air from the surface of the water to breathe, and oils restrict their ability to obtain air. Species controlled by oils include Cx. tarsalis, Ae. nigromaculis, and Ae. melanimon. Approximately 10,000 to 30,000 gallons of larvicidal oils were applied to pastures and low areas each year in SYMAD during the past five years. [37]

The SYMAD treats most larval sources with oil instead of chemical insecticides in order to avoid increasing larvae resistance to chemicals. Some limited larval sources are treated each year by aerial application of insecticides, but these usually are areas which are inaccessible by ground vehicles. There is no aerial application in the North Natomas area at this time. [38]

Generally, the use of chemical insecticides against mosquito larvae or adults has a few problems. The chemicals used usually are not selective which means that beneficial organisms, including fish, also may be killed. In addition, predators of mosquitoes usually take longer than mosquitoes to reestablish themselves after spraying which leaves newly hatched mosquito larvae free from natural controls (a condition referred to as resurgence). Excessive use of chemicals can lead to development of resistance in the pest population. Although resistance in the North Sacramento Valley is low in rice mosquitoes, studies have demonstrated the resistance of Cx. tarsalis to malathion, an organoposphorate insecticide. [39] It also has been found that other species in the SYMAD have developed resistance (e.g. Ae. nigromaculis).

Larvacide methods are not used on rice fields in the SYMAD due to the expense of treatment which requires several applications on a large area (30,000 to 65,000 acres). In order to apply larvicide properly, each rice field must have uniform chemical application. It is difficult for vehicles

to treat the centers of large fields where there are no roads for access, making it necessary to use aerial applications. [40]

Adulticides

The currently employed method for controlling rice field mosquitoes is to kill the adults with ultra low volume chemicals (cold-fogging) in and around the rice fields. The SYMAD's light trap data show that female mosquitoes are attracted to rice fields. Rice fields, therefore, are the best locations to treat, given the limitations of the MAD budget.

There are several drawbacks to this method of mosquito control. First, there must be a thermal inversion in order to keep the chemical fog from lifting too high in the air column. The chemical must be applied in the evening when the mosquitoes are most active and most likely to come in contact with the insecticide. Another limitation with ground-based cold-fogging is that the swath width is only 300 feet wide. Consequently, the centers of large rice fields may not be sprayed, leaving many female mosquitoes which continue to produce eggs. Due to the mobility of mosquitoes, adulticiding usually is effective for only one or two days after spraying. After that, there is sufficient immigration to increase populations back to pre-spray levels.

The SYMAD currently cold-fogs from trucks. The Natomas area is treated every four days from July to September. Eight trucks with two operators each are out six nights a week. (In addition to the sixteen crew members, a supervisor and a mechanic are standing by with a spare vehicle, in case of breakdown.) One of the District's four areas is treated each night, so that the entire district gets fogged every four days during rice season. The only exception is when there is no thermal inversion; then no fogging takes place.

Since cold fogging must be done at night when the target mosquitoes are active, use of aircraft is unlikely because it is too hazardous to fly at such low altitudes at night.

Several new insecticides show promise for mosquito control efforts.

Bacterial Larvicide. A recently developed larvicide which shows great promise in mosquito control is Bacillus thuringiensis var. israelensis (BTI). This bacteria produces a toxin which is extremely potent against mosquitoes but has shown little effect, if any, on other organisms. [41]

Some MAD jurisdictions such as Kern and Sutter-Yuba have begun to switch from chemical treatment to a BTI program. [42] The SYMAD is proposing an experimental program for 1985 to determine its effectiveness and cost factors. [43] It has been proposed that BTI be used alternately with other chemical pesticides in order to slow the development of resistance to either compound. [44] BTI would control mosquito larvae without many of the problems associated with chemical insecticides (e.g. resurgence, health considerations, etc.). The major problem with the use of BTI has been its high cost, although new technology has been developed which may reduce costs. [45]

An organism which currently is being researched for mosquito control is the fungal pathogen Lagenidium giganteum. Safety tests are being conducted now for registration with the US Environmental Protection Agency. The technology for artificial development of this pathogen is available, so large-scale commercial production could proceed. [46] This pathogen is specific to mosquito larvae but, unlike BTI, will grow and persist in mosquito habitats from year to year. Once it has been introduced into a particular habitat, Lagenidium requires no reintroduction, and persistent mosquito control can continue. [47]

Insecticide Resistance. The exclusive use of any chemical for mosquito control will lead to resistance to that chemical. The widespread use of DDT and other insecticides led to a rapid development of resistance in many mosquito species in California. It also was discovered that insects often developed cross resistance to other chemicals: chlorinated hydrocarbons were the first group of organic insecticides, followed by organophosphates, and then synthetic pyrethroids. Resistance to the first two groups has been demonstrated in the south Central Valley in Cx. tarsalis, Ae. nigromaculis, and other species. [48] To slow the development of resistance, the SYMAD does not use widespread larvicides. This allows for the effective use of these chemicals during possible emergencies, such as an epidemic of encephalitis. [49]

Flight Capability of Rice Field Mosquitoes. North Natomas is surrounded by 12,000 acres of rice within eight miles of the Study Area. This acreage does not count land where rice is grown in southern Sutter or Placer Counties both of which are located near the Study Area. The Placer County area presently is not within the jurisdiction of an abatement district, and there currently are no efforts to control mosquitoes there. [50] The southern Sutter area is within the Sutter-Yuba Mosquito Abatement District, although there currently are no efforts to control mosquitoes there. Since

prevailing winds are from the west, the contribution of mosquitoes from these areas is likely to be less than from Yolo County where 6,000 acres of rice are located upwind of North Natomas. [51]

Pilot studies on the efficiency of adulticides have shown that cold-fogging had little effect in reducing numbers of female An. freeborni for more than two days, due to their ability to travel long distances. [52] Another study of an intensive larvicide treatment program in all rice fields in Colusa County showed no significant reduction in the numbers of adult mosquitoes. This lack of decrease apparently was due to mosquitoes migrating from adjacent counties. Other studies show that female An. freeborni immigrated so rapidly into an area which had been cold-fogged that there was no difference in pre- and post-spray populations within two days. [53]

Limitation of mosquito fish sources. The number of Gambusia available to the SYMAD currently is limited. Although two new sources to produce the fish are created each year [54], there are too few fish to treat rice fields adequately.

MOSQUITO ABATEMENT -- THE IMPACTS

As discussed above, the amount of rice field acreage is less important in influencing mosquito populations than other factors such as immigration of mosquitoes. Although larval habitat within the Analysis Area would be reduced by one third with the implementation of Alternatives B through E, populations of biting adult mosquitoes would not be expected to decline appreciably in the Study Area due to the proximity of mosquito sources outside of the Study Area. This is due primarily to the fact that Culex and Anopheles will travel up to 20 miles. (Under Alternative A the area cultivated for rice would not change from present conditions. Consequently, there would be no change for the SYMAD.)

In order to assess the impacts of the Community Plan alternatives on the SYMAD, the following factors must be taken into account:

- Rice field mosquitoes, An. freeborni and Cx. tarsalis, have a flight range of 15 to 20 miles, especially with wind. A conservative estimate of average flight range is about eight to ten miles.

- Significant numbers of rice fields are located within ten miles of areas designated for residential development in the Study Area. Consequently, the following effects are defined by the upwind presence

of mosquito habitat (i.e., rice fields) within mosquitoes' flight range. This area represents an area which includes parts of Sutter and Placer Counties containing about 20,000 acres of rice. Since these fields are not currently being treated, their potential contribution to mosquito related impacts is significant.

The following discussion addresses impacts expected to result from implementation of Alternatives B, C, D, or E. The treatment program recommended for the range of development proposed by these alternatives would be similar. Since Alternative A proposes no new residential development, however, no change in current treatment practices would be expected.

Development in the Study Area would result in several impacts associated with mosquitoes, including increased nuisance and health hazards to people living and working in the Study Area. Most people working in the area would be affected only slightly, however, since both An. freeborni and Cx. tarsalis feed in the evenings. The proximity of mosquito concentrations to North Natomas could result in some of the following impacts on people living and working there and on the SYMAD in its mosquito control efforts.

- The major impact would be on new residents of the area. People who live in a physical environment conducive to outdoor evening activities (barbecues, swimming, tennis, softball, etc.) may be driven indoors by the persistent and aggressive mosquitoes. New residents probably would be more sensitive to mosquitoes and are more likely to demand relief from the SYMAD when they first move to an area.

- There would an increase in service calls to the SYMAD until the residents adapt to the presence of mosquitoes. The rate at which people become accustomed to these pests would depend largely on the population of people and mosquitoes and the aggressiveness of the mosquitoes involved. Since mosquito populations are higher in the Analysis Area than in most other urban and suburban areas, residents' period of adaptation could take several years (from about two to five years). This period could continue for some time, however, since developing communities typically attract new residents as buildout proceeds.

- There also would be a constant influx of new people into the Study Area due to the nature of the industries proposed. These industries typically transfer and relocate workers. Consequently, the numerous

service calls associated with newly developing areas would be expected to persist beyond the normal "aging" of development.

- There may be an increased probability of contracting encephalitis. Public Health statistics show that increased densities of either vectors (mosquitoes) or hosts (humans) increases the potential for vector-borne disease transmission. From 40,000 (Alternative B) to 75,000 (Alternative E) new residents would live in the Study Area upon buildout of North Natomas. Although the incidence of WEE and SLE cases has been low for the past three decades in California, the recent cases of SLE in densely populated urban areas of southern California demonstrate the potential for new infections in the Natomas area.

- Service standards for the Study Area would change with development and an urban population living and working there. The major impact on the SYMAD would result from increased service requests by North Natomas residents.

  In order to estimate the number of increased service requests the Northgate community (bounded by I-5 on the west, I-80 on the north, Del Paso Boulevard on the east and the American River on the south) was used as a comparison. Exhibit I-24 shows the number of female mosquito attracted per night to a SYMAD light trap in the Northgate community (#43) and in the Study Area (#44). Based upon the number of service requests in the Northgate community it is possible to approximate service requests for the Study Area.

  The Northgate community, with a population of 12,000 to 15,000 people, generates 35 to 40 service requests per year [55] -- or approximately 2.6 to 2.9 calls per 1,000 people. Assuming that service requests would be made at the same rate in the Study Area, an estimated 104 (Alternative B) to 218 (Alternative E) calls could be made to the SYMAD at buildout of North Natomas. In addition, assuming that service requests are proportional to mosquito populations, a forty-fold increase in service requests would be expected from the Study Area compared with those made from the Northgate community. This is because mosquito populations in the Study Area currently are forty times those in the Northgate community.

- The proposed sports complex, especially the open air stadium, will expose attendees to high levels of mosquito nuisance and hazards. Even with state of the art control, the abatement district may not be able to reduce the population of mosquitoes to an acceptable level for the

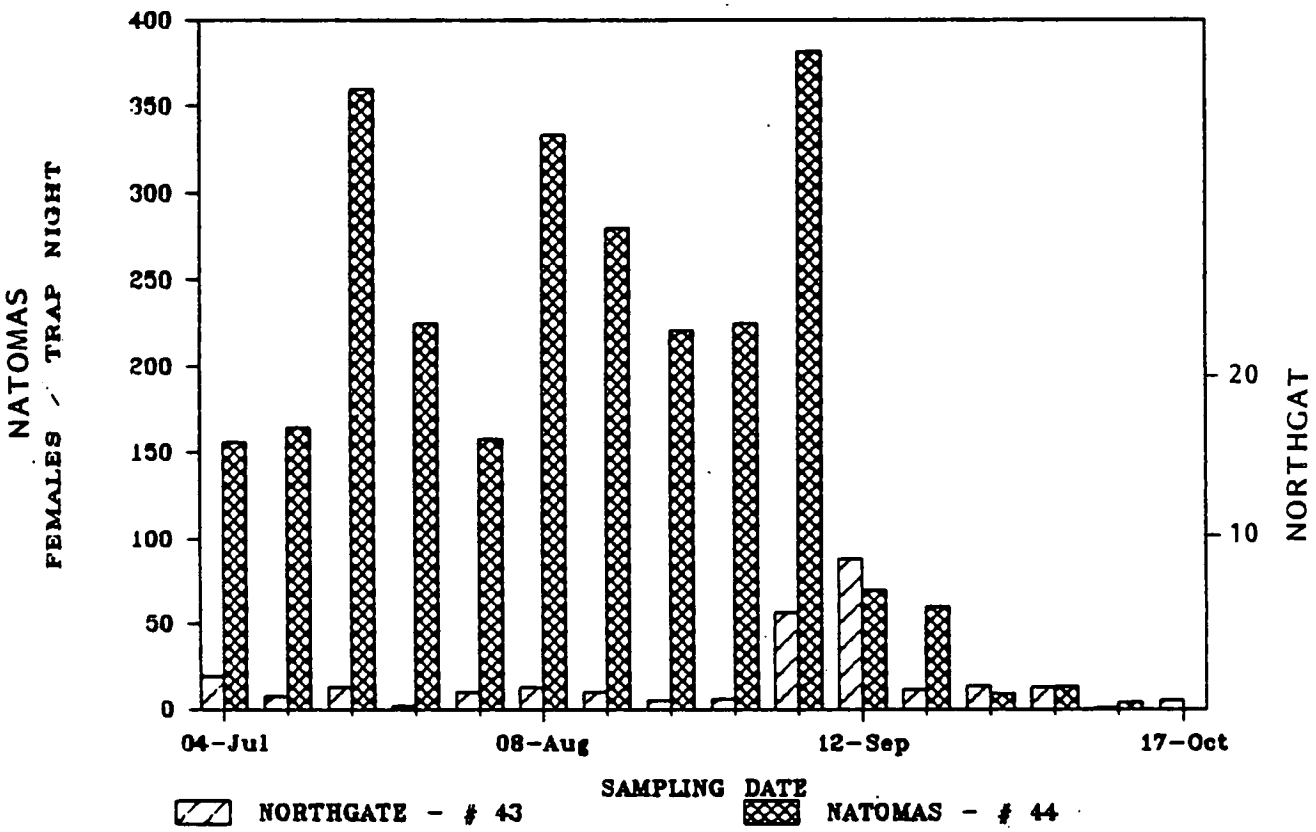


EXHIBIT I-24
NORTHGATE & NATOMAS LIGHT TRAP DATA
LIGHT TRAPS NUMBER 43 AND 44

Numbers are for total Anopheles Freeborni
and Culex Tarsalis

Source: Sacramento-Yolo Mosquito Abatement District

attendees. If evening games are played, the presence of several thousand people and numerous high intensity lights would attract many mosquitoes. A single light trap in the Study Area, for instance -- a simple 12-volt bulb -- attracts 300 to 350 An. freeborni per night (Exhibit I-24). While it is not possible to estimate how many mosquitoes would be attracted by stadium lights, these lights are expected to attract a significantly larger number of mosquitoes than are attracted by existing light traps. Mosquitoes also are attracted to CO_2 exhaled by humans; the CO_2 indicates the location of hosts on which to feed. The concentration of several thousand sports fans in an open stadium during mosquitoes' primary activity period, combined with the lights, could attract numerous mosquitoes.

The Colusa County MAD was consulted about its control efforts at Colusa High School which has a football stadium in close proximity to rice fields. The high school stadium is cold-fogged every Thursday before a Friday afternoon game in the fall in order to reduce the number of An. freeborni in the area and increase the comfort of the fans. [56] Treatment involves Ultra Low Volume (ULV) application of chemical insecticide, as well as hand applications in and around the bleachers and other potential day time resting sites. Implementation of this technique at the North Naomas sports complex would involve a significant investment in staff and materials.

Recommended Treatment Program

Due to the increased pest and disease vector hazards presented by the location of the Study Area, and the introduction of more people (service calls) as the Study Area urbanizes, the SYMAD would need to expand its efforts to reduce mosquito populations. In order to reduce mosquito populations to an acceptable "urban standard" on a par with Northgate levels, a treatment program for the Study Area was developed as part of this analysis. The elements of such a program, all or part of which could be implemented by the SYMAD, are discussed below.

- Larviciding rice fields within 10 miles of the Study Area with BTI would decrease the number of adult mosquitoes which emerge from the rice fields. While 80 to 100 percent of mosquito larvae have been controlled within 24 hours with this bacterial insecticide, its short residual period (less than 48 hours) would require repeated applications. Based on application rates of chemical insecticides, it has been estimated that an application every other week may be

required. [57] This estimate was based on the standard techniques for other broad spectrum insecticides, which also adversely affect natural enemies of mosquitoes. Frequent use of these insecticides often leads to the resurgence of mosquitoes after the natural enemies have been eliminated. The use of BTI, however, only would kill mosquito larvae and would leave natural enemies to control new mosquitoes. Applications of BTI, therefore, may not need to be as frequent.

In order to ensure the thorough coverage throughout rice fields, aerial applications would be required. [58] The SYMAD could continue to contract for aerial applications or purchase an airplane. If a plane is purchased, however, a pilot would have to be hired by the District.

- Mosquito fish still should be planted in the rice fields. Fish would be planted in 12,000 acres of rice fields (compared with 15,000 acres now). Due to the close proximity to North Natomas residential areas, 0.3 pounds of fish per acre (triple the present rate) should be planted in the rice fields.

- Ultra Low Volume (ULV) or cold-fogging operations would be necessary and at more frequent intervals. It is expected that larviciding the rice fields within the SYMAD's jurisdictional boundaries would not be totally effective in reducing adult mosquito populations.

- There are 10,000 to 15,000 acres of rice fields within an eight-mile radius of the Study Area which either are not under the jurisdiction of any MAD or currently not being treated. Although these fields are not directly upwind of North Natomas, some of the adult mosquitoes produced there would find their way to the Study Area. In order to deal with these "fugitives", increased ULV treatments would be required.

  Eleven ULV treatments were applied in the Natomas area in 1984 [59], and the adult mosquito population still was not reduced for more than a few days (Exhibit I-24). It is expected, therefore, that more frequent applications would be necessary in the area's rice fields. The ULV season runs from about July 14 through September 15 (60 days). Twenty-five treatments will be required: every other day, six days per week. [60]

- Only about 25 to 30 percent of rice fields produce mosquitoes. [61] SYMAD should conduct an intensive sampling of rice fields in the vicinity of the Study Area to identify the fields which are high

mosquito producers. Once identified, selective larviciding operations (e.g., fish, BTI) could be concentrated on these fields, rather than a uniform or "shotgun" approach. This would greatly reduce the amount of acreage requiring BTI treatment and probably would reduce the number of treatments required.

Regular weekly sampling of light traps, red shelter traps ("red boxes"), and standard dipping techniques should cover the 12,000 acres of rice in SYMAD within eight miles of the Study Area and could be accomplished by summer aides. Such sampling would enable a more complete, efficient, and cost effective control program for mosquitoes. In addition, larval populations should continue to be monitored after treatment. This would enable an assessment of the results of a given treatment with untreated rice fields outside an eight mile boundary. Another advantage of continued monitoring would be that the need for applications could be determined. By treating fields only when needed, development of resistance to BTI would be hindered. Furthermore, if the fields which do not produce mosquito larvae could be identified, greater concentrations of fish could be planted in the fields where needed -- rather than applying insufficient numbers (i.e., 0.1 pound per acre) to all rice fields. The same total amount of fish would be used but applied to fewer acres of rice.

Implementing all or part of this treatment program could require the SYMAD to expand its operations significantly which could have fiscal implications for the District.

Fiscal Impacts

An adverse fiscal impact is defined as any aspect of a project which could result in public costs in excess of public revenues or any direct or indirect reduction in benefits. Costs projected in excess of projected revenues can result in lower service standards and/or higher taxes or fees for existing as well as new residents of the District.

The significance of the fiscal impacts on the SYMAD from development in the Study Area would be a function of the District's current financial status, its policies regarding growth and development, and the specific costs attributed to and revenues generated by development in North Natomas. Potential adverse fiscal impacts, however, generally can be avoided by creating new revenue sources, implementing specific mitigation measures, or a combination of these approaches.

Technical Approach

For this fiscal analysis the costs of the treatment program discussed above was compared with property tax revenues anticipated to be produced by development in North Natomas. The cost estimate was developed on the basis of a computerized budget model designed specifically for this EIR. The model produces detailed projections of operational costs associated with providing urban standards of mosquito control in North Natomas as described above. The model estimates the cost components of each major operation and provides estimates of total unit costs for resources required.

The revenue estimate was developed by considering the potential assessed value which could be created by development in the North Natomas Study Area. A time-series estimate of assessed value associated with each Community Plan alternative will be created in the fiscal impact study being conducted as part of the overall environmental review process (see Volume Two). The more detailed projection will allow a more specific analysis of the potential fiscal impacts on the SYMAD during the buildout period of each alternative.

Impacts

Development in the Study Area would increase SYMAD's costs but would also increase its revenues. Increased costs would result from the need to provide an urban service standard of mosquito control to future residents of the Study Area. Increased revenues would result from the increased property tax base associated with the new development.

The recommended treatment program described above would result in significantly increased direct and indirect costs to SYMAD. The direct costs of the treatment program are estimated (in 1985 dollars) to be $390,000 annually -- $240,000 more than existing treatment costs in the area. These direct costs, combined with associated indirect costs, such as increased management and administration and inefficient use of new resources required (e.g., underused staff and equipment during the winter season), could result in total costs in excess of $500,000 annually.

This additional cost does not include any costs for treatment which may be required in Sutter and Placer Counties. These counties border the Analysis Area and contain significant amounts of rice producing acreage.

It cannot be determined when the recommended treatment program would be initiated in relation to development proceeding in North Natomas, but the program probably would need to be established soon after residential development begins. Some costs, such as service calls, would be variable, but the major treatment operations would be relatively fixed. Because of this, the cost impact would be the greatest in the early years of development prior to the addition of substantial property tax base which would result from full buildout of the Study Area.

Virtually all of the SYMAD's operating revenues currently come from property taxes. In the North Natomas area, the District receives between $0.005 and $0.007 of the $1.00 property tax received on each $100 of assessed value. Development of the North Natomas area is expected to add between $1.4 billion (Alternative A) to $6.8 billion (Alternative E) to the tax base of the City of Sacramento over the next 20 years. At projected buildout of the North Natomas area, SYMAD would receive approximately an additional $100,000 (Alternative A) to $475,000 (Alternative E) annually from the taxes in the North Natomas Study Area.

The property tax base would increase progressively during the buildout period with a corresponding increase in property tax revenues.

Exhibit I-30 shows the increased property tax revenue accruing to SYMAD at projected buildout of the North Natomas Study Area compared to the potential increase in service costs. It is estimated that there would be annual operating deficits for all alternatives except Alternative E at buildout. The operating deficits from serving the Study Area would be worse in the years prior to buildout when property tax revenues are lower.

The impact of a major increase in operating costs on SYMAD's entire budget is difficult to predict since the District encompasses both Sacramento and Yolo Counties. District revenues would be growing along with the property tax base in the two counties, and, hence, the increased treatment program required to provide an urban level of service to the North Natomas Study Area may not result in an overall budget deficit.

It may not be acceptable, however, to subsidize increased service to a particular area with revenues from the District at large. Because of this, the SYMAD may want to develop other sources of revenue to provide mosquito abatement to the North Natomas area.

EXHIBIT I-30

Estimated Costs and Revenues
SYMAD Mosquito Abatement Program, North Natomas Study Area
(at buildout)

Item	Community Plan Alternative A	B	C	D	E
Increased Service Cost	$385,200	$389,500	$391,700	$392,300	$394,300
Increased Property Tax Revenue	$100,800	$210,900	$305,700	$345,700	$474,400
Surplus (Deficit)	($284,600)	($178,600)	($ 86,000)	($ 46,800)	$ 80,100

Source: Economic and Planning Systems

MOSQUITO ABATEMENT -- MITIGATION MEASURES

Alternatives B, C, D and E

The SYMAD should implement a specific mosquito abatement program if Alternative B, C, D, or E is selected as the North Natomas Community Plan in order to provide urban standards of control within the Study Area. Implementation of these measures would reduce, but not eliminate, the number of mosquitoes in the Study Area.

- Consideration should be given to implementing the Recommended Control Program which includes:

  -- Larviciding the surrounding rice fields with BTI.

  -- Planting 0.3 pounds of mosquito fish per acre in 12,000 acres of rice fields which would remain in cultivation.

  -- Conducting Ultra Low Volume (ULV) or cold-fogging operations.

  -- Sampling rice fields in the area to identify areas which produce mosquitoes in order to concentrate control efforts efficiently and cost-effectively.

Providing such an urban level of mosquito abatement services to a developed Study Area would result in costs to the District in excess of current property tax revenue sources. This could result in inadequate mosquito abatement for the North Natomas area and/or lower service standards throughout the District. This potential impact could be mitigated if the District generated revenues in addition to property tax.

- The District can levy special benefit assessments to sub-areas of the District for services rendered. Consideration should be given to levying such a special benefit assessment on the North Natomas Study Area or in the surrounding area.

Creating and financing the Recommended Treatment Program involves two difficult issues: how to conduct and finance needed treatment in those areas beyond SYMAD's jurisdiction and how to distribute the benefit assessments between agricultural and urban land uses. SYMAD's mosquito abatement program could be extended into areas where there currently are no efforts to control mosquitoes in a number of ways:

- Consideration should be given to SYMAD annexing those portions of Placer County which would effect the Study Area but are not in other mosquito abatement districts. OR

- Consideration should be given to annexing these areas to other adjacent mosquito abatement districts (e.g., Sutter-Yuba Mosquito Abatement District) whereupon the SYMAD could contract with the other district(s) for a higher level of treatment than normally would be applied.

The issue surrounding the distribution of a benefit assessment is: "who should pay -- the rice growers who are the source of the mosquitoes or the urban residents who require protection of these mosquitoes?" Property taxes currently are levied more or less equally throughout the District on an ad valorem basis. Levy of a benefit assessment would require the specific identification and delineation of benefit groups. Who should be included in this group is a debatable question. This issue would need to be resolved as part of the decision to levy a benefit assessment.

1 Nichols-Berman conversation with Dennis W. Westcot, Senior Land and Water Resource Specialist, California Regional Water Quality Control Board, December, 1984.
2 Nichols-Berman conversation with Tad Gantenbein, Entomologist, John Taylor Fertilizer Company, December, 1984.
3 Conversation with Dennis W. Westcot, op cit. See Hydrology and Water Quality for a discussion of the water quality implications and State Water Quality Control Board's actions to regulate these chemicals.
4 Nichols-Berman conversation with Bob Winchester, Water Engineer, Natomas Central Mutual Water Company, December, 1984.
5 Nichols-Berman conversation with Jim Clifton, Manager, Reclamation District No. 1000, December, 1984.
6 Nichols-Berman Conversation with Dennis Westcot, op. cit.
7 Ibid.
8 Nichols-Berman conversation with Charles A. Mellor, Senior Agricutural Biologist, County of Sacramento, Department of Agriculture, December, 1984.
9 The Agriculture section of this EIR discusses fluctuations of rice producing areas.
10 Mosquitoes, C. J. Mitchell, University of California Division of Agricultural Sciences Leaflet #2259, 1975.
11 Mosquito Problems of California's Central Valley, D. Spiller, University of California Division of Agricultural Sciences, 1968.
12 Nichols-Berman conversation with Allen Hubbard, SYMAD, April 1, 1985.
13 Ibid.
14 Mosquito Problems in California's Central Valley, op. cit.
15 "Rice Field Mosquitoes: Life History, Ecology, and Population Dynamics of the Mosquito Species Associates with Rice Culture", R. K. Washino, Proceedings of Symposium on Rice Field Mosquito Control, R. E. Fontaine and J. E. Hill, editors, University of California Cooperative Extension, Division of Agricultural Sciences, 1981.
16 Mosquito Problems in California's Central Valley, op. cit.
17 Ibid.
18 Nichols-Berman conversation with Allen Hubbard, op. cit.
19 Mosquito Problems in California's Central Valley, op. cit.
20 Nichols-Berman conversation with Glenn Yoshimura, Biologist, SYMAD, April 11, 1985.
21 Mosquito Problems in California's Central Valley, op. cit.
22 Ibid.
23 Ibid.
24 Rice Field Source Map, provided by Allen Hubbard, op. cit.
25 Mosquito Problems in California's Central Valley, op. cit.
26 "Integrated Mosquito Pest Management: Facts and Folklore", R. K. Washino, Proceedings of the Utah Mosquito Abatement Association, 1981.
27 "Rice Culture in California", J. E. Hill, Proceedings of Symposium on Rice Field Mosquito Control, pages 6-13.
28 Nichols-Berman conversation with R. K. Washino, op. cit.
29 "Why Do Some Rice Fields Produce More Mosquitoes Than Other Fields?", R. H. Collins and R. K. Washino, Proceedings Paper, 49th Conference, California Mosquito Vector Control Association, 1981.
30 "Rice Field Mosquitoes: Life History, Ecology, and Population Dynamics of the Mosquito Species Associated With Rice Culture", op. cit.
31 Nichols-Berman conversation with R. K. Washino, op. cit.

32 Ibid.
33 "A Large-Scale Field Test for Gambusia affinis and Chlorpyriphos for Mosquito Control", J. B. Hoy, E. E. Kaufman, and A. G. O'Berg, Mosquito News, 1972.
34 Nichols-Berman conversation with Irv Schauer, Source Reduction Specialist, SYMAD, April 15, 1985.
35 Nichols-Berman conversation with Allen Hubbard, op. cit.
36 Nichols-Berman conversation with Allen Hubbard, op. cit.
37 Yearbook, California Mosquito and Vector Control Association.
38 Ibid.
39 Unpublished data provided by R. K. Washino, op. cit.
40 Nichols-Berman conversation with Allen Hubbard, op. cit.
41 "Mosquito Control in Rice Fields with Bacillus thuringiensis var. israelensis", R. Garcia, W. Tozer, and B. Des Rochers, Proceedings of Symposium on Rice Field Mosquito Control, 1981.
42 Nichols-Berman conversation with Harman Clement, Manager, Kern County MAD, April 15, 1985.
43 Nichols-Berman conversation with Allen Hubbard, op. cit.
44 "Insecticide Resistance in Mosquitoes: Research on New Chemicals and Techniques for Management", G. P. Georghiou, Mosquito Control Research, University of California Division of Agriculture and Natural Resources, 1984.
45 "A Portable System for Aerial Applications of Very Low Volumes of Technical Grade Concentrations of Bacillus thuringiensis var. israelensis", M. M. Yates, Chambers County MAD, Anahuac, Texas, Unpublished Manuscript,.
46 Nichols-Berman conversation with R. K. Washino, op. cit.
47 Ibid.
48 "Insecticide Resistance in Mosquitoes: Research on New Chemicals and Techniques for Management", op. cit.
49 Nichols-Berman conversation with Allen Hubbard, op. cit.
50 Ibid.
51 Ibid.
52 Unpublished data provided by R. K. Washino, op. cit.
53 Ibid.
54 Nichols-Berman conversation with Irv Schauer, op. cit.
55 Nichols-Berman conversation with Allen Hubbard, op. cit.
56 Nichols-Berman conversation with Kenneth Whitesell, Manager, Colusa MAD, April, 1985.
57 Ibid.
58 Ibid.
59 Ibid.
60 Current work conditions are six days per week. Nichols-Berman conversation with Allen Hubbard, op. cit.
61 "Why Do Some Rice Fields Produce More Mosquitoes Than Other Fields", op. cit.

J. FISCAL CONSIDERATIONS

See Volume 2 of this Draft EIR.

K. GEOLOGY AND SOILS -- THE SETTING

GEOLOGY

The North Natomas Study Area is located in the Sacramento Valley. The Sacramento Valley is the northern part of the Great Central Valley. The southern part of the Great Central Valley is the San Joaquin Valley. The Great Valley is a deep structural trough that extends 400 miles from the Klamath Mountains in the north to the Tehachapi Mountains in the south. The Sacramento Valley is underlain by a thick sequence of sedimentary rocks ranging in age from Jurassic to Recent. Two thousand feet of unconsolidated Quarternary alluvial deposits overlie 12,000 feet of Tertiary and 60,000 feet of Mesozoic sediments. The Sacramento Valley is drained by the Sacramento River which flows south and west toward San Francisco Bay. The main tributaries of the Sacramento River are the Pit, Feather, and American Rivers.

The surface deposits in the Study Area consist of Quarternary age (less than two million years old) gravels, silts, sands, and clays deposited along stream channels, natural and man-made levees, and in alluvial basins. [1] Hydraulic mining of gold-bearing deposits during the late 1800s greatly increased the sediment loads carried by the streams and rivers flowing from the Sierra foothills. Subsequently, large amounts of coarse, unweathered sediments were deposited downstream. The engineering properties of these surface and near surface materials are discussed in detail in the following section on soils.

SURFICIAL SOILS

Data on the characteristics and engineering properties of the surface soils and subsurface materials in the Study Area were gathered from both published and unpublished maps, reports and geotechnical investigations. Logs of 155 borings from various sources were reviewed to evaluate the subsurface conditions which might be encountered during urbanization of the Study Area.

The surface soils in the Study Area have developed on alluvial deposits under the semiarid climatic conditions of the Sacramento Valley. Under natural conditions, all of the soils would be periodically flooded, but the construction of dams and levees has reduced the flooding. The differences in the soils are due mainly to differences in parent material, drainage, and

topography. Many distinct soils occur within the Study Area. The soils are highly variable in extent (see Exhibit K-3) and contain a number of different properties. These soils have been mapped by the United States Department of Agriculture Soil Conservation Service (SCS), and preliminary data has been compiled on a number of the soils. [2] The estimated engineering properties of these soils have been compiled in Appendix K-1. Approximately 57 percent of the undeveloped land within the Study Area is underlain by potentially expansive soils. As these soils seasonally shrink and swell, they can cause damage to structures and pavements unless designed with these potential problems in mind. Brief descriptions of the soils given below are based on the SCS Preliminary Studies.

Clear Lake Series soils (Stockton Clay) are poorly drained soils which have developed in basins and on basin rims. The soils range in composition from clay to clayey loam and generally are underlain by a hardpan layer. The soils have very slow permeability and a high shrink-swell potential.

Consumnes Series soils consist of very deep, drained soils which have developed on recent alluvial floodplains. These silty loam soils have a low shrink-swell potential and moderate permeability.

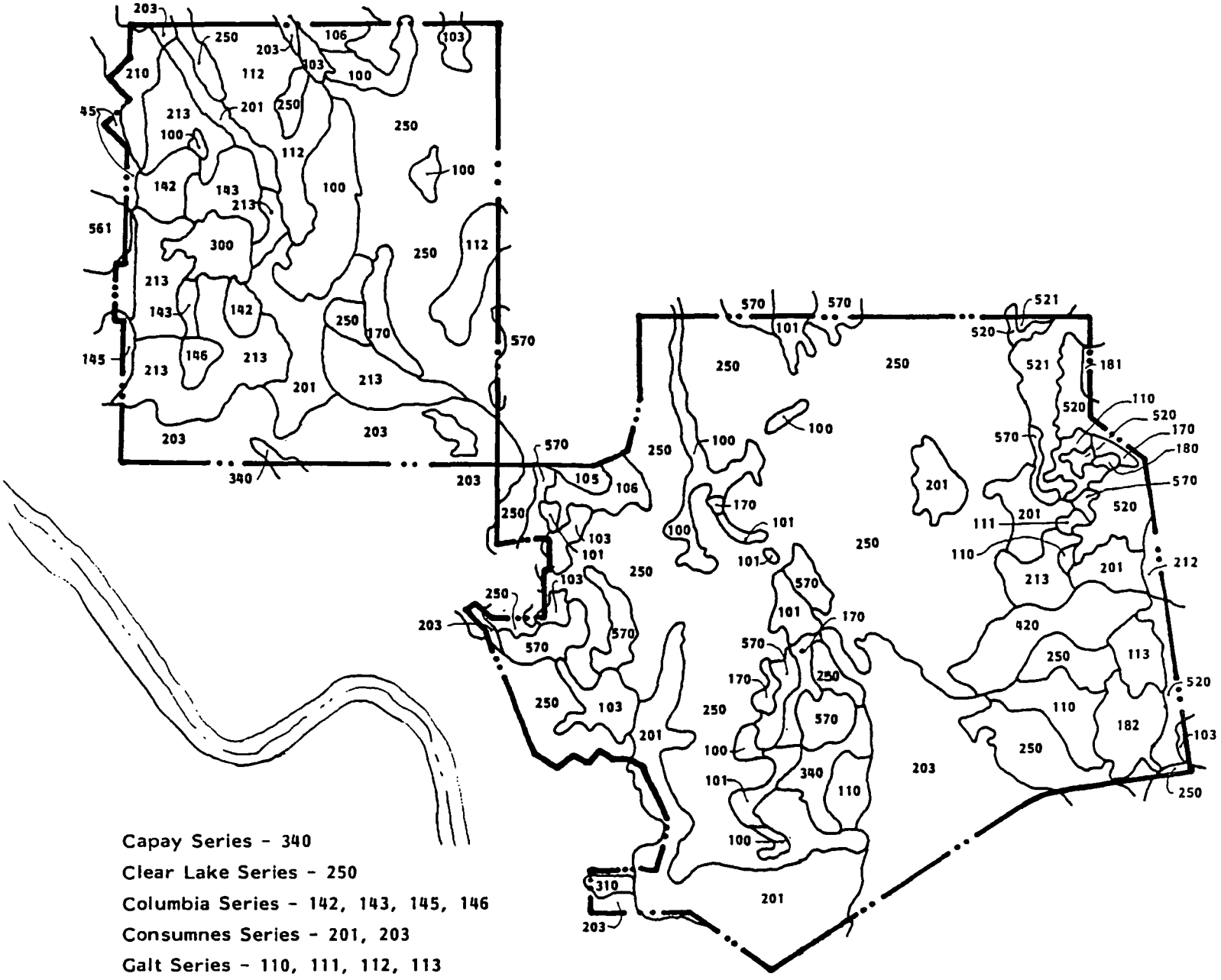
San Joaquin Series soils range in composition from clayey loam to sandy loam and are moderately deep and well-drained. San Joaquin soils generally are found on floodplain terraces. The soils generally contain a cemented hardpan at a depth of two to three feet and are not likely to be expansive.

Sailboat Series silty loam soils have developed on the natural levees and floodplains of the Sacramento River. These soils are very deep, well-drained, and have a low shrink-swell potential.

Galt Series clay soils generally are found on low floodplain terraces. The soils are moderately deep and have very low permeability. They generally contain a weakly cemented hardpan layer, are potentially expansive, and have a very low permeability.

Columbia Series soils occupy small scattered areas on natural levees and floodplains. The sandy loam soils have a high permeability and are not expansive.

Capay Series clay loam soils form in small pockets on floodplains and basin rims. The permeability is very slow, and the soils are potentially expansive.



Capay Series - 340
Clear Lake Series - 250
Columbia Series - 142, 143, 145, 146
Consumnes Series - 201, 203
Galt Series - 110, 111, 112, 113
Lang Series - 561
Sailboat Series - 210, 212, 213
San Joaquin Series - 100, 101, 102, 103, 105, 106, 520, 521, 522
Others - 170, 180, 181, 190, 310, 360, 420, 440, 570

EXHIBIT K-3
STUDY AREA SOILS

Source: U.S. Department of Agriculture, Soil Conservation Service, Sacramento County No. 067, 1984 Preliminary Report (subject to revision) and Nichols • Berman.

0 3200 6400 Ft.

Lang Series fine, sandy loam is found in small areas of recent levee breaks. The soils are not expansive, and the permeability is rapid.

Other soils are found in small pockets throughout the Study Area. Engineering properties of these soils are not presently available from the SCS, but most of the soils consist of clays which possibly could be expansive.

The soils in the Study Area have developed on alluvial deposits, on natural levees, and within the floodplain of the Sacramento River. The deposits consist of a thick sequence of sands, silts, and clays of varying thickness and lateral distribution. Deposits may occur in pockets (or lenses) or in abandoned stream channels within more extensive layers. Relative shrink-swell potential is variable within each soil type and depends on the amount and type of clay present in any specific area.

SUBSURFACE SOILS

The subsurface conditions were evaluated using the logs of borings collected from several sources. The borings were drilled for the Metropolitan Airport, highway overpasses and other previously proposed developments. This evaluation was done to identify potential geologic impacts which might occur if the Study Area is developed. Two parts of the Study Area have not been explored for subsurface conditions: 1) the area north of Del Paso Road and east of I-5 and 2) the area northeast of the Sacramento Metropolitan Airport. Although information on these two areas is not available, the subsurface conditions noted below can be expected to be similar to the unexplored areas due to soil morphology and topography. The locations of borings evaluated for this report are shown in Appendix K-2. Only a few of the boring were deep (greater than 60 feet); most terminated between 20 and 30 feet.

The following subsurface conditions were noted from the boring logs:

- High water table. The water table generally is high throughout the Study Area, varying between 4 and 19 feet below the ground surface. Most borings encountered groundwater less than 10 feet below the surface.

- Clays. Clay-rich soils generally occur at the surface and extend to a depth of 10 to 15 feet. Some of the soils are expansive and can be expected to cause shrink-swell problems if not mitigated.

- Silts. Clayey to sandy silts were encountered in almost all borings at varying depths and thicknesses. Most of the silts were partially or completely below the water table. Cohesionless silts might occur at depth.

- Sands. Although most of the sands encountered in the borings were dense (30 to 50 blows per foot), loose and medium sands were encountered in many of the borings, usually under the water table and some at depths of 30 feet in the Gateway Point area.

- Gravels. Some gravels were encountered in fine sand layers at depth, particularly in the Metropolitan Airport area.

- Hardpan. A cemented silt layer occurs between 1 and 2 feet below the surface in the area east of the Metropolitan Airport. This layer can be expected in areas not explored by borings which have a similar soil morphology.

SEISMICITY

The Sacramento Valley and the Study Area are located in a region of relatively low seismicity. The Study Area is in Zone 2 of the Seismic Risk Zones of the United States (Zone 0 represents least damage with most damage occurring in Zone 3). [3] The historical record of earthquakes in California is very short compared with geologic time -- a few hundred years compared with millions of years. The record of damaging earthquakes in California is reasonably complete beginning only in the 1850s when the population increased during the Gold Rush and local newspapers began to be published. Exhibit K-8 shows the locations of epicenters of earthquakes of M 4.0 [4] and greater which have occurred within 100 kilometers (62 miles) of the Study Area since 1900 and several moderate to large earthquakes with Modified Mercali intensities. [5] Earthquakes which have caused damage in Sacramento and nearby communities are summarized in Appendix K-3.

Major faults occur west and east of the Sacramento Valley. The greatest number and most damaging earthquakes in northern California occur along the system of right-lateral, strike-slip faults which make up the San Andreas Fault System. The largest of these faults, the San Andreas, extends through California from Baja California to Cape Mendocino where it bends westward and continues offshore. One of the largest historical earthquakes to occur in California originated on the San Andreas Fault in 1906 (the San Francisco

earthquake). Based on descriptions of the earthquake and its effects, that earthquake has been estimated to have been magnitude 8.3 on the Richter scale. [6] The 1906 earthquake was felt throughout northern California, and landsliding, ground cracks, and ground failures caused by liquefaction were reported as far away as 50 miles from the main rupture zone. In the Sacramento River Delta, subsidence and settlement of the land on which railroad tracks were built caused considerable damage.

Moderate to large earthquakes also have occurred on other faults of the San Andreas system in the San Francisco Bay Area: in 1868 on the Hayward Fault, in 1861 on the Calaveras Fault, and in 1980 on the Greenville Fault.

The Foothill Fault System extends in a northwest direction along the Sierra foothills from east of Merced to Red Bluff. The Bear Mountain and New Melones Faults are the two main faults in the system. The Foothill Fault System consists of many discontinuous northwest trending traces which display various amounts of vertical and lateral displacement. The system was thought to be inactive until the Oroville earthquake in 1975.

Several faults have been located in the subsurface of the Sacramento and San Joaquin Valleys during exploration for gas and oil. These include the Midland and Stockton Faults. The Midland Fault may have been the source of the 1892 earthquake which caused extensive damage from Vacaville to Winters. Several small earthquakes have occurred in the Stockton area and tentatively have been assigned to the Stockton Fault. [7] The Dunningan Hills' Fault is a normal, vertical displacement fault, the activity of which is unknown at present.

Large earthquakes originating on faults in western Nevada, such as the Dixie Valley and Fairview Peak Faults, have the potential to cause damage in the Sacramento area. Events in 1869, 1954, and 1966 in western Nevada were felt widely throughout the Sacramento Valley.

Major faults, their distances from the Study Area, and the maximum credible earthquakes (MCEs) expected on the faults are summarized in Exhibit K-7. The locations of the major faults within 100 kilometers of the Study Area are shown in Exhibit K-8.

The potential for seismic shaking hazards to affect the Study Area generally is similar to that for other flat-lying sites in the Sacramento area. As such, the Study Area will experience moderate ground shaking during large earthquakes in the region. Ground accelerations of 0.2g to 0.3g could be experienced in the event of a large magnitude earthquake on the San Andreas,

EXHIBIT K-7

Faults Within 100 Kilometers of Sacramento

Fault	Fault Type	Distance From Sacramento (kilometers)	Maximum Credible Earthquake [1/] (magnitude)	References
Dunnigan Hills	Subsurface normal	25	Not Estimated	Bowen (1962), Jennings (1975), Real et al (1978)
Midland	Subsurface normal	35	Not Estimated	Bowen (1962)
Foothill Fault System:	Vertical			
• Bear Mountain	Vertical	35	6.5	Bennett (1978), Davis (1979), Cramer et al (1978)
• New Melones	Vertical	65	6.5	Bennett, Davis, and Cramer
Stockton	Subsurface	75	5.0	San Joaquin County (1973)
San Andreas System:	Strike-Slip Right Lateral			
• Antioch	(same)	70	Not Estimated	
• Greenville	(same)	70	6.5	Wright et al (1982)
• Concord	(same)	75	6.9	Slemmons & Chung (1982)
• Green Valley	(same)	75	6.9	Slemmons & Chung
• Healdsburg/ Rodgers Creek	(same)	90	7 ± ¼	Slemmons & Chung
• Hayward	(same)	100	7 ± ¼	Slemmons & Chung
• Calaveras	(same)	100	7 ± ¼	Slemmons & Chung
• San Andreas	(same)	120	8.3	Wesson et al (1975)

1/ Maximum Credible Earthquake. The term maximum credible earthquake (MCE) is defined as the largest earthquake which is likey to be generated along an active fault zone (Slemmons & Chung, 1982). The magnitude of the MCE is estimated from the geologic character and earthquake history of the fault. Most workers, when calculating the MCE for the strike-slip faults of the Coast Ranges, estimate the potential length of surface rupture, then use empirical relations which equate rupture length with earthquake magnitude. As a minimum, the MCE must equal the largest historic earthquake on a fault.

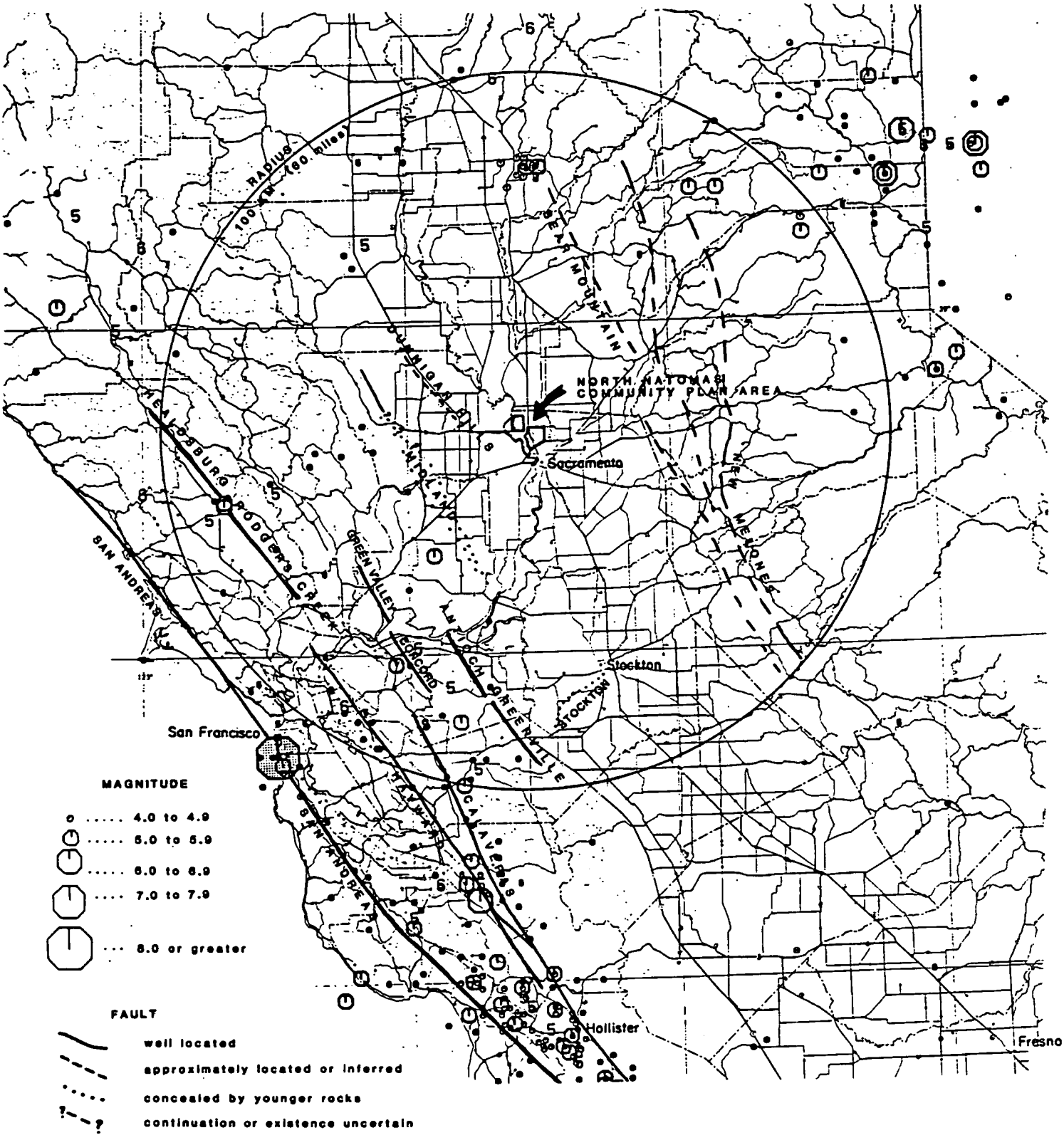


EXHIBIT K-8
EARTHQUAKE EPICENTER & FAULT MAP

Source: Merrill & Seeley Inc.

0 10 20 30 KM

Midland, Green Valley, Calaveras, or Healdsburg-Rogers Creek Faults [8] and "moderate damage" could result. [9] Similar effects might occur from a large magnitude earthquake on the northern segments of the Hayward and San Andreas Faults or on the Dixie Valley or Fairview Peak Faults.

In generally flat-lying alluvial sites such as the Study Area there are three common types of seismically induced ground failures. In order for these ground failures to occur, certain soil, groundwater, and earthquake shaking characteristics need to be present. The kinds of ground failure that may occur in the Study Area are described below.

Liquefaction. Soil liquefaction is the transformation of a cohesionless material from a solid state into a liquefied state as a consequence of increased pore-water pressure and reduced effective stress. [10] Earthquake shaking is the major cause of liquefaction. Shear and surface waves generated during an earthquake which pass through saturated, cohesionless soils cause a transient rise in pore pressure. If large enough, the rise in pore pressure generates a liquefied condition, reducing the shear strength of the soil nearly to zero.

Liquefaction causes three types of ground failures: (1) lateral spreading of surficial soil layers over a subsurface layer weakened by liquefaction, (2) flow failures or mass downslope movement of liquefied soil or blocks of soil moving downslope on a liquefied layer, and (3) loss of bearing strength or a "quick" condition which occurs when the soil supporting a structure liquefies and loses strength causing the structure to settle, tip, or rise buoyantly. Liquefaction caused bearing failures generally occur where a layer of saturated, cohesionless soil extends from near the ground surface to a depth greater than half a foundation wall. Thinner liquefiable layers can lead to differential settlement and slight tilting but not to the overturning of structures. [11]

Lurching. Lurching or lurch cracks occur in soft, water saturated sediments as a result of strong ground shaking during an earthquake.

Sand Boils. Sand boils are eruptions of sandy water from ground cracks which open up during an earthquake. Mound-shaped deposits of sand remain along the cracks after the water drains away. The presence of sand boils indicates that underlying sand layers have liquefied during an earthquake.

Analysis of the logs of soil borings within the Study Area indicates that the area is extensively underlain by fine to coarse sands and silts which

are below the water table. Loose, clay-free sands and silts have the greatest potential for liquefaction during an earthquake. Liquefaction also might occur in the weakly compacted sediments of the levees which extend along the river. Areas of high seepage rates indicate that parts of the levees may be composed of loose sands and silts.

Comparison of the results of standard penetration tests (done for most of the borings) with liquefaction potential curves developed by T. L. Youd in 1975 [12] indicates that some of the sands in the Study Area have a moderate to high potential for liquefaction during a nearby, moderate earthquake (M6.5) or a distant, larger earthquake (greater than M7.0).

GEOLOGY AND SOILS -- THE IMPACTS

The physical and environmental impacts related to the soil, geological and seismological characteristics of the Study Area could occur with the implementation of any one of the Community Plan alternatives (A, B, C, D or E). The extent of the predicted impacts would vary for each alternative; the greater the amount of development in a given area the greater the impacts would be related to the soil, geological or seismological conditions. In general, all the impacts discussed below are applicable to the entire Sacramento Valley and they are regional in nature. Due to the lack of extensive subsurface information, without doing additional subsurface investigations it is not possible to provide more specifc information, at this time, regarding expected impacts.

IMPACTS RELATED TO SURFACE SOIL CONDITIONS

Expansive Soil

The surface soils covering approximately 75 percent of the Study Area generally are clay rich and have a high shrink-swell potential. Shrink-swell is a cyclic change in volume which occurs when clay expands and contracts during alternating wet and dry periods. Extremely high pressures can develop if expansive soil is confined. Cracking and heaving of pavements, floor slabs, and shallow foundation elements are common problems for structures underlain by expansive soils and can be expected to occur within the Study Area unless mitigated. The SCS has estimated that the Consumnes, Galt, Capay Series and Clear Lake soils have a high shrink-swell potential (see Exhibit K-3 for the location of these soils within the Study Area) although this potential is variable. Some portions of those soils

might not be highly expansive while certain areas of other soils (estimated to have low to moderate shrink-swell potential) actually might have a high shrink-swell potential.

IMPACTS RELATED TO SUBSURFACE SOIL CONDITIONS

Settlement

Settlement is the gradual downward movement of a structure due to compaction of unconsolidated material below the foundation. Settlement is most likely to occur over mud and loose, fine-grained sediments (clay and silt) having a high water content. The rate of settlement usually is most rapid immediately after loading and decreases with time. Review of the soil boring logs indicates that loose, fine-grained sediments occur as layers and pockets throughout the subsurface of the Study Area.

Lateral Spreading

Lateral spreading is the movement of water saturated sediments toward an open face such as stream bank or excavation wall. Lateral spreading of the soft clays and silts below the water table which occur in the Study Area might cause problems during foundation excavations and shallow trenching.

Quick Conditions

A quick condition is a state caused when upward seepage of water reduces the shear strength of the soil to zero. Quick conditions are most likely to occur in fine sands and cohesionless silts below the water table. Quick conditions have been encountererd during pile driving for a highway overpass along Del Paso Road.[13]

Failure of Levees

The levees in the North Natomas area were constructed in the early 1900's by dragline operations using nearby soils for fill. There only have been a few levee failures in the North Natomas area. In the 1920's a failure occurred as a result of unsuitable materials used for the fill. In 1982 a crack developed in the levee along Cross Canal in Sutter County (north of the Study Area). It was determined that the failure was caused by a combination

of high water and undermining of the levee by ground squirrel burrows. If levees in the Study Area were to fail this would result in flooding which could threaten lives and property.

IMPACTS RELATED TO HIGH WATER TABLE

Dewatering During Construction

Since the water table in the Study Area generally is high year round (between two and ten feet below the surface) water could flow into excavations for foundations and underground utilities.

Failure of Levees

Seepage of water from the Sacramento River into the American Basin occurs through permeable sands in the levees. This seepage presently is controlled by a system of drainage canals and pumping stations which return water to the river channel. It is possible that levees could fail as the result of piping, a process of subsurface erosion which can occur in areas of concentrated seepage. During piping failures a cavity forms and rapidly works its way upstream, becoming larger and moving faster as the seepage path is shortened. When the pipe reaches the source of water (in this case the Sacramento River) there is a sudden breakthrough, and water rushes through the pipe further enlarging it. Cohesionless soils, particularly fine sands and silts are most susceptible to piping failures. Based on current available information, piping failures could occur almost anywhere along the many miles of levees in the Study Area.

IMPACTS RELATED TO SEISMICITY

Ground Shaking

Strong seismic shaking will occur in the Study Area during the design life of any given project as a result of large earthquakes (M7 or greater) along the San Andreas, Calaveras, Hayward, or Healdsburg-Rodgers Creek faults located in the San Francisco Bay Area. Large earthquakes also are likely to occur in Nevada along the Dixi Valley or Fairview Peak faults. Moderate earthquakes (M5 to M6) might occur along the Bear Mountain, New Melones, Midland, or Stockton faults. It can be expected that the Study Area will

experience ground accelerations of .2g to .3g in the event of a large or moderate earthquake on any of the above faults. [14]

Strong ground shaking can cause damage to structures and interrupt utilites and services. Ground failure such as liquefaction and lurching can result from strong ground shaking.

Liquefaction

The Study Area is extensively underlain by sands and silts below the water table which have a moderate to high potential for liquefaction during ground shaking of a large distant earthquake or a moderate earthquake nearby. Buildings founded on these liquefiable materials could tilt, settle differentially or collapse.

Lurching

Lurching of soft, water saturated sediments can result from strong ground shaking during an earthquake. Lurching and cracks in the ground surface (lurch cracks) might occur in the Study Area during an earthquake.

Failure of Levees

Although there has been no reported levee failure due to ground shaking or related ground failures in the Sacramento area, levee failure could occur, especially if a large or moderate earthquake occurred during the winter or spring months when water levels are high. Liquefaction of water saturated sands within and under the levees could result in landsliding along the levee embankments and in subsequent flooding of the basin.

IMPACTS RELATED TO DEVELOPMENT

Grading, Drainage and Erosion

If the Study Area is developed, grading would be required to construct building pads, storm and sanitary sewers, access roads, and parking areas and to control surface runoff and drainage. Because there is little topographic relief across the Study Area, grading probably would be minimal. In some locations placement of fill may be required to establish building

pads or to control surface runoff and drainage. Cuts also may be required to establish drainage.

Cuts for site grading should be very minor in extent, and fills probably would be thin. During grading some dust (wind erosion) can be expected. This impact would be temporary and should be of minor significance. The slow permeability of the majority of the soils could cause minor landscaping and drainage problems if proper grading and drainage techniques are not used.

A hardpan layer generally is present in the Clear Lake, San Joaquin, and Galt Series soils which cover approximately 60 percent of the Study Area. (See Exhibit K-3 for the location of these soils within the Study Area.) This hardpan layer might cause local problems in digging excavations and trenches, but the impacts would be easy to mitigate.

The soils are not susceptible to erosion from surface water runoff. Increased volumes of storm-water runoff, however, would result from development of the area. The effects of increased storm-water runoff would be somewhat significant but should be easily controllable. Increased sediment in runoff water should only have a temporary impact during grading operations.

IMPACTS OF SPECIFIC ALTERNATIVES

The potential for impacts of the five alternatives (A through E) are essentially are the same. Only the areal extent and specific locations of the impacts would be different based on the different intensity and location of development proposed by the five alternatives. Exhibit K-15 summarizes the anticipated geologic impacts of the five alternatives.

Alternative A

The impacts discussed in the previous sections would apply if Alternative A is chosen. The impacts would be minimal in areas which remain in agricultural use. All impacts would apply to the areas already zoned for development.

EXHIBIT K-15

Summary of Anticipated Geologic Impacts for Five Alternatives

Impact	Significant	Potentially Significant
Surface soils covering over 75 percent of the Study Area have a high shrink-swell potential.		A, B, C, D, and E
Subsurface soils' conditions which may affect development in the Study Area include settlement, lateral spreading, quick conditions, and failure of levees.		A, B, C, D, and E
High year-around water table may result in flow of water into excavations for foundations and utilities.		A, B, C, D, and E
Impacts related to seismicity within the Study Area which may affect development include ground shaking, liquefaction, lurching, and failure of levees.		A, B, C, D, and E

Alternatives B, C, D and E

Alternatives B through E differ primarily in the amount and density of development. Decreasing amounts of agricultural land would be preserved in each successive alternative. Alternative B proposes the lowest density and amount of development over the present conditions; Alternative E would involve the highest density and amount of development.

All the impacts discussed in the preceding section would apply in the areas of proposed development. Extensive geotechnical investigations would be required for the design and construction of the sports complex as well as any other large buildings or facilities (larger than three stories). Thorough but less extensive site specific geotechnical investigations would be needed for all other development. Areas which remain in agricultural use would experience minimal impacts.

Five Individual Applications

The impacts discussed in the previous sections would apply if any or all of the proposed development of the Gateway Point, Fong Ranch, Payne, Reid-Ketscher or Schumacher-Iverson projects were completed.

Detailed geotechnical studies would be required to address the impacts of specific sites and types of development. Design level engineering studies would also be needed to address specific impacts prior to devlopment.

GEOLOGY AND SOILS -- MITIGATION MEASURES

The geotechnical impacts which might affect the Study Area can be mitigated by geotechnical engineering methods as described below. The mitigation measures would be the same for all the alternatives plus the five individual land use applications. The only difference is that the area over which the mitigation measures would need to be applied would increase if the more extensive development alternatives are implemented.

Detailed geotechnical studies should be required to address the impacts for individual proposed development projects. Design level engineering studies would also be needed to address specific impacts prior to development. The actual mitigations can be formulated only as part of the engineering design of a particular project of structure within a specific project.

EXPANSIVE SOILS

Alternatives A, B, C, D and E

- The impacts of the expansive soils in the Study Area can be mitigated by standard geotechnical engineering methods. Possible mitigations include lime treatment, removal of two to three feet of expansive material and replacement with nonexpansive materials (engineered fill), or the use of pier foundations. Other engineering techniques also can mitigate expansive soil conditions. Specific mitigation measures should be recommended by a geotechnical engineer based on the results of site specific subsurface exploration and laboratory testing.

SEISMICITY

Alternatives A, B, C, D and E

- The impacts of seismicity on structures can be mitigated by following structural design criteria of the Uniform Building Code (UBC) and/or by requiring a structural engineer to review building design. For low rise and wood-frame structures, enforcement of the UBC is a generally accepted mitigation measure. For larger buildings, design by a structural engineer may be needed. Design criteria for foundations should be provided by a geotechnical engineer to help mitigate the impacts of seismicity on proposed structures. Geotechnical engineering input regarding fill placement would serve to mitigate potential impacts from seismically induced settlement of fill.

- To mitigate seismically induced ground failure such as liquefaction, a geotechnical investigation of the subsurface conditions of the specific site should be conducted before development. This investigation should include subsurface exploration to determine if potentially liquefiable deposits exist beneath specific building sites. If such deposits are found, the investigation should define suitable engineering methods to mitigate the potential impacts of liquefaction or other seismically induced ground failures.

- The potential for levee failure would need to be addressed during preliminary and design level geotechnical studies particularly for proposed development adjacent to the levees. Proposed recommendations for stablization, improvement and on-going monitoring of the levees

would need to be coordinated between the developers and the state, county and city agencies involved in maintanence of the levees.

GRADING, DRAINAGE, EROSION, AND SLOW PERMEABILITY

Alternatives A, B, C, D and E

- Potential impacts involving soil erosion and runoff should not pose major problems if normal care is taken by the civil engineer in the design and construction of the proposed development and if care is taken to maintain cut and fill slopes and drainage control systems. Soil erosion during construction can be mitigated if grading operations are minimized and are conducted during dry weather. Post construction erosion impacts can be mitigated by landscaping and surface drainage control measures. Concentrated runoff can be controlled by routine design of curb and gutter systems, storm drains, downspout controls, and site grading.

- Wind erosion (raising of dust) during grading operations can be mitigated by limiting grading on very windy days and/or sprinkling areas to be graded with water.

- Landscape and local drainage problems due to the permeability of the soil can be minimized by careful design of grading and drainage systems.

1 Geologic Map of the Sacramento Quadrangle, D. L. Wagner, C. W. Jennings, T. L. Bedrossian, and E. J. Bortugno, California Division of Mines and Geology (regional geologic map series), 1981.

2 Preliminary Soil Survey (Subject to Revision) Sacramento County, No. 067, USDA Soil Conservation Service, 1984.

3 "Procedures for Estimating Earthquake Ground Motions", W. W. Hays, US Geological Survey Professional Paper No. 1114, 1980.

4 Magnitude (M) is determined from the records (seismograms) of earth motion recorded by instruments called seismographs. Magnitude primarily is a measure of energy released by an earthquake -- in logarithmic (not linear) scale. An increase of one in the magnitude scale represents about a 31.5-fold increase in energy. Thus, a magnitude 8 (M8) earthquake releases about 1,000 times as much energy (31.5 x 31.5) as an M6 earthquake. Elementary Seismology, C. Richter, 1958.

5 This intensity scale is a measure of the severity of earthquake shaking based on human perception, shaking damage to engineered structures, landslides, and other ground failures. The intensity values on the Modified Mercali scale (MM 1931) range from I (not felt) to MM XII (damage total). Significant damage usually occurs at MM VII or greater. Intensities during any given earthquake vary with location, generally being highest near the source of the earthquake and decreasing with distance from the source. The intensity scale is not to be confused with the magnitude scale which has a single value for any given earthquake and is a measure of the energy release of the earthquake. There is a rough correlation, however, between the maximum intensity and magnitude of an earthquake. "Seismicity of California", T. R. Toppozada aand D. C. Pierziaski, California Geology, July, 1979.

6 "Faults and Future Earthquakes", R. L. Wesson, E. J. Helly, K. R. Lajoie, and C. M. Wentworth, Studies for Seismic Zonation of the San Francisco Bay Region, US Geological Survey Professional Paper, 1975, and "Historic Ground Failures in Northern California Triggered by Earthquakes", T. L. Youd and S. N. Hoose, US Geological Survey Professional Paper, 1978.

7 Seismic Safety Element, San Jaoquin Council of Governments, report prepared by J. H. Kleinfelder and Associates and F. Beach Leighton and Associates, 1973.

8 "Maximum Credible Rock Accelerations from Earthquakes in California", R. W. Greensfelder, Map Sheet 23, 1974, and "Procedures for Estimating Earthquake Ground Motions", op. cit.

9 "Procedures for Estimating Earthquake Ground Motions", op. cit.

10 "Liquefaction Hazards in the Eastern San Francisco Bay Area", T. L. Youd, Conference on Earthquake Hazards in the Eastern San Francisco Bay Area (proceedings), California Division of Mines and Geology Special Publication, 1982.

11 Ibid.

12 "Liquefaction Potential", T. L. Youd, D. R. Nichols, E. J. Helley, and K. R. Lajoie, Studies for Seismic Zonation of the San Francisco Bay Region, US Geologic Survey Professional Paper 941-A, 1975.

13 Merrill & Seeley conversation with Tom Betts, Reclamation District 1000, August 3, 1984.

14 "Maximum Credible Rock Accelerations from Earthquakes in California: Map sheet 23, Plate 1, map scale 1:2,500,000, R.W. Greesfelder, 1974,

and Procedures for Estimating Earthquake Ground Motions: U.S. Geological Survey Professional Paper No. 1114, W.W. Hayes, 1980

L. AGRICULTURAL LANDS -- THE SETTING

This section of the EIR discusses the impacts of the five Community Plan alternatives on agricultural lands in both the North Natomas Study Area and North Natomas Analysis Area. The Study Area boundaries generally include all City land north of Interstate 80, south of Elkhorn Road and west of the East Main Drainage Canal, plus the Sacramento Metropolitian Airport and 2,000 acres immediately east of the airport.

The Analysis Area incorporates the Study Area and is bounded on the east by the East Main Drainage Canal, on the south by Interstate 80, on the west by the Sacramento River, and on the north by the Sutter County line.

In 1981 the City of Sacramento contracted with the firm of Mundie & Associates to study the issue of agricultural lands in the North Natomas Analysis Area. This report entitled "Agriculture in Sacramento's North Natomas Area: Production, Economic Impacts, and Urban Conversion Issues", January 25, 1982, was used as a principal reference in the preparation of this section and is incorporated in this EIR by reference. A copy of this report is available for review at the City of Sacramento Planning Department.

Among the conclusions of the Mundie report are the following: [1]

- Land in the North Natomas area is generally good quality agricultural land, much of which is considered prime farmland. The combination of good soils, climatic characteristics, and a dependable water supply make North Natomas particularly well suited to continued agricultural production.

- There is little land available in Sacramento, Sutter, or Yolo counties possessing the qualities of North Natomas land which is not already in production.

- Other land which could be brought into production to substitute for North Natomas land has associated with it a variety of costs such as capital costs for the development of new cropland and higher production costs stemming from inferior production conditions and lower crop yields

In recent years there has been concern by Sacramento elected officials and citizens regarding the conversion of agricultural lands in the Sacramento region. In 1969, Sacramento County contained 518,000 acres of farm land.

This decreased to 448,000 acres in 1974 and to 434,000 acres in 1978. It is estimated that urbanization was an important cause of farmland loss in Sacramento County in the 1970s. [2] The trend of conversion has continued during the 1980's with the additional loss of 1,017 acres of agricultural land. [3]

Similiarily, between 1972 and 1980 the City of Sacramento permitted the conversion of 4,916 acres of productive agricultural land to urban uses in the South Natomas, Pocket, and South Sacramento communities, an average of 553 acres converted per year. Since 1980 the City has approved the Delta Shores Village PUD, permitting the conversion of an additional 700 acres of agricultural lands.

In addition to local attention, the conversion of agricultural land to urban uses recently has received national and state attention. The continued conversion of American farmlands has gained the attention of Congress. The Farmland Protection Act (Public Law 97-98) recognized this concern stating: [4]

- The nation's farmland is a unique natural resource and provides food and fiber necessary for the continued welfare of the people of the United States.

- Each year a large amount of the nation's farmland is irrevocably converted from actual or potential agricultural use to nonagricultural use.

- Continued decrease in the nation's farmland base may threaten the ability of the United States to produce food and fiber in sufficient quantities to meet domestic needs and the demands of our export markets.

In the decade of the 1970s, farmland loss nationwide was equal to the combined areas of Vermont, New Hampshire, Massachussetts, Rhode Island, Connecticut, New Jersey, and Delaware. In 1980 there were 24 million acres in reserve --available for cultivation although not of the same quality as the land lost.

National concern also was expressed in the Department of Agriculture's Soil Conservation Service National Agricultural Lands Study, which observed that continued loss of farmland leading to reduced production would have grave impacts on the nation. [5] Using less suitable land which requires

irrigation or more fertilizer increases consumption of energy by the farming sector.

Statewide concern over the loss of agricultural land has been increasing since the passage of the Land and Conservation Act of 1965. The total amount of land in farms in California, as defined by the Census of Agriculture, peaked in 1954 (about 37.8 million acres) with continuous declines until 1974 (an estimated 33.3 million acres). Various estimates on annual prime land loss in California range from 26,000 to 59,000 acres per year. [6]

In addition to food production, the state's agricultural land plays a critical environmental role. Farmland is an important filter for rain and snowfall runoff, allowing groundwater basins to recharge themselves. Farms and ranches are wildlife habitats for many common game and endangered species. Agricultural land provides valuable open space, giving visual relief for urban dwellers, and provides the rural way of life important to farmers, ranchers, and small town residents. [7]

Local concern about the loss of agricultural lands is expressed in the Sacramento County General Plan, the City of Sacramento General Plan, and the City of Sacramento Growth Policy. Section D of this EIR (Land Use) fully describes the adopted policies of the City and County of Sacramento related to the protection of agriculture in general and the preservation of agricultural land in North Natomas in specific.

SOILS

Soils Classification

Soils surveys in the United States are conducted by the National Cooperative Soil Survey, US Department of Agriculture's Soil Conversation Service (SCS), and the respective land-grant university Agricultural Experiment Stations (such as the University of California Cooperative Extension). Information is compiled by these agencies and published in soil survey reports, typically on a county basis.

Under the land capability and management classification system developed by SCS, all soils are divided into eight classes. Each capability class has several subclasses to identify specific limitations on use. Class I soils have few limitations which restrict their use. Class II soils have moderate limitations which reduce the choice of plants or require moderate

conservation practices. Class III soils have severe limitations which reduce the choice of plants, require special conservation practices, or both. Class IV soils have very severe limitations which reduce the choice of plants, require careful management, or both. Class VI soils have severe limitations which generally make them unsuitable for cultivation and limit their use largely to pasture or range, woodland, or wildlife. Class VII and VIII have limitations which generally preclude their use for commercial crop production and other uses. [8] See Appendix L-1 for the land capability classes and constraint designations.

In the early 1950's the SCS completed a Soils Survey for Sacramento County. This survey recently has been revised and updated by the SCS. The revised survey, "Preliminary Data for Sacramento County Soil Survey Area Report", is scheduled to be submitted to the State Soil Scientist for review in the Fall, 1985. Publication of the soils survey is not expected for another two to three years. [9] It also should be noted that although this is the most current and comprehensive analysis of soils in the Study Area the data and some reclassifications of the most recent survey are preliminary and subject to further revisions. [10]

As discussed in the Mundie report, the original soil survey maps designate most of the soils in the eastern part of Incorporated North Natomas as Columbia silty clay (Class II) overlying Sacramento silty clay. The next most common soil was Alamo clay (adobe), and was designated as Class IV.

The results of the more recent soil survey depart from the earlier soil survey by classifying most of the Alamo clay (Class IV) soils as Stockton clay with a capability class of IIw-5. The new field work has documented deeper soils over a larger area than previously noted. [11] Portions of the soils previously designated as Sacramento silty clay loam also are renamed as Stockton clay without a significant change in capability class designation. [12]

The most significant departure from the previous survey is the upgrading of the capability class designation for a major portion of the Study Area. As discussed above, this upgrading primarily is due to the discovery of greater depth soils in the older Alamo series. The recent survey also reassess the soils of the Sacramento area with recognition of the constraints of shallow root zones and poor drainage. Balanced with the soils' characteristics and available water and climatic conditions, the North Natomas area is highly suited for growing rice and other field crops such as sugar beets, wheat, safflower and tomatoes. [13]

With an understanding of the management and capability rating of the soil classification system, North Natomas farmers can grow crops which are best suited to the soil, drainage, climate, and conservation practices needed. It is important to recognize that management and soil capability are equal under this classification system. Farmers have recognized this distinction by using "prime soils" [14] for suitable crops and other soils for other important crops not limited by soils without prime soil characteristics.

For example, North Natomas farmers would need to use considerably more water for rice cultivation if the more porous, less clayey Class I soils were used. North Natomas Class II soils are able to retain the water necessary for rice production, and their nutritional value is such that they are able to produce consistently high yield. [15]

It is usually recommended that prime soils should be saved for crops which need structural characteristics identified with the "prime classification". It is incorrect, however, to dismiss Class III to IV soils from concern of conversion. In the Study Area 78 percent of the soils are considered prime and 22 percent are non-prime (see Exhibit L-8).

The SCS initiated a nationwide Important Farmland mapping program to maintain a current inventory of America's important farmlands. The objective is to identify the extent and location of important lands needed to produce food, feed, fiber, forage, and oil seed crops.

In California the SCS Important Farmland mapping series is combined with the Department of Conservation's (DOC) Farmland Mapping and Monitoring Program in a cooperative venture between SCS and the California Association of Resource Conservation Districts. One purpose of the Farmland Mapping and Monitoring Program, which will produce a map for each county, will be to monitor the status of California's commercially important farmlands.

DOC's program uses eight classifications of land: "Prime Farmland", "Farmland of Statewide Importance", "Unique Farmland", "Farmland of Local Importance", "Grazing Land", "Urban and Built-up Land", "Other Land", and "Land Committed to Nonagricultural Use". The Unique Farmlands designation applies to non-prime lands which are used for the production of specific, valuable, food, and fiber crops. These lands must support one of the 40 leading economic crops in California as determined annually by the California Department of Food and Agriculture. Crops grown on Unique Farmlands in Sacramento County include: rice, corn, tomatoes, alfalfa, wheat, and barley among others. These crops grow well on non-prime soils.

Although the Important Farmlands map is not yet available to the public for Sacramento County, it is anticipated that when released the map will designate much of the North Natomas area as either Prime Farmland or Unique Farmlands.

Study Area Soils

Complete descriptions of all soil types in the Study Area and their constraints are available from SCS preliminary prepublication files and are incorporated in this EIR by reference.

Exhibit L-7 shows the SCS soil unit distribution in the Study Area. Land capability classes and the acreage of each mapping unit in the Study Area are presented in Exhibit L-8. Soils in Class I and II (and in some limited situations Class III) generally are recognized as "prime soils". Approximately 8,774 acres of the 11,280 acres of agricultural lands located in the Study Area can be considered prime agricultural land.

The most common soils in the Study Area are Consumnes silt loam (unit numbers 201, 203, Class IIw-3) and Stockton clay (unit number 250, Class IIw-5) which are present on over 7,700 acres. These soils are characterized by poor drainage (w) conditions. Properly installed tile drains or open ditches can correct the constraint on Consumnes silt loam. Suitable crops for these soils include tomatoes, sugar beets, wheat and corn.

Cosummes silt loam is very deep, drained, and flood protected soil on recent alluvial floodplains. If this soil unit is used for crops other than rice or safflower the main limitation is slow permeability. The two main management needs of this soil are drainage and return of crop residue or a cropping system to help maintain fertility and tilth (the cultivation of the soil).

Stockton clay's high clay content makes management more difficult. The soil can be too sticky to cultivate when it is wet and too hard to cultivate when it is dry. The use of equipment, therefore, is restricted to periods when the soil is dry enough to support heavy loads while still being moist enough to work. These characteristics are ideally suited for rice and safflower cultivation. Other crops are limited only by management practices necessary for these soils.

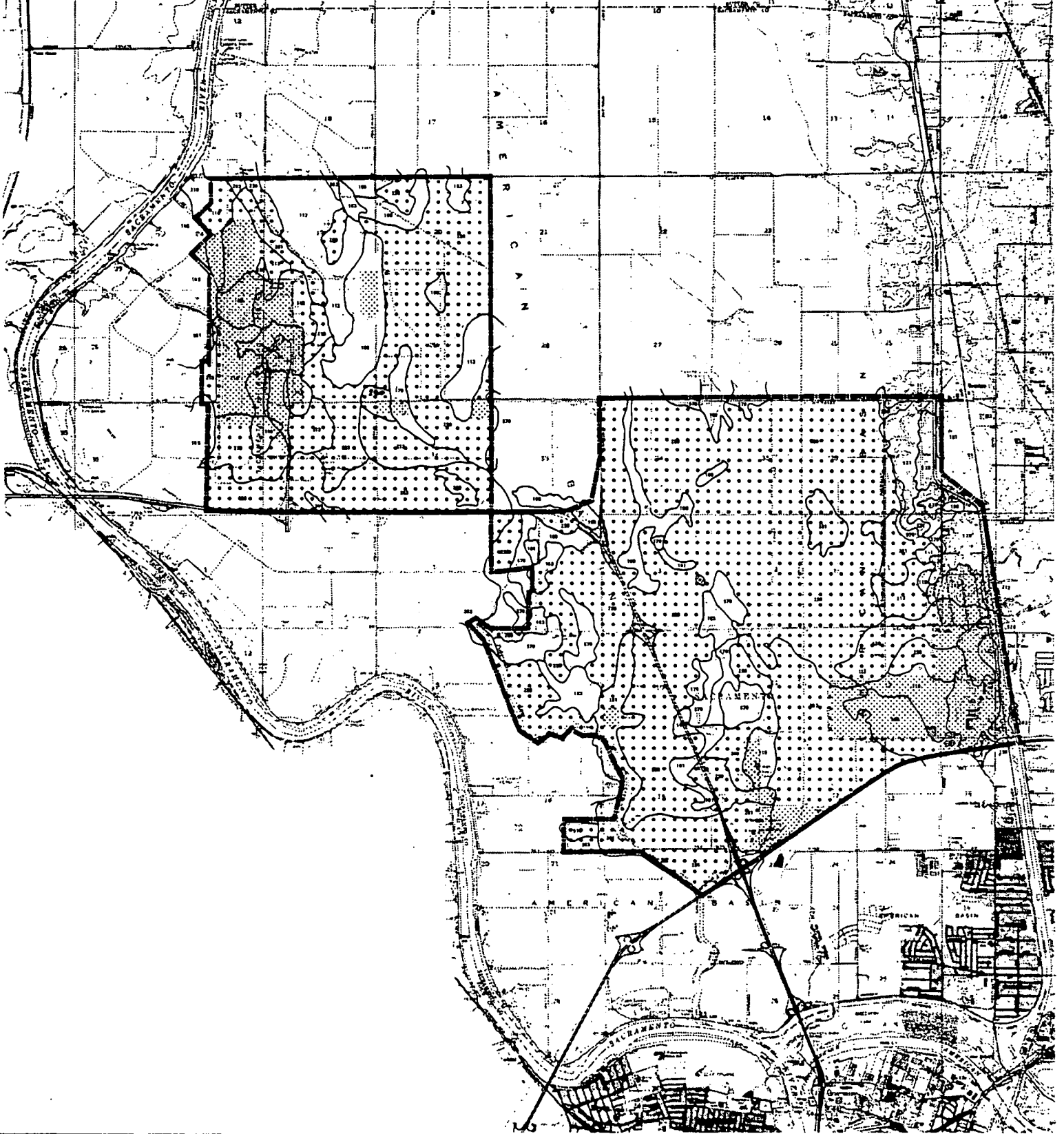


EXHIBIT L-7
SOILS

570 Non-Prime Agricultural Land (Soil Type Noted)

201 Prime Agricultural Land (Soil Type Noted)

Developed Areas

Source: U.S. Department of Agriculture, Soil Conservation Service, Sacramento County No. 067, 1984 Preliminary Report (subject to revision) and Nichols • Berman.

0 3200 6400 Ft.

EXHIBIT L-8

Soil Type Descriptions and Acreages -- North Natomas Study Area

Field Mapping Unit Number	Mapping Unit Name	Irrigated Capability	Acreage	Percent of Total
Prime Agricultural Lands 1/				
142	Columbia sandy loam, coarse substratum, protected	II w-2	3	
143	Columbia sandy loam, protected	II w-2	54	
146	Columbia sandy loam, wet	II w-3	26	
201	Cosumnes silt loam, protected	II w-3	981	
203	Cosumnes silt loam, wet	II w-3	1,198	
210	Sailboat silt loam, drained	II w-2	307	
213	Sailboat silt loam, protected	I	362	
250	Stockton clay, leveled, 0 to 1 percent slopes	II w-5	5,563	
310	Egbert clay, overwash	II w-2	31	
340	Capay clay loam	II s-5	90	
420	Pacheco loam, drained	II w-2	154	
561	Delhi fine sandy loam, 0 to 2 percent slopes	III s-4	5	
	Subtotal		8,774	78%
Non-Prime Agricultural Lands				
100	San Joaquin loam, leveled, 0 to 1 percent slopes	III s-3	657	
101	San Joaquin loam, 0 to 3 percent slopes	III s-3	158	
103	San Joaquin-Galt complex, leveled, 0 to 1 percent slopes	III s-3	164	
105	San Joaquin-Durixeralf complex, leveled, 0 to 1 percent slopes	IV s-3	0	
106	San Joaquin-Arents complex, leveled, 0 to 1 percent slopes	III s-3	73	
110	Galt clay, 0 to 2 percent slopes	III s-5	102	
111	Galt clay, 2 to 5 percent slopes	III e-5	12	
112	Glat clay, leveled, 0 to 1 percent slopes	III s-5	473	
113	Glat-Urban land complex, 0 to 2 percent slopes	III s-5		
170	Durixeralfs, leveled, 0 to 1 percent slopes	IV s-5	134	
181	Arents-Urban land complex	variable	7	
520	Rida sandy loam, 0 to 3 percent slopes	III s-8	243	
521	Rida sandy loam, 3 to 9 percent slopes	III e-8	139	
570	Sucaco clay, (taxadjunct) leveled, 0 to 1 percent slopes	III w-5	343	
	Subtotal		2,505	22%
Total 2/			**11,279**	

1/ As defined by the US Department of Agriculture, Soil Conservation Service (based on Irrigated Capability I and II)

2/ Total does not include developed areas.

Source: US Department of Agriculture, Soil Conservation Service, Sacramento County No. 067, 1984 Preliminary Report (subject to revision) and Nichols • Berman.

AGRICULTURAL INFRASTRUCTURE

Agricultural infrastructure includes the industrial and physical systems needed to develop and sustain agriculture, including suppliers, processing plants, distribution systems, and markets. Sacramento County's Agricultural Industry Study Technical Advisory Committee report, Agricultural Industries: Prospects, Perspectives, Planning, 1976, is incorporated in this EIR by reference as a source document defining and cataloguing agricultural industry operations in the Sacramento region including the Study Area.

The North Natomas area is located in a large agricultural production region that includes Sacramento, Yolo, Sutter and Placer counties. Crops produced in this region are dominated by field crops including rice, wheat, corn, sugar beets, alfalfa, safflower and tomatoes. Numerous agricultural service and processing businesses in this area provide the production sector with the services necessary to produce crops, agricultural chemicals, aerial spraying, farm equipment sales and service, finance, and custom services; and the facilities to transport, store and process crops.

No major industrial facility is whooly dependent upon crop production in North Natomas.

As in service and processing industries it is necessary to have a threshold level of production to maintain support systems at an efficient scale of operations. In the Study Area these support systems include irrigation water and drainage facilities originaly funded by Federal money. They are generally irreplaceable because of their high initial cost, current high interest rates, and the relatively low economic margins produced by the crops produced in the area.

In addition to water supply and transport, other public services are provided by the Department of Agriculture's Soil Conservation Service, County Agricultural Commissioner, and University of California Agricultural Extension Service. All of these agencies may be affected by the loss of agricultural activities in North Natomas. Less staff and money may be available to carry out existing programs. Essential items for agricultural operations which exist in the Study Area are the result of years of Federal and State programs for water and drainage development, agricultural loans, and other support investments.

Water Supply

The US Department of Interior's Bureau of Reclamation contracts with the Natomas Central Mutual Water Company to deliver water to 35,000 acres in the Bureau's district. The 1964 contract runs until 2002. If lands are converted to other than agriucltural use, however, the delivery amount is subject to change. The Bureau's allotment source is Shasta Dam. The Natomas area is allotted a minimum amount of water for which they are obligated and a maximum of which they cannot exceed. [16] The fee is $2.00 per acre foot. [17]

Water rates are charged by the Natomas Central Mutual Water Company on a per acre basis. In 1984 rice farmers paid $33.00 per acre, and farmers of other crops paid $26.00 per acre. For purposes of comparison, it was calculated that rice uses seven acre feet of water per acre, and tomatoes use five acre feet of water. Thus, rice pays approximately $4.71 per acre foot of water, and other crops pay approximately $5.20 per acre foot. By comparsion the Westlands Water District in the San Joaquin Valley charges $21.80 an acre foot plus a surcharge of $14.35 an acre foot for pumping uphill (to a maximum distance of 990 feet). The Westlands rates do not reflect the water treatment costs for agricultural wastewater which is pumped into the San Joaquin River or diverted through the San Luis Drain to the Kesterson Refuge.

The Bureau allots water on an irrigation need basis and would reduce the contracted amount to the water company if acreage were converted to nonagricultural uses. Irrigation water is essential for Natomas farming. Between July and August, 1984, for example, 49,000 acre feet of water were used to supplement the 1,500 acre feet available locally through riparian rights or wells. [18]

While the Bureau is not directly affected by urbanization of agricultural lands within its district, the water company would lose revenue with urbanization. [19] The Natomas Central Mutual Water Company, a farmer owned corporation, supplies water to approximately 90 percent of the commercial agricultural growers in the North Natomas area. The water company maintains five diversion points along the Sacramento River, uses the ditches from the Reclamation District 1000's drainage system in the summer months for distribution of irrigation water, and is responsible for delivering water on a need basis. With urban development revenues would be reduced while operation and maintenance costs and capital programs would remain essentially the same. The water company is analyzing its situation to

determine revenue loss if a portion or all of the Study Area is converted to urban use. [20]

These direct costs for the North Natomas area illustrate that other regions with subsidized Federal water have significantly higher costs. In addition to direct costs, there are long-term resource costs for developing water systems to move water to lands not currently under irrigation.

Drainage

Reclamation District 1000 was created in 1911 to maintain and repair the levees built by Natomas Company workers in the early 1900's. The ditches and canals cover 55,000 acres, 20,000 acres of which are in Sutter County. Maintenance costs have increased in the last few years due to increased runoff from development, improper uses of levee roads by horses, dirt bikes, and four-wheel drive vehicles, and burrowing animals. [21]

Vegetation along the ditches is controlled by burning and spraying, the traditional method used to clear brush to check the condition of the levees and ditches. In order to keep the ditches clear, the District dredges them and, if permitted, places the dredge material on farmland where it is incorporated into the soil. Ditches are maintained by the Reclamation District on an assessment basis according to land use. The District pumps water from the ditches which drain the reclaimed floodplain; the water then is carried to the Sacramento River. Non-agricultural development plans must have the approval of the District prior to construction. [22]

There have been no failures of the levees since 1911 which may be due to their sand core structure. The Yolo Bypass weirs release waters at the 27 foot level at the I Street Bridge helping to prevent saturation of the levees.

The Reclamation District monitors the quality of water in the ditches and canals. If there is an excess of identified agricultural runoff pollutants, the District reverses flows in the source ditch to prevent this water from entering the river receiving water and affecting metropolitan water quality.

WILLIAMSON ACT

The purpose of Williamson Act contracts is to reduce property taxes in exchange for precluding development of agricultural lands for the term of the contract (ten years). See Appendix L-2 for a complete discussion of the Wiliamson Act.

The Study Area has 1,627 acres of Williamson Act contract lands (see Exhibit L-13), of which 404 acres of are in the County and 1,223 acres of are in the City. Contracts may be terminated by filing for cancellation or by giving notice of non renewal at the beginning of the year. The Notice of Non-Renewal signifies that the contract expires in nine years with a progressive increase in taxes during this time period. Notices of Non-Renewal have been filed for 799 acres (49 percent) of the contract lands in the Study Area of which 80 acres are in the County while 719 acres are in the City (see Exhibit L-14).

There presently are no requests for cancellation of contract lands in the Study Area. It is anticipated with the expiration dates noted on Exhibit L-13 that the contracts would expire prior to the commencement of proposed development.

Specific findings must be made by the County or City if cancellation is sought to remove development restrictions. Specific actions also must be undertaken to meet the requirements of the findings. These findings are procedural and seek to establish that these contracted lands are the "last resort", i.e. no other lands are available in the region for development. A finding must also be made that cancellation would not lead to conversion of other agricultural lands nor that development would lead to a "broken" pattern of development. These findings and actions are further discussed in Appendix L-2.

The trend in filing for Notice of Non-Renewals may be due to the anticipation of development. Exhibit L-13 illustrates the concentration of the nonrenewal south of Elkhorn Boulevard. In addition the reduction in tax savings due to Proposition 13 may have had some influence.

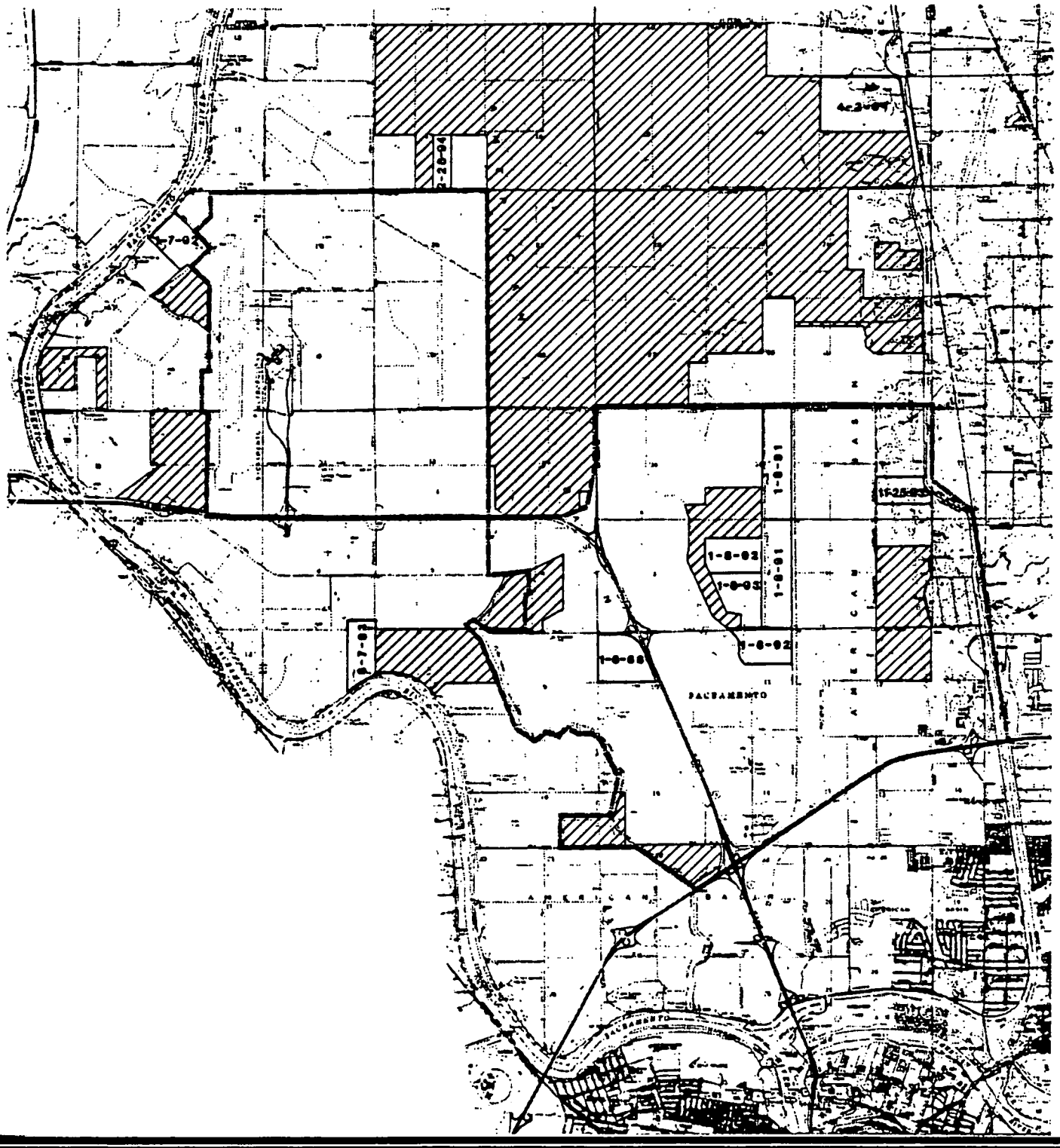


EXHIBIT L-13 WILLIAMSON ACT LANDS

1-8-02 Notice of Non-Renewal (Expiration date noted)

Existing Contract (Annually renewed for 10 years)

0 3200 6400 Ft.

Source: City and County of Sacramento Planning Depts. 1984

EXHIBIT L-14

Williamson Act Lands -- North Natomas Study Area

CONTRACT LANDS

	Annual Renewal	Notice of Non-Renewal	Total
Study Area	827.92	799.14	1,627.04
County	324.30	79.92	404.22
City	503.62	719.22	1,222.84

Source: City of Sacramento

PRODUCTION PATTERNS

Current Agricultural Uses

In the last 20 years rice has dominated the irrigated crops grown in the Study Area. Agricultural production also includes tomatoes, wheat, field corn, sugar beets, safflower, oat hay, alfalfa, and recently some speciality crops such as kiwis.

Exhibit L-16 identifies crop distribution for the Study Area for 1983, the most recent year for which mapped data are available. Land identified as open primarily is due to one of the Federal government's withdraw programs, such as Payment In Kind (PIK). In 1983 acreage reduction was used on a large scale by the federal goverrntment in response to crop supplies with low market prices. This reduction was achieved by a payment-in-kind program designed to pay for diverting production from certain commodity crops, principally rice. The program was a one time measure to reduce acreage and provide financial support to farmers. (See Appendix L-3 for a further discussion of PIK.)

Exhibit L-17 shows the distribution of Study Area crops in 1983. In 1983 forty six (46) percent of the total tonnage of the Study Area crop production was rice (see Exhibit L-17).

Approximately 5,515 acres in the Study Area were removed from production in 1983 as part of the PIK program. Crop lands covered by the PIK program significantly reduced total rice and wheat yield in the Study Area. PIK did not distinguish between soil classification type and did not credit farmers who practiced conservation measures. As a result land was withdrawn without regard to soil quality or productivity.

For many crops grown in North Natomas, typical yields exceed those obtained elsewhere in the County. Based on 1982 average yields for rice, field corn, wheat, and safflower, North Natomas yields exceeded the California averages for those crops (see Exhibit L-18).

Exhibit L-19 shows the value of Study Area crops in 1983. Sixty-two (62) percent of the Study Area crop production value is from rice. As important as the value of a farmer's crops is how much the farmer spent to produce the crop. Low costs in the area provides the Natomas area with a competitive edge. Low costs are the result of, among other factors, quality soils, inexpensive water and proximity to processing plants.

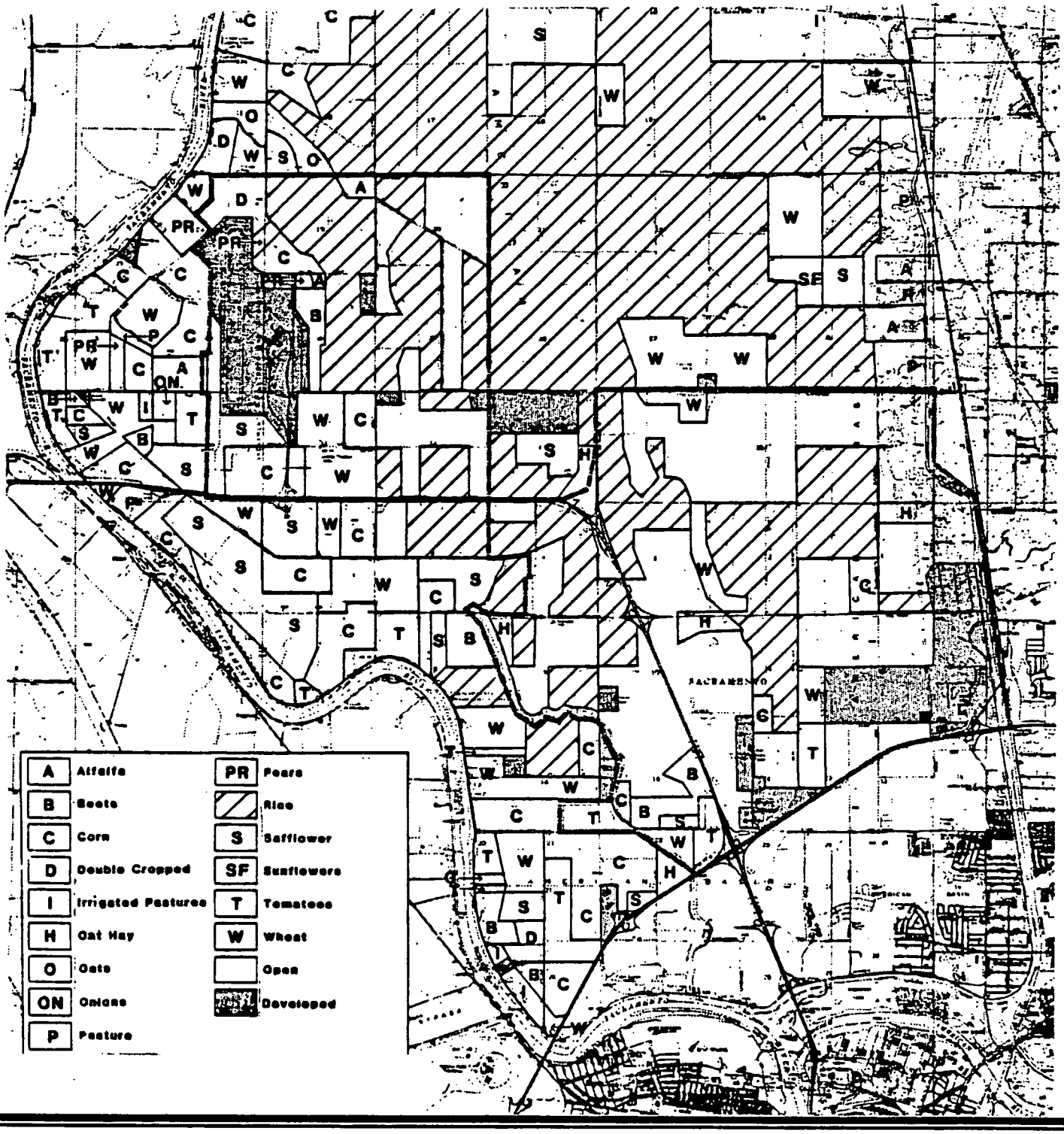


EXHIBIT L-16
CROPS

Note: Crops mapped within Study Area have been updated through 1983.

Source: Sacramento County Dept. of Agriculture. 1983

0 3200 6400 Ft.

EXHIBIT L-17

Crop Acreage Distribution and Yields -- North Natomas Study Area
(1983)

	Harvested Acreage				
	Total (acres)	Incorporated Area (acres)	Unincorporated Area (acres)	Yield (tons/acre)	Tonnage
Rice	4,158	2,154	2,004	3.6	15,000
Wheat	640	328	312	2.3	1,500
Field Corn	541	148	393	4.0	2,200
Tomatoes	261	261	-	26.0	6,800
Sugar Beets	247	98	149	21.0	5,200
Oats/Hay	162	97	65	2.0	300
Alfalfa	57	-	57	7.0	400
Safflower	238	27	211	1.6	400
Other 1/	177	-	177	3.4	600
Total	6,481	3,113	3,368	-	32,400

1/ Includes acreage of pears and double-cropped fields; estimated yield is 3.4 tons per acre.

Source: Sacramento County Department of Agriculture, 1983. Yields show area county averages for 1983 as reported in Crop Report, 1983.

EXHIBIT L-18

Yields of North Natomas Crop Types -- Sacramento County Compared with State and Leading County Production Averages
(1982)

Crop	North Natomas Yield/Acre (tons)	California Average Yield/Acre (tons)	North Natomas Yield as a Percentage of Top County Yield/Acre (percent)	Leading Counties
Rice	3.5	3.42	97	Glenn, Sutter, Colusa
Field Corn	3.9	3.64	95	Colusa, Yolo, Sacramento
Wheat	2.4	2.17	98	San Joaquin
Sugar Beets	25.0	25.45	77	Monterey
Processing Tomatoes	24.0	26.5	Not Available	Yolo, Sutter, San Joaquin
Safflower	1.5	0.98	Not Available	Yolo, Fresno, Solano

Source: Nichols • Berman and SCS.

EXHIBIT L-19

Value of North Natomas Study Area Crops

	Unit Value ($/ton)	Tonnage			Value		
		Total	Incorporated Area	Unincorporated Area	Total	Incorporated Area	Unincorporated Area
Rice	$140	15,000	7,800	7,200	$2,100,000	$1,100,000	$1,000,000
Wheat	120	1,500	800	700	200,000	100,000	100,000
Field Corn	125	2,200	600	1,600	300,000	80,000	220,000
Tomatoes	53	6,800	6,800	-	400,000	400,000	-
Sugar Beets	37	5,200	2,100	3,100	200,000	80,000	120,000
Oats/Hay	40	300	200	100	12,000	8,000	4,000
Alfalfa	105	400	-	400	40,000	-	40,000
Safflower	235	400	40	360	90,000	81,000	9,000
Other 1/	87	600	-	600	50,000	-	50,000
Total		32,400			$3,392,000	$1,849,000	$1,543,000

1/ Estimated to have an aggregate yield of 3.4 tons per acre and an aggregate value of $87 per ton.

Source: SWA

Potential Productivity

In order to assess impacts on agricultural production accurately, it was necessary to consider the full productive potential of the Study Area.

Potential productivity for the Study Area was developed using existing and historical cropping patterns and information regarding the soils on which North Natomas crops are grown. Appendix L-4 shows estimated yields on a per acre basis by soil unit for soils in the Study Area. These estimates were derived from farm reports, moderate to best management practices, and the County Annual Crop Report. Each soil unit was given a maximum yield potential and then adjusted for variables including management practices, weather fluctuations, and commodity price changes, all of which contribute to actual yield in some manner.

Yields shown on Exhibit L-18 are reported yields from the County crop report. Yields shown on Exhibit L-21 are the estimated potential yields.

The estimates of existing production and potential productivity are based on different estimating procedures:

- The County Agricultural Commissioner's report is based on processors reports and some estimates from growers.

- The SCS estimated yields result from combining the County Crop Report, growers reports, and medium-to-best management estimates for the soil unit type.

- Both reporting methods are estimates. Field sampling over time could provide a more accurate optimum yield potential.

The potential productivity shown in Exhibit L-21 is considerably higher than that shown for 1983 in Exhibit L-18. This difference is the result of two major factors: 1) production for 1983 was reduced due to the PIK program and 2) 10 percent of productive agricultural lands generally are fallow because of rotational needs, market dictates, or other management decisions.

Exhibit L-21 also shows the estimated dollar value of the potential productivity of the Study Area based on current market prices.

EXHIBIT L-21

Potential Productivity
North Natomas Study Area

Crop	Potential Acreage	Average Yield	Tonnage	Unit Price	Value
Rice	8,960	5 tons/acre	37,600	$140	$5,264,000
Corn	320	5 tons/acre	1,100	125	137,500
Wheat	1,120	3 tons/acre	3,200	120	384,000
Tomatoes	640	28 tons/acre	17,000	53	901,000
Sugar Beets	640	25 tons/acre	20,800	37	769,000
Alfalfa	160	8 tons/acre	870	105	84,700
Total	11,840				$7,540,200

Source: Economic & Planning Systems and SCS

LAND EVALUATION AND SITE ASSESSMENT PROGRAM

In addition to documenting the quantity of agricultural soils and the potential agricultural productivity of the Study Area it is important to indicate how these values are distributed geographically. This geographic orientation is necessary for identifying the value of the existing agricultural infrastructure and the current levels of conflict between agriculture and existing urban uses. A geographic data base model was developed for this purpose. The model was used to document current conditions and also as the basis of the subsequent agricultural lands impact analysis.

The US Soil Conservation Service, in cooperation with state and local communities, has developed a system to assist local, State, and Federal agencies in implementing the Federal Farmland Protection Policy Act (PL97-98). The Land Evaluation and Site Assessment Program (LESA) can be used to determine which lands, if any, should be set aside for agriculture and to rate a specific site to determine if retaining agricultural use is justifiable.

The geographic data base model was based upon the Land Evaluation and Site Assessment Program (LESA). This model has a scoring system which combines resource scoring (soil and potential productivity) with a site assessment of eighteen criteria as discussed in Appendix L-6. These criteria are summarized as follows: the site is assessed by it proximity to mucicipal services including roads and water; its location and value as part of a larger agricultural area; local plans and zoning and other farmland protection regulations are evaluated; agricultural investment including drainage and field preparation are weighed; and cumulative effects of conversion of the site to another land use and the conflict with remaining agriculture as well as the reduction of agriucltural support services are assessed.

In order to apply this program to the Study Area it was necessary to subdivide the area into equal units of land or "cells". It was determined that the most appropriate size parcels for this area would be one-quater section parcels (160 acres) mainly to create a manageable number of cells for the assessment. The size of the Study Area and the General Plan level of detail provided the basis for the decision to use 160 acres.

Based upon the LESA Scoring System each 160 acre cell received a composite score to determine the individual cells' relative importance within the community's overall land use and agricultural goals. The composite score was based upon two components. The first component is the Soil Potential Index (SPI). Several elements determine the SPI: land capability, soil productivity, and expected yield. Soils in a given area are rated according to the SCS classification system and previously chosen indicator crops are weighed for suitability with the soil type and the potential yield. Each 160 acre parcel was calculated for soil unit type, percentage of the parcel and the potential yield of an indicator crop. A weighted average was determined for the parcel's SPI. The soil with the highest potential yield was given a relative value of 100 and lower yields were less than 100 on a percentage basis.

The second component of the score is based on an assessment of 18 criteria and their weighted scores for each cell. The criteria include such factors as existing land uses, agricultural viability, land use regulations, alternative locations for proposed uses, and location of urban infrastructure.

The individual cells were also aggregated into four geographic quadants of the Analysis Area. These quadrants aid in data summary and analysis. Exhibit L-24 shows the Analysis Area with the cell locations and quadrant boundaries.

LESA scores are a measurement of recognized land use planning conflicts such as proximity of residential areas to agricultural fields which could result in damage from vandalism and trespassing or health threats to residents due to agricultural practices. LESA contains numerical assessment for anticipated growth inducing aspects of roads, sewers, and drainage systems. By expressing these assessments numerically, alternatives can be compared and weighed in a conflict/impact analysis.

Exhibit L-25 shows the SPI and site assessment score for each cell considered. These scores establish the base case for the Study Area on which the impacts the five Community Plan alternaitves (A through E) are evaluated in the impact section of this EIR.

ECONOMIC FEASIBILITY OF FARM OPERATIONS

While North Natomas has the soil resources, infrastructure, and access to service transportation and processing facilities necessary to support

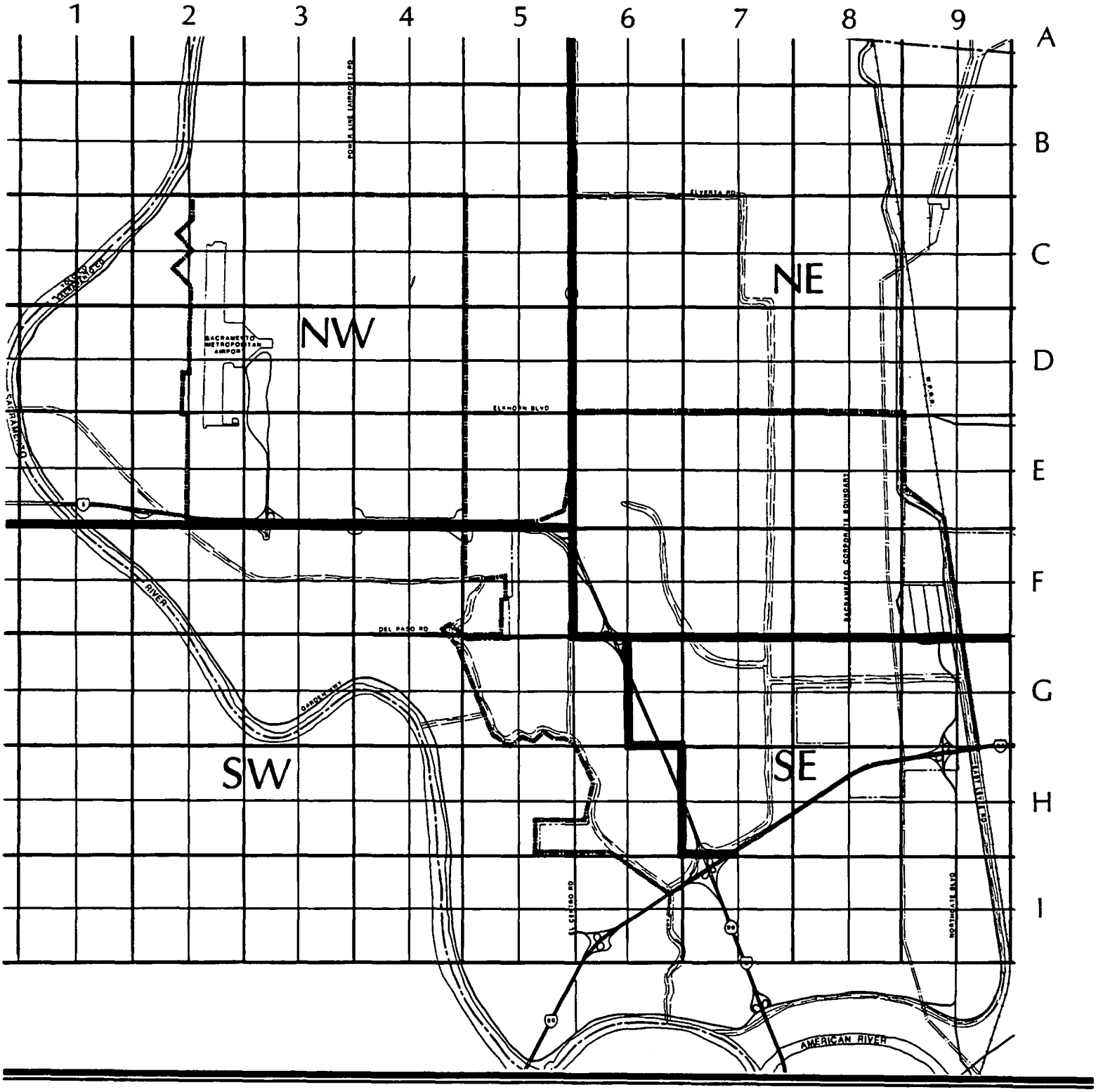


EXHIBIT L-24
GEOGRAPHIC SUB-AREAS -- LESA SYSTEM

2

NW	NE
SW	SE

B

Key: Grid Cell System

0 3200 6400 Ft.

Source: Nichols • Berman

EXHIBIT L-25

Base Case Land Evaluation and Site Assessment Scores by Quadrant

Northwest

Cell	Crop	Site Assessment	Soil Potential Index
B2SE	Wheat	198	98
B3SE	Rice	206	42
C2NE	Developed	0	0
C2SE	Developed	0	0
C3NE	Rice	175	69
C3NW	Rice	166	100
C3SE	Rice	157	78
C3SW	Rice	152	82
C4NE	Rice	171	90
C4NW	Rice	182	76
C4SE	Rice	171	95
C4SW	Rice	162	93
D2NE	Developed	0	0
D2SE	Developed	0	0
D3NE	Rice	154	70
D3NW	Developed	0	0
D3SE	Rice	171	69
D3SW	Developed	0	0
D4NE	Rice	178	95
D4NW	Rice	159	86
D4SE	Rice	178	68
D4SW	Rice	159	83
E2NE	Developed	0	0
E2SE	Developed	0	0
E3NE	Rice	147	100
E3NW	Rice	134	50
E3SE	Rice	146	100
E3SW	Rice	145	80
E4NE	Rice	146	100
E4NW	Rice	147	76
E4SE	Wheat	150	100
E4SW	Wheat	151	100
32 Cell in Quadrant			
Total Score		3905	2000

Source: Economic and Planning Systems and Nichols-Berman

EXHIBIT L-25 -- CONTINUED

Base Case Land Evaluation and Site Assessment Scores by Quadrant

Southeast

Cell	Crop	Site Assessment	Soil Potential Index
G6NE	Rice	186	80
G6SE	Rice	159	60
G7NE	Rice	189	100
G7NW	Rice	194	79
G7SE	Wheat	182	100
G7SW	Corn	181	32
G8NE	Rice	115	100
G8NW	Rice	166	100
G8SE	Developed	0	0
G8SW	Developed	0	0
G9NW	Developed	0	0
G9SW	Developed	0	0
H7NE	Tomatoes	160	100
H7NW	Sugar Beets	164	100
H7SE	Developed	0	0
H7SW	Sugar Beets	176	60
H8NE	Developed	0	0
H8NW	Tomatoes	137	80
18 Cells in Quadrant Total Score		2009	991

Source: Economic and Planning Systems and Nichols-Berman

EXHIBIT L-25 -- CONTINUED

Base Case Land Evaluation and Site Assessment Scores by Quadrant

Northeast

Cell	Crop	Site Assessment	Soil Potential Index
E6NE	Wheat	207	87
E6NW	Rice	198	93
E6SE	Rice	198	88
E6SW	Rice	193	88
E7NE	Rice	222	100
E7NW	Wheat	211	85
E7SE	Rice	218	100
E7SW	Rice	218	100
E8NE	Rice	192	40
E8NW	Rice	211	100
E8SE	Rice	164	50
E8SW	Rice	211	100
F6NE	Rice	206	71
F6NW	Rice	198	76
F6SE	Rice	201	88
F6SW	Rice	190	75
F7NE	Rice	222	100
F7NW	Rice	218	100
F7SE	Rice	209	100
F7SW	Rice	201	71
F8NE	Alfalfa	147	68
F8NW	Rice	191	100
F8SE	Rice	126	96
F8SW	Corn	191	100
F9NW	Developed	0	0
F9SW	Developed	0	0
26 Cells in Quadrant			
Total Score		4743	2076

Source: Economic and Planning Systems and Nichols-Berman

EXHIBIT L-25 -- CONTINUED

Base Case Land Evaluation and Site Assessment Scores by Quadrant

Southwest

Cell	Crop	Site Assessment	Soil Potential Index
F5NE	Rice	194	70
F5NW	Rice	190	62
F5SE	Rice	185	78
G5NE	Rice	186	53
G5NW	Rice	190	45
G5SE	Rice	186	70
G5SW	Rice	190	95
G6NW	Rice	167	100
G6SW	Developed	0	0
H5SE	Tomatoes	197	100
H6NE	Sugar Beets	183	80
H6NW	Rice	177	100
H6SE	Sugar Beets	183	100
H6SW	Tomatoes	190	100
I6NE	Wheat	166	100
15 Cells in Quadrant Total Score		2584	1153

Source: Economic and Planning Systems and Nichols-Berman

agricultural production, individual farm operations may or may not be profitable. This subsection addresses the issue of whether profitable farm operations can exist in North Natomas.

The economic feasibility analysis is based on prototype farm unit financial models of rice and tomatoes, the two typical crops produced in the Study Area. These two crops were selected because they are common crops in the area, and much information is available on production costs and revenues. A farm unit is defined as an individual crop field of a size adequate to support the necessary investment in machinery and equipment and capable of producing an adequate operating margin sufficient to induce farmers to produce crops on the land. The operating margin from a given field does not necessarily equal a "family income" of a given farmer. Farmers typically operate several fields, often in a variety of crops, to produce their total income. The minimum size of an operation meeting these requirements varies from crop to crop, and within crops, depending upon the economic circumstances of the farmer, the productivity of the land, and external economic variables such as interest rates and commodity prices. The farm unit prototypes are not statistical representations of all farm units but rather examples of farm units that could (and do) exist in the Study Area.

Reports and studies have been published and testimony has been received on agricultural economics in the North Natomas area. While this information is useful, none of it has addressed the specific economics of farm units. The following reports provide useful background information on agricultural economics and are incorporated in this EIR by reference:

- Agriculture in Sacramento's North Natomas Area: Production, Economic Impacts and Urban Conversion Issues, Mundie and Associates, 1982.

  In addition to documenting the agricultural resources of the North Natomas area, this report provides an historical context and statistics on productivity and regional economic relationships.

  Important to the current discussion is the section which addressed production costs and revenues in North Natomas compared with other agricultural areas. The report concludes that farmers in North Natomas experienced higher productivity and lower operating costs than those in the southeast part of the County.

- A Report to Pacific Central Properties on the Agronomic Capabilities of Selected Properties, Baier Agronomy, Inc., 1981.

This report evaluated agricultural potential and economics of Pacific Central's holdings. It found that the property contained a variety of soil types which are best used for rice or corn production. Although certain limitations exist, they can generally be mitigated by special management techniques including drainage, proper cultivation, and addition of nutrients. These special techniques should not add substantially to production costs. This report also concluded that profits from rice and corn production should increase through the 1980's.

The most significant problem identified was the potential for a ban on rice straw burning, which could be imposed because of incompatibility with Interstates 5 and 80. Such a ban would increase operating costs significantly and could preclude production entirely.

- Considering Agricultural Production in Sacramento County, Business Service Bureau, 1982.

  This report mainly is a statistical summary of agricultural production in North Natomas and Sacramento County compared with other producing regions in California and the United States. It incorporates some of Mundie and Associates' work, and attempts to place those conclusions in a "regional perspective".

This EIR analysis expands on prior studies and asks: "Can profitable agricultural operations exist in the Study Area?" The answer to this question in the past 70 years is yes; present and future conditions, however, may differ from the past and may alter this conclusion.

Economic feasibility of a given farm unit, similar to any business, is affected by both internal and external factors. Internal factors include the farm's basic resources (soils, water availability and quality, and climate), the farm's infrastructure (land preparation, buildings, perennial plants, irrigation improvements, fencing, etc.), and the management and technical skills of the farmer. External factors include the prices and availability of the goods and services the farmer must purchase (fuel, labor, seed, credit, etc.) and the prices received for crops produced.

Both internal and external factors were addressed by the reports referenced above and the research conducted for this EIR. Most internal factors have not changed substantially since the publication of the Mundie report in 1982. Soils, climate, and infrastructure are the same. One internal

factor, land values, has continued to increase well beyond values which can be justified by agricultural rent value.

Land value increases are documented in a subsequent section. Increased land values are due to the anticipated potential of the Study Area for urban uses. High land values eliminate the possibility of land investment for agricultural infrastructure and conservation practices.

External factors have changed substantially since the Mundie report was published. Most significantly, prices of crops grown in the area have fallen greatly while costs of production have continued to increase. This has resulted in reduced profits and losses for farmers in NOrth Natomas as well as throughout the County. In spite of the recovery of the national economy, the agricultural industry is still experiencing financial difficulties at all levels: local, regional and national.

The value of agricultural production in Sacramento County has fallen dramatically, due to decreased commodity prices (which has also been experienced nationally) and also because of the PIK program which has resulted in the removal of thousands of acres of agricultural land from production.

In spite of current economic conditions unfavorable to agricultural, farm operations in the North Natomas area remain viable and can survive and prosper as economic conditions improve.

Exhibits L-32 (tomatoes) and L-33 (rice) summarize the findings of the economic feasibility analysis. The associated documentation and assumptions are included in Appendix L-5.

The two exhibits show total revenue associated with crop production and sale on line 1. Variable Costs (line 2) include all direct costs to produce the crop such as labor, fuel, and materials. Line 2 is subtracted from line 1 to produce total income above variable costs (line 3). Total cash overhead, including land rent, interest on operating capital, and professional services (line 4); and ownership costs, including interest, taxes and insurance, and equity invested (line 6) are deducted from income above variable costs to produce net return (line 7). A management fee (line 8), typically five percent, is deducted from net return to produce pre-income tax economic return (line 9).

Both farm operations are shown to be profitable, given the assumptions used in the models. The key variables which will support continued feasiblity of

EXHIBIT L-32

Farm Unit Model -- Tomatoes

Item	Typical Year
• Gross Receipts from Production	
-- Size of Farm Unit	160
-- Total Revenue Per Acre	1,400
1 -- Total Revenue	$220,300
• Variable Costs	
-- Preharvest Cost Per Care Total	500
-- Harvest Cost Per Acre Total	200
2 -- Total Variable Cost	$115,900
3 Income Above Variable Cost	$104,400
• Cash Overhead	
-- Land Rent (25.00%)	55,100
-- Interest on Operating Capital (*)	6,500
-- Accounting, Legal, Misc. Expenses	0
4 -- Total Cash Costs	$ 61,600
5 Income Above Cash Costs	$ 42,800
• Ownership Costs	
-- Total Interest	400
-- Total Taxes & Insurance	2,500
-- Equity Investment (Principal)	1,600
6 -- Total Ownership Costs	$ 4,500
7 Net Return	$ 38,300
• Deductible Expenses	
-- Total Interest	6,900
-- Total Depreciation	13,100
-- Total Other	173,500
-- Total Deductible Expenses	$193,500
8 Return on Investment (@ 5%)	$ 1,900
9 Pre-Income Tax Economic Return	$ 36,400

* 80% of Operating Costs are Borrowed at 14%.

Source: Nichols • Berman and Economic and Planning Systems.

EXHIBIT L-33

Farm Unit Model -- Rice

	Item	Typical Year
•	Gross Receipts from Production	
	-- Size of Farm Unit in Acres	600
	-- Total Revenue Per Acre	$736
1	-- Total Revenue	$ 441,600
•	Variable Costs	
	-- Preharvest Cost Per Acre Total	(400)
	-- Harvest Cost per Acre Total	(100)
2	-- Total Variable Cost	$(274,300)
3	Income Above Variable Cost	$ 167,300
•	Cash Overhead	
	-- Land Rent (25.00%)	(110,400)
	-- Interest on Operating Capital (*)	(15,400)
	-- Accounting, Legal, Misc. Expenses	(0)
4	-- Total Cash Costs	$(125,800)
5	Income Above Cash Costs	$ 41,500
•	Ownership Costs	
	-- Total Interest	(500)
	-- Total Taxes & Insurance	(3,900)
	-- Equity Investment (Principal)	(2,300)
6	-- Total Ownership Costs	$ (6,700)
7	Net Return	$ 34,800
•	Deductible Expenses	
	-- Total Interest	(15,900)
	-- Total Depreciation	(14,200)
	-- Total Other	(388,600)
8	-- Total Deductible Expenses	$(418,700)
9	Return to Management @ 5%	$ 1,700
10	Pre-Income Tax Economic Return	$ 33,100

* 80% of Total Costs are Borrowed at 14%.

Source: Nichols • Berman and Economic and Planning Systems.

farm operations is general improvement in commodity prices and the continued availability of land that can be rented for agriculture.

POTENTIAL FOR AGRICULTURAL ENHANCEMENT

Technology

The success of California agriculture is largely based upon technology which has used soils, water supply, and climatic conditions to develop a highly productive industry. Two recent innovations in California rice production, (which appear to be applicable in North Natomas) short stature rice and laser land leveling, have boosted rice yields and increased efficiency. Research in agricultural equipment and genetic engineering continues, and the University of California at Davis, located near North Natomas, is a world leader in agricultural technology. Research at UC Davis can be expected to continue to yield new technology crops which will benefit farmers in particular and the public in general.

Crop Diversification

A wide variety of crops are potential candidates for cultivation in rotation or in place of rice. As in any area where one crop becomes a monoculture, pests of various types become problems. When farmers resort to leaving fields idle or in "clean fallow", they sacrifice income without changing the nature of the problem. Diversification of crops not only interrupts pest cycles but also can diversify sources of income, provide additional income, maintain soil organic matter (roots and residues), add fertility (legumes nitrogen), and help break the pest cycles.

This section briefly discusses some crop alternatives which have cultivation potential in the North Natomas area. Many of these crops are grown every year in areas in or near North Natomas. Most farmers can be expected to know something about them, although they may choose to grow other crops. There are various reasons why the current, familiar cropping pattern predominantly includes commodities such as rice, corn, and wheat: tradition, convenience, economic security (through subsidies), water availability, and soil type.

Agricultural land will be needed to grow future crops, however, and the land which is protected now will be available for sowing future harvests. North Natomas, with its endowment of water and rich, productive soils, provides

fertile fields to sow future crops. Actual implementation of new crops and cultural practices, by both individual and corporate farmers, will depend on whether they expect to continue using the land for agriculture. Public policy makers and the land use decisions they make under compelling pressure from special interest groups contribute an influence on these expectations.

Alternative Crops

Safflower is a prime candidate for increased planting in the Study Area. It produces a valuable oil and a seed cake suitable for animal feed. It thrives in heavier clay soils and tolerates a high water table. Its production requires farm equipment similar to rice. Safflower has been grown in North Natomas for many years, and farmers have the know-how. The domestic market for oilseed crops is expected to increase by 22 percent and the export market by 65 percent in the next 15 years. [23]

Grains such as sorghum, wheat, and barley grow well in the area. Barley can be grown in the winter; wheat and sorghum grow in the summer in a rotation with rice. As grasses, their culture is similar to rice but without the relatively high water requirement of rice. These cereal grains are basic feed commodities and, hence, are subject to many of the market price vagaries and limitations which also affect rice. The domestic market is expected to increase by 18 percent and the export market by 53 percent in the next 15 years. [24]

Leguminous hay crops do well in rotation with rice. They can be cut several times in a season and, thus, provide cash flow during the growing season. They improve soil structure and fertility. Demand for locally grown hay will increase as shipping costs increase the price of hay imported into the county for cattle and milk production. Green manure crops such as vetch may be grown in winter to protect soil and provide additional nitrogen and organic matter for summer crops.

Channel catfish (Ictalurus punctatus) is well established in the Sacramento area, is doing well, and has ready markets locally and in the San Francisco Bay Area. Catfish could be grown in rotation with rice. The fish crop enriches the soil with nutrients and organic matter from feed and algae. Fish also help interrupt weed and pest cycles.

Catfish rotation with rice is well established in the United States, especially in the South. Catfish are raised on prepared feed and therefore are not likely to injest residual pesticides in the pond food chain.

Mosquito fish (Gambusiaaffinis) is an effective predator and biological control agent for mosquito larvae. One problem associated with paddy rice culture is the production of large crops of mosquitoes. A major limitation to more widespread use of this fish in paddy rice culture is the lack of adequate fish for stocking. Mosquito abatement districts in Sacramento County and throughout the state typically are not able to supply enough fish.

The greatest number of fish are needed in the late spring as paddies are reflooded for the growing season. The limited number of fish stocked, however, are not able to increase their numbers until much later in the season. Ironically, the fish reach their peak near the time when farmers begin lowering paddy water levels as the rice crop matures and dries. The fish, which the farmers produce at virtually no cost, then are lost.

Rice-fish polyculture (different from the channel catfish monoculture) is well established in many countries. [25] Paddies typically have fairly deep ditches where the fish can move as water levels are lowered. Adult fish are harvested for sale, and juveniles are saved for restocking with the next rice crop. Although other countries grow fish for human consumption, the fish crop for California could be mosquito fish. Mosquito fish are used for mosquito abatement and are not known to be a food source for humans.

Collection and culture of this species may prove worthwhile for individual farmers and/or for some specialists. The large number of fish available in the fall could be collected from the deep trenches and wintered in holding ponds. The following spring, fish could be restocked and any excess sold to farmers and mosquito abatement districts. Thus, farmers would be taking greater responsibility for controlling a problem which results from their cropping practices.

Crawfish (Procambarus clarkii) could be a second crop with rice. Adult crawfish are stocked in the late spring after most crop pesticide treatments. They grow and reproduce throughout the summer and burrow into the soil with water drawdown in the fall. After rice is harvested the paddies are reflooded, and the crawfish grow on rice stubble during the fall and winter. Crawfish can be trapped for sale throughout the year, yielding about 1,000 pounds per year. Additional benefits to the farmer are that rice stubble is not burned, rice yields are not affected, and crawfish burrowing acts as a form of tillage.

Under standard application of pesticides the pesticide is not picked up in the crawfish flesh based on on-going tests in Louisiana. If care is taken in the timing of applying pesticides that are not residual there appears to be no problem. If problems exist they soon become evident due to the sensitive nature of the fish, they die. [26]

Biomass energy crops trap solar energy which produces methane rich biogas through anaerobic fermentation. The California Energy Commission has sponsored several projects which show the feasibility of producing energy from the fermentation of animal manures. In New Zealand kale has been grown for biomass feedstock for anaerobic digestion and the production of methane from biogas. Methane provides energy for farm equipment and the generation of electricity. Only about five percent of the farm was used to trap solar energy as biomass. Based on field trials, digester effluent is excellent fertilizer. Farmers using such a system become less dependent on external supplies of fuel and fertilizer energy, the two major expenses in their operating costs.

Organic or biologically grown grains command a premium price, and market demand is increasing as more people become more concerned about nutritional quality and pesticide residues in food. Organic farming conserves soil and water and is less capital intensive, requiring less fuel, fertilizers, and pesticides. Major agricultural universities throughout the country, including UC Davis, are developing research programs to meet farmer's needs for information and techniques. Organic farming conferences are attended by hundreds of interested farmers. The US Fish and Wildlife Service has adopted biofarming on many farms within its refuges and preserves.

There are several organic rice farmers near Chico. On-farm cultural practice research continues as farmers look for ways to produce rice with less dependence on fossil fuel, fertilizers, and pesticides which cut into profits of currently accepted rice culture techniques.

STUDY AREA CONTRIBUTION TO THE COMMUNITY'S AGRICULTURAL BASE

Agriculture in the Study Area contributes to the economy of the community, city, and county in a number of ways. The direct effects include farm employment and income spent and respent in the local economy. The indirect effects include off-farm jobs in other industries which provide goods or services to agriculture and the income expenditures from these job holders. Other sectors of the local economy are affected both directly and indirectly.

Estimating Economic Impacts in California: the Sacramento Basin Input-Output Model, by the Cooperative Extension of the University of California, 1983 (the I-O model) is incorporated in this EIR by reference and provides the data base for on-farm employment, secondary employment, and income impacts of agriculture. The model provides a method of quantifying and comparing changes in regional sales, income, and employment of the sectors immediately affected and the indirect impacts which result as the initial effect is felt in other sectors of the economy. The model is the data source for measuring what is purchased for production of a specified crop and the cost of that item or service. Exhibit L-39 presents the direct requirement in Sacramento County for agricultural production. Direct requirements are the purchases farmers make in Sacramento County as a part of agricultural production activities. Farmers add value to these purchases by producing a crop. This value is shown as the Value Added Per Product. The value added is high (nearly $0.50 per dollar) compared with that in service industries (an average $0.02).

The production cost total is the value in dollars of the total agricultural purchases in the Sacramento Basin. (The boundaries of the basin are those of the hydrological basin used by the Department of Water Resources and are not county lines.)

Some purchases are made outside the basin and are shown as "imported" within California. These imported values for selected crops range between $0.12 to $0.18 of the total needed for production. For every agricultural dollar spent for production, therefore, an average of $0.15 is spent outside the Sacramento region.

Secondary impacts consist of the goods and services supplied to agriculture by other local industrial sectors. These secondary impacts are shown as multipliers in Exhibit L-40. The estimates do not reflect consumer spending multipliers. A method of reference to input/output analyses of Sacramento County was used by the I-O model to illustrate the range of secondary economic impacts which Sacramento County and the Study Area production have on the Sacramento area. The total economic effect is produced by calculating the multiplier based on a weighted average for four crops shown in Exhibit L-41 times the total agricultural production of the Study Area. [27]

According to the I-O model, farm employment in the Study Area was estimated to be one worker for every 100 acres or 112 farm workers. Another estimated

EXHIBIT L-39

Direct Requirements for Selected Crops in the Sacramento Basin 1/

	Corn (dollars)	Wheat (dollars)	Sugar Beets (dollars)	Rice (dollars)	Tomatoes (dollars)
Production cost for goods and service within Sacramento Basin	0.34	0.42	0.40	0.40	0.41
Value added per product	0.48	0.44	0.47	0.46	0.43
Purchases outside the Sacramento Basin	0.18	0.14	0.12	0.14	0.16
Total	1.00	1.00	1.00	1.00	1.00

1/ Exhibit shows dollars of output. For every dollar spent to grow corn, these "outputs" are in these sectors.

Source: The Sacramento Basin Input-Output Model, Cooperative Extension, University of California, 1980.

EXHIBIT L-40

Economic Multipliers for Selected Crops in the Sacramento Basin

Crop	Total Multiplier: Direct, Indirect, and Induced Requirements
Corn	1.7442
Wheat	1.9023
Sugar Beets	1.9213
Rice	1.8627
Tomatoes	1.9218

Source: The Sacramento Basin Input-Output Model, Cooperative Extension, University of California, 1980.

EXHIBIT L-41

Secondary Economic Effects of Agriculture in the County of Sacramento, the City of Sacramento, and the North Natomas Study Area in 1983

	Total Agricultural Production 1/	Agricultural Multiplier	Total Economic Effects of Agriculture	Secondary Economic Effects
County of Sacramento	$167,772,000	1.86	$312,055,920	$144,283,920
City of Sacramento	3,700,000	1.86	6,882,000	3,182,000
North Natomas Study Area	3,392,000	1.86	6,309,000	2,917,000
• Unincorporated Portion of Study Area	1,543,000	1.86	2,870,000	1,327,000
• Incorporated Portion of Study Area	1,849,000	1.86	3,439,000	3,439,000

1/ Values are based on SWA, 1984 estimates; see Exhibit L-19.

66 jobs -- which are direct requirements of agriculture but are provided off farms -- are generated by corn, wheat, sugar beets and rice production.

There also are jobs which are related to agriculture indirectly, including veterinary and horticultural enterprises. Many other businesses, however, also provide goods and services to farms. While secondary impacts have been estimated, it is more difficult to correlate secondary employment due to the diverse economy of the Sacramento region. The additional dollars from the secondary impacts do contribute to jobs, but no estimate has been made of this contribution.

Studies of agricultural infrastructure cited in this EIR indicate that food processors prefer locations convenient to their suppliers. As stated in the Mundie report, the implications for Sacramento County are that as agricultural activity diminishes with continuing urbanization the desirability of Sacramento locations for the food processing industry also will decline. [28]

The agricultural industry which includes processing plants, on-farm work and support services is characterized by seasonal predictability and longer range cycles. The cycles are somewhat predictable, and management of farm operations can adjust for employment needs. If agricultural related employment is exchanged for other kinds of industrial employment, there are uncertainties associated with new industrial activities which are different than the predictable seasonality of agriculture industries. [29] In essence what this means is that the agricultural industry is substantially more stable then other types of industries.

CHANGES IN THE LAND MARKET

The Mundie Report included an analysis of land transactions in the North Natomas area in 1980 and 1981. From the land transaction data, Mundie arrived at three conclusions:

- Average land prices per acre were $5,300 in the Study Area and slightly lower, $5,100 in the surrounding Analysis Area.

- The average prices, while being higher than values that could be supported by typical agricultural rents, were not greatly higher. Purely agricultural land transactions in the range of $5,000 per acre had occurred.

- The average prices are well below the prices quoted in the local press as typical.

The data base used in the Mundie Report was updated for the present EIR. Land transacation data was collected from the Sacramento County Assessor's Property Transfer List for 1984 through March, 1985. Many of the transactions listed in the Assessor's data were transfers of ownership not involving a sale, while other transfers reflected only partial prices (due to assumed financing, etc.) Also, the typical transfers involved multiple parcels. There were 28 transfers where the full land price was reflected. These land sales involved over 5,000 acres of land in the North Natomas area. The land transaction data and the land value analysis were discussed with a County appraiser responsible for the North Natomas area.

Exhibit L-44 summarizes land sales in the Study Area and the Analysis Area in 1984 and 1985.

The updated land sales data leads to different conclusions than were suggested by Mundie.

- The average land price in the entire Analysis Area was over $7,000 per acre, ranging from a per acre value of $3,000 (in the northeast portion of the Analysis Area) to over $60,000 (in the southwest portion of the Study Area).

- Land prices indicated are, on average, well above agricultural land values, which, if anything, have fallen during the last five years due to falling commodity prices and reduction of price supports. The crops grown in the Analysis Area have justified land prices ranging from $1,500 per acre (for typical rice land) to over $4,000 (for good tomato land). However, few agricultural transactions are occurring due to the recent low prices and reduction of federal price support programs. Agricultural transactions that have occurred are generally examples of smaller properties being purchased by larger operations.

- The level of land transactions, their specific pattern, and the land prices paid, especially within the southeastern portion of the Study Area,indicate that investors are anticipating conversion of agricultural land to urban development.

EXHIBIT L-44

Summary of Land Sales, 1984-1985

North Natomas Study Area and Analysis Area

Year of Sale	Property Location	Current Zoning	Sale Price	Size in Acres	Value per Acre
1984	Study Area, Northwest	SPA	$1,250,000	79.1	$15,803
1984	Study Area, Northeast	A20	$299,700	79.9	$3,751
1984	Study Area, Northeast	AOS	$2,134,900	337.4	$6,328
1984	Study Area, Northeast	AOS	$1,380,780	153.4	$9,001
1984	Study Area, Northeast	AOS	$1,079,987	112.1	$9,634
1984	Study Area, Northeast	AOS	$1,378,105	112.8	$12,217
1984	Study Area, Southwest	A10	$310,050	4.7	$65,968
1984	Study Area, Southwest	A20	$1,247,620	113.9	$10,954
1984	Study Area, Southwest	AOS	$648,180	99.7	$6,501
1984	Analysis Area, Northwest	A80	$402,995	157.4	$2,560
1984	Analysis Area, Northwest	A80	$586,466	172.5	$3,400
1984	Analysis Area, Northeast	A80	$1,063,982	131.0	$8,122
1985	Study Area, Northwest	SPA	$381,347	26.7	$14,283
1985	Study Area, Northeast	A80	$8,976,230	934.4	$9,606
1985	Study Area, Northeast	A80	$2,486,245	261.7	$9,500
1985	Study Area, Northeast	A	$242,000	33.1	$7,311
1985	Study Area, Northeast	A	$484,022	66.3	$7,300
1985	Study Area, Northeast	A80	$285,998	18.3	$15,628
1985	Study Area, Southwest	A80	$2,494,778	62.9	$39,663
1985	Analysis Area, Northwest	A20	$2,385,428	468.7	$5,089
1985	Analysis Area, Northwest	SPA	$665,728	104.0	$6,401
1985	Analysis Area, Northwest	A80	$1,449,962	312.2	$4,644
1985	Analysis Area, Northwest	SPA	$522,165	149.2	$3,500
1985	Analysis Area, Northeast	A80	$300,000	10.0	$30,000
1985	Analysis Area, Northeast	A80	$30,000	3.0	$10,000
1985	Analysis Area, Northeast	A80	$178,200	59.5	$2,995
1985	Analysis Area, Northeast	A80	$5,262,070	1,057.5	$4,976
1985	Analysis Area, Southwest	A80	$843,016	74.6	$11,300
			$38,769,954	5,196.0	$7,462

Source: Economic and Planning Systems

L. AGRICULTURAL LANDS -- THE IMPACTS

The conversion of large tracts of agricultural land as proposed by all alternatives would result in significant impacts on agriculture in Sacramento County. All alternatives would result in conversion of significant amounts of productive acreage in the Study Area to urban use although Alternative A would convert considerabley less acreage than Alternatives B, C, D or E. Remaining agricultural lands in the Study Area and in the surrounding Analysis Area would be subject to increasing operational conflicts with the new urban uses. Loss of production due to the conversion of agricultural land and due to land use conflicts would reduce agricultural income in Sacramento County -- both from a loss of direct sales of farm products and the secondary economic effects of these direct sales.

The following section quantifies these impacts and addresses their significance for each alternative. This analysis discusses the potential impacts on agriculture according to four general impact categories:

- Conversion of agricultural land.
- Loss of productivity.
- Conflicts with surrounding agriculture.
- Economic impacts.

The potential agricultural impacts of the alternatives were estimated on the basis of a specially constructed geographic data base model. The geographic data base model was based upon the LESA system (described in Appendix L-6) but added the ability to prepare comparisons of alternatives and produce summary reports and analyses.

The North Natomas Analysis Area (bounded on the east by the East Main Drainage Canal, on the south by Interstate 80, on the west by the Sacramento River, and on the north by the Sutter County line) was divided into geographic sub-areas to aid data gathering, processing, and analysis. Two sub-area systems were used: a quadrant system which divides the Analysis Area on a north-south axis into four large areas and an 160-acre (quarter section) grid cell system which corresponds to the existing section lines (see Exhibit L-24). These geographic areas form the quantitative basis for the geographic data base and the discussion of potential impacts.

The grid cell system was used to complete the LESA scoring and to construct the geographic data base.

The quadrant system mainly was created for interpretive purposes: the size of the Analysis Area and its diversity make such an approach very useful for summarizing various impact categories.

The distinction between the Study Area and the Analysis Area is also made because the Study Area is the "project boundary". It is important to document impacts within the Study Area versus those which may occur in the surrounding portions of the Analysis Area.

The agricultural impact analysis is summarized in Exhibit L-47. Each alternative would result in a significant loss of agricultural land. As shown of Exhibit L-47, however, the impacts vary substantially among alternatives, ranging from least to greatest from Alternatives A to E. Impacts of each alternative are summarized below.

Alternative A

Alternative A, the continuation of existing policies in the Study Area, would result in conversion of nearly 4,100 acres (36 percent) of productive agricultural land in North Natomas to urban use. Most of the land which would be converted is located in the SPA adjacent to Metro Airport (in the Northwest Quadrant of the Analysis Area) where approximately 2,000 acres are designated for industrial use and 1,900 acres are designated for expansion of the airport. One hundred and sixty (160) acres also would be converted to industrial use in the Southeast Quadrant of the Analysis Area.

Alternative B

Alternative B would result in development of nearly 6,700 acres (59 percent) of productive agricultural land in the Study Area. Most of the agricultural land to be converted (4,500 acres) is located in the Northeast and Southeast Quadrants. The Airport expansion would occur in the Northwest Quadrant, in addition to approximately 250 acres of airport-related industrial uses. No urban development would occur in the Southwest Quadrant.

Alternative C

Alternative C would result in a conversion of over 9,600 acres (85 percent) of productive agricultural land throughout the Study Area. The Airport

EXHIBIT L-47

Summary of Agricultural Impacts

Impact Category	Community Plan Alternative				
	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
1. Conversion of Agricultural Land (Acres)	4,100	6,700	9,630	9,630	11,240
Percent Loss of Agricultural Land in Study Area	36%	59%	85%	85%	99%
2. Loss of Productivity (Tons)					
• Rice	13,600	22,900	31,000	31,000	37,600
• Corn	0	1,100	1,100	1,100	1,100
• Wheat	1,400	1,900	3,200	3,200	3,200
• Tomatoes	0	8,100	12,500	12,500	12,500
• Sugar Beets	9,600	13,600	20,800	20,800	20,800
• Alfalfa	0	870	870	870	870
3. LESA Evaluation					
• Lost Site Potential Index (Total in Analysis Area is 6,220)	2,060	3,700	5,302	5,302	6,120
• Lost Land Evaluation Score (Total in Analysis Area is 13,241)	4,131	8,260	11,409	11,435	13,060
4. Loss of Economic Activity					
• Loss of Direct Income	$2,433,088	$4,588,248	$6,384,864	$6,384,864	$7,301,024
• Loss of Induced Income	$4,525,544	$8,534,141	$11,875,847	$11,875,847	$13,579,905
Total Economic Loss	$6,958,632	$13,122,389	$18,260,711	$18,260,711	$20,880,929

Source: Economic and Planning Systems and Nichols-Berman

expansion would occur in the Northwest Quadrant, in addition to approximately 500 acres of airport-related industrial use.

Alternative D

Alternative D would be almost identical to Alternative C in terms of the amount and location of agricultural land converted to urban use converting 9,630 acres (85 percent) of productive agricultural land in the Study Area.

Alternative E

Alternative E would result in the conversion of over 11,000 acres (99 percent) of productive agricultural land throughout the Study Area (similar to Alternatives C and D). The Airport expansion would occur in the Northwest Quadrant, in addition to approximately 2,000 acres of airport-related industrial uses.

CONVERSION OF AGRICULTURAL LANDS

The conversion of agricultural land leads directly to a loss of potential productivity and related impacts.

Because agricultural soils, particularly prime soils, are a finite resource, any conversion can be considered as an adverse impact. The measure of significance for agricultural land conversion is the quality and absolute quantity of land converted. The significance of the conversion also can be defined by comparing the extent of those lands converted to remaining agricultural acreage in the larger, surrounding areas, such as the Analysis Area. Although all the alternatives indicate existing large tracts of agricultural land as urban, the alternatives differ in the extent and location of these proposed urban areas.

The measurements of soil acreage by soil classification unit were based upon SCS maps which reflect existing conditions in the Analysis Area. Acreage of each soil unit on these maps was measured and recorded. Lands converted to urban uses under each alternative (as shown on the alternative maps prepared by SWA in December, 1984) were measured and deducted from the base case measurements. Appendix L-7 documents how soil acreages were determined.

Exhibit L-50 shows the quantity of agricultural land to be converted in each quadrant under each alternative and how much land is considered "prime" and "non-prime" by the SCS.

Exhibit L-51 compares the amount of agricultural land to be converted in the Study Area under each alternative with the total amount of agricultual land in the Study Area and the Analysis Area. All of the Alternatives would result in a significant conversion of agricultural soils in the Study Area, ranging from 36 percent (Alternative A) to 99 percent (Alternative E).

Exhibit L-52 shows the quantity of agricultural land proposed to be converted by the five individual applications for the Study Area.

Only agricultural land which is designated for urban use by the alternatives was quantified. Depending upon future land use policies of the City and Sacramento County, however, it is possible that surrounding lands also could be subject to urbanization or otherwise be removed from production.

LOSS OF AGRICULTURAL PRODUCTIVITY

The conversion of agricultural land to urban uses would lead to a direct reduction in potential productivity of those crops historically grown in the Study Area. Precise definition of the impact of urban development on potential productivity of agricultural land is difficult given the fact that a variety of crops can be grown upon most of the soils. Cropping patterns have been relatively stable in the North Natomas area, however, principally due to the predominance of soils well suited for rice production.

It also is difficult to estimate potential productivity because a large amount of land was out of production in 1983 (the latest year for crop reports) due to government subsidy programs. These programs were instituted to address oversupply and low prices in commodity grains such as rice and wheat. With nearly 50 percent of the land in the Study Area out of production, recent production statistics greatly understate actual productive capacity.

While the crops grown on any particular parcel may vary from year to year and overall production may vary due to a portion of land not being in production, over time the balance of production has remained relatively constant, with rice being the dominant crop. The impact analysis considered the full productive potential of the Study Area, using existing or historical cropping patterns.

EXHIBIT L-50

Agricultural Soils Converted to Urban Uses

Community Plan Alternative	Total Acres	Analysis Area Quadrant				
		Northwest	Northeast	Southeast	Southwest	TOTAL
Alternative A						
Prime Land	8,750	2,760	0	130	0	2,890
Non Prime Land	2,530	1,010	140	30	0	1,180
Total	11,280	3,800	140	160	0	4,100
Alternative B						
Prime Land	8,750	1,600	2,260	1,260	0	5,120
Non Prime Land	2,530	640	640	300	0	1,580
Total	11,280	2,240	2,900	1,560	0	6,700
Alternative C						
Prime Land	8,750	1,800	3,030	1,260	1,470	7,560
Non Prime Land	2,530	670	810	300	290	2,070
Total	11,280	2,470	3,840	1,560	1,760	9,630
Alternative D						
Prime Land	8,750	1,800	3,030	1,260	1,470	7,560
Non Prime Land	2,530	670	810	300	290	2,070
Total	11,280	2,470	3,840	1,560	1,760	9,630
Alternative E						
Prime Land	8,750	2,760	3,030	1,260	1,660	8,710
Non Prime Land	2,530	1,040	810	300	380	2,530
Total	11,280	3,800	3,840	1,560	2,040	11,240

Source: Economic and Planning Systems and Nichols-Berman

EXHIBIT L-51

Percentage of Agricultural Soil Converted

Alternative	Agricultural Soils Converted	Percentage of Study Area Total Arable Acreage Total Acres = 11,300	Percentage of Analysis Area Total Arable Acreage Total Acres = 27,000 1/
A	4,100	36%	15%
B	6,700	59%	25%
C	9,630	85%	36%
D	9,630	85%	36%
E	11,240	99%	42%

Source: Economic and Planning Systems and Nichols-Berman

1/ Analysis Area acreage includes Study Area acreage.

EXHIBIT L-52

Agricultural Soils Converted to Urban Uses by the Five Individual Applications

	Gateway Point	Schumacher Iverson	Reid Ketscher	Payne	Fong Ranch
Total Project Acres	1,410	554	257	323	118
Prime Land (acres)	220	136	111	0	0
Non-Prime Land (acres)	1,190	418	146	323	118

Source: Nichols • Berman

The use of the current crop patterns as a basis for productivity impacts does not address the long-term potential of the North Natomas area to produce other crops. There also is the possibility that agricultural productivity could be enhanced by applying techniques which improve yields or reduce production costs of traditional crops as well as by replacing these crops with higher value crops. (Such agricultural enhancement techniques are described above in the setting section.)

The impacts on productivity are expressed in terms of potential crop yields which would be lost. Potential crop yields were calculated by establishing estimates of potential soil productivity. The soil potential index (SPI) score, developed in the LESA evaluation, was used for this purpose. The SPI value is a percentage of optimum productivity, assuming moderate to best management practices on a given soil unit (see Appendix L-6). The SPI values for those quarter sections which would be developed under each alternative were recorded and summed. The SPI scores then were applied to average annual productivity estimates of given crops to estimate potential productivity loss. The average annual productivity estimates were derived from SCS data (see Appendix L-4).

The estimates of potential productivity are presented for comparative purposes. Actual productivity per acre varies from year-to-year due to climatic conditions, government subsidy programs (e.g. PIK), and commodity prices, among others factors.

Exhibit L-54 shows the loss of potential productivity for lands within the Study Area under each of the alternatives. The impacts on productivity follow directly from the conversion of agricultural land. No estimate is made for potentially lost productivity in the surrounding Analysis Area due to conflicts resulting from development.

Alternative A

Alternative A would result in a loss of rice, wheat, and sugar beet production from the Northwest Quadrant near Metro Airport.

Alternative B

Alternative B would result in the loss of rice, corn, wheat, tomato, and sugar beet production, primarily in the Northeast and Southeast Quadrants.

EXHIBIT L-54

Summary -- Loss of Productive Capacity
(annual production in tons)

Indicator Crop	Alternative A			Alternative B			Alternative C		
	Total			Total			Total		
	Basecase Production	Alternative Production	Change (Loss of Productivity)	Basecase Production	Alternative Production	Change (Loss of Productivity)	Basecase Productiion	Alternative Production	Change (Loss of Productivity)
Rice	37,552	23,936	-13,616	37,552	14,656	-22,896	37,552	6,544	-31,008
Corn	1,056	1,056	0	1,056	0	-1,056	1,056	0	-1,056
Wheat	3,216	1,786	-1,430	3,216	1,306	-1,910	3,216	0	-3,216
Tomatoes	17,024	17,024	0	17,024	8,968	-8,056	17,024	4,480	-12,544
Alfalfa	870	870	0	870	0	-870	870	0	-870
Sugar Beets	20,800	11,200	-9,600	20,800	7,200	-13,600	20,800	0	-20,800

EXHIBIT L-54 — CONTINUED

Summary -- Loss of Productive Capacity
(annual production in tons)

Indicator Crop	Alternative D			Alternative E		
	Total			Total		
	Basecase Production	Alternative Production	Change (Loss of Productivity)	Basecase Production	Alternative Production	Change (Loss of Productivity)
Rice	37,552	6,544	-31,008	37,552	0	-37,552
Corn	1,056	0	-1,056	1,056	0	-1,056
Wheat	3,216	0	-3,216	3,216	0	-3,216
Tomatoes	17,024	4,480	-12,544	17,024	4,480	-12,544
Alfalfa	870	0	-870	870	0	-870
Sugar Beets	20,800	0	-20,800	20,800	0	-20,800

Source: Economic and Planning Systems and Nichols-Berman

Potential productivity in the Southwest Quadrant would not be reduced because no conversion would occur in this area.

Alternatives C, D and E

Alternatives C, D, and E would result in the loss of rice, corn, wheat, tomato, and sugar beet production in all quadrants of the Study Area. Alternatives C and D would have similar impacts upon potential productivity. The difference in production between Alternatives C and D and Alternative E results from the greater amount of land in the Northwest Quadrant to be converted to urban use under Alternative E.

CONFLICTS WITH SURROUNDING AGRICULTURE

Many aspects of agricultural production are incompatible with urban land use. Agricultural operations create hazards and nuisances for urban residences and businesses. Conversely, urban land uses and the associated population create operational difficulties for agriculture. Hazards and nuisances potentially created by agricultural operations in the Study Area include:

- Exposure to pesticide and herbicide applications.
- Exposure to smoke (from burning) and dust (from soil preparation).
- Exposure to noise (from machinery and trucks).
- Hazards to children (irrigation channels and ditches).
- Exposure to mosquitoes breeding in flooded fields.

These potential nuisances and other aspects of urban land uses, including rising land values, can affect agriculture negatively. Negative effects of urban uses on agriculture in the North Natomas area would include:

- Interference with agricultural operations (e.g. limitations on pecticide/herbicide applications, burning, operational hours, etc.).

- Tresspassing, vandalism, and theft due to the proximity of urban uses to agricultural areas.

- Land value impacts due to proximity to urban areas which tends to increase land value in anticipation of future urban development. This increase reduces the probability that farmers would make long-term investments to maintain the productive potential of the land.

Conflicts between agriculture and urban uses mainly would affect the agricultural areas which would remain in the Study Area and in the surrounding Analysis Area. These conflicts are discussed below.

Because of the large acreage of proposed urban areas under the alternatives, agriculture/urban conflicts likely would result in significant adverse impacts on remaining agriculture. Alternative A would not add many new residents to the Study Area. Alternatives B, C, D, and E would add substantial numbers of residents to the Study Area. The efforts of future urban residents to reduce potential hazards and nuisances emanating from surrounding agricultural areas could become a major constraint on agricultural operations. These constraints could result in increasing operational costs, phasing out of crops, moving operations which create nuisances for adjacent urban areas, and, ultimately, removing lands from production. For example, urban residents may be disturbed by smoke from rice stubble burning done annually as a necessary part of production operations.

Potential conflicts between agriculture and urban uses were measured through development of the impact model based upon the LESA system. (A description of the LESA system and the impact model is provided in Appendix L-6). The various conflicts between agricultural and urban land uses discussed above were reflected in the LESA site evaluation scoring process. The impact model was use to create LESA scores for lands remaining in agricultural use surrounding the proposed developed areas under each alternative.

Comparing the LESA scores with existing (base case) conditions indicates the level of conflict resulting from each alternative. Comparing the alternatives provides a relative measure of impacts.

A summary of the potential conflict issues affecting each quadrant of the Analysis Area under each of the alternatives also was completed by considering the results of the LESA Impact Model and other available data.

Exhibit L-58 summarizes the results of the LESA Impact Model. Each alternative is presented showing the number of quarter sections which would be converted and the number which would be in conflict, the lost SPI values due to conversion, and the reduction in the Site Evaluation Scores due to both conversion and conflicts.

Exhibit L-58 indicates that all alternatives (including Alternative A even though it would be considerably less than Alternatives B, C, D or E) would

EXHIBIT L-58

Summary of LESA Evaluation

	QUADRANT				TOTAL
	NW	NE	SE	SW	
BASECASE (Study Area)					
Total Number of Cells	32	26	18	15	91
Currently Developed	8	2	6	1	17
Cells Remaining	24	24	12	14	74
• Total Site Potential Index	2000	2076	991	1153	6220
• Total Site Evaluation Score	3905	4743	2009	2584	13241
ALTERNATIVE A					
Number of Cells Converted	24	0	1	0	25
Number of Cells in Conflict					
Study Area	0	1	9	4	14
Analysis Area	22	0	0	12	34
Lost Site Potential Index (1)	2000	0	60	0	2060
Lost Site Evaluation Score (Study Area) (2)					
Due to Conversion	3905	0	176	0	4081
Due to Conflicts	0	5	31	14	50
TOTAL	3905	5	207	14	4131
Lost Site Evaluation Score (Analysis Area)					
Due to Conversion	0	0	0	0	0
Due to Conflicts	373	0	0	103	476
TOTAL	373	0	0	103	476
ALTERNATIVE B					
Number of Cells Converted	14	18	12	0	44
Number of Cells in Conflict					
Study Area	7	6	0	14	27
Analysis Area	9	6	0	13	28
Lost Site Potential Index	1138	1571	991	0	3700
Lost Site Evaluation Score (Study Area)					
Due to Conversion	2252	3502	2009	0	7763
Due to Conflicts	17	221	0	259	497
TOTAL	2269	3723	2009	259	8260
Lost Site Evaluation Score (Analysis Area)					
Due to Conversion	0	0	0	0	0
Due to Conflicts	1[illegible]	155	0	70	334
TOTAL		155	0	70	334

EXHIBIT L-5 - CONTINUED

Summary of LESA Evaluation

	QUADRANT				TOTAL
	NW	NE	SE	SW	
BASECASE (Study Area)					
Total Number of Cells	32	26	18	15	91
Currently Developed	8	2	6	1	17
Cells Remaining	24	24	12	14	74
• Total Site Potential Index	2000	2076	991	1153	6220
• Total Site Evaluation Score	3905	4743	2009	2584	13241
ALTERNATIVE C					
Number of Cells Converted	16	24	12	11	63
Number of Cells in Conflict					
Study Area	7	0	0	3	10
Analysis Area	11	12	0	22	45
Lost Site Potential Index	1314	2076	991	921	5302
Lost Site Evaluation Score (Study Area)					
Due to Conversion	2545	4743	2009	2003	11300
Due to Conflicts	38	0	0	71	109
TOTAL	2583	4743	2009	2074	11409
Lost Site Evaluation Score (Analysis Area)					
Due to Conversion	0	0	0	0	0
Due to Conflicts	217	439	0	325	981
TOTAL	217	439	0	325	981
ALTERNATIVE D					
Number of Cells Converted	16	24	12	11	63
Number of Cells in Conflict					
Planning Area	7	0	0	3	10
Study Area	11	12	0	17	40
Lost Site Potential Index	1314	2076	991	921	5302
Lost Site Evaluation Score (Study Area)					
Due to Conversion	2545	4743	2009	2003	11300
Due to Conflicts	68	0	0	67	135
TOTAL	2613	4743	2009	2070	12243
Lost Site Evaluation Score (Analysis Area)					
Due to Conversion	0	0	0	0	0
Due to Conflicts	253	439	0	251	943
TOTAL	253	439	0	251	943

EXHIBIT L-58 — CONTINUED

Summary of LESA Evaluation

	QUADRANT				TOTAL
	NW	NE	SE	SW	
BASECASE (Study Area)					
Total Number of Cells	32	26	18	15	91
Currently Developed	8	2	6	1	17
Cells Remaining	24	24	12	14	74
• Total Site Potential Index	2000	2076	991	1153	6220
• Total Site Evaluation Score	3905	4743	2009	2584	13241
ALTERNATIVE E					
Number of Cells Converted	24	24	12	13	73
Number of Cells in Conflict					
Study Area	0	0	0	1	1
Analysis Area	22	12	0	20	54
Lost Site Potential Index	2000	2076	991	1053	6120
Lost Site Evaluation Score (Study Area)					
Due to Conversion	3905	4743	2009	2387	13044
Due to Conflicts	0	0	0	16	16
TOTAL	3905	4743	2009	2403	13060
Lost Site Evaluation Score (Analysis Area)					
Due to Conversion	0	0	0	0	0
Due to Conflicts	567	439	0	313	1319
TOTAL	567	439	0	313	1319

(1) Lost Site Potential Index is the summed soil potential index from all quarter sections being converted.
(2) Lost Site Evaluation Score is the summed land evaluation scores of those quarter sections developed plus the changed score of quarter sections in conflict with the converted quarter sections.

Source: Economic and Planning Systems and Nichols-Berman

have a significant impact upon agriculture, both within the Study Area and in the surrounding Analysis Area.

Alternative A which would convert the least amount of agricultural land could create operational conflicts with 7,500 acres of agricultural land, although the level of these conflicts would be relatively low due to the predominately industrial uses proposed in Alternative A.

Alternative B could create operational conflicts for the 8,300 acres of remaining agricultural land. The fact that agricultural land conversion would not occur in the Southwest Quadrant (west of I-5) would reduce the significance of the potential conflicts in this area. The proposed buffer area on the northern boundary (Elkhorn Boulevard) of the proposed development area also could reduce potential conflicts although probably not to a less than significant impact.

Alternatives C, D, and E also could create operational conflicts with 8,800 acres of remaining agricultural land, although the relative impact on these lands likely would be higher due to the proposed land use configurations, the greater perimeter area, and the extension of development into the Southwest Quadrant.

A measure of the relative level of conflicts between the Alternatives is provided by the LESA evaluation (presented on Exhibit L-62). The LESA score represents lost "site evaluation score" due to conflicts with future urban uses defined under each Alternative. The higher the number the more significant the impact. Lost site evaluation scores for the alternatives in both the Study Area and the Analysis Area are as follows:

Alternative A	526
Alternative B	831
Alternative C	1,090
Alternative D	1,078
Alternative E	1,335

Exhibit L-62 through Exhibit L-70 summarize conflicts which could occur between agriculture and urban land uses under each alternative.

EXHIBIT L-62

Summary of Agricultural Conflicts upon Urban Land Use -- Alternative A

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Pesticide and Herbicide Application	Development of 2,000 acres of new industrial and airport-related uses will create a 5 mile border with agriculture, which could expose employees to pesticides and herbicides.	No change from existing conditions.	Development of 130 acres of new industrial uses within the area, could expose new employees to pesticides and herbicides.	40 acre buildout of a mobile home park could expose new residents to pesticides and herbicides applied on adjacent agricultural land.
2. Burning and Dust Resulting from Agricultural Operations	2,000 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	No change from existing conditions.	Industrial employees would be exposed to smoke and dust from surrounding agricultural uses.	40 acre buildout of a mobile home park could expose new residents to smoke and dust emanating from adjacent agricultural land.
3. Noise	Noise from agricultural operations will not signicantly affect industrial uses.	No change from existing conditions.	Noise from agricultural operations will not signicantly affect industrial uses.	40 acre buildout of a mobile home park could expose new residents to noise emanating from adjacent agricultural land.
4. Hazards	No change from existing conditions.	No change from existing conditions.	No change from existing conditions.	New residents, particularly children, may be attracted to ditches and canals.
5. Mosquitoes	Industrial business operating hours and indoor location of employee may limit exposure to mosquitoes.	No change from existing conditions.	Industrial business operating hours and indoor location of employees can limit exposure to mosquitoes.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.

EXHIBIT L-62 — CONTINUED

Summary of Urban Conflicts upon Agricultural Land Use -- Alternative A

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Tresspassing Vandalism, and Theft.	Development of 2,000 acres of new industrial and airport-related uses will create a 5 mile border with agriculture, which could lead to some increase in trespassing, vandalism, and theft.	No change from existing conditions.	Development of 130 acres of currently vacant industrially zoned land could lead to a small increase in tresspassing, vandalism, and theft.	A 40 acre buildout of a mobile home park could lead to a small increase in tresspassing, vandalism, and theft on surrounding agricultural lands.
2. Interference with Agricultural Operations	Industrial uses, especially if properly located on the site, should not interfere greatly with surrounding agricultural operations.	No change from existing conditions.	Industrial uses, especially if properly located on the site, should not interfere greatly with surrounding agricultural operations.	A 40 acre buildout of a mobile home park could lead to a small increase in interference with surrounding agricultural operations
3. Land Value and Long-Term Agricultural Investment.	No change from existing conditions.	No change from existing conditions.	No change from existing conditions.	No change from existing conditions.

EXHIBIT L-64

Summary of Agricultural Conflicts upon Urban Land Use -- Alternative B

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Pesticide and Herbicide Application	Development of 250 acres of new industrial uses within the SPA, creating a 3/4 mile border with agriculture, could expose employees to pesticides and herbicides.	A 3 mile border between agriculture and urban uses would be created within the Planning Area. The proposed buffer would reduce exposure of residents to pesticides and herbicides.	Development in the Northeast Quadrant would buffer this area from pesticide/herbicide applications on surrounding agricultural lands.	40 acre buildout of a mobile home park could expose new residents to pesticides and herbicides applied on adjacent agricultural land.
2. Burning and Dust Resulting from Agricultural Operations	250 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	3,000 acres of new urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,600 acres of new urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	40 acre buildout of a mobile home park could expose new residents to smoke and dust emanating from adjacent agricultural land.
3. Noise	Noise from agricultural operations will not signicantly affect industrial uses.	Residents along the 3 mile border with agricultural use would be subjected to noise emanating from agricultural operations.	Development in the Northeast Quadrant would buffer this area from noise emanating from surrounding agricultural lands.	40 acre buildout of a mobile home park could expose new residents to noise emanating from adjacent agricultural land.
4. Hazards	No change from existing conditions.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals.
5. Mosquitoes	Industrial business operating hours and indoor location of employees could limit exposure to mosquitoes.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.

EXHIBIT L-64 — CONTINUED

Summary of Urban Conflicts upon Agricultural Land Use -- Alternative B

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Tresspassing Vandalism, and Theft.	Development of 250 acres of new industrial and airport-related uses would create a 3/4 mile border with agriculture, which could lead to some increase in trespassing, vandalism, and theft.	A 3 mile border between agriculture and urban uses would be created within the Planning Area. The proposed buffer could limit access to agricultural area, but tresspassing, vandalism, and theft could increase.	No agriculture remains in this Quadrant.	A 40 acre buildout of a mobile home park could lead to a small increase in tresspassing, vandalism, and theft on surrounding agricultural lands.
2. Interference with Agricultural Operations	Industrial uses, especially if properly located on the site, should not interfere greatly with surrounding agricultural operations.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	A 40 acre buildout of a mobile home park could lead to a small increase in interference with surrounding agricultural operations
3. Land Value and Long-Term Agricultural Investment.	No change from existing conditions.	Agricultural land, particularly the 1,000 acres remaining in the Planning Area, would be subject to intense pressure to convert unless enforceable restrictions on use are applied.	No agriculture remains in this Quadrant.	Agricultural land west of I-5 would be subject to more intense pressure to convert to urban uses unless enforceable restrictions preserving agriculture are applied.

EXHIBIT L-66

Summary of Agricultural Conflicts upon Urban Land Use -- Alternative C

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Pesticide and Herbicide Application	Development of 500 acres of new industrial uses within the SPA, creating a 2 mile border with agriculture, could expose employees to pesticides and herbicides.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer would reduce exposure of residents to pesticides and herbicides.	Development in the Northeast Quadrant would buffer this area from pesticide/herbicide applications on surrounding agricultural lands.	1,900 acres of new development would create a 6 mile border with agricultural land. Length and complex shape of the interface will make mitigation difficult, resulting in potential exposure of residents to pesticides and herbicides.
2. Burning and Dust Resulting from Agricultural Operations	500 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	3,900 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,600 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,900 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.
3. Noise	Noise from agricultural operations will not signicantly effect industrial uses.	Residents along the 3 mile border would be subjected to noise emanating from agricultural operations.	Development in the Northeast Quadrant would buffer this area from noise emanating from surrounding agricultural lands.	Residents along the 6 mile interface would be subjected to noise emanating from agricultural operations.
4. Hazards	No change from existing conditions.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals.
5. Mosquitoes	Industrial business operating hours and indoor location of employees may limit exposure to mosquitoes.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.

EXHIBIT L-66 — CONTINUED

Summary of Urban Conflicts upon Agricultural Land Use -- Alternative C

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Trespassing Vandalism, and Theft.	Development of 500 acres of new industrial uses within the SPA, creating a 1 mile border with agriculture, could lead to a minor increase in trespassing, vandalism, and theft.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer could limit access to agricultural area, but trespassing, vandalism, and theft could increase.	No agriculture remains in this Quadrant.	1,900 acres of new development would create a 6 mile border with agricultural land. Access to agricultural land could lead to a significant increase in trespassing, vandalism, and theft on surrounding agricultural lands.
2. Interference with Agricultural Operations	Industrial uses, especially if properly located on the site, should not interfere greatly with surrounding agricultural operations.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.
3. Land Value and Long-Term Agricultural Investment.	No change from existing conditions.	Agricultural land north of the Planning Area Area would be subject to intense pressure to convert unless enforceable restrictions on use are applied.	No agriculture remains in this Quadrant.	Remaining agricultural land west of I-5 would be subject to intense pressure to convert unless enforceable restrictions on use are applied.

EXHIBIT L-68

Summary of Agricultural Conflicts upon Urban Land Use -- Alternative D

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Pesticide and Herbicide Application	Development of 500 acres of new industrial uses within the SPA, creating a 2 mile border with agriculture, could expose employees to pesticides and herbicides.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer would reduce exposure of residents to pesticides and herbicides.	Development in the Northeast Quadrant would buffer this area from pesticide/herbicide applications on surrounding agricultural lands.	1,800 acres of new development would create a 6 mile border with agricultural land. Length and complex shape of the interface will make mitigation difficult, resulting in potential exposure of residents to pesticides and herbicides.
2. Burning and Dust Resulting from Agricultural Operations	500 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	4,000 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,600 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,800 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.
3. Noise	Noise from agricultural operations will not signicantly affect industrial uses.	Residents along the 3 mile border would be subjected to noise emanating from agricultural operations.	Development in the Northeast Quadrant would buffer this area from noise emanating from surrounding agricultural lands.	Residents along the 6 mile border would be subjected to noise emanating from agricultural operations.
4. Hazards	No change from existing conditions.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals.
5. Mosquitoes	Industrial business operating hours and indoor location of employees may limit exposure to mosquitoes.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.

EXHIBIT L-68 — CONTINUED

Summary of Urban Conflicts upon Agricultural Land Use -- Alternative D

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Tresspassing Vandalism, and Theft.	Development of 500 acres of new industrial uses within the SPA, creating a 2 mile border with agriculture, could lead to a minor increase in trespassing, vandalism, and theft.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer could limit access to agricultural area, but tresspassing, vandalism, and theft could increase.	No agriculture remains in this Quadrant.	1,900 acres of new development would create a 6 mile border with agricultural land. Access to agricultural land could lead to a significant increase in tresspassing, vandalism, and theft on surrounding agricultural lands.
2. Interference with Agricultural Operations	Industrial uses, especially if properly located on the site, should not interfere greatly with surrounding agricultural operations.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/ herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.
3. Land Value and Long-Term Agricultural Investment.	No change from existing conditions.	Agricultural land north of the Planning Area Area would be subject to intense pressure to convert unless enforceable restrictions on use are applied.	No agriculture remains in this Quadrant.	Remaining agricultural land west of the Planning Area would be subject to intense pressure to convert due to the adjacent development and the new roads planned between the Planning Area and the River.

EXHIBIT L-70

Summary of Agricultural Conflicts upon Urban Land Use -- Alternative E

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Pesticide and Herbicide Application	Development of 2,000 acres of new industrial uses within the SPA, creating a 5 mile border with agriculture, could expose employees to pesticides and herbicides.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer would reduce exposure of residents to pesticides and herbicides.	Development in the Northeast Quadrant would buffer this area from pesticide/herbicide applications on surrounding agricultural lands.	1,800 acres of new development would create a 6 mile border with agricultural land. Length and complex shape of the interface will make mitigation difficult, resulting in potential exposure of residents to pesticides and herbicides.
2. Burning and Dust Resulting from Agricultural Operations	2,000 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	3,900 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,600 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.	1,800 acres of urban development would be exposed to smoke and dust emanating from adjacent agricultural areas.
3. Noise	Noise from agricultural operations will not signicantly effect industrial uses.	Residents along the 3 mile border would be subjected to noise emanating from agricultural operations.	Development in the Northeast Quadrant would buffer this area from noise emanating from surrounding agricultural lands.	Residents along the 6 mile border would be subjected to noise emanating from agricultural operations.
4. Hazards	No change from existing conditions.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals. Buffer could limit access to these hazards.	New residents, particularly children, may be attracted to ditches and canals.
5. Mosquitoes	Industrial business operating hours and indoor location of employees may limit exposure to mosquitoes.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.	New residents would be exposed to mosquitoes emanating from surrounding rice fields, ditches and canals.

EXHIBIT L-70 — CONTINUED

Summary of Urban Conflicts upon Agricultural Land Use -- Alternative E

Conflict Category	Study Area Quadrant			
	Northwest	Northeast	Southeast	Southwest
1. Tresspassing Vandalism, and Theft.	Development of 2,000 acres of new industrial uses within the SPA, creating a 5 mile border with agriculture, could expose employees to pesticides and herbicides.	A 3 mile border between agriculture and urban uses would be created on the edge of the Planning Area. The proposed buffer could limit access to agricultural area, but tresspassing, vandalism, and theft could increase.	No agriculture remains in this Quadrant.	1,800 acres of new development would create a 6 mile border with agricultural land. Access to agricultural land could lead to a significant increase in tresspassing, vandalism, and theft on surrounding agriculutral lands.
2. Interference with Agricultural Operations	2,000 acres of new industrial uses would be exposed to smoke and dust from surrounding agricultural uses.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/ herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.	Urban residents in the area could seek to restrict agricultural operations including burning, hours of operation and pesticide/herbicide application.
3. Land Value and Long-Term Agricultural Investment.	Agricultural land between SPA and EL Centro Road would be subject to intense pressure to urbanize.	Agricultural land north of the Planning Area Area would be subject to intense pressure to convert unless enforceable restrictions on use are applied.	No agriculture remains in this Quadrant.	Remaining agricultural land west of the Planning Area would be subject to intense pressure to covert due to the adjacent development and the new roads planned between the Planning Area and the River.

ECONOMIC IMPACTS

Negative impacts may occur on the local agricultural economy due to the conversion of agricultural land to urban uses. Loss of direct income due to reduced agricultural production could have a variety of effects including:

- Loss of basic income and the "multiplier effect" of this income in the local economy.
- Loss of agricultural employment.
- Reduced demand for agricultural processing and service industries. If demand for these industries falls below an adequate level, businesses or facilities may go out of business or relocate, making access to processing and services more difficult for those lands remaining in production.

The significance of these economic impacts would depend on the size of the area removed from production relative to the overall agricultural economy of the immediate area, the county, and the surrounding region.

The economic impact analysis was based upon the estimates of reduced agricultural production previously computed (Exhibit L-54). Production values were applied in a series of calculations to estimate economic impacts. Economic impact calculations used data contained in the publication, Estimating Economic Impacts in California: The Sacramento Basin Input-Output Model, published by the Cooperative Extension, University of California.

Exhibit L-73 shows the estimated dollar value of annual crop production lost in the Study Area due to the alternatives.

Exhibit L-74 shows the estimated economic impact of the agricultural production lost under each of the alternatives on the regional economy, including both the direct income resulting from sale of agricultural commodities and the economic activity that these sales induce in the local economy -- "the multiplier effect".

EXHIBIT L-73

Lost Dollar Value of Potential Agricultural Productivity

Indicator Crop	Unit Price/Ton	North Natomas Community Plan Alternatives				
		Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Rice	$140	$1,906,240	$3,205,440	$4,341,120	$4,341,120	$5,257,280
Corn	$125	$0	$132,000	$132,000	$132,000	$132,000
Wheat	$120	$171,648	$229,248	$385,920	$385,920	$385,920
Tomatoes	$53	$0	$426,968	$664,832	$664,832	$664,832
Alfalfa	$105	$0	$91,392	$91,392	$91,392	$91,392
Sugar Beets	$37	$355,200	$503,200	$769,600	$769,600	$769,600
TOTAL POTENTIAL VALUE LOST		2,433,088	4,588,248	6,384,864	6,384,864	7,301,024

Source: Economic and Planning Systems and Nichols-Berman

EXHIBIT L-74

Lost Direct and Induced Economic Activity Due to Lands Converted to Urban Uses

Community Plan Alternative	Direct Income	Induced(*) Income	Total Impact on Income
A	$2,433,088	$4,525,544	$6,958,632
B	$4,588,248	$8,534,141	$13,122,389
C	$6,384,864	$11,875,847	$18,260,711
D	$6,384,864	$11,875,847	$18,260,711
E	$7,301,024	$13,579,905	$20,880,929

(*) Agricultural Multiplier of 1.86 See Exhibit L-40.

Source: Economic and Planning Systems and Nichols-Berman

The estimated full-time direct employment lost from conversion of agricultural land in the Study Area would range from 19 to 59 jobs depending on the alternative selected.

Although the potential impacts of the alternatives upon the agricultural economy in Sacramento County are not significant, relative to the overall size of the agricultural portion of the economy, a loss, as defined above, would occur.

L. AGRICULTURAL LANDS -- MITIGATION MEASURES

The Draft Community Plan briefly discusses techniques available to the City and County to preserve buffer zones designated on the Land Use Map. As discussed in the Community Plan, the buffer zones include a variety of proposals for greenbelts, agricultural preservation, open space, recreation, and elimination of development in environmentally sensitive areas, as well as buffering non-urban from urban uses.

The techniques discussed include acquisition, general plans and zoning, joint City/County Planning Commission and compensatory regulation such as transfer of development rights (TDR). The Community Plan concludes that rather than using one technique the County and City will need to use a careful blend of techniques to achieve political, legal, and economic permanence.

Alternatives A through E would result in progressively increased amounts of agricultural land taken out of production while providing no specific proposal for preserving the agricultural land remaining within the Study Area or in the surrounding Analysis Area.

The North Natomas Community Plan which is adopted should include a specific agricultural preservation strategy. Such a preservation strategy would have major implications for the final design of the Community Plan -- the location, uses, intensity, and design of development, as well as the form and content of the land use regulations.

This section describes a proposed preservation strategy for inclusion in the Community Plan which uses a variety of planning and agricultural preservation techniques. Implementation of the strategy would result in a permanent, exclusive agricultural district in both the Study Area and the surrounding lands in the Analysis Area. The strategy also includes consideration of a major amount of urban development, such as is designated in Alternatives B through E. The urban development would be designed to limit impacts and conflicts with agricultural uses and also would be the major source of financing to implement the agricultural preservation strategy.

No one strategy would work for all the Community Plan alternatives. The design of the strategy would have to be tailored to the specific Community Plan proposed for adoption.

AGRICULTURAL PRESERVATION OBJECTIVES

The following objectives for an agricultural preservation strategy should be incorporated into the Community Plan:

- Create an exclusive agriculture district (where activities would be restricted to agricultural uses) within the North Natomas Study Area and on the surrounding County lands.

- Permit a level of urban development in the Study Area which is responsive to community growth requirements and fiscal and infrastructure capabilities.

- Design the location, mix, and intensity of urban uses to minimize conflicts with adjacent agricultural uses and to maximize long-term productive potential.

- Provide use restrictions in perpetuity within the exclusive agricultural district through the use of land use regulation, Williamson Act contracts, and conservation easements.

- Establish a "transfer of development rights" (TDR) system which would allow landowners within the exclusive agricultural district to share the economic benefits of development in the area designated for urban development.

AGRICULTURAL PRESERVATION CRITERIA

The following agricultural preservation criteria should be incorporated into the Community Plan and be used in the development of the agricultural preservation strategy.

Agricultural Criteria

The following criteria should be met by lands considered for inclusion in the exclusive agricultural district:

- Soils Class I - IV.

- Prime, Unique, Statewide Importance farmland designation on Important Farmlands Map. (Currently being mapped for Sacramento County.)

- Proximity to services and suppliers.
- Proximity to irrigation and drainage.
- Parcel Size (ensure that parcel sizes are consistent with typical operating units for the crops grown, e.g. 160 acres for rice).
- Williamson Act contracts.

Location and Design Criteria -- Exclusive Agriculture District and Buffer Areas

The following criteria should be considered when designating the location and extent of the exclusive agricultural area:

- The entire northwest portion of Sacramento County north and west of the Study Area should be included in an exclusive agricultural district.
- An exclusive agricultural area also should be included within the northern portion of the Study Area. This area should be linked directly to surrounding agricultural lands and be of adequate area to permit efficient agricultural operations.
- The exclusive agricultural district should be adequately buffered from urban uses. Among several criteria for width of the buffer include EPA requirements for pesticides, mosquito abatement, and isolation from incompatible operations (burning, etc.).
- Criteria for determining the width and use limitations of the buffer area include compatible low intensity, uninhabited uses such as open space/recreation or public utility uses.
- The urban uses immediately adjacent to the buffer should be those that present the fewest conflicts with agriculture.

Location and Design Criteria -- Urban Area

- The urban area should be adjacent to existing urban development and have access to basic urban infrastructure -- roads, bridges, sewer and water trunk lines.

- Scale and land use distribution within the urban area should reflect allocation of community growth projections and be realistic, given expected growth trends and land use demand.

- The urban area should be fiscally sound -- providing the city and county with revenues which at least equal the cost of providing public services and infrastructure improvements.

- The size of the urban area should assure an adequate economic base to enable the acquistion of development rights in the exclusive agricultural area.

Regulatory Criteria

The success of an agricultural preservation strategy would depend on the creation of credible and consistent land use regulations. The sucess of the strategy would require a significant effort by both the City and County. The following criteria should be met:

- City and County general plans should be amended to assure a consistent set of agricultural preservation goals, policies, and map designations.

- The City and County should adopt a consistent set of zoning and subdivision map amendments as well as other ordinances (such as those related to the proposed TDR system) necessary to implement an agricultural preservation strategy.

- A joint powers agreement between the City and the County should be formulated which coordinates implementation of the above regulations and reflects their mutual commitment to orderly development and preservation and protection of agricultural land.

Transfer of Development Rights Criteria

The permanence of the exclusive agricultural district would depend, at least partly, upon a program which removes development potential from the agricultural district. This would require some mechanism for acquisition or transfer of development rights (TDR). The following criteria should be met when designing such a system:

- An effective method for coordinating the City and the County must be created since the TDR system would involve land under both City and County jurisdiction. A joint powers agreement establishing an authority to manage the TDR system would be one approach.

- The system should recognize the variation in development potential based upon proximity to existing areas, projected urban use land demand, and the existence of other limiting factors such as flood plains and airport clear zones.

- Development potential allocated to land between the exclusive agricultural district and the urban-designated district should be equitable, providing land owners with the opportunity for sharing the land value appreciation enjoyed by landowners in the urban designated areas.

- The administrative structure for the TDR system should involve as little government intervention as possible and should depend upon continuing changes in the land market to establish prices and direct the flow of development rights from "sender" to "receiver" areas.

- The permanency of the TDR system should be established by conservation easements and/or conditions, covenants, and restrictions (CC&Rs) which run with the land for agricultural purposes in perpetuity.

- Conservation easements on land within the exclusive agricultural district should be held by a non-profit land trust and/or an open space special district. A land trust can provide other benefits to land owners including tax write-offs and assistance with negotiating the TDR system. A land trust also can monitor the implementation of the overall agricultural preservation strategy.

A PROPOSED TRANSFER OF DEVELOPMENT RIGHTS SYSTEM

"Transfer of development rights" (TDR) is a system which allows compensation of landowners in areas where land use restrictions are applied. The basic concept of TDR involves the assignment of development potential to an area where use would be restricted (the "sender" area), the separation of this potential (development rights) from the restricted land, and the transfer of the development rights through a sale to landowners in a "receiver" area.

A TDR system can operate under a variety of administrative structures including a market system, a negotiated system, and a land bank system.

A market system, which would include little government involvement, would depend entirely on market mechanisms for establishing price and directing the flow of development rights. Under such a system, the City and the County would establish the "receiving areas" where development rights could be transferred and the areas from which they could be purchased. Development rights then would be traded on the open market at the discretion of landowners, with the price subject to the variations in supply and demand.

A negotiated system would follow the established zoning procedure of planned unit developments (PUD). Under a PUD approach, the permitted overall quantity of units on a given parcel are concentrated on a portion of the parcel at a greater density than originally permitted. A PUD approach also can be applied to a large number of contiguous or non-contiguous parcels under different ownerships. When several owners are involved, development would be concentrated in a manner similar to a single ownership, and a contract would be negotiated for the distribution of development rights' income between all landowners.

A land bank system would involve the levy of an assessment or an in lieu fee on all land where development is permitted. This revenue subsequently would be used by a government agency to purchase development rights in the restricted areas. Purchases typically would be made at an appraised market value. The number of such purchases probably would be less than under a market system given regulatory certainty, since the market system encourages bargaining between owners of developable property and owners of restricted land with development rights, as opposed to a market price set by an appraisal and the public purchase process.

The situation faced in the North Natomas Study Area presents some unique opportunities for designing a TDR system. Opportunities include the lack of existing development designations (establishing a base for increasing density in "receiver" areas), the proposed mix of urban uses (making definition and allocation of development rights to the "sender" areas difficult), and jurisdictional problems ("sender" and "receiver" areas may be located in both within the city and in unincorporated county areas).

While these opportunities create some unique demands for designing a TDR system, they can be accomodated. One approach to creating a TDR system for North Natomas would be to combine the "negotiated" and the "market"

administrative structure systems. The following paragraphs describe such a system.

Geographic Definition

The portion of Sacramento County which is bounded on the east by the East Main Drainage Canal, on the south by Interstate 80, on the west by the Sacramento River and on the north by the Sutter County line should be considered for participation in the TDR system. Because development pressure varies greatly, however, the area should be divided into four general areas:

- An area to be urbanized.
- An urban/agricultural buffer area which would include urban uses (such as light industry, existing utility corridors, or low intensity recreation) which would have few conflicts with adjacent agriculture.
- An exclusive agricultural district directly adjacent to the urban buffer area. This is the area which would be subject in the future to urban pressures and would require the most immediate action to ensure permanence of the exclusive agricultural designation.
- An exclusive agricultural district not adjacent to the urban buffer area. This is the area in the future that would not be significantly affected by urban pressures.

Administrative Structure and Allocation of Development Potential

A negotiated (or PUD) type system should be used to protect the agricultural district land in or directly adjacent to the Study Area. This approach is very straightforward, could be established through a joint powers agreement between the City and County, and can be implemented directly through the Community Plan and subsequent amendments to both the City and County general plans and zoning ordinances.

Under this approach, there would be no need to "allocate development rights". Rather, conservation easements in the exclusive agricultural district would be purchased directly by landowners in the areas designated for development. The ratio of development acres to conservation easements

required would need to be established specifically by the Community Plan and implemented during individual project PUD approval.

The portion of the exclusive agricultural district which lies beyond the Study Area in the Northwestern Quadrant of the county should be included in a city/countywide TDR system which is based on a market system.

Development rights should be allocated to this area based on an overall evaluation of development potential of lands participating in the TDR system, including both areas to be preserved and areas to be developed. Because of its relative complexity and scope, establishing and maintaining the "market" TDR system would require a significant effort by the City and the County.

Establishing Permanency

The permanency of the TDR system would be assured through the use of a land trust and/or a special open space agency which would be created for the express purpose of receiving conservation easements on property within the exclusive agriculture district and providing other benefits to landowners.

IMPLEMENTATION

Implementing an agricultural preservation program would require specific steps within the development of the Community Plan, as well as a series of tasks which would occur as part of overall plan implementation.

Design of the Community Plan's Land Use Map

The Community Plan should include the geographic aspects of the agricultural preservation strategy in the location, mix, and density of development proposed in the Study Area. The exclusive agriculture district could be a new land use designation or an "overlay" to be considered along with other mapping criteria.

Community Plan Text and Implementation Steps

The Community Plan should include specific agricultural preservation goals and policies and should specify the ordinances needed to implement the TDR system, along with other aspects of the Plan.

Key implementation steps would include:

- Prepare City and County General Plan amendments to create overall consistency with the Community Plan and the TDR system.

- Prepare City and County Zoning Ordinance amendments including the exclusive agriculture districts and the PUD districts. The PUD districts would specify the purchase of conservation easement ratios.

Timing

Implementation of a sucessful TDR system has direct consequences for the form and content of the Community Plan. The basic goals and objectives of the TDR system, especially designation of the donating and receiving area and a basic feasibility study must be accomplished prior to the development of the final Community Plan Land Use Plan. The required implementation mechanism must be in place before the first urban development project is approved.

Other Implementation Steps

Other implementation steps, not directly related to the Community Plan but necessary for the overall success of the agricultural preservation strategy, would include establishment of a land trust and/or an open space agency and completion of a City/County TDR study.

1 Agriculture in Sacramento's North Natomas Area: Production, Economic Impacts, and Urban Conversion Issues, Mundie and Associates, 1982, page 66.
2 Ibid., Page 39.
3 Nichols-Berman conversation with Robert Burness, Sacramento County Planning Department, February, 1985.
4 Federal Register, Public Law 97-98, December 22, 1981.
5 National Agricultural Lands Study, US Department of Agriculture, Soil Conservation Service, 1981.
6 Room to Grow, Peter Detwiler and Steve Rikala, July, 1982.
7 Endangered Harvest, People for Open Space, November, 1980.
8 Soil and Water Conservation for Productivity and Environmental Protection, Frederick Troeh and Arthur Hobb, 1980, page 209. There are no Class V lands in California.
9 Nichols-Berman conversation with Arlene Tugel, USDA SCS, January 1985.
10 Ibid.
11 Ibid.
12 Agriculture in Sacramento's North Natomas Area: Production, Economic Impacts and Urban Conversion Issues, op. cit., page 8.
13 Nichols-Berman conversation with Arlene Tugel, op. cit.
14 "Prime soils" are defined strictly in this EIR as the Federal Register definition modified for California; however, reports incorporated by reference sometimes use the term "prime" as a generic term usually convering those soils in Class I to IV or even "prime" rangeland.
15 Soil Survey, SCS, 1954.
16 An acre foot is the volume of water which covers an area of one acre to a depth of one foot or 325,828 gallons.
17 Nichols-Berman conversation with Jerry Fidler, August, 1984.
18 Ibid.
19 Nichols-Berman conversation with Arlene Newman, August, 1984.
20 Ibid.
21 Nichols-Berman conversation with Louise Inderkum, August, 1984.
22 Ibid.
23 "Summary: Needs Assessment for the Food and Agricultural Sciences, A Report to the Congress from the Secretary of Agriculture", 1984.
24 Ibid.
25 Aquaculture, John E. Bardach, John H. Ryther and William O. McLarney, 1972.
26 California Aquaculture Newsletter, Cooperative Extension, U.C. Davis, February, 1985.
27 Annual Crop Report, Sacramento County Department of Agriculture, 1983.
28 Agriculture in Sacramento's North Nartomas Area: Production, Economic Impacts and Urban Conversion Issues, op. cit., page 31.
29 Ibid., page 32.

M. HYDROLOGY AND WATER QUALITY -- THE SETTING

DRAINAGE AND FLOODING

The North Natomas Study Area is located in the lower portion of the Sacramento Valley and is part of what is known as the American River Basin in the floodplain of the Sacramento River. The Sacramento Valley generally consists of layers of thick alluvium which were deposited when floodwaters overtopped the riverbank. Soils in the valley range from coarse, well-drained alluvium to heavier, clayey soils.

The natural features of the valley which have developed from periodic flooding include broad shallow basins interrupted by several leveed stream channels. Natural levees mainly occur along the Sacramento River. The levees formed where floodwaters which overtop stream banks decrease suddenly in velocity and deposit sand and silt. The finer particles are suspended for a longer period of time and deposit farther out over the floodplain. Where the alluvium predominantly consists of finer sediments, surface drainage is poorer than closer to the river area where coarser soils predominate. Levees along smaller tributary streams were formed by the same process as along the Sacramento River: coarser sediments are deposited quickly and build up to form natural levees. Except for these levees, the natural topography is rather flat.

Flooding occurred regularly in the Sacramento Valley prior to man's influence. The combined effect of overtopping stream channels and local runoff due to winter storms and poor natural drainage created seasonal freshwater marshes in low-lying areas throughout the Sacramento Valley. About 60 percent of the Sacramento Valley historically was subject to overflow. [1]

Specific information on the natural drainage channels and flooding occurrences in Sacramento Valley are scarce. Since the Study Area is not directly adjacent to the river, soils in the area tend to be the poorly drained, silty, and clayey alluvium described above. Much of the area probably was seasonal wetlands, interspersed with some perennial lakes. One such former lake, Bush Lake, is shown in 1911 and 1915 topographic maps which include the area in the southeast corner of the incorporated portion of the Study Area.[2]

Existing drainage and flooding conditions in the valley and the Study Area are quite different from those which existed prior to human settlement.

Specifically, as land was reclaimed for agricultural production, natural features were altered significantly. In 1911, Reclamation District 1000 (RD 1000) was created under the authority of the State Reclamation Act to provide facilities to alleviate periodic flooding. The District is responsible for building, maintaining, and operating the major canals, levees, and pumping plants in the Study Area (Exhibit M-3). These facilities were designed to accommodate increased agricultural runoff and were completed in 1914.

The construction of the Sacramento River levee system in the early 1900s was by far the most dramatic human modification of the regional hydrology. An extensive floodplain, which had been inundated annually by spring snowmelt floodwaters, was segregated from the main Sacramento River channel. The elimination of overbank flow from the Sacramento River and the drain and levee system constructed by RD 1000 and companion reclamation districts bordering the river, combined to reduce the expansive riparian forests and seasonal wetlands which previously had dominated much of the Sacramento Valley.

Due to the relatively flat topography, the watershed area which includes North Natomas is difficult to define. The Study Area generally is part of a single watershed which currently drains toward the southwest and is bounded by RD 1000 perimeter levees.

The direction of overland gravity drainage is controlled locally by a low north-south ridge which intersects Del Paso Road approximately one-half mile east of I-5. Land to the east of the divide drains east to the East Drainage Canal while land to the west drains to the West Drainage Canal. The East Drainage Canal is located in a natural topographic trough which, at elevation +9.0 feet NGVD [3], defines the lowest terrain in the Study Area. Ground elevations increase continuously to the east, reaching an area maximum of +39.0 feet NGVD on the levee road which borders the Natomas East Main Drainage Canal.

Irrigation Drainage

The existing drainage network functions year around, primarily carrying irrigation tailwater drainage during the April through October irrigation season and stormwater runoff during the remaining months. Tailwater drainage is the end product of an irrigation cycle which begins with the pumped withdrawal of water from the Sacramento River by the Natomas Central Mutual Water Company (NCMWC). The NCMWC operates a series of pumps and

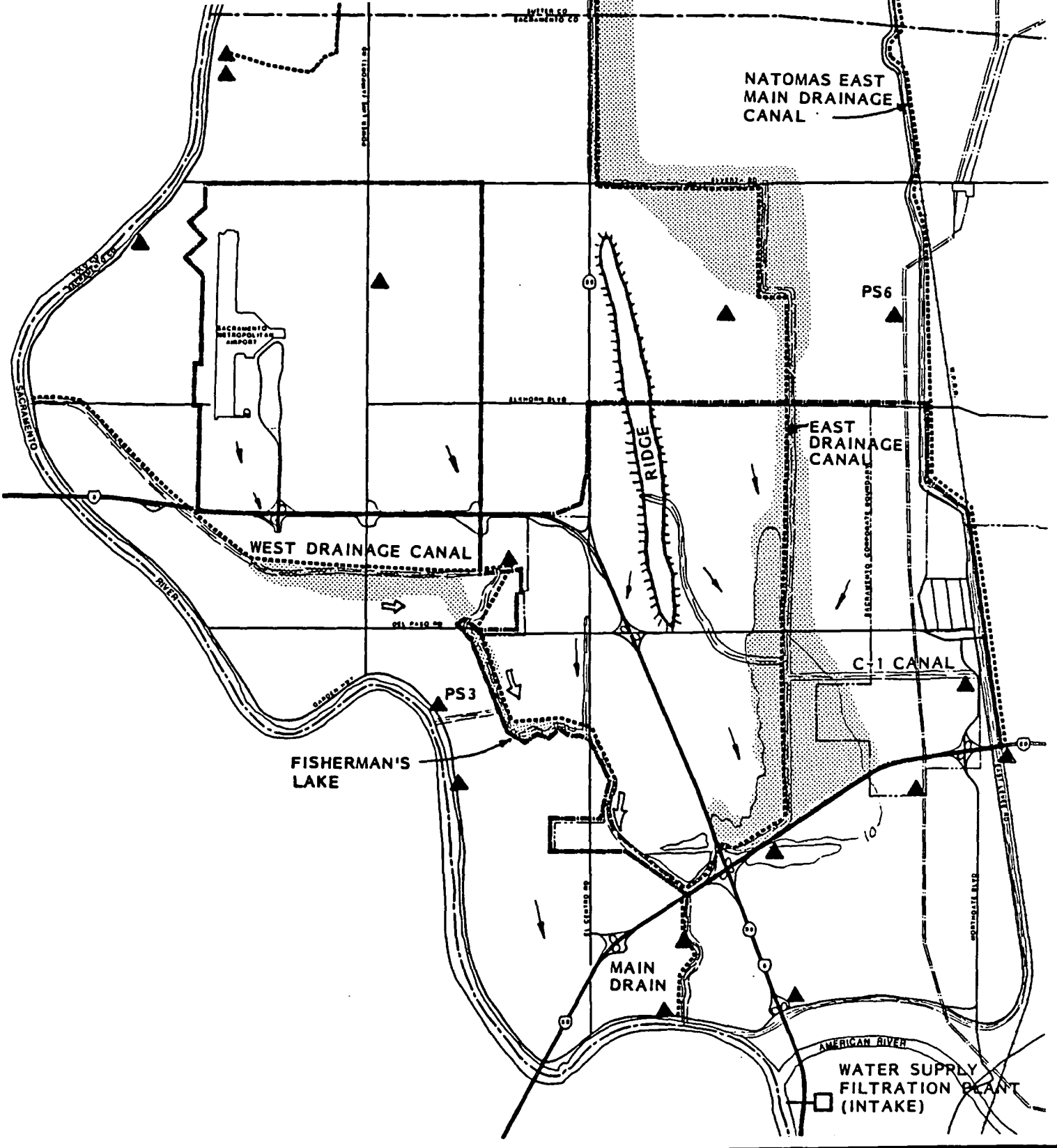


EXHIBIT M-3
EXISTING DRAINAGE FACILITIES

- RD 1000 District
- Pump Station
- 100-Year Floodplain
- Direction of Overland Flow
- Direction of Drainage
- —10— 10' Contour Line

0 3200 6400 Ft.

highline canals. RD 1000 operates the east-west Natomas Cross Canal, which also is used to deliver irrigation water to the NCMWC's complex of water distribution ditches and canals for eventual use in the Study Area. [4] During the irrigation season, water levels in the highline canals typically range from +10.0 to +14.0 feet NGVD while water levels in the NCMWC distribution system are maintained at +7.0 to +8.0 feet NGVD to facilitate extraction by pumping. Once applied to the land surface, irrigation water is consumed by crops, lost to evaporation, or moves laterally in the subsurface above less permeable soil stratum or in tile drains towards tailwater drainage ditches. Drainage then is conveyed to major drainage canals by gravity flow.

Tailwater drainage from the Study Area ultimately reaches the East or West Drainage Canals. In the absence of relatively infrequent summer stormwater runoff, agricultural drainage alone is transported south to the confluence of the East and West Drainage Canals at I-80 just west of I-5. From this point the combined flow continues south in the Natomas Main Drainage Canal to Pump Stations 1A, 1B, 6, and 8, where it is pumped into the Sacramento River or Natomas East Main Drain, thus completing the irrigation cycle.

During the winter rainy season, surface runoff from the Study Area follows the same paths as the applied irrigation water does, ultimately reaching Pump Stations 1A, 1B, 6, and 8, where it is discharged to the Sacramento River or Natomas East Main Drain.

Where soil infiltration capacities are low, rainfall is efficiently converted to stormwater runoff, moving laterally in the near surface soils and overland to the drainage ditches and canals. Over more permeable soils, the conversion of rainfall to runoff generally is slower and less efficient. If antecedent soil moisture is high, however, due either to recent rainfall or rising groundwater levels and seepage from the Sacramento River, the response of these coarse-grained soils differs little from that of the less permeable fine-grained soils.

Stormwater Drainage

As with irrigation tailwater, stormwater drainage from the Study Area (except for the Northgate, Westgate, and Sorrento developments) reaches the East and West Drainage Canals and then the Natomas Main Drainage Canal in route to the pump discharge site adjacent to the Sacramento River. Additional stormwater from the South Natomas area is pumped into the East Drainage Canal near the intersections of Interstates 5 and 80 within the

Study Area boundary. The capacity of the pumps which discharge South Natomas stormwater into the East Drainage Canal is 900 cubic feet per second (cfs) -- approximately the peak flow for the 100-year design rainstorm.

During a rainstorm the bulk of surface runoff in the Study Area originates on (1) agricultural land, (2) the Sacramento Metropolitan Airport, and (3) developments flanking the Natomas East Main Drainage Canal (Northgate Industrial Park, Westgate, and Sorrento). Agricultural land drains by gravity to ditches and canals which ultimately discharge into the East and West Drainage Canals. Storm runoff from the airport area collects at the southeast corner of the property and is discharged into the West Drainage Canal. New runway construction is planned for the airport. The preliminary drainage plan, however, includes use of on-site detention areas to maintain the design storm (100-year return period) peak discharge at the current level of 110 cfs. [5] Stormwater runoff from the existing industrial and residential developments -- Northgate Industrial Park, Westgate, and Sorrento -- is discharged via the C-1 Canal and Pump Station B into the Natomas East Main Drainage Canal which conveys the flow south to a pump station where it is discharged into the American River.

Additional stormwater originates outside RD 1000 to the northeast in Pleasant Grove. According to Dewante and Stowell, the 24-inch conduits which were constructed under the Natomas East Main Drainage Canal to convey this off-site stormwater to the Study Area are substantially plugged and, therefore, operate at diminished capacities. The unobstructed capacities of the culverts amount to approximately 100 cfs, which is about 30 percent of existing pump capacity for Pump Station 8. [6] Pump Stations 6 and 8 pump stormwater from the East Drainage Canal, into which the Pleasant Grove runoff is discharged.

Existing unimpaired conveyance capacities for the three primary canals draining the Study Area were estimated on the basis of field surveying and observation by members of the staff of Dewante and Stowell. The following estimates appear in that firm's drainage study of the North Natomas Area: [7]

- East Drainage Canal: 340 to 440 cfs
- West Drainage Canal: 190 to 230 cfs
- Natomas Main Drainage Canal: 1,400 cfs

Since its construction around 1920, the East Drainage Canal has been enlarged. Due to vegetation growth within the channel, however, its current capacity remains approximately the same as the original design capacity. It

is not known to what extent, if any, the roadway box culvert under San Juan Road and I-5 are obstructed by debris or siltation.

South of San Juan Road, the capacity of the West Drainage Canal is reduced to the lower end of the cited range. The North Natomas Drainage Study describes flow constrictions resulting from degraded or plugged culverts at Del Paso, El Centro, and San Juan Roads. [8] The banks of the Natomas Main Drainage Canal are overgrown with dense tule, weeds, and brush, which has reduced its flow capacity.

Pump Stations 1A and 1B evacuate stormwater and agricultural drainage from the Natomas Main Drainage Canal to the Sacramento River. Pump capacities at the two stations are 628 cfs and 121 cfs, respectively. The pumps at Station 1A are operated manually while those at Station 1B can be controlled automatically.

Pump Station 8 pumps stormwater runoff from the existing developed areas adjacent to the Natomas East Main Drainage Canal to the canal. Its combined rated capacity is 340 cfs and is equivalent to the 10-year design storm inflow. The station has been constructed to allow for potential future expansion of capacity to 520 cfs.

The remaining pump stations 2-6 range in capacity from 100 cfs to 300 cfs and handle existing inflows satisfactorily.

Impaired Channel Conveyance Capacity

Because of its branched configuration, the existing drainage network operates at design capacity only if there are no bottlenecks. In other words, efficient hydraulic performance requires that each successive conveyance structure or facility handles incoming flows from upstream and any direct inflows (such as along a channel reach). Restrictions to efficient flow convergence or stormwater/drainage evacuation within the Study Area can occur due to (1) unanticipated vegetation growth and siltation in channels and canals, (2) undersized culverts at road or levee crossings, (3) insufficient pump capacities, and (4) reduction in channel storage due to the presence of late season irrigation flow.

Channels and canals draining the Study Area generally are in good hydraulic condition with the possible exception of the principal canals. On these, the growth of brush and vines along canal side slopes has increased

hydraulic roughness and, thereby, has reduced the channel conveyance capacity.

Flooding

Flooding can occur in the Study Area due to several factors. Major on-site flooding from local runoff is likely to occur as the result of moderate- to high-intensity, long duration winter rainstorms which may produce only modest peak flows but large volumes of runoff. Current pump capacities are not sufficient during heavy rainstorms to prevent local flooding. Assuming the ground already is wet and pump stations operate at existing capacities, calculations for a 100-year, 24-hour storm [9] indicate that water depths up to six (6) inches can occur in the lower elevations of the area. [10] Water ponds in low-lying areas until it can be pumped from the land. Pump malfunctions or power outages could increase flooding during heavy rainstorms.

Flooding conditions also can occur as a result of floodwaters overtopping the Sacramento River levees. There are two types of floods in the Sacramento Valley. The first type occurs during the late fall and winter and results from long duration, heavy rainstorms in the mountains and Valley. The second type results from spring melt waters from the winter snow pack. It generally is the winter rainstorms which produce the highest river stages and significant flooding conditions.

The combined capacity of the Sacramento River and the Yolo Bypass is 450,000 cfs. The Yolo Bypass is part of a network of parallel floodways which bypass portions of Sacramento River floodflows upstream of Sacramento and return them to the main channel of the River mouth in the Delta. Bypass channels on the Sacramento River were necessitated by the initial levee construction which was designed to scour Sierra logging debris and sediment from the primary channel. These levees, however, could not contain the spring floods on the Sacramento River, so the bypass system was constructed to achieve the required flood conveyance without substantial flooding. Because of the seasonal nature of severe Sacramento River flooding, the broad bypass basins still are available for farming. During a rainstorm and flood in 1955, more than 30 inches of rain fell -- approximately the magnitude of an 100-year storm -- and the Sacramento River, bypass floodways, pumping plants, and natural storage basins contained the flood peak.

In addition to natural flood disasters, levees along the Sacramento River can fail structurally, resulting in severe flooding. Sustained high Sacramento River stages and/or strong ground motion during an earthquake could cause levees to collapse.

Although the Department of Water Resources inspects area levees twice each year, the structural integrity of the levees bordering the Sacramento River upstream of the Study Area remains uncertain. Equally significant is the risk of massive levee failure resulting from a major earthquake. Recent research into the statistical recurrence of such earthquakes in California through geologic history suggests that there is a 25 to 50 percent probability of a 6.5 to 7.0 magnitude earthquake in northern California within the next 30 years. [11] There is a finite probability, therefore, that Sacramento River levees could fail in the near future, possibly resulting in significant and widespread flooding in the Study Area. The possibility of such an occurrence is not reflected in current Federal Emergency Management Agency (FEMA) flood mapping.

Ground motion during a major earthquake also could cause canal levees to fail. If levee failure were to occur during the rainy season, local flooding could ensue.

In the event of serious levee failure the levees along the Sacramento River, the Natomas Cross Canal, and the Natomas East Main Drainage Canal come under the jurisdiction of the US Army Corps of Engineers and the Department of Water Resources. Routine maintenance and repair of these and other levees in the Study Area is performed by RD 1000.

A flood hazard zone which delineates the 100-year floodplain within the Study Area as determined by FEMA is shown in Exhibit M-3. The flood hazard zone includes areas bordering both the East and West Drainage Canals. A power failure during a severe rainstorm in the early 1960s shut down pumps at Stations 1A and 1B in the North Natomas area for 23 hours. The estimated frequency of the storm and the extent to which additional flooding was averted due to the continued operation of pumps in the upper reaches of the drainage network are unknown. The flooding which resulted was mapped and used as the flood hazard zone for the North Natomas area. [12] Current flood mapping of the Study Area relies on the flood boundaries observed during this historical storm. Since there was no statistical basis for evaluating the corresponding recurrence interval of the storm, there is no guarantee that flood boundaries for a statistically derived 100-year storm would match those delineated on FEMA maps.

GROUNDWATER

North Natomas sits atop the Sacramento Valley Groundwater Basin. Approximately 114 million acre feet of water are stored in thick alluvial deposits in the Sacramento Basin, an area which extends from Red Bluff south to the Sacramento River-San Joaquin Delta.

As discussed above, soils of the Sacramento Valley floodplain vary in permeability, depending on the depositional environment. Sediments deposited in the North Natomas area reflect the fluvial processes which historically have attended the development of the Sacramento River floodplain. Prior to levee construction, the Sacramento River migrated over its floodplain leaving coarse-grained channel deposits interspersed with finer-grained soils which were derived from floodplain deposition. According to Dewante and Stowell's drainage study for the North Natomas Study Area [13], the upper extent of the aquifer underlying the North Natomas area can be described as follows:

> "A surface layer of silty clays and sandy clays covers the area and is between five (5) to 20 feet in depth. This surface area generally is underlain by fine to coarse sands with silts and clays interspersed."

Fine-grained soils tend to be heavy textured clay and adobe types which impede the vertical flow of water. Exhibit M-10 is a map of the surficial soil types as identified by the Soil Conservation Service (SCS). The letters represent qualitative classifications of runoff potential. Runoff potential for zones labeled B and C are moderate while that for zones labeled D is high.

Under natural conditions groundwater in the Sacramento Valley is replenished by percolation of streamflow into underlying permeable sediments and by infiltration of precipitation. The principal sources of recharge occur in areas with coarse-grained, well-drained floodplain deposits. These areas usually are closest to the river.

In the valley floor south of Sutter Buttes, the regional groundwater flow under natural conditions is towards the lower Sacramento River. Groundwater development since 1914 has created pumping depressions along the Sacramento Valley, and groundwater moves towards these depression cones. Exhibits M-11 and M-12 are Spring, 1968 and 1980 groundwater contour maps for the Sacramento County area. [14] It is evident that the pumping depressions control regional groundwater flow patterns. Also, the positive hydraulic

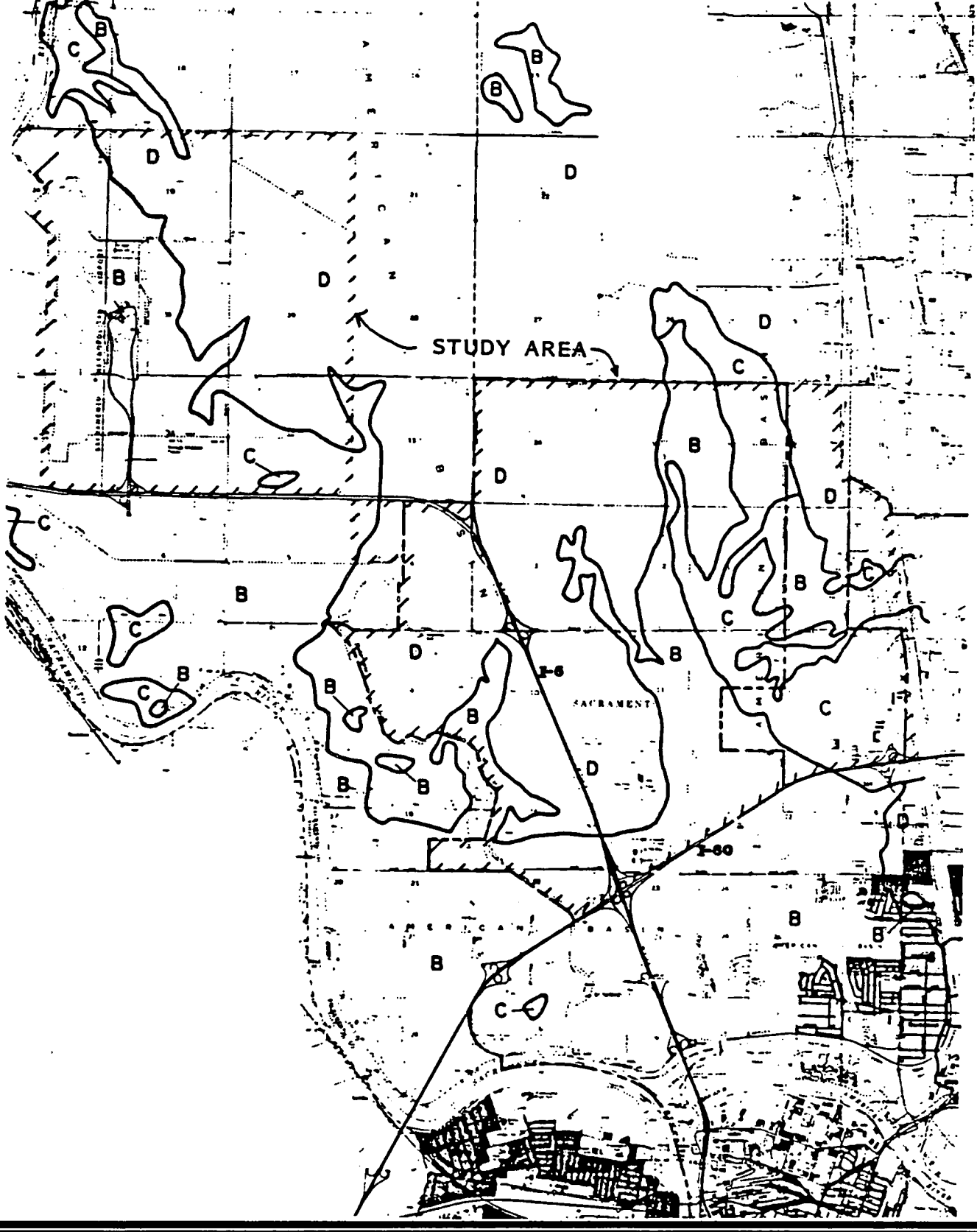


EXHIBIT M-10
HYDROLOGIC SOIL GROUPS

A High Infiltration Rate (Low Runoff)

B Moderate Infiltration Rate

C Slow Infiltration Rate

D Very Slow Infiltration Rate

Source: Soil Conservation Service

No Scale

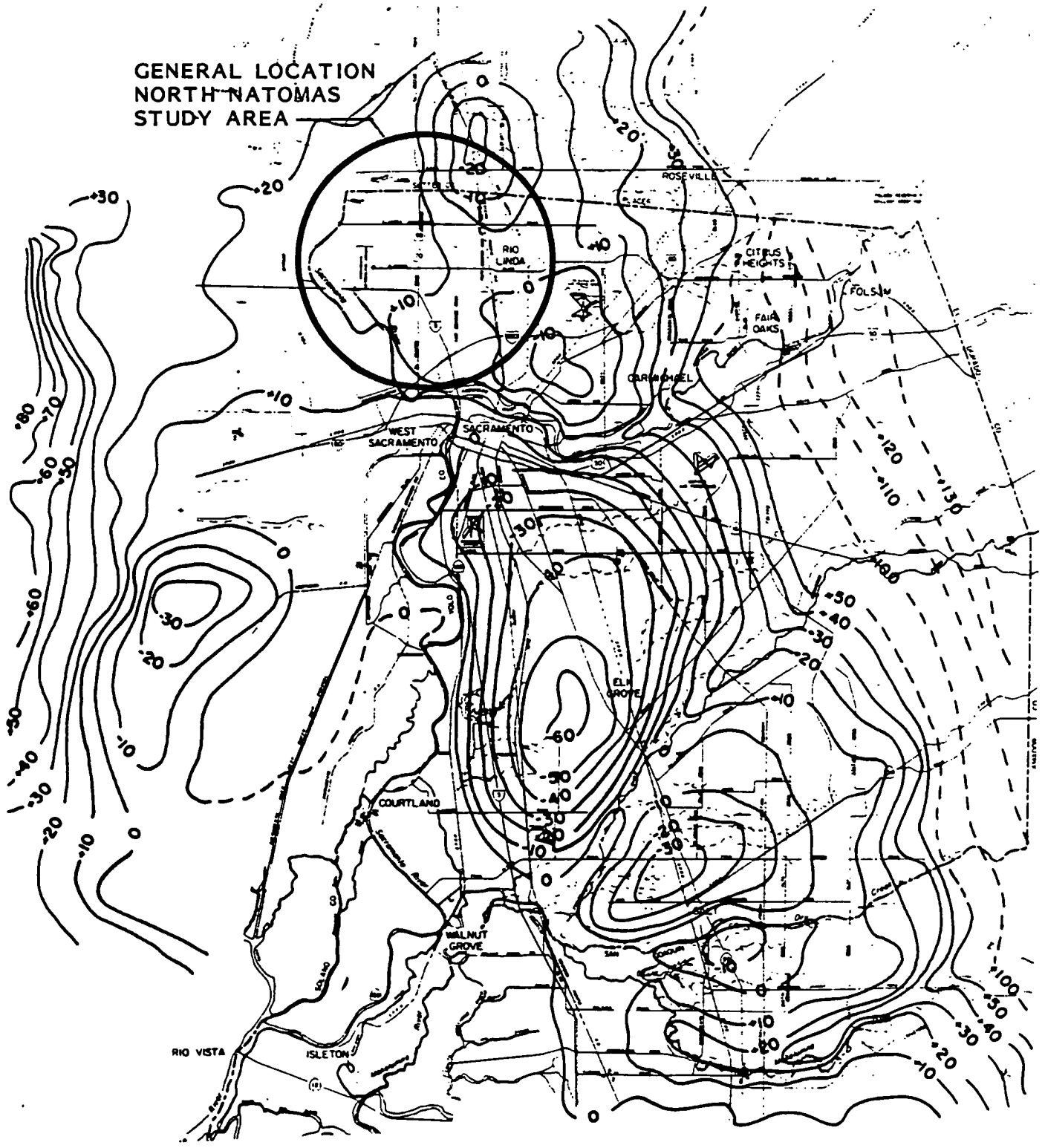


EXHIBIT M-11
GROUNDWATER CONTOUR MAP FOR SACRAMENTO COUNTY - SPRING 1968

—10— Equal Elevation Contour of Ground Water (in Feet)

Source: State Department of Water Resources

No Scale

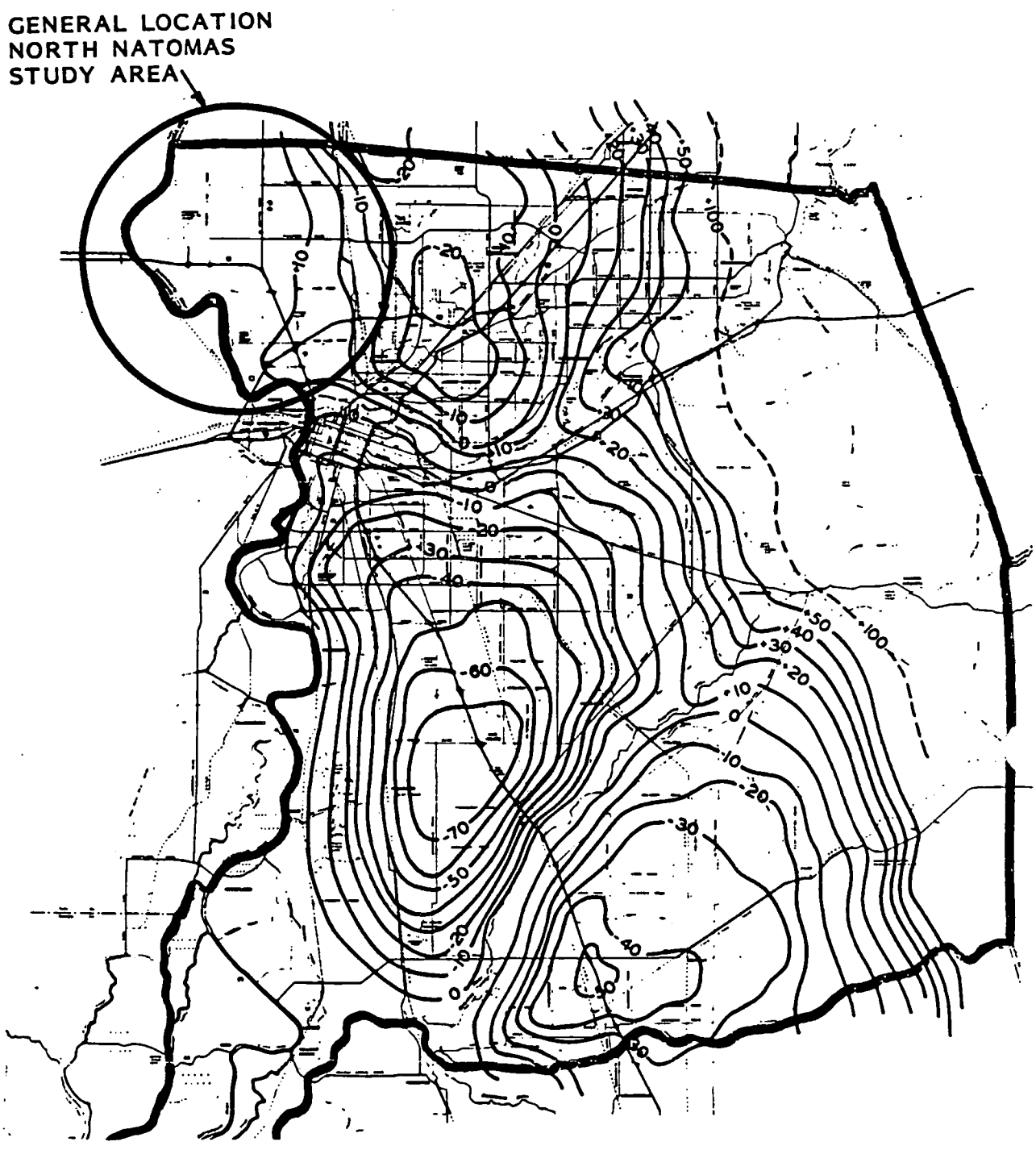


EXHIBIT M-12
GROUNDWATER CONTOUR MAP FOR SACRAMENTO COUNTY - SPRING 1980

-10 Equal Elevation Contour of Ground Water (in Feet)

Source: County of Sacramento, Department of Public Works, Water Resources Division.

No Scale

gradient away from the Sacramento River indicates that the river acts as a constant head boundary -- that is, it stabilizes the radial extent of the pumping influence area.

Historical groundwater contour maps (Exhibits M-11 and M-12) indicate that over the last 15 years, the former pumping depressions have merged. The regional groundwater depression which influences the broader Study Area groundwater patterns currently is centered around McClellan Air Force Base, located approximately five miles due east of the Study Area. Apart from some areas just north of the American River which draw on surface water and groundwater sources, the areas east of the Study Area are almost wholly dependent on groundwater for domestic consumption and agricultural use.

In North Natomas there have been few wells drilled in the floodplain because abundant surface water has been available for irrigation. Specific capacities and well yields are not known but expectedly would vary according to their proximity to the Sacramento River and the transmissivities of the geologic materials in which they are developed.

Groundwater levels generally fluctuate according to water supply and demand or, more specifically, according to the net influence of pumping and recharge. Groundwater elevations have been monitored in the Sacramento Basin since 1929. A comparison of the approximate elevations from 1912 to 1961 indicates that there has been about a 10-foot decline in regional groundwater elevations. There has been no evidence of significant changes in groundwater levels in North Natomas in the last nine years. [15]

The Study Area is located in an area of high groundwater. According to information published by the Department of Water Resources [16], the groundwater surface elevation currently ranges from five (5) to 25 feet below the ground surface. Groundwater levels are highest near Metropolitan Airport and are lowest in the area of the proposed Gateway Point project (Exhibit M-12).

During a wet winter, local groundwater recharge from rainfall raises groundwater levels throughout the Study Area. In April and May, seepage from the Sacramento River due to high river stages can increase groundwater levels further, often saturating soils at the ground surface. As irrigation pumping at Rio Linda and other locations east of the Study Area increases in response to both increased consumptive use by crops and evaporation, local groundwater levels recede and return to seasonally normal elevations by July. [17] Exhibit M-12 shows the localized effect of regional pumping east of the Study Area on aquifer drawdown.

SEEPAGE

Seepage is water on or near the ground surface which results from lateral migration of subsurface water through or under levees. Seepage occurs when a positive hydraulic gradient induces subsurface movement of water in the direction of the gradient. The rate of seepage is proportional to the magnitude of the difference in water levels on either side of the levee, the permeability of the soils, and the cross-sectional area of the seeped zone. If groundwater levels on the landward side of the levee are at or near the ground surface, a seepage face can form near the toe of the levee.

Seepage conditions in the Sacramento Valley typically have not been considered a problem until areas have been converted for agricultural use or have been urbanized. There is conflicting information on the extent of seepage in North Natomas. According to a report by the Department of Water Resources, there has been minimal damage from seepage in the Study Area. [18] This study was based on results of two surveys -- one in April, 1963 and the other in April, 1965, both of which were wet years. More recent information, however, indicates that the zone of seepage influence can extend up to three-quarters of a mile from either side of the levees. It also has been reported that seepage has affected the Study Area. [19] In addition to seepage along the Sacramento River, local seepage also can occur adjacent to irrigation and drainage canals when water elevations in the canals exceed surrounding groundwater levels. The significance of seepage from this source is related to the frequency and duration of high relative canal water levels, as well as the permeability of the bottom sediments in the canal.

Areas affected by seepage vary from year to year depending on the stage of the river, duration of flooding or high waters, and antecedent soil moisture condition. Snowmelt which produces high river stages during times of the year when the soil already is wet creates the most favorable conditions for extensive seepage.

WATER QUALITY

The Department of Water Resources considers groundwater in most areas in the Sacramento Valley to be suitable for domestic use. [20] Depending on local soil characteristics and farm practices, however, use of pesticides and/or herbicides can cause local degradation of groundwater quality. Although

groundwater has not been tested extensively, there may be pesticides as well as nitrates in the groundwater.

Much of the land in North Natomas presently is farmed for rice. Rice cultivation involves use of herbicides to control broad-leafed weeds. The City of Sacramento currently is concerned about levels of rice herbicides in the Sacramento River and has urged the Central Valley Regional Water Quality Control Board to enforce standards related to the concentrations of the herbicides Ordram (molinate) and Bolero (thiobencarb) in the Sacramento River. Fish kills were observed in the Colusa Basin Drain and the Sutter Bypass coincident with rice field herbicide use. Test results showed residues of molinate up to 2,000 parts per billion (ppb) in dead carp.

The Department of Fish and Game became concerned with rice herbicides after documenting annual fish losses in agricultural drains in the Sacramento Valley in May and June, 1984. Data monitored for the past four years indicate that areal migration of pesticides has been minimal with the exception of Ordram and Bolero.

The Environmental Monitoring and Pest Management Branch of the Department of Food and Agriculture has established a program to regulate the use of Ordram and Bolero in order to reduce rice herbicide residues in state waters. The main effort to reduce Ordram concentrations is to improve tailwater recovery and other management systems to prevent off-site discharges of water containing Ordram. Use permits require farmers to contain contaminated water for eight days following Ordram use. The program to reduce Bolero contamination will limit Bolero sales to rice farmers whose tailwater would drain into state waters. [21] These programs will affect rice cultivation in the Study Area. According to the Department of Food and Agriculture, 10 percent less Bolero will be sold in 1985 than in 1984 to farmers statewide whose tailwater would drain into state waters. This program will likely herbicide levels in North Natomas' drainage waters. It is too early for the program's effectiveness to be evaluated, since significant fertilization and pesticide use had not begun until this spring. What is being measured now are the residues from late season applications in 1984. The Department of Food and Agriculture believes that this plan also should guarantee that primary health action levels for Ordram and Bolero would not be expected or closely approached in the river at the Sacramento Water Treatment Plant, although the the primary health level for Ordram (20 parts per billion) may be reached later this year. [22] Bolero has been detected in the Sacramento River. Studies are being conducted to determine whether Bolero is involved in fish kills. No studies currently are underway or are planned, however,

to determine if taste problems in Sacramento waters are associated with Bolero. [23]

Canals and sloughs throughout the Valley are fished, including those located in North Natomas. Fisherman's Lake, in particular, as well as three main drainage channels, are angled primarily for carp.

Irrigation tailwater contains dissolved salts which are leached from the soil profile by irrigation water as it moves downward and then laterally toward the drainage ditches. The salinity of irrigation tailwater, therefore, normally is higher than the Sacramento River water which is applied to cropland. Farmers in the North Natomas area, however, sometimes supplement water from the higher elevation irrigation canals with recycled irrigation tailwater. Reuse of tailwater drainage for irrigation can accelerate the soil salinization process.

Rainfall and continual application of low salinity Sacramento River water tend to counteract increases in salinity by flushing the accumulated salts from the soil profile. Unfortunately, this frequent irrigation also increases the likelihood that pesticide and herbicide residues will be dissolved and transported in the subsurface drainage before they can degrade naturally. [24] In addition to the frequency of irrigation, the extent to which these residues are mobilized also depends on the rates of cropland evapotranspiration and of the chemical absorption capacity of the subsoil. Irrigation tailwater, therefore, can be very saline in addition to being polluted by pesticides and herbicides.

The irrigation tailwater discharge for the North Natomas area is about one-quarter mile upstream from the intake for the City's water supply (Exhibit M-3). There currently is a recovery system for the tailwater, and the Reclamation District attempts to avoid discharging tailwater into the river. According to the State Water Quality Control Board, the North Natomas area probably contributes about one (1) percent and no more than five (5) percent of the total herbicide concentration in the Sacramento River. [25]

M. HYDROLOGY AND WATER QUALITY -- THE IMPACTS

Implementation of Alternative A would result in minor impacts to:

- On-site peak flows.
- On-site and off-site flooding.
- Surface water quality.
- Groundwater quality.

Implementation of Alternatives B, C, D, or E would result in moderate to significant impacts to:

- Existing drainage patterns.
- On-site peak-flows.
- On-site and off-site flooding.
- Surface water quality.
- Groundwater quality.

Furthermore, if the recommended drainage plan for the Study Area is implemented, additional significant impacts could occur which would be related to:

- Existing drainage patterns.
- On- and off-site flooding.
- Groundwater.
- Seepage.
- Riparian and wetland habitat.

A preliminary drainage plan for the Study Area has been prepared by Dewante and Stowell, Consulting Engineers under contract to the City of Sacramento as part of the North Natomas planning study. [26] In order to provide a context for discussing this recommended drainage plan, the expected impacts on existing drainage patterns and peak flows within the Study Area for the alternatives and the implications for stormwater evacuation are described first. The objectives and constraints which should guide the design of a desirable drainage system for the North Natomas area then are listed. After a review of the recommended drainage plan, the drainage study methodology is summarized together with the probable impacts of the recommended plan.

DRAINAGE IMPACTS

The present drainage network which serves the Study Area handles stormwater runoff and irrigation tailwater drainage from the entire RD 1000. Exhibits A-15, A-21, A-23, A-25 and A-26, contained in the Project Description (Section A) of this EIR, show the proposed land use mixes for Alternatives A, B, C, D, and E. The general land use descriptions indicated on these maps are the only information available at this time on the hydrologic characteristics of these alternatives. Evaluation of the hydrologic impacts of the development scenarios, therefore, necessarily must be somewhat qualitative.

As existing agricultural land within the Study Area urbanizes (south of Elkhorn Boulevard between the West Drainage Canal and the Natomas East Main Drainage Canal), existing drainage patterns would be changed, and peak stormwater flow rates would increase due to a decrease in the time of concentration for watershed runoff. An increase in impervious area which accompanies development is the principal cause of this reduction in the time of concentration.

Although detailed drainage plans for each of the alternatives are not available, it is evident that implementation of any of the alternatives would result in only minor changes in watershed drainage patterns for RD 1000 as a whole. Regardless of the exact nature of the proposed development, the southwest orientation of watershed drainage, which will be characterized by an expansion of the existing canal system and Sacramento River discharge outlets, will remain. It is likely, however, that the installation of storm drains in the areas converted to urban use would alter local pre-development drainage patterns. The effect of urbanization on peak flows would be the greatest at storm drain outlets and through canal reaches which drain predominantly urban catchments. All of the potential development scenarios include a clustered urban area, bordered on the north -- and, in the case of Alternative B, also on the west -- by agricultural land. Since the outer reaches of the RD 1000 watershed would remain in cultivation and because watershed runoff would continue to drain to the south-southwest, the decrease in concentration time for canal reaches conveying combined agricultural and urban runoff would be less severe. Increases in peak flows under Alternatives B, C, and D could be mitigated partially by the lakes which are shown on the land use maps. Their effectiveness in attenuating peak flows in the canal system would depend on the water levels maintained and, hence, on the available stormwater storage volume extant at the outset of a storm event.

When relatively permeable soils are paved, rainfall infiltration is nearly eliminated, and stormwater is effectively conveyed in storm drains to the canals. By contrast, rainfall infiltration on agricultural land can significantly reduce the volume of surface runoff from coarse-grained soils, especially during the early stages of a storm or when antecedent soil moisture is low. Moreover, on cultivated farmland the furrowed and uneven soil surface favors ponding of unfiltrated rainwater which prolongs the time it takes for surface runoff to exit a particular field and enter local drainage ditches and canals.

With urbanization, stormwater flows in drainage canals would increase, resulting in increases in pump station inflows and discharge requirements. Thus, if development in the Study Area were not accompanied by modification and expansion of the existing drainage network, the ability of the network to evacuate area stormwater runoff could be impaired seriously. Since the principal existing Pump Stations 1A and 1B also drain the South Natomas area and the currently undeveloped area south and west of the intersection of Interstates 5 and 80, future development within these areas must be anticipated as well.

A drainage improvement plan for the North Natomas area should meet the following specific objectives:

- Increase the capacity of the existing drainage network to accommodate anticipated increases in flows from the urbanizing Study Area.

- Minimize the future flood hazard within the Study Area and adjacent lands which are affected by the drainage modifications.

- Provide the most cost-effective drainage plan possible, given satisfaction of the remaining objectives.

- Minimize the current practice of staged stormwater pumping where feasible while still maintaining flexibility in pumping operations.

- Ensure that farmers affected by the improvements have continued access to irrigation water and to tailwater and stormwater drainage outlets.

- Segregate agricultural drainage from urban drainage, and route agricultural drainage around the urbanizing areas. (This is necessary due to the threat to public health posed by the presence of pesticides and herbicides in agricultural drainage.)

- Protect and expand existing riparian and wetland habitat within the Study Area in order to enhance the environmental and aesthetic quality of the community.

RECOMMENDED DRAINAGE PLAN

Plan Objectives

Dewante and Stowell's recommended drainage plan for the North Natomas area assumes that the hydrologic impacts on drainage and stormwater evacuation requirements of Alternatives B through E and the individual project applications will not exceed the impacts of converting the entire Study Area to medium density residential development. The proposed drainage improvements would be implemented in stages, as phased development within the Study Area proceeds. Because of the preliminary nature of the drainage study and its completion prior to the preparation of the proposed Community Plan (Alternative C) for the Study Area in December, 1984, a final drainage plan should be prepared, tuned specifically to the requirements of the selected Community Plan alternative prior to the approval of any development project. It is anticipated that only minor modification (such as installation of new pumps) of existing drainage facilities would be required under Alternative A.

Plan Constraints

The drainage network design for the North Natomas area must satisfy the objectives mentioned above, subject to the following constraints:

- Minimal hydraulic gradients for storm drains and canals, due to the low site elevations and relatively flat topography.

- High seasonal groundwater levels and seepage potential.

- Uncertain availability of firm electrical power for expanded pumping facilities from the Sacramento Municipal Utility District distribution system.

- Rapid excavation cost increases where topography increases (such as in the vicinity of the low ridge traversing the Study Area).

- Costs associated with using valuable Study Area acreage for canals, greenbelts, and other environmental or aesthetic expansions of drainageways.

- Continued use of portions of the Study Area and adjacent lands also served by the existing drainage network for irrigated agriculture.

- Restrictions on the available expansion of existing drainage and pumping facilities, including the Natomas East Main Drainage Canal and the Natomas Main Drainage Canal, due to insufficient capacities and/or anticipated growth outside the Study Area. For example, the Natomas East Main Drainage Canal also serves a developing tributary area outside of the Study Area.

- Environmental degradation resulting from expensive or frequent excavation or dredging of canals (such as Fisherman's Lake) which support established wetland and riparian biological communities.

System Description

The main features of the recommended drainage system are shown in Exhibit M-22 and include:

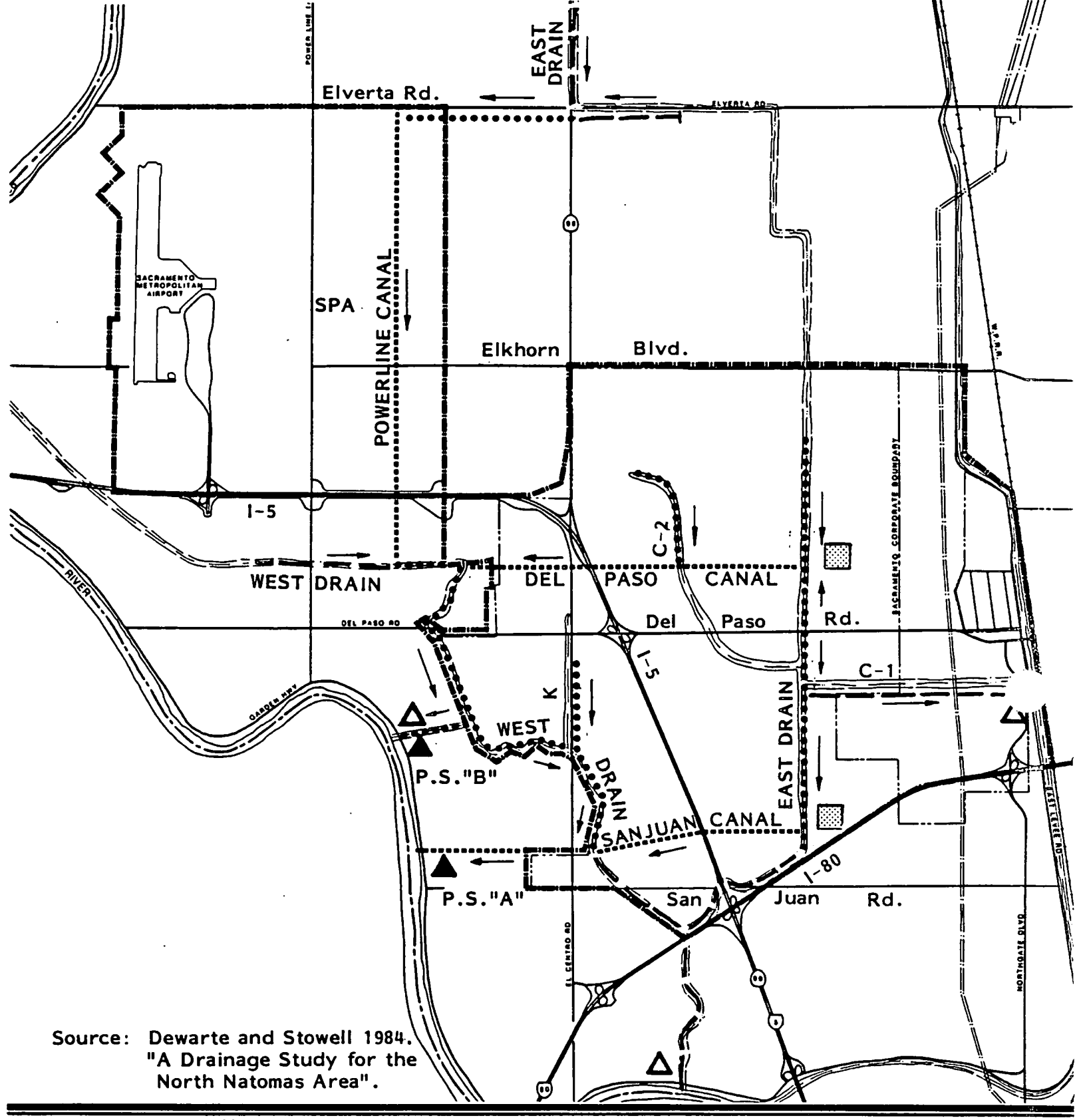
- Construction of new drainage canals and pump stations to supplement existing facilities which would be retained or expanded.

- Stormwater would be conveyed via two major east-west canals through the Study Area to two major pump stations with disposal by pumping to the Sacramento River.

- Unlined drainage canals would be used.

- Detention basins would be provided at two locations for peak flow attenuation. The first location would be at the intersection of the proposed Del Paso Canal and the East Drainage Canal; the second would be at the intersection of the proposed San Juan Canal and the East Drainage Canal.

- Ultimately, construction of a cross-canal north of the Study Area to direct agricultural drainage around the urbanized area.



Source: Dewarte and Stowell 1984. "A Drainage Study for the North Natomas Area".

EXHIBIT M-22
RECOMMENDED DRAINAGE PLAN

- New Canal
- Exist. Canal (Modified)
- Exist. Canal (Unmodified)
- New Pump Station
- Exist. Pump Station
- Storage Basin

0 3200 6400 Ft.

- Construction of a storm drain system to convey urban stormwater runoff from the Study Area to the drainage canals.

Storm drains within the urbanized portions of the Study Area were sized to handle local runoff from a 10-year design rainstorm. The designers concede that local street flooding would occur during the 100-year design rainstorm. Typical storm drain gradients would be 0.0010 foot vertical drop per foot horizontal run (foot/foot). If street flooding is conceded as a by-product of the design process, it can be considered part of the floodwater storage system. However, this results primarily from an acceptance of a certain level of risk by the designers of flooding and flood damage during extreme hydrological events, rather than any conscious effort to use streets for floodwater storage.

Three new canals would be constructed as part of the recommended plan. The alignments of these canals and the existing canals, some of which would be modified, are shown in Exhibit M-22. Of the three, the north-south Power Line Canal would handle predominantly agricultural drainage while the Del Paso and San Juan Canals would convey both agricultural and urban runoff. The San Juan Canal also would handle stormwater from the South Natomas area. The Del Paso and San Juan Canals would be excavated to slopes of 0.0001 foot/foot while the Power Line Canal would be excavated to a slope of 0.0002 foot/foot. The remaining canals in the system which would be modified -- the East Drainage Canal, West Drainage Canal, K, C-1, and C-2 Canals -- would be excavated to slopes ranging from 0.0001 foot/foot (East Drainage Canal) to 0.0013 foot/foot (C-2 Canal). Except for the C-2 Canal, canal invert elevations would range from +0.0 feet to -5.0 Feet NGVD. Depths of excavations for existing canals would vary from 5.0 feet to nearly 20.0 feet for the C-2 Canal.

Stormwater or irrigation drainage would reach the canals by gravity with the exception of a 270-acre catchment adjacent to the East Drainage Canal and I-80. Stormwater drainage from this area would be pumped to the canal from a small pumping station with a pumping capacity of 200 cfs.

According to the recommended drainage plan, stormwater and irrigation drainage generated within the Study Area would be routed to two new pump stations, A and B, for pumped discharge to the Sacramento River. The pumping capacities of the new stations would be 1,390 cfs and 2,630 cfs, respectively. Most of the Study Area drainage presently is discharged to the river from Pump Stations 1A and 1B. Under the recommended plan, these existing pump stations would be left to handle local drainage from the area adjacent to the Natomas Main Drainage Canal which is expected to urbanize in

the near future. Pump Station 8 near the Study Area's southeastern border would continue to evacuate urban drainage from the existing residential and industrial developments which abut the Natomas East Main Drainage Canal. No modifications to the station are recommended.

After considering the advantages and drawbacks of unlined and lined canals, the authors of the recommended plan concluded that unlined canals were preferable. Flexibility in construction, increased channel storage and resultant peak flow attenuation, and ease of maintenance (e.g., dragline) were cited as attributes of unlined canals.

To optimize both pump station capacities and canal excavation requirements, Dewante and Stowell conducted a flood routing investigation of the 100-year design rainstorm, assuming various canal sizing and system storage scenarios. Their optimal system configuration included provision for two detention basins with a combined storage capacity of 360 acre-feet. A 200 acre-foot basin would be located at the juncture of the East Drain Canal and the Del Paso Canal, and a second 160 acre-foot basin would be located to the south at the San Juan and East Drainage Canal junction. These sites are advantageous primarily because (1) the East Drainage Canal occupies the lowest elevations in the Study Area and, therefore, provides greater stormwater storage with less excavation, and (2) a reduction in peak flows downstream reduces the required size of the canal as it crosses the higher terrain parallel to I-5. Each basin would be designed to provide an approximately 50 percent attenuation of peak flow.

According to the drainage plan, summer water levels in the system canals and detention basins would remain at +7.0 to +8.0 feet NGVD. Normal winter water levels, however, would be regulated to +0.0 feet NGVD, five feet lower than typical current winter levels, in order to provide the required stormwater storage volume while maintaining gravity storm drainage. The cumulative system storage, therefore, would be roughly 500 acre-feet.

According to the plan, drainage water between Elkhorn Boulevard and Del Paso Road would be collected in either the East Drainage Canal or Canal C-2, then would drain to the Del Paso Canal where it would be pumped through Pump Station B into the Sacramento River. Drainage water south of Del Paso Road would be collected in the East Drainage Canal and would flow south to the San Juan Canal. Water then would be transported west in the San Juan Canal where it would be pumped through Pump Station A into the Sacramento River. Drainage from the Special Planning Area adjacent to Metropolitan Airport would flow to the proposed Power Line Canal. These flows would be conveyed south and pumped to the Sacramento River through Pump Station B.

In Alternative B land west of I-5 would remain in agricultural use, as would a strip of land bordering the south side of Elkhorn Boulevard east of Highway 99. Drainage from this area would enter the San Juan and West Drainage Canals and would be pumped along with urban runoff through Pump Stations A and B to the Sacramento River.

Design Methodology

According to Dewante and Stowell, all of the agencies affected by the study approved the design criteria for the drainage system. [27] These criteria include:

- For storm drain design, runoff from the urbanized Study Area to be based on the County of Sacramento Master Drainage Plan, Part I, Countywide Hydrology, October, 1961.

- Design flows to be on a 10-year frequency for storm drains equivalent to or smaller than a 72-inch pipe; flows requiring greater than a 72-inch pipe to be designed for a 100-year runoff event. Drainage pumping stations to be designed to handle inflow from a 100-year runoff event with all stations pumping at full capacity.

- Runoff from agricultural lands tributary to the Study Area to be 0.026 cubic feet per second per acre (cfs/acre).

- Runoff to be based on an assumption of medium density land use (50 percent impervious surface).

- Open drainage channels to be concrete-lined if conditions are acceptable environmentally and practical hydraulically.

Briefly, in addition to the criteria cited above, the design methodology for estimating watershed runoff and canal and pump station capacities involved the following steps: (1) synthesize a critical design storm, using rainfall frequency estimates and a nested rainfall distribution model, (2) compute incremental depths of watershed runoff (rainfall excess) for the delineated sub-watersheds, using the SCS rainfall-runoff relationship, (3) use a unit hydrograph [28] derived for the Sacramento region by the US Corps of Engineers in conjunction with increments of rainfall excess (rainfall convolution) to generate a composite storm hydrograph, and (4) route and combine the canal inflows sequentially, moving downstream towards the

discharge outlet, using channel routing (canals) and reservoir routing techniques.

Recommended Drainage Plan Impacts on Drainage

If the recommended drainage plan is implemented, it could result in the following moderate to significant impacts on site drainage:

- Drainage system construction and improvements likely would increase the overall efficiency of drainage and stormwater evacuation within the Study Area and adjacent lands which currently drain to Pump Stations 1A and 1B. Excavating new canals and deepening existing canals would improve gravity stormwater drainage from both agricultural and urban areas. Diversion of stormwater runoff from Pump Stations 1A and 1B to newly constructed Stations A and B also would reduce the flood discharge conveyed by the Natomas Main Drain Canal. The Canal is overgrown with tule which restricts its current capacity.

- Estimated Study Area peak flows could be low due to the use of a questionable unit discharge for agricultural runoff (0.026 cfs/acre). Peak flow rates were estimated for a 100-year rainstorm and a hypothetical sub-watershed with a land mix similar to that envisioned for the RD 1000 watershed. These estimates indicate a 2:1 ratio for post- to pre-development 100-year peak flows. Dewante and Stowell, assuming an agricultural peak flow rate of 0.026 cfs/acre, computed the ratio of post- to pre-development peak flows to be between 18:1 and 28:1. It is likely, therefore, given the statistically unsubstantiated nature of the 0.026 cfs/acre estimate, that the disparity in these computed ratios is caused by the inaccuracy of this estimate. Post-development peak flows used for canal and pump station design for the RD 1000 watershed, therefore, could be low.

- Maintenance of winter canal water levels at +0.0 feet NGVD between rainstorms could result in severe surface fluctuations, an increase in bank sloughing, and potential obstruction of storm drain outlets. Local bank sloughing, combined with low canal flow velocities, could result in partial obstruction of storm drain outlets even in the presence of riprapped or concrete-lined outlets. If storm drain gradients and corresponding flow veolcities are sufficient to scour any sediment accumulated in this fashion, the potential obstruction likely would be only temporary.

- Irrigation drainage water could cause storm drains to back up where drainage canals convey both urban and agricultural drainage, creating mosquito breeding problems during the summer.

FLOODING IMPACTS

Since detailed hydrologic information on the Community Plan alternatives is not available at this time, quantitative assessment of the flooding impacts of development is not possible. Qualitative assessment of the probable impacts of development on flooding, however, suggests the following:

- The post-development flood hazard for lands inside the Study Area could increase significantly compared to what now exists. In the event of a pump failure during a 100-year, 24-hour storm, ponding to a depth of two feet would occur over 1,100 acres in the low-lying southwestern portion of the Study Area. This area has been proposed for low, medium, and high density residential development in Alternatives C, D, and E but would remain in agricultural use under Alternatives A and B. Adoption of an adequate drainage plan which incorporates flexibility and redundancy into the design of pumping facilities could minimize these impacts. At this preliminary stage in the recommended drainage design plan, no redundancy in pumping facilities has been incorporated. However, the designers do propose that a minimum of 50 percent of the total pumping capacity be driven by diesel engines. Under the proposed development plans, however, the residential, commercial, and industrial property damage from flooding due to inadequate drainage, pumping capacity, or levee failure would be much greater than that from similar flooding under existing land use conditions or under Alternative A.

- Localized flooding could increase moderately due to the possible increase in the complexity of the stormwater drainage system accompanying the development of Alternatives B, C, D, and E. Obstruction of culvert outlets and storm drain inlets by accumulated sediment or debris could reduce the capacity of storm drains or canals and, thereby, reduce the anticipated efficiency of stormwater evacuation. As a result of these potential inefficiencies in the drainage system and its increased complexity, portions of the Study Area could experience backwater flooding during severe rainstorms. During construction and for five to ten years thereafter, the urbanized areas within the Study Area likely would contribute greater sediment loads to the storm drain network and, eventually, to the canals. The impact cited applies to any source of sediment, but it is necessarily

directed at the urbanizing areas, since these are the areas which would be affected by the proposed storm drain system.

- Flooding outside the Study Area within RD 1000 could increase significantly if either (1) the ultimate adopted drainage system lacked adequate capacity for stormwater evacuation or (2) obstruction of culverts were to cause backwater flooding. In either instance increased post-development peak flows and runoff volumes would worsen over existing conditions on lands adjacent to the Study Area.

Drainage Plan Impacts on Flooding

Since the drainage plan is a preliminary one and there is uncertainty about the peak flow estimates which were used to design canals and pump stations, development in association with the recommended drainage plan potentially would have the same impacts on flooding inside and outside the Study Area as Alternatives B, C, D, and E would have. One additional impact would result from implementation of the recommended plan. It is that floodwater elevations in the major canals could be higher than those computed for the preliminary stage of the drainage plan if late season irrigation drainage were not evacuated from canals prior to the onset of a severe fall rainstorm.

Base flow is the component of canal discharge derived from groundwater inflow. Area groundwater levels range from near the ground surface, during winter and early spring, to 25 feet below ground level. Since average elevations in the Study Area vary from +10.0 feet to +20.0 feet NGVD, corresponding groundwater elevations likely would range from +10.0 to -15.0 feet NGVD. With canal design invert elevations of +0.0 feet to -5.0 feet NGVD, groundwater seepage would enter the canal. Assuming a typical hydraulic gradient of 0.1 foot/foot at the aquifer-canal interface of the East Drainage Canal and an average hydraulic conductivity of 0.1 gallons per day per foot (gpd/foot) for clayey sands, a seepage inflow of approximately 7,500 gpd would result. Winter canal flow depths due to this seepage easily could reach two to three feet. The assumed low flow depth of 3.0 feet for canals designed by Dewante and Stowell, therefore, is unlikely to have an adverse effect of floodflow conveyance. This would be true as long as water levels in the canals (as they presently are designed) were restricted by pumping to at or below +0.0 feet NGVD.

The discrete increase in floodflows discharged from the Study Area -- under any of the proposed Alternatives and regardless of the configuration of an

adopted drainage plan -- would not affect flooding on the Sacramento River significantly. Because the time of concentration for floodflows on the Sacramento River is much greater than that for flows discharged from the RD 1000 watershed, the peak discharge from RD 1000 probably would occur 24 to 72 hours before the arrival of the Sacramento River flood peak. The cumulative impact of continued urbanization in the Sacramento River floodplain, however, would cause a significant increase in Sacramento River flows. An increase in the duration of higher magnitude flood discharge would be the most critical manifestation of this trend. A flood routing study would be required to evaluate the integrated effect of cumulative floodplain development on the timing and magnitude of flood peaks on the Sacramento River. Maximum channel capacity of the Sacramento River is 107,000 cfs, and the Sutter Bypass can handle flows up to 305,000 cfs for a combined capacity of 482,000 cfs. For a design 100-year rainstorm, drainage from the Study Area under Alternative E would represent approximately two percent of the total channel capacity.

GROUNDWATER AND SEEPAGE

Recommended Drainage Plan Impacts on Groundwater

Because of uncertainties associated with the quantification of groundwater (e.g., discontinuities in confining geologic materials, variable sorting of aquifer materials, and representativeness of field and lab testing), impacts on groundwater are more difficult to assess than impacts on surface drainage. Groundwater impacts due to proposed development of the North Natomas area would include:

- Alteration of local groundwater flow patterns in the vicinity of new canal segments -- new canals could intercept near surface groundwater flow and convert it to surface drainage. During extended droughts, however, area groundwater levels would decline, as would the interception of groundwater. In fact, groundwater levels during an extended drought probably would be stabilized by recharge of irrigation water, especially along canal bottoms.

- Reduction in the areal extent of groundwater recharge within the Study Area due to an increase in impervious acreage. The impact of this reduction of total recharge volume within RD 1000 would be compensated partially by increased canal water losses and groundwater inflow from surrounding undeveloped areas.

- Reduction in crop consumptive use within RD 1000, due to the decreases in cultivated acreage and, potentially, to lowered groundwater levels.

In addition, implementation of the recommended plan would lead to the lowering of local groundwater levels due to the excavation of new and existing drainage canals below existing channel grades. Assuming the average projected excavation depth of 5.0 feet, groundwater levels could be expected to decrease by one to two feet. This disparity reflects the compensatory effect of maintaining high summer water levels in the drainage canals.

Drainage Plan Impacts on Seepage

During the winter the groundwater table in the Study Area is high. Influenced by seepage, the groundwater table may be at or just below the ground surface during prolonged high Sacramento River stages which occur during the winter and spring snowmelt period. The high groundwater table currently does not pose a significant problem, although in the absence of improved drainage conditions it would affect development in the Study Area adversely.

Under the recommended drainage plan, the lowering of groundwater levels due to canal excavation would reduce the existing adverse impact of Sacramento River seepage on soils in the Study Area. The benefits of this reduction in seepage would be greatest for low-lying portions of the Study Area nearest to the river. It also is likely that any drainage plan adopted for the Community Plan alternative which ultimately is selected would recommend canal excavations to help convey design floodflows. Thus, the reduction in the impact of Sacramento River seepage described above probably would apply to the Community Plan alternatives as well.

WATER QUALITY

The principal deleterious impacts on water quality due to urbanization and land use changes in the Study Area would result from urban runoff pollutants and rice herbicides in drainage water. There also would be a potential for significant contamination of surface water and groundwater due to improper handling, storage, or disposal of toxic or hazardous chemicals. High technology, industrial, and research facilities present the primary potential for impacts.

Quantifying the potential extent of contamination, however, is difficult if not impossible to determine at this time. Relative impacts and potential effects can be assessed by using data collected from other watersheds. Experiences of other communities can be extrapolated to estimate average pollutant loads from general surface runoff, to identify how to avoid similar problems, and to provide model regulations and ordinances which would prevent surface and groundwater quality degradation.

Development of Alternatives B, C, D, or E in conjunction with implementation of a drainage plan, such as the plan recommended by Dewante and Stowell, would result in moderate to significant impacts on surface and groundwater quality.

Surface Water Quality

Urban point-source pollution of drainage water discharged from the Study Area would increase significantly for Alternatives B, C, D, and E in proportion to the area and density of development proposed.

Stormwater runoff from urbanized portions of the Study Area would contain a variety of pollutants, consisting primarily of petrochemical residues. Exhibit M-32 lists the estimated pollutant loading rates in urban stormwater for all alternatives, based on unpublished data compiled by the Sacramento County Regional Sanitation District. Exhibit M-32 estimates are based on average typical loading rates and acreages cited on the alternative Community Plan maps, devoted to low, medium, and high density development. The baseline rates used to compute the annual loading rates cited in Exhibit M-32 reflect estimated acreages for a range of development types. A site-specific monitoring study of another area containing the same industrial/commercial mix as that for North Natomas (currently unknown) would be required to assess the potential pollutant loading rates with greater accuracy.

Under Alternatives B, C, D, or E, point-source pollutants in excess of those currently being discharged from the Study Area initially would concentrate in the proposed storm drain network. Except for Alternative B, the polluted drain water then would discharge into the East Drainage and C-1 Canals and the east-west canal extensions linking the West Drainage Canal with pumping stations adjacent to the Sacramento River. Under Alternative B, the impact of polluted urban drainage on water quality in the West Drainage Canal would be minimal. An independent volume of polluted discharge also could be conveyed in the Natomas Main Drainage Canal to existing Pump Stations 1A and

EXHIBIT M-32

Estimated Annual Pollutant Emissions in Urban Runoff

Parameter		Pollutant Emission Rate [1/] (pounds/year)				
		Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Total Suspended Solids (TSS)	Low	36,000	120,000	175,800	168,000	33,120
	Medium	6,290	109,140	321,640	247,350	642,600
	High	137,500	339,020	376,860	447,040	233,200
	Total TSS	179,790	568,160	874,300	826,390	908,920
Biochemical Oxygen Demand (BOD)	Low	2,400	8,000	11,720	11,200	2,210
	Medium	815	14,125	41,625	32,010	83,160
	High	21,875	53,935	59,955	71,120	37,100
	Total BOD	25,090	76,060	113,300	114,330	122,470
Oil and Grease (O&G)	Low	600	2,000	2,930	2,800	550
	Medium	3,370	3,210	9,460	7,275	18,900
	High	5,625	13,870	15,415	18,290	9,540
	Total O&G	9,595	19,080	27,800	28,365	28,990

1/ Source for pounds per acre per year baseline emission rates from unpublished data of Sacramento Regional County Sanitation District, "Delta Shores Planned Unit Development, Sunnyside Meadows Subdivision, and Village Meadows Subdivision, Final EIR", Sacramento City Planning Department, February, 1978.

1B. Detailed information on the apportioning of Study Area drainage between the various pump stations is lacking at this time. The east-west segment of the West Drainage Canal, upstream of Del Paso Road and west of the northwest corner of the urbanizing portion of the Study Area, would not receive any more urban pollutants under the alternatives than it does now. As part of the West Drainage Canal, Fisherman's Lake likely would experience significant increases in urban pollutant loading only under Alternatives C, D, and E.

Under the recommended plan prepared by Dewante and Stowell, increases in polluted urban runoff would affect all but the following canal reaches: (1) Power Line Canal, (2) East Drainage Canal outside of the Study Area, and (3) West Drainage Canal west of the Power Line Canal junction. Much of the polluted urban runoff would flow through Fisherman's Lake en route to Pump Station B.

Because all Study Area drainage would be discharged to the Sacramento River, regardless of which drainage system is chosen, polluted urban runoff entering the drainage system would reach the River eventually. In isolation, the impact of discharging urban point-source pollutants into the Sacramento River from Study Area pump stations probably would be slight. Cumulative discharges from this and other projects along the river, however, would produce more significant adverse water quality impacts due to an increase in the total pollutant load affecting the river. [29] Heaviest pollutants occur at the onset of the winter wet season. Oil and grease can have disasterous effects on waterfowl, resulting in death due to exhaustion, starvation, and exposure. Small concentrations of some petroleum products also can be toxic to fish. The effects of petroleum products on plant life usually are short-lived unless the exposure is continuous.

The Clean Water Act requires the US Environmental Protection Agency (EPA) to issue National Pollutant Discharge Elimination System permits to anyone responsible for a point-source discharge of wastewater. EPA has been working to develop a permit program for storm water discharges. EPA prohibits storm water discharges without a permit. [30] EPA defines a point source as any storm water discharge which emanates from an urbanized area where land or facilities are used for industrial or commercial activities. Applicants for EPA storm water discharge permits will be required to describe the nature of the discharge, the drainage area, the receiving waters, and any treatment applied to the discharge. As of September, 1984, the State Water Resources Control Board and Regional Boards have been administering the new permit program in California.

Agricultural non-point pollution of Study Area drainage water would be reduced significantly under Alternatives B, C, D, and E due to conversion of agricultural land to urban use.

In contrast to urban point-source pollutants which are discharged at readily identifiable locations, non-point pollutants, such as rice herbicides, enter the drainage network diffused over large areas. Within the RD 1000 watershed, non-point pollutants Ordram and Bolero can reside in both overland and subsurface drainage from rice fields, depending on the timing and frequency of application, as well as the irrigation schedule. The concentration of polluted agricultural drainage entering local drainage ditches and drainage system canals increases downstream in proportion to the cumulative contributing acreage under herbicide application and to the efficiency of herbicide dissolution in farm field drainage. Up to 49 mg/liter of thiobencard (Bolero) was present in the Natomas Main Drainage Canal during the 1984 sampling season. [31] This is significantly higher than the water quality guideline concentration of 24 mg/liter established to protect aquatic organisms from rice herbicides.

The probable reduction in acreage devoted to rice cultivation and, therefore, the reduction in the herbicide concentrations in agricultural drainage would be greatest for Alternatives C, D, and E and least for Alternative A. Enactment of Alternative B would result in moderate reductions in rice acreage and in herbicide concentrations in agricultural drainage within the Study Area. Under Alternatives C, D, and E, polluted agricultural drainage still could be conveyed in major canals through the developed urban areas. Under Alternative B, however, depending on the operation and management of the northernmost lake proposed on the East Drainage Canal, polluted agricultural drainage potentially could be segregated from the majority of the urbanized area.

If the recommended drainage plan were implemented, agricultural drainage would be conveyed through urban areas in the East Drainage, Del Paso, San Juan, and, possibly, the West Drainage Canals. According to the preliminary report, a proposed cross-canal ultimately would be constructed along Elkhorn Boulevard to divert agricultural drainage around the urbanized Study Area.

Surface water contamination by hazardous chemicals used in manufacturing and industrial processes could have a significant to catastrophic impact on the quality of stormwater discharged from the urbanizing portion of the Study Area.

Storage of unprocessed industrial chemicals and hazardous chemical by-products awaiting proper disposal could result in surface water contamination, if leakage or rupture occurs or accidents occur during handling of the chemicals.

Representative industries which use toxic chemicals which can pollute surface water include the chemical, bio-chemical, genetics, electronics, medical, pharmaceutical, and photographic industries among others.

These industries use a variety of toxic chemicals including solvents, acids, caustics, volatile organics, and petrochemicals. [32] Chemicals used for processing or manufacturing usually are stored above ground where spills and leaks from containers ultimately can enter storm drains or waterways during rainstorms.

The potential for chemical surface water contamination within and downstream of the Study Area under the various alternatives depends on four factors: (1) the total area devoted to industrial use (land use map designations of M-20, M-50, and LI), (2) the specific character of the industries within each industrial zone, (3) the proximity of industrial zones to the principal drainageways and local storm drain inlets, and (4) chemical storage, handling, and disposal practices.

Based on available information regarding the first three factors, Alternative E would have the highest potential for significant water quality impacts due to surface water contamination. This would be true for both the rough drainage networks sketched on the land use maps and the recommended drainage plan. Under the recommended drainage plan and Alternative E, only the Power Line and C-2 Canals and the portion of the East Drainage Canal outside the Study Area would not be exposed to potential industrial surface water contamination. This assumes that surface drainage from the Special Planning Area will be handled by current airport-related facilities which discharge to the West Drainage Canal. If, on the other hand, surface drainage form this area is discharged to the Power Line Canal, the Canal also would be subject to potential contamination from industrial solvents, such as TCE, which are used in the aircraft industry.

Implementation of Alternatives A, B, C, and D would entail lower risks of contamination than Alternative E. This is due primarily to the reduced area designated for industrial use. There still would be considerable risk of surface water contamination, however, due to the proximity of industrial zones to proposed drainage canal alignments. Furthermore, any approved drainage plan likely would include provision for an urban storm drain

network, as in the recommended drainage plan. In the absence of on-site measures to segregate site runoff from chemical storage and handling areas, chemicals spilled on the ground surface could move rapidly through the drainage system in stormwater runoff or in localized drainage from the hosing down of work areas.

Ideally, no contamination of surface waters would result from industrial, research, and development facilities. All discharges, including runoff, are regulated by the Regional Water Quality Control Board. Permits are issued by the Regional Board to regulate parameters such as oil, grease, turbidity, TDS (total dissolved solids), bacteria, chemicals, and pH. These permits are tailored to each industry or facility, depending on the chemicals used in the process or the by-products of the manufacturing process.

Groundwater Quality

Infiltration of chemicals leaking from subsurface storage and gasoline tanks, surface holding or treatment ponds, or uncontained surface spills potentially could result in severe impacts on local and/or regional groundwater quality.

Groundwater contamination in Santa Clara Valley provides a basis to predict potential impacts from development in the North Natomas area.

According to the land uses proposed by the Community Plan alternatives, research, development, and light industrial facilities would be locating in the North Natomas area. These industries are most likely to be similar to the types of high technology firms which dominate the economy of Silicon Valley.

Leaks and spills of solvents and related chemicals from industrial facilities there have been publicized, and contamination has been discovered at and around 89 underground solvent storage tanks in the Valley. Thirteen (13) public water supply wells drawing from the groundwater aquifer have been contaminated. [33] Companies have been cooperating with public agencies in order to remedy the situation. Local government, industry, and environmental groups developed and are implementing a Hazardous Materials Management Ordinance to monitor chemicals in existing tanks and to ensure greater control at new storage facilities. The Ordinance provides requirements and suggested alternatives for the proper monitoring of underground storage facilities.

Chemicals used in the semiconductor industry -- solvents, aromatic hydrocarbons, and other toxic compounds -- have been found in Santa Clara Valley groundwater. Heavy metals also could contaminate groundwater if materials are stored or disposed underground. Surface spills probably would result in detectable groundwater contamination only where near-surface clay strata are discontinuous and vertical percolation is unimpeded. Near-surface soils, regardless of soil type, would be contaminated by a chemical spill at the ground surface. [34]

Regardless of whether Alternative A, B, C, D, or E is selected contaminants initially would move downward through the soil profile and then migrate laterally in the direction of the local hydraulic gradient.

Migration of non-reactive [35] groundwater contaminants from their source is governed by advective and dispersive transport processes. The advective process is that component of contaminant transport associated with flowing groundwater. When advective transport dominates contaminant migration, the contaminant plume (the term used to describe the three-dimensional form of the contamination) is suggestive of the local pattern of groundwater flow. Its influence on contaminant migration is dominant where hydraulic gradients are moderate to steep and corresponding groundwater flow velocities are high (such as in the vicinity of pumping depressions).

The process of hydrodynamic dispersion is that component of contaminant transport which is linked to mechanical mixing and molecular diffusion. When dispersive processes dominate contaminant migration, the contaminant plume can spread out in any direction, and its behavior is dependent on the characteristics (such as porosity, permeability, and sorptivity) of the aquifer materials. Dispersion dominates solute migration where hydraulic gradients are mild and groundwater flow velocities are low (that is, away from areas of groundwater discharge: pumping sites and gaining streamcourses or drainageways).

Under Alternatives B, C, D, or E and the drainage plan ultimately adopted, the migration of groundwater contaminants originating within the urbanized Study Area would vary according to (1) the time of year, (2) depth of the contaminant source, (3) the characteristics of the groundwater medium along the migration route, and (4) water levels in the unlined drainage and irrigation canals. If contaminants were released during the typical winter season at a relatively shallow depth (less than 10 feet NGVD, for instance), canal water levels usually would be low and local groundwater levels would be near the ground surface. Assuming that the ultimate development of the drainage system would include excavated canals (invert elevations +0.0 to

-5.0 NGVD), the contaminants initially would move toward the nearest canal. The rate of movement would depend on the aquifer materials and could range from a few inches per day for sands to a few inches per year for tight, unfractured clays. Because the location of potential containment sources within the Study Area and detailed information on the composition of aquifer materials in the Study Area are not known, it would be unwise to speculate on the time that would be required for contaminants to reach the canals. Unless the contaminant source lies within a tight clay stratum, however, the farther the source is from nearby canals, the longer it would take to reach and contaminate canal waters. Once water in the canals is contaminated, the eventual discharge of the contaminated drainage into the Sacramento River, upstream of the City's Sacramento River water intake, is certain. In addition, some contaminants still would enter the regional groundwater flow system due to the influence of dispersive processes on downward expansion of the containment front.

If contaminants were released during the winter from deeper within the aquifer (10 feet NGVD), they would join the regional groundwater flow system and move towards the east. Initial migration from the Study Area would be subject to the same constraints as those outlined above for the shallow source scenario. The direction of regional groundwater flow currently is towards the east and is likely to remain so because of the heavy reliance of agriculture and municipalities on groundwater in that area.

If contaminants were released during the summer from a shallow source (+0.0 feet NGVD), the maintenance of high canal water levels (+7.0 to 8.0 feet NGVD assumed) relative to the lower groundwater levels adjacent to the canals would tend to temporarily minimize lateral advective contaminant transport. Adjacent to the canals, however, dispersive transport processes (i.e., mixing and diffusion) would assume a significant role in the spreading and downward, albeit slower migration of the contaminants. The position of the local water table relative to that of the release point would play the most significant role in determining the rate of summer contaminant migration. Above the groundwater table, unsaturated flow controls the movement of water and contaminants through the aquifer. Where groundwater levels are low, downward movement of contaminants from the higher and drier portions of the soil profile would be controlled primarily by the frequency and duration of summer convective rainfall and domestic and agricultural irrigation within the urbanized Study Area. High summer evapotranspiration rates in the Central Valley, however, could greatly reduce the volume of domestic irrigation water advancing deep into the soil profile. As a result, shallow summer releases of contaminants probably would not migrate laterally for significant distances. Under most

conditions, these contaminants would not migrate steadily away from the source until the advent of the winter rainy season and the lowering of canal water levels (and eventual reversal of local hydraulic gradients) in the Study Area.

The behavior of contaminants released during the summer from a deeper source (+0.0 feet NGVD) would be similar to that described for the shallow release condition. Contaminants could reach the water elevation more quickly, however. The net result of this discussion of seasonal variations in contaminant migration is that the potential for winter migration of contaminants would be much greater than the potential for summer migration.

With respect to the recommended drainage plan, the initial surface interception of groundwater contaminants at the groundwater-canal interface would be concentrated along the Del Paso, East Drainage, and San Juan Canals. After interception of the contaminated groundwater via seepage through the wetted perimeter of the canals and its conversion to surface drainage, the contaminated drainage would flow to Pump Stations A and B where they would be pumped into the Sacramento River. Contaminants migrating from sources in the vicinity of the C-1 Canal could enter the canal and then the Natomas East Main Drainage Canal via Pump Station B. Flow in the Natomas East Main Drainage Canal would be discharged to the American River.

The State Legislature passed Assembly Bill 1803 in 1984 on hazardous material monitoring practices. Under this statute the California State Department of Health Services is allowed to screen any water system threatened by contamination and to develop monitoring requirements.

RIPARIAN AND WETLAND IMPACTS

Excavation and subsequent maintenance of new or existing canals within the Study Area could have significant impacts on existing riparian and wetland habitat.

Implementation of Alternatives B, C, D, or E in conjunction with some form of drainage improvements would entail dredging of existing canals and excavation of new ones. The recommended drainage plan calls for excavating all principal drainage canals to a bottom elevation between +0.0 feet and -5.0 feet NGVD. This would involve an excavation depth of roughly five feet. Canal top widths would range from 54 feet to greater than 200 feet. The procedures for long-term canal maintenance of brush and other vegetation

as well as accumulated sediment have not been defined yet. The stated initial preference for unlined canals, however, and the configuration and hydraulic design of the canal sections suggest that frequent removal or chemical control of canal vegetation could be necessary.

The most severe impact on existing riparian and wetland habitat would result from possible modification of Fisherman's Lake. Existing open water and freshwater marsh vegetation of the lake attracts a variety of migratory waterfowl. The North Natomas area also lies along the Pacific flyway, the major route for migrating birds along the West Coast. Significant impacts also could result from excavation of the East Drainage Canal which occupies the lowest terrain in the Study Area and, therefore, contains seasonally wet and/or ponded soils.

Managed fluctuation of winter and summer canal water levels at +0.0 feet and +7.0 to +8.0 feet NGVD, respectively, would inhibit the establishment of a stable wetland biological community at Fisherman's Lake and along the channels.

Low elevation wetland vegetation only can survive inundation for short periods of time. Conversely, wetland species attempting to establish themselves around the summer canal water level would be unable to survive the seven- to eight-foot decline in water levels come winter. Riparian vegetation along the canals also would be stressed by the radical fluctuations in water levels.

Maintenance of winter canal water levels at +0.0 feet NGVD between storms could reduce the areal extent of wetland at Fisherman's Lake and along the canals significantly.

Wetland vegetation currently established on the canal side slopes between approximately +5.0 feet and +9.0 feet NGVD would dry out and die or be removed during the excavation of the canals. Due to the proposed water level management for the canals, the vegetation would be unable to regenerate within the canals. At Fisherman's Lake, this impact would be more severe because of the larger extent of the wetland area.

Depending on the contaminant species, surface or groundwater could have an adverse impact on wetland and riparian habitat. Wetland and riparian vegetation species could suffer declines in vitality or even death, if toxic chemicals were to enter the waterways or shallow aquifers in sufficient concentrations. Sediment, which can be trapped and deposited within wetland areas due to locally lowered flow velocities and increased rentention times,

can absorb contaminants to its surface through chemical bonding. Thus, sediment deposits within these areas could exhibit high levels of pollutant concentrations if pollutant loading were continuous or periodically severe.

FIVE INDIVIDUAL APPLICATIONS

The drainage and flooding, water quality, and groundwater impacts which would result from implementation of the five individual applications for development in the Study Area would be similar to the impacts from the Community Plan alternatives discussed above. That discussion of impacts is qualitative rather than quantitative, and the same impacts would occur from each application.

If only one or two of the applications for development were to be approved, it is likely that the impacts on existing drainage and groundwater flow patterns, on-site and off-site flooding, and peak flow rates would be the same. These impacts, however, would be less significant than those cited for the Community Plan alternatives under similar assumptions. Approval of more than two of the applications likely would require construction of an expanded and more complex drainage system similar in scope to the recommended drainage plan. As the combined area of the approved applications increases, the significance of the impacts cited above would approach those of Alternatives B, C, D, and E.

Peak flows from storm runoff would increase from development of each project. The method outlined in the Sacramento County Hydrology Manual has been used to estimate post-development peak flows for each application. The results are presented in Exhibit M-42.

Pre-development peak flow rates shown in Exhibit M-42 were calculated by multiplying ratios of unurbanized to urbanized peak flows by the estimated post-development peak flow rates. [36] Depending on the degree of urbanization, the undeveloped areas would generate peak flows one-third to one-half those of the developed areas.

As shown in Exhibit M-42, the highest peak flows would be associated with the largest land application for development. The peak flow rate of the 1,410-acre Gateway Point project is estimated to be 1,205 cfs while the 118-acre Fong project would have a peak-discharge rate of 91 cfs.

The potential for impacts on groundwater quality from high technology development would increase with the amount of area proposed for this use.

EXHIBIT M-42

100-Year Peak Discharge from Individual Development Applications
(in cubic feet per second) 1/

Application	Acres 2/	Pre-Development 3/	Post-Development
Gateway Point	1,410	495	1,205 4/
Fong	118	82 4/	91
Schumacher-Iverson	554	248	483
Reid-Ketscher	257	140	244
Payne	323	165	264

1/ Assuming all areas within the application drain to a common outlet.

2/ Net acres.

3/ Pre- and post-development estimates are based on Sacramento County drainage guidelines and application land use mixes.

4/ Extrapolated outside of the region of plotted data, Plates 7a and 7b, Sacramento County Drainage Manual.

It is expected, therefore, that the Gateway Point project would create the greatest potential for impacts on groundwater, followed by the Schumacher-Iverson, Payne, Reid-Ketscher, and Fong applications.

Unless a majority of the applications for development were approved, it is possible that new canal construction and/or extensive excavation of existing canals largely could be avoided. If canals are not excavated, limited modification of drainage facilities probably would not lower local groundwater levels significantly. Consequently, without a substantial lowering of groundwater levels, seepage from the Sacramento River would continue to pose problems for structures at lower elevations in the developed areas.

M. HYDROLOGY AND WATER QUALITY -- MITIGATION MEASURES

The following mitigation measures would apply to all five Community Plan alternatives (A through E) plus the five individual land use applications. The major difference would be the extent over which the mitigation measures would need to be applied, if the more extensive development alternatives are implemented the mitigation measures would need to be applied to a larger area.

In order to mitigate on-site drainage and flooding impacts, the following measures are recommended:

- The City and County of Sacramento should ensure that the canals, pumps, and other drainage facilities proposed for the Study Area would be adequately sized to accommodate the projected increase in stormwater runoff which would result from the alternative adopted as the North Natomas Community Plan. This can be accomplished by updating and revising the recommended drainage plan based on the finally adopted Community Plan and the mitigation measures cited herein.

  To minimize the extent and depth of street flooding during a severe (i.e., greater than 10-year) rainstorm, storm drains should be sized progressively larger as the network develops. In other words, as the drainage area increases, downstream in the network, the pipe sizes should be increased to forestall bottlenecks and to ensure efficient stormwater evacuation at minimal cost.

- Provisions should be made for back-up power supply (diesel or turbine) to operate pumps in the event that the main power supply fails.

- A groundwater pumping program may need to be established to lower groundwater levels in the winter in order to protect foundations and underground chemical storage containers. If elevated building pads are constructed for all structures in the Study Area, the pumping program could be reduced or eliminated entirely. This could require importing fill from outside the Study Area. If the soil excavated from the canals is relatively free of pesticide residues, however, it also could be used for this purpose.

- A flood analysis should be undertaken to determine the minimum finished floor elevations required to avoid structural flood damage which would occur if Sacramento River levees failed during a 100-year flood or major earthquake.

The following measure is recommended to reduce downstream flooding impacts:

- A cumulative impact study and flood routing analysis should be performed in order to assess effects of combined watershed urbanization along the Sacramento River on the River's downstream flood peaks. Whatever agency or group conducts the investigation, it should work in cooperation with the Flood Forecasting Center of the Department of Water Resources which has developed computer flood routines for the major California river systems.

The following measure is recommended to mitigate the specific on-site drainage and flooding impacts of the recommended drainage plan:

- Validate the estimated peak flows and runoff volumes for the 100-year design rainstorm by applying a single unified methodology (such as SCS rainfall-runoff model and Corps of Engineers unit hydrograph) to the computations for all areas with in the RD 1000 watershed.

  As discussed on page M-26, the 18- to 28-fold difference in pre- and post-development peak flows which follows from the use of the agricultural runoff factor (0.026 cfs/acre) for undeveloped land and Sacramento County guidelines for urbanized areas is excessive. During severe, long-duration storms, the detention storage, which during less severe storms causes an attenuation of peak flows, likely would be depleted prior to the time of the maximum intensity rainfall. Therefore, only minor, if any, reduction in peaks flows would occur.

Regardless of how efficiently the District's pumping stations have evacuated stormwater from the Study Area in the past, the 0.026 cfs/acre estimate is completely unrelated to any statistical estimate of storm frequency and duration from which an assessment of the risk of flooding can be made. Since there is a risk of extensive flood damage in the Study Area, the design of floodwater conveyence facilities should be based on a consistent methodology and one which is statistically relevant.

In order to reduce the impact of polluted urban and agricultural runoff on local and regional surface water quality, the following measures are recommended:

- Grease/oil traps should be integrated into the storm drain system wherever practicable. This is especially critical in commercial and industrial areas where automotive and machine manufacturing, servicing, or repair might be located.

- Site industrial/manufacturing clusters as far from drainage canals as possible.

- As part of the eventually adopted drainage plan, a drainage cross canal (such as Del Paso Canal) should be designed to divert summer agricultural drainage around the northern border of the urbanized Study area. Dewante and Stowell's recommended drainage plan includes eventual construction of such a diversion canal. No specific alignment or design, however, is provided in their preliminary report. A control structure (weir and sluice gates) would be required to enable RD 1000 personnel to manage the seasonal diversion. If a terraced floodplain cross-section is not extended along this reach, a lake should be excavated along the East Drainage Canal at the northern edge of the urbanized Study Area to provide the required stormwater storage volume and to facilitate seasonal diversion and treatment of agricultural drainage.

To mitigate the impacts of the recommended drainage plan on wetland and riparian communities, the drainage system should be designed to incorporate environmental concerns. These concerns typically could be addressed by the following recommended measures:

- Reduce the seasonal water level fluctuation (seven to eight feet) proposed in the drainage plan by three to four feet in order to foster the regeneration and health of riparian and wetland habitat.

- Construct new and/or excavate existing canals to a terraced channel/floodplain design cross section, as shown in Exhibit M-47. Where possible, these expanded canal sections should be used instead of detention basins. The minimum extent and ultimate width of the cross-sections would correspond to that which provides the required floodwater storage volume for the 100-year design rainstorm, given the assumed winter water levels, vegetation, and sedimentation in the canals, and design pump station capacities.

- Alter the proposed design cross-section of drainage canals to include a wide terraced floodplain as shown in Exhibit M-47. Vegetation establishment should include freshwater marsh species between -3.0 feet and approximately +4.0 feet NGVD and riparian species (such as willow, vines, or grasses) between +4.0 feet NGVD and the top of the bank. Riparian plantings along the canal sideslopes would help to deter bank sloughing and erosion due to floodwater passage. Shade trees should be planted along the south or west bank to help reduce summer water temperatures in the canals. If land use restrictions or costs prohibit construction of the alternative floodplain canal cross-section along all canal reaches in the Study Area, priority should be given to the West Drainage and Del Paso Canals in order to provide both a continuous stretch of habitat and a buffer between urban and agricultural areas.

- Maintain the normal winter water level in the canals at an elevation of +3.0 feet NGVD instead of the proposed +0.0 feet.

  In order to facilitate gravity stormwater drainage and to minimize the risk of flooding due to overtopping of the canals, the water levels in the canals would have to be pumped down to approximately +0.0 feet NGVD prior to the onset of forecasted rainstorms. During a wet year with short storm interarrival times, it would not be necessary to raise water levels to +3.0 feet NGVD after every storm because the soil moisture levels between storms would remain high. During dry or average years, however, periodic pumping and/or introduction of water into the canals would be required.

  The feasibility of the proposed management plan depends more on financial considerations rather than hydraulic ones. Canals can be designed to pass the required floodflows in the presence of vegetation and estimated levels of sedimentation. Pumping costs and required attentiveness to procedure would be greater under the plan, but the

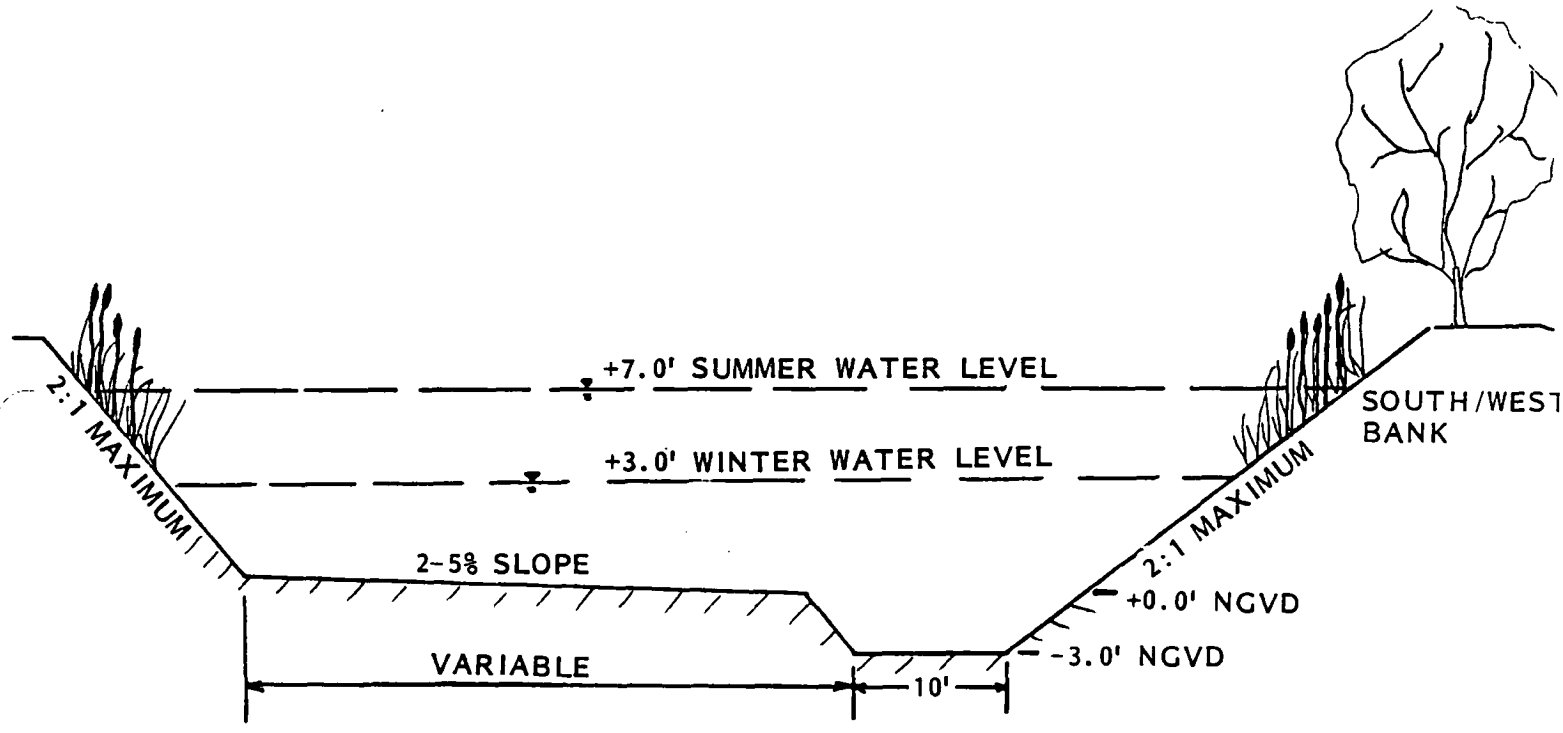


EXHIBIT M-47
TERRACED CHANNEL/FLOODPLAIN DESIGN SECTION

Source: Philip Williams & Associates

NOT TO SCALE

rewards, which are not commensurate with monetary valuations, would be substantial.

The likely frequency of pumping as well as pumping costs could be evaluated based on a statistical analysis of historical rainfall records and, if necessary, generation of synthetic rainfall sequences. Such an analysis would provide information on the number of expected storm events, and their duration and interarrival times. Pumping requirements and costs then could be assessed over a longer planning horizon (e.g., 100 years).

The probability of severe local and regional impacts on surface and groundwater quality resulting from on-site storage and disposal of toxic substances can be reduced but not eliminated, if the applicable industries conform to current standards. Storage and disposal requirements should conform with Division 20 of the Health and Safety Code and guidelines of the California State Department of Health Services, the State Resource and Recovery Act (RCRA), and US Environmental Protection Agency.

- On-site storage of any amount of toxic substances for more than 90 days requires a permit from the Hazardous Waste Branch of the state Department of Health Services.

- A groundwater monitoring program is required in cases where hazardous wastes are stored in surface ponds.

- Large storage tanks or vaults used for storage or disposal of toxic substances for periods exceeding 90 days should be designed to provide access so that the structures' integrity can be inspected.

The State Water Quality Control Board currently is formulating specific measures to prevent water quality impacts from storage and disposal of toxic substances. As a result of its investigation of groundwater and soil contamination induced by high technology industries, the Board has recommended a dual containment strategy for storage of toxic substances.[37] This strategy calls for containing substances in corrosion-resistant steel containers which would be stored in concrete vaults. Vapor monitoring also is recommended to assist in early detection of leaks inside the vaults. The EPA agrees with this containment strategy.[38]

The Santa Clara Fire Chiefs' Association has proposed standards for storing and handling hazardous materials; the City and County should consider adopting these standards. The Sacramento County Public Works Department is

developing guidelines for the same purpose. Communication between the responsible Santa Clara and Sacramento County agencies should be encouraged.

All City and County public health and safety, water supply, and drainage agencies should work with the State Water Quality Control Board and, using information developed in other locations, prepare a plan and program for the safe storage and handling of hazardous materials.

To further reduce the potential impacts of toxic and hazardous substances on local and regional groundwater resources and, therefore, public health, the following measures are recommended:

- Cluster industrial and manufacturing zones in order to segregate firms which potentially would generate, handle, or dispose of toxic substances from residential areas.

- Site the industrial and manufacturing clusters in accordance with the optimal satisfaction of the following partially competing constraints (in order of importance):

  -- Within areas mapped as hydrologic soil group D (tight soils of low permeability (see Exhibit M-10).

  -- Close to the expressways to reduce the required intrusion of toxic waste disposal trucks into residential areas.

- Prior to the design of a final drainage plan and land use site plan for the Study Area, a thorough geotechnical investigation of the Study Area should be conducted, including soil borings at depth (50 feet minimum) to characterize the underlying aquifer materials.

- Self-contained drainage systems should be required for areas within specific industrial and manufacturing complexes which are devoted to the storage and handling of toxic substances.

- On-site recycling of potentially toxic substances also should be encouraged, since this would reduce the amount of off-site disposal and, therefore, the frequency of transporting the waste materials.

- Before the commercial and industrial land use zones are occupied, a network of groundwater monitoring wells should be installed within and around the periphery of the industrial and manufacturing clusters.

Also, a groundwater sampling program should be instituted to monitor any changes in groundwater chemistry. The sampling program should be designed by a qualified groundwater hydrologist in consultation with engineering/groundwater specialists at the State Regional Water Quality Control Board.

1 California Patterns: A Geographical and Historical Atlas, David Hornbeck and Phillip Kane, 1983.
2 Bush Lake no longer exists. It was drained and converted to agricultural use.
3 National Geodetic Vertical Datum (NGVD) which is equivalent to 1929 mean sea level.
4 According to Dewante and Stowell's Drainage Study (page 4-13), the NCMWC maintains the Natomas Cross Canal.
5 Philip Williams & Associates' conversation with Mark Vogel, Dewante and Stowell.
6 Dewante and Stowell Drainage Study, op. cit., Page 4-2.
7 Dewante and Stowell, 1984.
8 Ibid.
9 This is a storm which lasts 24 hours with an intensity such that the probability of occurrence is on the average of at least once in a 100-year period.
10 Historical Atlas of California, Warren Beck and Ynez Haase, 1974.
11 Scientific American, February, 1985.
12 Philip Williams & Associates' conversation with Thomas Betts, Reclamation District 1000, September 6, 1984.
13 Dewante and Stowell's Drainage Study, op. cit., page 2-2.
14 Department of Water Resources, 1974, and Sacramento Department of Public Works, 1980.
15 Philip Williams & Associates' conversation with Thomas Betts, op. cit.
16 Evaluation of Groundwater Resources: Sacramento Valley, Caliofrnia Department of Water Resources, 1978.
17 Ibid.
18 Sacramento Valley Seepage Investigation, California Department of Water Resources, 1967.
19 Philip Williams & Associates' conversation with Thomas Betts, op. cit.
20 Evaluation of Groundwater Resources: Sacramento Valley, California Department of Water Resources, 1978.
21 When a farmer applies to buy and use this restricted chemical, the location must be specified. This is how the State can determine if contaminated water could drain into state waters. Farmers who use this material are regulated according to how much can be used and when it can be applied.
22 Source: Harry Behrens.
23 Ibid.
24 There are other variables which affect the transport of testicide and herbicide residues, such as adhesion to soil. While there are different physical processes involved in migration, frequent irrigation increases the likelihood (that is, the probability of occurrence) that these residues will migrate from the point of application.
25 Philip Williams & Associates' conversation with John Cornacchia, State Water Quality Control Board, September 6, 1984.
26 Drainage Study North Natoms Community Plan, Dewante and Stowell, 1984.
27 Ibid.
28 A unit hydrograph is a hydrograph which corresponds to a watershed runoff volume of 1.0 inch.
29 The River undoubtedly has some assimilative capacity with respect to urban pollutant loading. Cumulative development in the floodplain

areas which discharge their stormwater into the Sacramento River, however, will have a more significant adverse water quality impact, as stated.

30 40 CFR Part 122, Section 122.26 (c), published in September 26, 1984 Federal Register.

31 Department of Fish and Game Pesticide Investigation, 1984.

32 An EPA White Paper (1984) lists the following substances which have contaminated groundwater at some sites in the Santa Clara Valley: stoddard solvents, freon, TCE, dibutyl phthalate, xylenes, toluene methylene cloride, chloroform, TCA, acetone, PCE, ethylbenze, MEK, IPA, cyclohezanone, aromatic hydrocarbons.

33 Environmental Protection Agency (EPA) White Paper, 1984.

34 While the Sher Bill requires mitigation of these dangers, the potential for contamination of surface soils remains, regardless of the legislation.

35 Reactive contaminants interact chemically with soil particles. Their migration in groundwater aquifers, therefore, typically is much slower than the migration of non-reactive contaminants.

36 Rantz, 1971.

37 Philip Williams & Associates' conversation with John Cornacchia, op. cit.

38 EPA White Paper, 1984, op. cit.

N. VEGETATION AND WILDLIFE -- THE SETTING

A field survey was conducted in July and August, 1984 to identify existing biotic resources in the Study Area. Information and mapping from the California Natural Diversity Data Base, California Department of Fish and Game, US Fish and Wildlife Service, and the Sacramento Audubon Society were used in this survey.

VEGETATION

Four distinct vegetative types exist in the North Natomas Study Area. The extent of each vegetation type is shown in Exhibit N-2 and is discussed below.

Wooded Riparian/Wetland

Although severely disturbed, several well-developed stands of cottonwood-willow riparian forest vegetation are present in the Study Area. The wooded riparian sites generally border drainage canals and often are associated with narrow strips of emergent wetland vegetation such as cattails and bulrushes. The most important sites are:

- Fisherman's Lake and associated portions of West Drainage Canal. Fisherman's Lake is a significant riparian forest site with well developed stands of sandbar willow (Salix hindsiana), Fremont cottonwood (Populus fremontii), black willow (Salix goodingii), button willow (Cephalanthus occidentalis), tule (Scirpus californicus), cattail (Typha latifolia), wild grape (Vitis californicus), elderberry (Sambucus mexicana), and other characteristic riparian plants. This site presently is threatened by recent tree removal and trash dumping along the western shore and dredging at the south end of the lake.

- Scattered sites along the Natomas East Main Drainage Canal where cottonwood-willow vegetation is well developed. The two most significant sites at Del Paso Road and near Interstate 80 contain numerous large valley oaks as well.

- A large riparian and marshy area northeast of the Sacramento Metropolitan Airport along Power Line Road. At this site, willows and cottonwoods form narrow strips of vegetation flanking a central cultivated area which apparently floods.

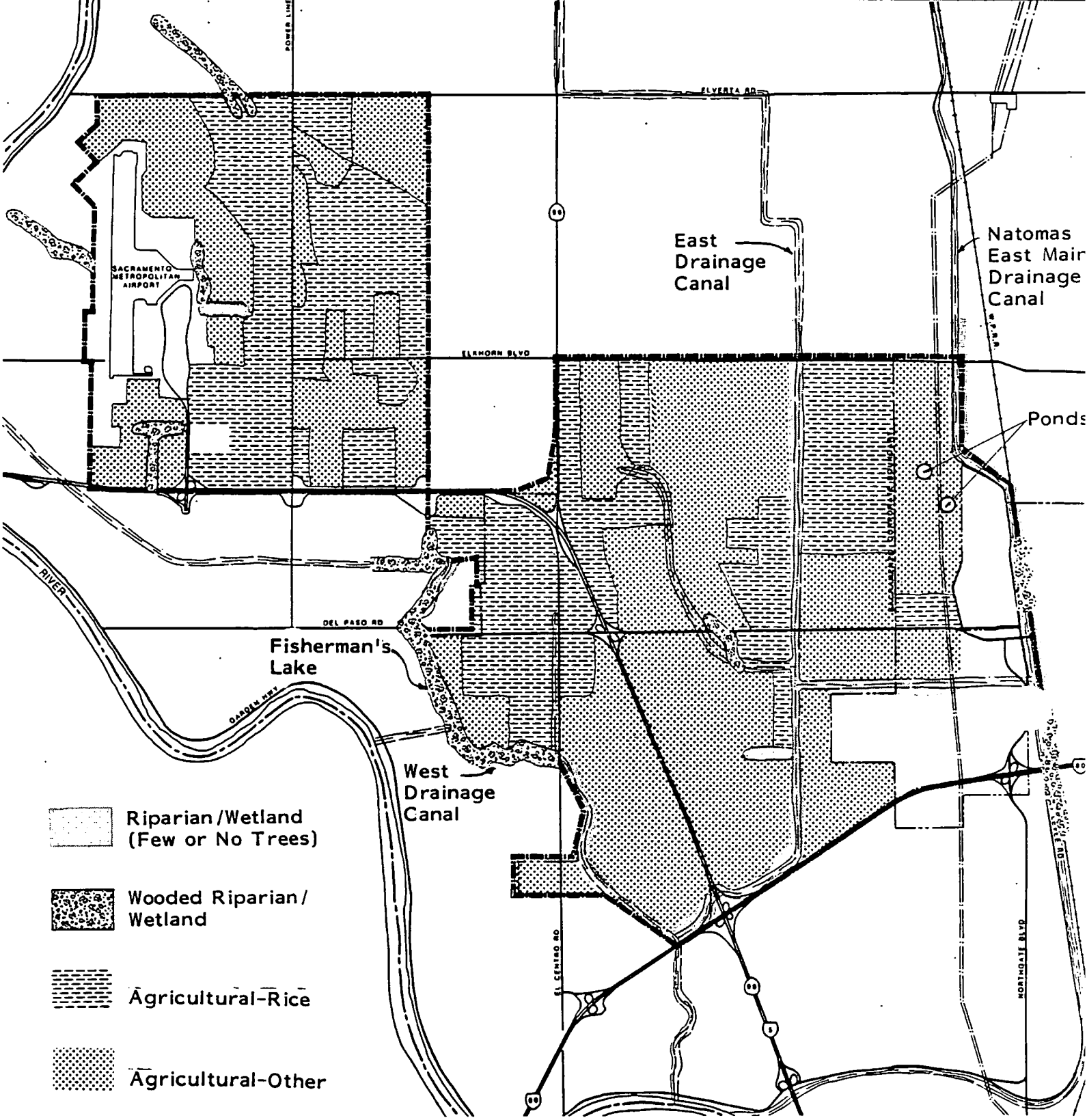


EXHIBIT N-2
VEGETATION TYPES

Sources: The Present Field Studies and North Natomas Community Plan: Background Report.

Holton Associates. February 1985

0 3200 6400 Ft

Additional riparian woodlands in the Study Area include a narrow cottonwood-willow riparian corridor south of Del Paso Road and west of the East Drainage Canal, a narrow riparian corridor with valley oaks just east of the terminal buildings at Metro Airport, and scattered stands of willows along the south end of the East Drainage Canal and a side canal branching west towards Natomas Airport.

Well developed stands of cottonwood-willow forest also occur just west of the Study Area along the entire length of Reservoir Road and along the Sacramento River.

Non-Wooded Riparian/Wetland

Emergent plants such as tule, cattails, sedges, and bulrushes occur in scattered stands usually forming narrow strips along permanent drainage canals, ditches, farm ponds, and sump areas in the Study Area. The most extensive of these areas borders Fisherman's Lake. A marshy field north of Fisherman's Lake is vegetated mostly with escaped rice and introduced weeds. At the south end of the East Drainage Canal near the sewage pump station the riparian vegetation consists of dense stands of blackberry (Rubus procerus) along the banks.

Agricultural

A large portion of the Study Area is devoted to rice cultivation which is flood irrigated. Although this habitat is highly modified and of little interest botanically, it is mapped separately in Exhibit N-2 because it is important to wildlife, serving as an alternative to natural marshlands.

Other agricultural lands are used for crops such as wheat, corn, tomatoes, sugar beets, and safflower and for grazing livestock. Grazing lands are severely disturbed and are vegetated largely with introduced grasses and weeds. The most important native species noted was virgate tarweed. No significant vernal pool areas were located in the Study Area.

Scattered small groves of oaks, black walnut, and eucalyptus occur throughout the agricultural lands, mostly along field and road edges and near farmyards.

Developed Areas

These highly modified areas are relatively unimportant biologically. Vegetation includes plantings of trees and shrubs around buildings, as well as ruderal fields and annual grassland.

SPECIAL STATUS PLANT SPECIES

A list of four special status plant species that potentially could occur in the Study Area (see Exhibit N-5) was derived from two sources: (a) state-listed threatened and endangered plants that could occur in the Study Area, based on geographic range and availability of suitable habitat, and (b) other rare plants mapped by the California Natural Diversity Data Base at the Department of Fish and Game as occurring near the Study Area. The exhibit also indicates the status of these species on federal and California Native Plant Society lists. Two mapped locations for bird's beak (Cordylanthus palmatus) occur in the vicinity of Sacramento, one between Woodland and Davis and one at the Woodland sewage disposal facility. The species apparently has been extirpated at both of these sites. Hedge-hyssop (Gratiola heterosepala) is mapped at one site near Rio Linda. According to the CNDDB, the plant has been extripated from this site. Downingia (Downingia humilis) has been reported near Rio Linda and may still be extant. California hibiscus (Hibiscus californicus) is found in tule marsh vegetation and other wet sites. No locations are mapped by the CNDDB for this plant near the Study Area. Suitable habitat is present, however, and Hibiscus potentially may occur in the Study Area.

None of these species has been recorded in the Study Area, and none was located during the present study. The field surveys were preliminary, however, and concentrated on areas accessible from roads. Moreover, only one of the four species was likely to be in flower during the field surveys. The mitigation section recommends that further searches during the flowering periods would be necessary to determine the existence of these four species in the Study Area.

WILDLIFE

Wildlife habitat types generally correspond with the vegetation types described above. Their significance to wildlife is described below.

EXHIBIT N-5

Special Status Plants Which Potentially Could Occur in the North Natomas Study Area

Species	Status [2/]	Flowering Period
Bird's beak *Cordylanthus palmatus*	CE, CNPS-1, US-1	June
Downingia *Downingia humilis*	CNPS-4, US-3C	March-May
Hedge-hyssop *Gratiola herterosepala*	CE, CNPS-2, US-2	April-June
California hibiscus *Hibiscus californicus*	CNPS-1, US-1	August-September

---

1/ None has been located there yet.

2/ Information on status was obtained from Inventory of Rare and Endangered Vascular Plants of California, Smith and York, Special Publication Number 1 (3rd Edition), California Native Plant Society, 1984.

CE = California Endangered List.

CNPS-1 = California Native Plant Society List 1: plants of highest priority; rare or endangered in California and elsewhere.

CNPS-2 = CNPS List 2: rare or endangered in California but more common elsewhere.

CNPS-4 = CNPS List 4: plants of limited distribution (a "watch" list).

US-1 = US Fish and Wildlife Service Category 1: candidate for listing under Endangered Species Act (ESA); sufficient information is available for listing.

US-2 = US FWS Category 2: candidate for listing under ESA; insufficient information for listing at present.

US-3 = USFWS Category 3: non-candidate; 3C = non-threatened.

Wooded Riparian/Wetland

Riparian woodlands are critical to wildlife, despite their relatively small acreages in the Study Area. They provide stopovers for migrant songbirds, communal roosts for black-crowned night-herons and black-shouldered kites, and roost sites for great horned owls and common barn-owls. A variety of raptors and other birds which forage in surrounding open areas may nest in riparian trees. Carnivores, such as gray fox and possibly ringtail, use riparian corridors for cover and dispersal routes, as well as for feeding. The diversity of wildlife in riparian woodlands generally is among the highest of any habitat and most likely is greater than in any other habitat in the Study Area. The larger riparian stands, especially those with large trees along Fisherman's Lake, are the most valuable for wildlife.

Non-Wooded Riparian/Wetland

Marshes, farm ponds, and patches of cattails, bulrushes, and other emergent vegetation also are important to wildlife. Birds, such as great blue heron, green-backed heron, pied-billed grebe, belted kingfisher, common yellowthroat, and song sparrow occur in these habitats in the Study Area. The rare giant garter snake also has been sighted in marshlands in the Study Area.

The most extensive area of relatively natural marsh is at Fisherman's Lake. This area's value to wildlife is enhanced by its proximity to large trees which are used for perching, roosting, and, possibly, nesting by herons and other birds which feed in marshes.

Agriculture -- Rice

While highly modified, this is a very productive habitat for birds and other wildlife. [1] When flooded rice fields serve as an important alternative to natural marshlands, especially for migratory waterfowl and shorebirds. The fields in the North Natomas area provide important feeding and resting habitat for migrating and wintering waterfowl, due to their proximity to the Yolo Bypass and central position between northern refuges like Gray Lodge and Sacramento National Wildlife Refuges and southern ones like San Luis, Kesterson and Merced National Wildlife Refuges.

Flooded rice fields in North Natomas are used by birds especially after the hunting season when birds disperse away from the refuges. [2] Sacramento

Audubon Society Christmas Bird Counts generally record a great variety of ducks, geese, and swans in the area, with counts for many species numbering in the hundreds or thousands. Rice fields also attract great egrets, American bitterns, northern harriers, black-necked stilts, American avocets, and other wading birds. Giant garter snakes may also use flooded rice fields, but less often than the permanent canals. [3]

Agriculture -- Other

Although wildlife generally prefers natural habitat, pasturelands and cropland also are of some habitat value. [4] Grazed pasturelands in the Study Area provide habitat for grassland animals such as turkey vultures, red-tailed hawks, black-shouldered kites, burrowing owls, mourning doves, ring-necked pheasants, western kingbirds, loggerhead shrikes, Beechey ground squirrels, black-tailed jackrabbits, and coyotes. Corn, wheat, and other grains provide food and nest sites for waterfowl, pheasants, various smaller birds, and small mammals and reptiles. Row crops have the least value as wildlife habitat but provide food and cover for some birds and mammals.

Stands of Non-Riparian Trees

The small stands of oaks, black walnut, and eucalyptus in North Natomas provide perching, roosting, and, possibly, nesting sites for hawks, owls, magpies, and other birds which forage in surrounding open areas. They also harbor Nuttall's woodpeckers, ash-throated flycatchers, scrub jays, and other birds.

Developed Areas

These areas offer limited wildlife habitat and generally support species which are least sensitive to human disturbance, such as Beechey ground squirrel, house mouse, European starling, and house sparrow. Where trees or shrubs exist birds like northern mockingbirds, brown towhees, and scrub jays can be found.

SPECIAL STATUS ANIMALS

Exhibit N-8 lists the animal species occurring or potentially occurring in the Study Area which either are protected legally or are of special concern

EXHIBIT N-8

Special Status Animals of the North Natomas Study Area

Legally Protected Species	Status [1/]	Remarks
Peregrine Falcon *Falco peregrinus*	FE, CE	Recorded in Study Area; probably present each year in summer through winter; non-breeder.
Swainson's Hawk *Buteo swainsoni*	CT	Two known nests near Study Area; forages and possibly nests in Study Area.
Giant Garter Snake *Thamnophis couchi gigas*	CT	Several records in Study Area.
Black-shouldered Kite *Elanus caeruleus*	CP	Communal roosts found with up to 34 individuals.
Ringtail *Bassariscus astutus*	CP	Possible resident.
Other Species of Concern		
Burrowing Owl *Athene cunicularia*	SC2	Three colonies found.
Short-eared Owl *Asio flammeus*	SC2	Recorded in winter and summer; may nest in Study Area.
Prairie Falcon *Falco mexicanus*	SC3	Often noted in Study Area in winter; non-breeder.

1/ CE = California Endangered List.

CP = California Fully Protected List.

CT = California Threatened List.

FE = Federal Endangered List.

SC2, SC3 = Listed by the California Department of Fish and Game as Species of Special Concern, Second Priority and Third Priority (Remsen, 1978).

due to their rarity in the Central Valley or their sensitivity to disturbance.

The only Federal- or State-listed endangered species known or expected in the Study Area is the peregrine falcon. An immature peregrine falcon was observed flying through the area between Del Paso Road and I-80 on both sides of I-5 on November 20, 1982. [5] This rare predator is expected in the Study Area on an annual basis from late summer through the winter. [6] Drainage of wetlands generally is detrimental to peregrine falcons due to reduced numbers of shorebirds, waterfowl, and other prey.

The State-listed threatened giant garter snake has been recorded several times in the Study Area (see Exhibit N-10). This species primarily occurs in established irrigation ditches with grassy banks and emergent vegetation, such as tules and cattails. Less often it has been found in rice fields. [7]

The Swainson's hawk, also listed as threatened in California, is known to nest at numerous sites along the Sacramento River, just west of the Study Area (see Exhibit N-10). Two confirmed nest-sites were mapped by CNDDB, and the southern site was located during the field study for this EIR. Ten additional nesting territories are mapped in Exhibit N-10 based on sightings of nests, adults, or fledged young during the breeding season. [8] The one mapped sighting in the Study Area was an adult presumed to nest at Fisherman's Lake or along the Sacramento River. [9] All nests located were in riparian trees. It is possible that this raptor nests in the Study Area in stands of large riparian trees or oaks. The recent field study was not a complete search and was conducted after nesting could have been completed.

Swainson's hawks have been recorded foraging in the Study Area. [10] For foraging, Swainson's hawks prefer open grasslands and agricultural habitats; in agricultural areas they prefer alfalfa, hay, wheat, pastures, and fallow fields over other crops.

The black-shouldered kite, a fully protected species in California, roosts communally in trees, a scarce resource in the Study Area. Disturbance of a relatively small roost area thus could affect many birds from a large surrounding area. Groups of up to 34 individuals were observed roosting in large willows and cottonwoods along Fisherman's Lake on four dates during the recent survey for this EIR and by the California Department of Fish and Game. In the past up to 150 black-shouldered kites have been noted roosting in the Study Area during winter. Though not listed as endangered or threatened, fully protected species are protected by law in California, and

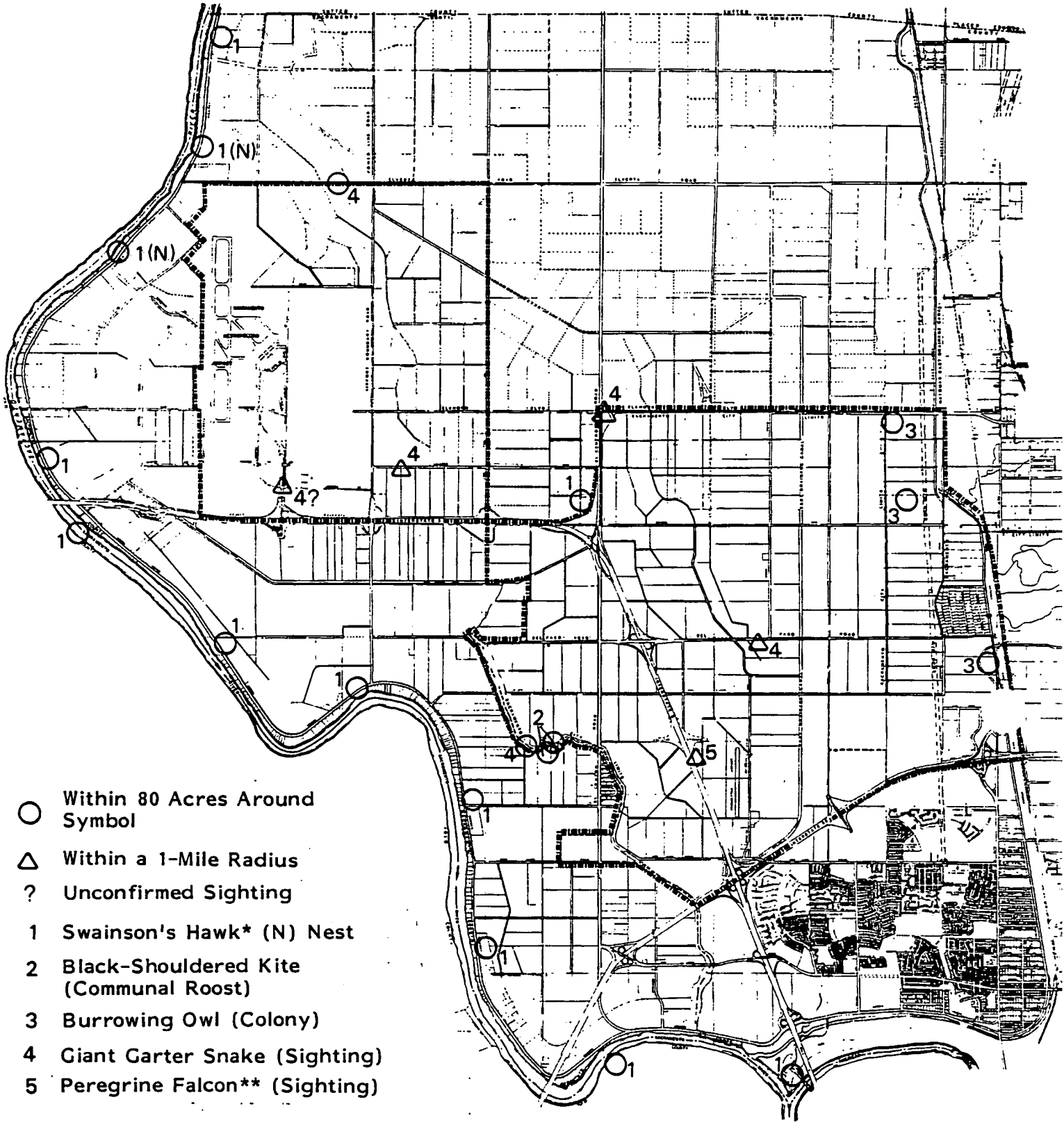


EXHIBIT N-10
LOCATION OF SPECIAL STATUS ANIMALS

* Threatened (California)
** Endangered (Federal and California)

Sources: CNDDB, Hansen and Brode (1980), Brode (Pers. Comm.), Harper (P.C.), and the Present Field Studies.

Holton Associates. February 1985

0 3200 6400 Ft.

communal roosts are given special consideration by the Department of Fish and Game when reviewing project impacts.

The ringtail, a fully protected species in California, is a possible resident of the Study Area, especially around Fisherman's Lake. This species has been found in riparian habitats throughout the Sacramento Valley, such as at Bobelaine Sanctuary on the Feather River. [11]

The California Department of Fish and Game has designated certain bird species to be of "special concern" because their California breeding populations may face extirpation. [12] Although they have no special legal status, they are often considered in management decisions. In the North Natomas area prairie falcon, burrowing owl, and short-eared owl fall into this category. Prairie falcons often are seen in the Study Area in winter. [13] Three large colonies of burrowing owls were located in the Study Area during the present study with at least 13, 11, and 8 birds, respectively (see Exhibit N-10). The short-eared owl has been recorded in North Natomas in summer and possibly may nest there. [14]

Two other special status species which occur in the region were considered unlikely to occur currently in the North Natomas Study Area. According to the CNDDB, the State-listed rare yellow-billed cuckoo has been noted in migration at Elkhorn Slough across the Sacramento River in Yolo County. It is unlikely to be found in the Study Area due to the lack of extensive riparian vegetation. The valley elderberry longhorn beetle (Desmocerus californicus dimorphus) which is on the Federal threatened list also occurs in nearby areas. This species depends on elderberry (Sambucus), which was observed only around Fisherman's Lake and nearby portions of the West Drainage Canal. During the EIR field surveys the few stands of elderberries located were searched, but no signs of the beetles' distinctive exit holes were seen on the elderberry stems. It was concluded that the present density of elderberry in the Study Area may be too low to support a population of the beetle at this time.

VEGETATION AND WILDLIFE -- THE IMPACTS

All five alternatives (A through E) would result in increased urbanization of the North Natomas area. Most of the impacts discussed below are long-term impacts associated with the conversion of agricultural and open space land to urban use.

Impacts considered significant or potentially significant are listed in Exhibit N-13. Under CEQA, the lead agency is required to consult with the California Department of Fish and Game (CDFG) if significant impacts are likely, and to mitigate or avoid significant effects if feasible.

Under the most recent version of the California Endangered Species Act, enacted in September 1984 (Fish and Game Code, Division 3, Chapter 1.5), state-listed threatened and endangered species are given added protection. The lead agency must consult with CDFG regarding possible project-related impacts on such species and must consider any "reasonable and prudent alternatives" proposed by CDFG to conserve the species. Such a consultation will be required for expected impacts on giant garter snakes and possibly for Swainson's hawks. No federally-listed species are likely to be affected significantly by the project (see Appendix N-1), and thus no further consultantion with the US Fish and Wildlife Service is required under the federal Endangered Species Act.

With the possible exception of Alternative A, all alternatives would require an improved drainage system to provide for increased storm runoff. Because changes in drainage patterns could have serious adverse effects on riparian and wetland habitats, as well as several wildlife species of concern, special attention is devoted to the recommended drainage plan. This discussion is limited to the recommended drainage alternative identified by Dewante and Stowell (Alternative 4 in their report) but also identifies generic impacts which would result from other drainage alternatives. [15]

Exhibit N-13 summarizes the anticipated impacts of the five alternatives on biological resources. The exhibit specifies whether each impact would be significant, avoidable (by appropriate mitigation measures), and/or irreversible. Certain impacts are rated as "potentially significant" because there is not enough information available at present to determine their significance. The significant direct and indirect impacts of the alternative plans are discussed in more detail below.

DIRECT IMPACTS

Direct impacts on vegetation and wildlife resources would result primarily from loss of habitat which is converted to urban uses. Populations of most plants and animals occupying such habitats would decline in proportion to the amount of habitat lost.

EXHIBIT N-13

Significant Impacts of the North Natomas Community Plan Alternatives on Biological Resources

Direct Impacts	Alternatives for Which the Impact Would Be: Significant	Alternatives for Which the Impact Would Be: Potentially Significant	Is the Impact: Avoidable 1/	Is the Impact: Irreversible (if not avoidable)
Loss of riparian and wetland habitat bordering drainage canals 2/	B, C, D, E		Yes	No
Loss of seasonal wetland habitat provided by rice fields	A, B, C, D, and E		No	Yes
Loss of wetland habitat of the giant garter snake (threatened-California) 2/	B, C, D, E		Yes	No
Loss of riparian nesting habitat of Swainson's hawk (threatened-California) 2/		B, C, D, E 3/	Yes	No
Loss of agricultural and open space used for foraging by Swainson's hawk		B, C, D, E 3/	No	Yes
Loss of habitat for other sensitive species of animals and possibly plants (see text)	A, B, C, D, and E		In Some Cases	In Some Cases

1/ Mitigation measures could reduce the impact to a level of insignificance. See mitigation section.

2/ For more details, see Exhibit N-16. The degree of impact would depend on the specific design features of the drainage plan adopted.

3/ Further study needed to determine whether Swainson's Hawks nest in the Study Area and how frequently they forage there.

EXHIBIT N-13 — CONTINUED

Indirect Impacts	Alternatives for Which the Impact Would Be: Significant	Alternatives for Which the Impact Would Be: Potentially Significant	Is the Impact: Avoidable	Is the Impact: Irreversible (if not avoidable)
Reduction in populations of raptors, carnivores, and other disturbance-prone wildlife due to urbanization 5/	A, B, C, D, and E		No	Yes
Reductions in populations of water-associated animals due to reductions in water quality from urban runoff		A, B, C, D and E	Probably	No
Short-term reductions in populations of disturbance-prone animals during construction	A, B, C, D, and E		Partially	No
Short-term disturbance of water-associated animals due to short-term water quality problems during construction		A, B, C, D, and E	Partially	No

5/ Harassment, shooting, road-kills, dogs and cats, and increased human presence.

Riparian and Wetland Habitat

Wooded riparian areas and emergent wetlands in the Study Area occur almost exclusively along drainage canals, and impacts would be determined, therefore, by the drainage plan adopted. The recommended drainage plan would enlarge the East Drainage and West Drainage canals, build several new canals, and replace existing smaller canals with storm drains, at least in urbanized areas. The Natomas East Main Drainage Canal would not be affected, and, thus, no direct impacts on its riparian and wetland habitat are expected. There could be important indirect impacts, however, from nearby development.

Exhibit N-16 lists the riparian and wetland areas which would be affected adversely by the drainage plan. The wooded riparian stands are generally wide enough for one or two mature trees on one or both sides of a canal. Widening and deepening the East and West Drainage Canals would eliminate most or all riparian and wetland habitat along those canals, unless preventive measures are taken.

The largest and most important of these areas is Fisherman's Lake, a 2.1-mile-long widened segment of the West Drainage Canal. Its narrow stands of well-developed cottonwood-willow forest provide potential nest-sites for Swainson's hawks and other raptors, communal roosts for black-shouldered kites and black-crowned night-herons, and high quality habitat for a great diversity of animals. Its stands of tule and cattail form the largest relatively natural marsh in the Study Area and harbor giant garter snakes as well as a variety of birds. [16] Smaller canals in the Study Area would be eliminated as the area is urbanized, and the bordering riparian and wetland vegetation would be lost.

Many raptors, carnivores, herons, and other animals in the Study Area use riparian woodlands for nesting and cover but forage in nearby agricultural habitats. The wildlife value of riparian woodlands, therefore, is enhanced by the proximity of agricultural habitats, and the wildlife value of agricultural fields is enhanced by nearby riparian woodlands.

Seasonal Wetland Provided by Rice Fields

Conversion of rice fields to urban uses would result in the loss of important habitat for water birds, raptors, and other wildlife. This habitat is particularly important for wintering and migrating waterfowl. Alternatives A through E would result in an increased loss of rice fields.

EXHIBIT N-16

Riparian/Wetland Areas Which Would be Affected Adversely by the Proposed North Natomas Drainage Plan 1/

Location and Description	Length of Wooded Strip in Study Area	Project Effects Due to:
Fisherman's Lake. A widened portion of West Drain, much of it bordered on one or both sides by cottonwoods, willows, and good-sized patches of emergent plants	2.1 miles	Enlargement of West Drain
Narrow strips of cottonwoods and willows bordering a small canal just south of Del Paso Road and west of East Drain	0.3 mile	Possible abandonment of canal
Two narrow strips of willows and cottonwoods separated by a marshy cultivated field, northeast of Sacramento Metropolitan Airport	0.2 mile	Possible change in drainage patterns
Narrow riparian corridor of valley oaks, east of airport	0.3 mile	Possible change in drainage patterns
Two narrow strips of oaks and black walnuts forming a "T" south of the airport	0.6 mile	Possible change in drainage patterns
Scattered small patches of riparian trees and narrow strips of emergent plants along West Drain, East Drain, various smaller canals, and farm ponds		Enlargement of West Drain

1/ Based on the preferred alternatives designed by Dewante and Stowell (1984). There would be no substantive changes in the Natomas East Main Drainage Canal and, thus no expected changes in riparian and wetland vegetation bordering it. Refer also to Exhibit

The USFWS is especially concerned about cumulative impacts in this waterfowl habitat due to conversion to nonagricutural uses. [17]

Other Agricultural Lands

Although generally less valuable to wildlife than natural habitats, pasturelands and croplands also are of some value, providing foraging habitat for Swainson's hawks and other raptors and food and nest sites for burrowing owls, pheasants, and a variety of small animals. [18] Pastures, grain fields, alfalfa, and fallow fields are more valuable to wildlife than are row crops. Small stands of oaks and other trees provide nesting and roosting sites for raptors and other birds, increasing the value of surrounding agricultural lands for foraging. The impacts of the alternatives would be roughly proportional to the overall loss of agricultural habitat. Removal of trees would greatly increase the impacts on wildlife, due to the scarcity of trees in the area.

Threatened and Endangered Species

Of the plants and animals proposed or listed as threatened or endangered by the Federal or State governments, significant impacts are expected only on two species listed as threatened in California: giant garter snake and Swainson's hawk. Enlargement and abandonment of drainage canals would remove important habitat for giant garter snakes. Implementation of the drainage plan thus would eliminate most suitable habitat for this species in the Study Area unless mitigation measures are implemented.

Although no Swainson's hawk nests have been located in the Study Area, a complete search has not been conducted, and there is suitable nesting habitat in large cottonwoods and oaks adjacent to open foraging habitat. The best nesting habitat is in the cottonwoods bordering Fisherman's Lake. Clearing of riparian trees during drainage improvements and removal of other stands of trees for various developments would eliminate potential nesting habitat for Swainson's hawks. Development would remove agricultural fields used as foraging habitat by Swainson's hawks which nest along the Sacramento River, west of the Study Area. These birds have been observed foraging in the North Natomas area, but further study is needed to determine the extent to which they use the area. Loss of alfalfa, hay, wheat, pasture, and grassland areas west of I-5 and around the Metropolitan Airport most likely would have a significant impact on this species' foraging.

Other Special Status Animals and Plants

Black-shouldered kites, which are fully protected in California, are sensitive to disturbance due to their communal roosting habit. Removal of a relatively small roosting area in riparian woodland or other trees could have significant impacts on this species as well as the black-crowned night-heron, which also roosts communally in trees. Although such roosts were found only at Fisherman's Lake, they also could occur in other stands of trees in the Study Area.

Removal of agricultural habitats would have adverse effects on at least three species of special concern identified by CDFG: prairie falcon, burrowing owl, and short-eared owl. [19] Burrowing owls nest in the Study Area in unplowed fields or field borders, short-eared owls may nest in marshy or tall grassy fields, and prairie falcons forage regularly over open fields in winter.

As discussed in the setting section, four special status plant species, including California hibiscus, potentially could occur in the Study Area. These species have not been located in the Study Area, but a special search has not been conducted. Special searches for these species would be necessary to assess their status in the area and the magnitude of project impacts.

INDIRECT IMPACTS

Urbanization of the North Natomas area would result in an increase in human population, dogs and cats, and vehicular traffic, and consequently would have long-term impacts on wildlife inhabiting the remaining agricultural and open space areas. Likely impacts include more road-kills, harassment and shooting of raptors and other large animals, predation by dogs and cats, and reduction in populations of nesting raptors, carnivores, and other large animals which avoid populated areas. The vehicles, work crews, and noise associated with construction would have similar but short-term impacts on wildlife.

There also is a potential for decreased water quality in drainage canals and storage basins, due to pollutants in urban runoff and erosion during construction. Reduced water quality could have significant effects on giant garter snakes, water birds, and other water-associated animals. The

importance of such impacts cannot be evaluated with the information available at this time.

IMPACTS FOUND TO BE NOT SIGNIFICANT

Although row crops are used to some extent by wildlife, removal of such agricultural lands is not considered a significant impact. Peregrine falcons probably occur in the Study Area each year during the nonbreeding season. The area is not considered important to this endangered species, however, and the impact would not be significant. The ringtail, a fully protected species, may occur occasionally in the Study Area. The habitat does not appear optimal, and no significant impact is expected. Special searches must be conducted before it can be determined whether there would be significant impacts on rare plants. The field survey conducted for this EIR in 1984 suggested that the valley elderberry longhorn beetle does not currently occur in the Study Area. The few stands of elderberry present could be colonized by the beetle in the future, but are not extensive enough to be considered important habitat.

IMPACTS OF SPECIFIC ALTERNATIVES

Alternative A

Future development with Alternative A would be limited to build-out of the Northgate Industrial area in the southeast corner of the Study Area, the 2,000-acre Special Planning Area (SPA) east of the Metropolitan Airport, and the remaining open space at the airport. Impacts on agricultural habitats, therefore, would be considerably less than for other alternatives. Little or no changes in drainage would be required in the incorporated portion of the Study Area. Thus, the impacts on riparian and wetland habitats and associated wildlife would be limited to the airport and SPA areas, which presumably would require drainage improvements. Fisherman's Lake, the single most valuable wildlife habitat site in the Study Area, probably would be unaffected by Alternative A.

Alternative B

Although Alternative B would develop considerably more acreage than Alternative A, it would preserve large acreages of rice and other agricultural fields, including 1,750 acres of the SPA. Agricultural lands

would be preserved in large tracts on the periphery of the Study Area adjacent to other open space, enhancing their value to wildlife. Fewer drainage improvements presumably would be required than for Alternatives C, D, and E, thus resulting in less impact on riparian and wetland habitats and associated wildlife, including giant garter snakes. There would be no new development west of I-5 and, thus, little effect on the valuable habitat at Fisherman's Lake, assuming it would not be disturbed by drainage improvements. Alternative B would preserve agricultural lands nearest to the Sacramento River, the most likely to be used for foraging by Swainson's Hawks.

Alternative C

Alternative C would allow considerable urbanization and would require the implementation of drainage improvements equivalent to those specified in the drainage plan. As a result, there would be extensive losses of riparian, wetland, and agricultural habitat.

This alternative would preserve 1,500 acres of agricultural lands in the SPA, much of which is valuable rice-field habitat. It also would preserve several large open space areas east of I-5, but the wildlife value of those areas would be relatively low, due to their planned use as recreational areas surrounded by extensive urban development. Depending on its design, the proposed greenbelt along Elkhorn Road could be valuable to wildlife, due to its proximity to agricultural lands. Alternative C would minimize development adjacent to the Natomas East Main Drainage Canal, thus minimizing impacts on wildlife in that important riparian corridor. It would permit only low density residential development in the vicinity of Fisherman's Lake, thus limiting the impact of urbanization on wildlife habitat there.

Alternative D

Alternative D would result in the conversion of 9,630 acres of agricultural lands. This plan would allow more intensive development adjacent to Natomas East Main Drainage Canal and would result in greater indirect impacts on wildlife in that riparian corridor. It would allow an increased density of residential development adjacent to Fisherman's Lake, increasing the impacts on wildlife there. It would maintain a greenbelt along Elkhorn Boulevard, however, and a 1,500-acre agricultural preserve in the SPA.

Alternative E

Alternative E would result in the loss of nearly all the open space in the Study Area, except for roadways, drainages, and the greenbelt along Elkhorn Boulevard. It would permit development of the entire SPA. There would be very little non-urban wildlife habitat remaining in the Study Area. This plan would permit relatively intensive development along the entire eastern border of Fisherman's Lake, greatly reducing its value to wildlife. Alternative E, however, would permit only light industry and low-density housing along the Natomas East Main Drainage Canal, maintaining some wildlife value along that riparian corridor.

Five Individual Applications

All five land-use applications would convert all agricultural lands within their borders to urban use. Impacts on wildlife probably would be greater for the Schumacher-Iverson, Gateway Point, and Payne applications, which would convert considerable acreages of rice fields to urban uses. Although none of the sites has extensive riparian woodlands, there are riparian stands of some wildlife value in the Gateway Point site which probably would be removed by altered drainage systems. Because all five applications would contribute to the need for a new drainage system, its impacts can be attributed to all five. Most significant of these impacts would be the enlargement of the East Drainage Canal and consequent loss of giant garter snake habitat, as well as loss of wetland and riparian habitat used by other animals.

VEGETATION AND WILDLIFE -- MITIGATION MEASURES

Appropriate mitigation measures for the five Community Plan alternatives and the five individual land-use applications are provided below. At this time all mitigation measures listed below would be applicable to each of the five individual land use applications. The amount of mitigation required for each alternative or individual application would vary according to the degree of impact expected. Specifics will need to be negotiated with the appropriate agencies.

DIRECT IMPACTS

Loss of habitat for wildlife and plants would be the primary direct impact of development. Suggested mitigation measures include restoring disturbed habitats and compensating for unavoidable impacts by acquiring title or easements and improving habitats elsewhere. In addition, the wildlife value of landscaped parks, buffers, and developed areas could be improved by planting trees and shrubs which are native to the North Natomas area and, to the extent possible, by simulating natural riparian and valley oak woodlands with larger plantings.

RIPARIAN AND WETLAND HABITATS

- Some impacts on riparian and wetland habitats could be avoided by careful design and implementation of the drainage plan. Enlargement of existing canals could be implemented on one side only, preserving riparian trees and wetlands on the other side. Fisherman's Lake, because it already is quite wide, probably could be enlarged adequately by dredging, thus preserving the trees along both banks.[20] Additional mitigation measures to protect riparian and wetland habitats are contained in Section M -- Hydrology and Water Quality.

- In addition, a riparian and wetlands revegetation plan should be developed for selected portions of the new and improved canals. Riparian trees and brush on the sloped sidewalls of the proposed canals would not interfere with their hydraulic function. [21] Access to the channel would be inhibited, thus increasing maintenance costs, but such costs may be justified as a mitigation measure. Maintenance could be conducted from a barge, or one side of a canal could be kept clear of interfering vegetation. Channel capacity could be increased in some areas to permit the growth of emergent vegetation. Maintenance operations could be designed to leave borders of emergent plants along both sides of canals. Such measures would preserve suitable habitat for giant garter snakes and other wetland animals.

- The proposed storage basins along the East Drainage Canal would present perhaps the best opportunities for revegetation. Because the basins are designed for storage rather than flowing water, trees and brush could be planted next to the low-flow channel without interfering with the function of the basins. Revegetation specialists could work with

hydrologists to select sites with appropriate water supply for riparian vegetation.

- It is important to note that preserved or restored riparian and wetland areas would be considerably less valuable for wildlife if surrounded by urban development. They would be most valuable if located where human use is limited, preferably next to agricultural or open space lands.

SEASONAL WETLAND PROVIDED BY RICE FIELDS

- If there is a choice between developing rice fields or other agricultural fields for the five alternatives, it usually would be desirable in terms of wildlife value to preserve the rice fields. In most cases, the only available mitigation for loss of rice fields would be acquisition of compensation lands or easements.

OTHER AGRICULTURAL LANDS

- Valley oaks and other large trees should be preserved wherever possible. The agricultural lands of greatest value to wildlife are those bordering stands of riparian or other trees or bordering other open space areas. Such agricultural lands should be preserved where possible.

THREATENED AND ENDANGERED SPECIES

- Restoring wetland habitat in new or improved drainage canals, as described above, would mitigate impacts on giant garter snake habitat to some extent. In addition, the approach being used by Caltrans for construction projects in the North Natomas area should be implemented for non-Caltrans projects. Caltrans is trying to minimize impacts on giant garter snakes by diking existing drainage ditches and letting them dry out gradually while new ones are being constructed. [22] This allows a transition period for emergent vegetation to grow in the new ditches and for the snakes to move to the new habitat. It also provides an opportunity for CDFG to relocate snakes if they so desire.

- Impacts on Swainson's hawks could be mitigated to some extent by preserving and restoring stands of riparian trees which are used for nesting. It also would be necessary to mitigate reductions in

agricultural and open space lands needed for foraging by Swainson's hawks which nest in or near the Study Area. One approach would be to preserve such areas in the western part of the Study Area, nearest to the known nesting territories. Alternatives A and B would follow this approach. Because the most likely nesting habitat in the Study Area is at Fisherman's Lake, it is most important to preserve open space near that site. Another approach would be to preserve and enhance foraging habitat outside the Study Area, near known nesting territories.

OTHER SPECIAL STATUS PLANTS AND ANIMALS

- Potential impacts on other special status animals could be mitigated by the measures discussed above for specific habitats. In addition, specific nesting and roosting areas -- located in the field survey conducted for this EIR and any located subsequently -- could be protected from development, along with buffer zones of appropriate size. Known sites include a communal roost of black-shouldered kites at Fisherman's Lake and three burrowing owl colonies. Another possible mitigation measure would be to schedule construction in the vicinity of raptor nests to avoid the nesting season.

- Special searches for the four special status plant species listed in Exhibit N-5 should be conducted by a qualified botantist during the appropriate flowering season, before construction of each project. Mitigation plans should be negotiated at that time, if populations of these plants are found.

1 Central Valley Fish and Wildlife Management Study: Wildlife Habitat on Irrigated Farmlands, Bureau of Reclamation Special Report, US Department of the Interior, 1984, page A-2.
2 Holton Associates' conversation with Tim Manolis, Sacramento Audubon Society, August 22, 1984.
3 Holton Associates' conversation with John Brode, California Department of Fish and Game, Sacramento, August 20, 1984.
4 Central Valley Fish and Wildlife Management Study: Wildlife Habitat on Irrigated Farmlands, op. cit.
5 Holton Associates' conversation with Ed Harper, Sacramento Audubon Society and American River College, August 20, 1984.
6 Holton Associates' conversation with Ron Jurek, California Department of Fish and Game, Sacramento, August 20, 1984.
7 "Status of the Giant Garter Snake, Thamnophis couchi gigas (Fitch)", G. E. Hansen and J. M. Brode, Inland Fisheries Endangered Species Program Special Publication 80-5, California Department of Fish and Game, 1980, and Holton Associates' conversation with John Brode, op. cit.
8 Letter to Holton Associates from Ron Schlorff, Nongame Wildlife, California Department of Fish and Game, September 28, 1984.
9 Ibid.
10 Holton Associates' conversation with Tim Manolis, op. cit.
11 Holton Associates' conversation with Gordon Gould, California Department of Fish and Game, Sacramento, August 22, 1984.
12 "Bird Species of Special Concern in California", J. V. Remsen, Jr., Nongame Wildlife Investigations, Administrative Report, No. 78-1, California Department of Fish and Game, 1978.
13 Holton Associates' conversation with Ed Greaves, Sacramento Audubon Society, August 20, 1984.
14 Holton Associates' conversation with Tim Manolis, op. cit.
15 Drainage Study North Natomas Area, Dewante and Stowell, December, 1984. This report is discussed in detail in Section M - Hydrology and Water Quality.
16 "Status of the Giant Garter Snake Thamnophis couchi gigas (Fitch)", op. cit.
17 Holton Associates' conversation with F. Michny, US Fish and Wildlife Service, February 12, 1985.
18 Central Valley Fish and Wildlife Management Study: Wildlife Habitat on Irrigated Farmlands, op. cit.
19 "Bird Species of Special Concern in California", op. cit.
20 Holton Associates' conversation with Mark Vogel, Dewante and Stowell, February 8, 1985.
21 Ibid.
22 Holton Associates' conversation with M. Stopher, California Department of Transportation, January 30, 1985.

O. ARCHAEOLOGICAL AND HISTORICAL RESOURCES -- THE SETTING

The principal reference used in the preparation of this section was a report prepared by David Chavez & Associates entitled "Cultural Resources Evaluations for the North Natomas Community Plan Area, Sacramento, California", December, 1984 and revised March, 1985. A copy of this report is available for review at the City of Sacramento Planning Department.

Prior to conducting a field reconnaissance of the Study Area, maps and records which indicate the location of known cultural resources in the general area were reviewed. Archival research was conducted at the California Archaeological Inventory North Central Information Center at California State University, Sacramento, and at the Bancroft Library and Lowie Museum at the University of California, Berkeley. Historical research was conducted at the Bancroft Library and the Water Resources Center Library, University of California, Berkeley, the Bureau of Land Management, the California State Library, and the Sacramento History Center, all in Sacramento. The California Native American Heritage Commission was contacted, as well as local representatives of the Native American community, regarding the cultural sensitivity of the Study Area. In addition, the National Register of Historic Places and the California Inventory of Historic Places were consulted.

The Draft report "Cultural Resources Evaluations for the North Natomas Community Plan Area, Sacramento, California", December, 1984 was reviewed by both the Native American Heritage Commission and the State of California Department of Parks and Recreation, Office of Historic Preservation. Both the Native American Heritage Commission and the Office of Historic Preservation generally concurred with the findings of the cultural resource evaluations. The Office of Historic Preservation requested minor additions to the report and these additions were incorporated into the revised report.

The records indicate that portions of the Study Area have been subjected to cultural resources surveys, and relevant information from these reports has been incorporated into this study. [1]

The cultural resources data which have been reviewed indicate that no recorded or known archaeological or historical sites are located within the North Natomas Study Area. However, the archaeological data for the American Basin (of which the Study Area is a part), very clearly suggests the overall sensitivity of the Study Area with respect to the potential occurrence of sites and the nature of those sites which could be encountered during

construction activities. For example, recorded sites along nearby Dry Creek and the eastern bank of the Sacramento River tend to cluster, with the focal point of the site cluster being a major village site located relatively close to a permanent water source. Of the 32 sites recorded in the Dry Creek locale east of the Study Area, three are major, central villages and the remainder are subsidiary sites loosely clustered around the village locations. As the Dry Creek drainage once actually passed through North Natomas, the potential for similar site distribution patterns within the Study Area boundaries is greatly enhanced. Also the occurrence of recorded sites along the Sacramento River west of the Study Area further suggests archaeological sensitivity.

It can be argued that, because much of the Study Area has been subjected to modern agricultural practices of leveling and soil disturbance, archaeological sensitivity has been diminished. In fact many references in the archaeological records for the American Basin are made as to the leveling of mounds for agricultural purposes. No doubt such practices would have had a destructive effect on the upper portions of archaeological deposits. It is noted, however, that extensive subsurface deposits are present at many sites, as demonstrated at CA-Sac-26 nearby which has a recorded depth of 20 feet. It is strongly suggested, therefore, that despite agricultural and land reclamation practices significant subsurface deposits may be present in the Study Area. This potential occurrence of deep sites is particularly noteworthy because such archaeological deposits could be Early Horizon cultural manifestations. Few early sites from that cultural period have been documented for the American Basin and as a result, the potential significance of such possible discoveries is greatly enhanced.

An archaeological sensitivity map has been prepared (see Exhibit O-3) which was used to guide field survey strategies for the Study Area, and which can be used for future planning purposes. Criteria for establishing the sensitivity zones are found in the Cultural Resources Evaluation Report by David Chavez & Associates and include the following specific considerations:

- The overall Study Area has not previously been surveyed systematically. Three relatively small parcels in the area have been surveyed for development by Caltrans and the Sacramento Metropolitan Airport. [2] These parcels are the only locations mapped as low sensitivity zones since they have been surveyed previously.

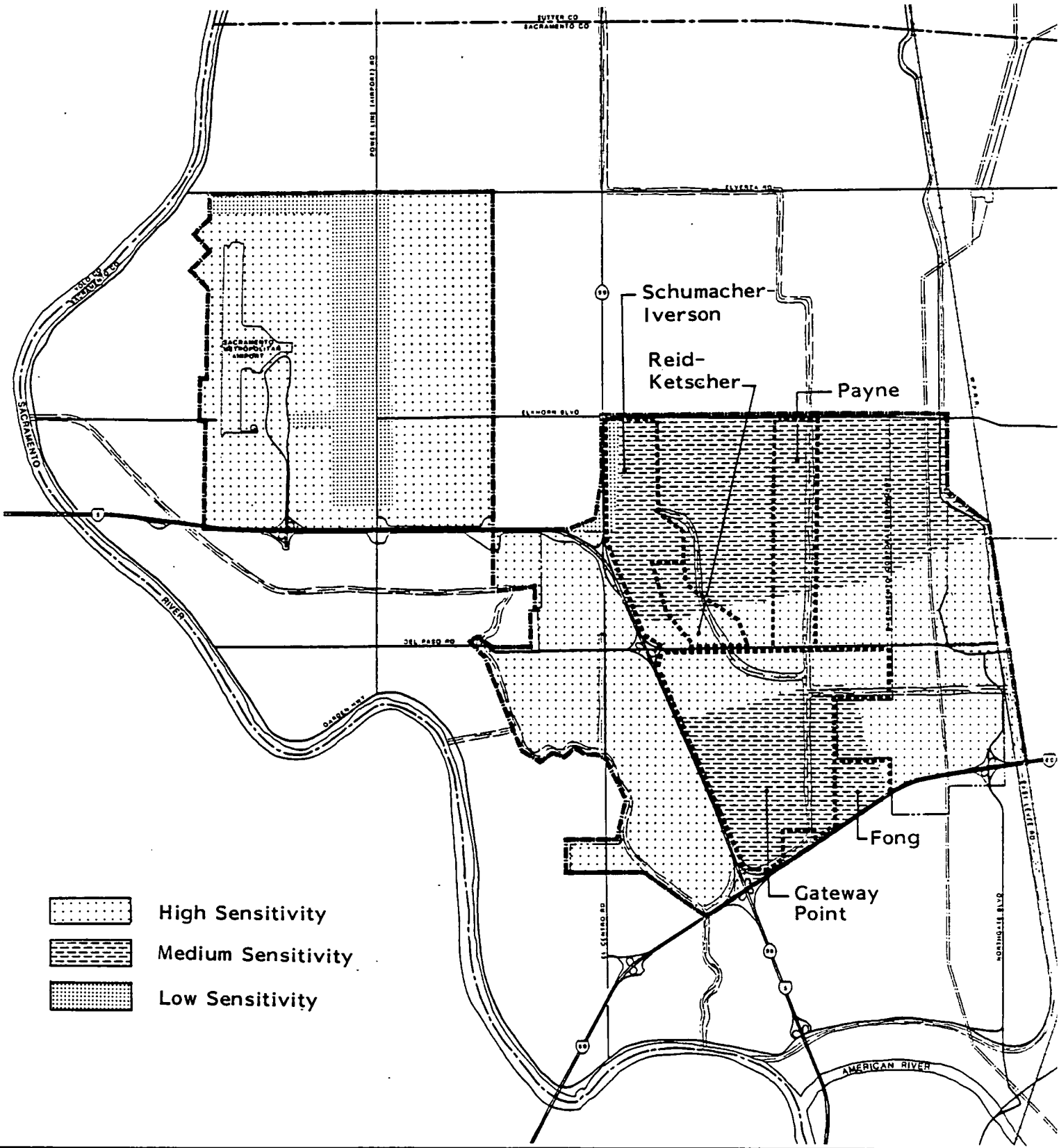


EXHIBIT O-3
ARCHAEOLOGICAL SENSITIVITY MAP

(Portions of the Taylor Monument, Rio Linda, and Sacramento West U.S.G.S., 7.5 Series quadrangles)

Source: David Chavez & Associates

0 3200 6400 Ft.

- The prehistoric peoples of the lower Sacramento Valley (of which the Study Area is a part) were hunters and gatherers, and the natural environment prior to historic alterations of the area provided a wide range of plant and animal resources. The natural wide levees of the Sacramento River provided high elevations for village locations, and a topographic map of the Sacramento Valley prepared in 1849 indicates several high hills or knolls in the plains area inland from the river. [3] The American Basin with its seasonal flooding provided an ideal habitat for hunting and gathering: tule elk, deer, and antelope grazed on this grassland plain and the vernal succession of many species of bulbs, forbs, roots, annuals, and perennials followed the drying borders of the American River in its yearly cycle.

- Historical agricultural practices have significantly altered the elevation of much of the lower Sacramento Valley and many mounds and higher regions have been leveled. As a result, the present elevations of the Study Area are not indicative of prehistoric elevations. What today is an area of low elevation at one time could have been several feet higher, providing a favorably elevated location for a prehistoric settlement above the shallow seasonal floodwaters. Geographical features also have been altered. Dry Creek once crossed the Study Area and flowed directly into the Sacramento River.

- The potential for earlier use and occupation of the area, together with the existence of buried cultural deposits from those occupations has been discussed. Recent pipeline trenching in the Livermore Valley -- also an alluvial plain similar to the lower Sacramento Valley -- confirms the potential for deposits within the Study Area. Those activities exposed at least four deeply buried prehistoric village sites which once were situated around an ancient lake/marsh. [4]

- In the lower Sacramento Valley the Sacramento River has meandered through time, often changing its course and, consequently, its levees and related basins. Prehistoric populations would have shifted with the changes in their environment, and as a result many archaeological sites which once were located along the river would now be located away from the present river course.

- Early soil survey studies and the 1849 map of the Sacramento Valley indicate that portions of the Study Area at one time were characterized by the presence of oak woodlands. This indicates that the ground surface was elevated high enough to avoid seasonal flooding, thus suggesting that parts of North Natomas were favorable for both

permanent, year-around occupation and seasonal use by prehistoric populations.

An archaeological field survey of the Study Area was conducted for this EIR by David Chavez & Associates, Cultural Resources Consultants in October and November 1984. A variety of field reconnaissance strategies were employed throughout the Study Area. First, a comprehensive surface reconnaissance of the 2,600 acres covered by the five individual land use applications was conducted. Also, due to an anticipated high sensitivity, the area east of the Gateway Point project was included for the comprehensive archaeological inspection. Exhibit O-6 depicts the various survey coverage areas within the comprehensive reconnaissance area. The second phase of the field survey was to accomplish a sample reconnaissance for the remaining acreage within the Study Area.

The field reconnaissance for the Study Area resulted in the recording of one prehistoric archaeological site, eleven isolated artifacts and two isolated obsidian flakes. A map indicating the location of the findings of the field reconnaissance is on file at the City of Sacramento Planning Department.

The remains of two structures were encountered, both of which were determined to be relatively recent origin and not historically significant.

The recently recorded archaeological site is located within the Gateway Point project area. Although several artifacts were observed at the site, there was no surface evidence of additional cultural deposits. The site has been extensively altered as a result of long-term agricultural activities, and it remains uncertain as to what subsurface archaeological deposits may be present.

The isolated artifacts and obsidian flakes were not found in any particularly meaningful pattern, and no associated deposits or features were encountered which would suggest the location of subsurface deposits. The extensive agricultural activities could have moved archaeological materials a great distance from their original places of deposition and their present locations indicate sensitivity only in a very general sense.

The results of the field reconnaissance support earlier discussions regarding the likely prehistoric use of that local and the associated archaeological sensitivity. While only one site was recorded as a result of the survey, the number of isolated artifacts encountered throughout the southeast portion of the Study Area suggests that other sites were present at one time but have been destroyed or obscured as a result of long-term

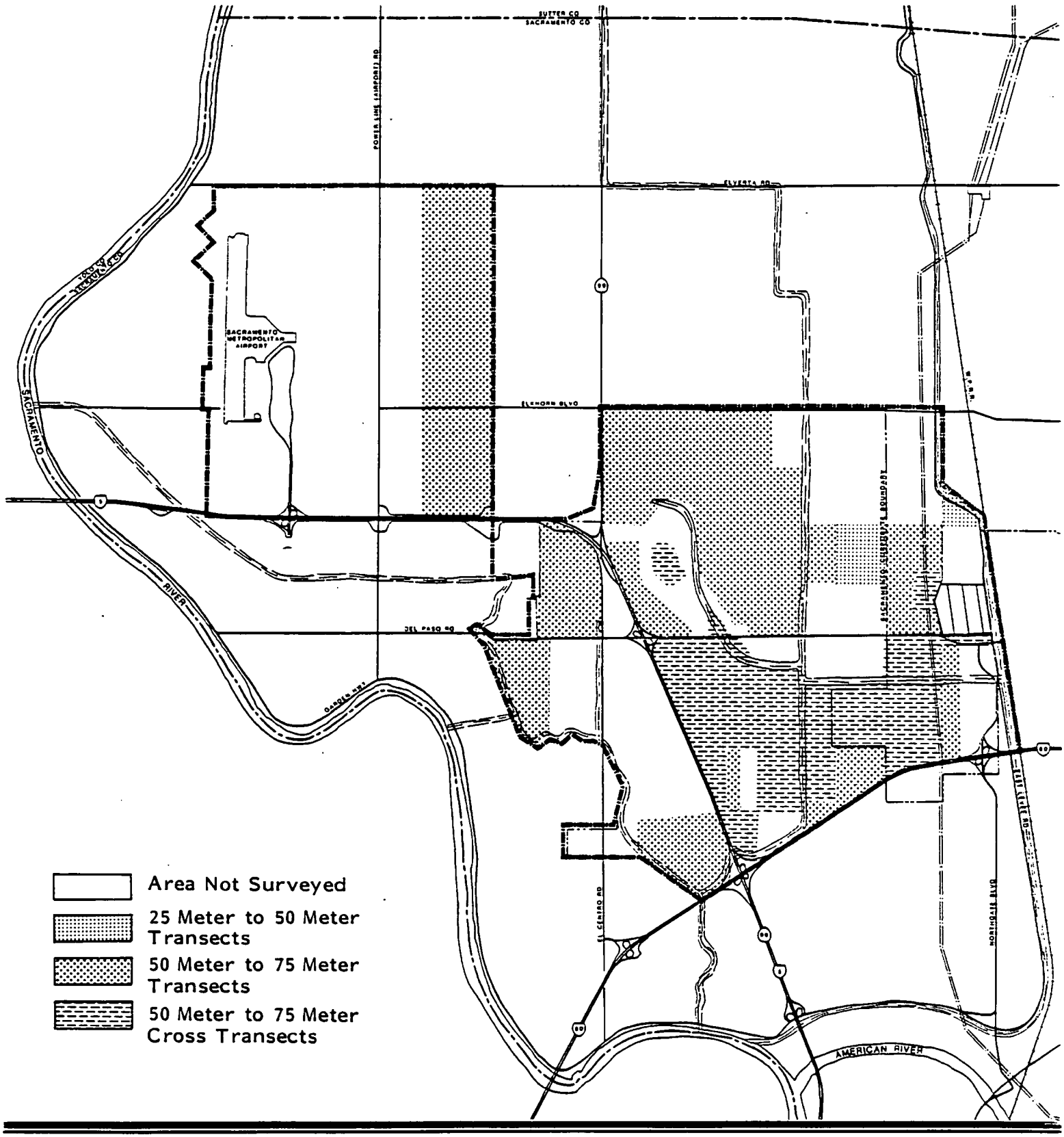


EXHIBIT O-6
ARCHAEOLOGICAL SURVEY COVERAGE

(Portions of the Taylor Monument, Rio Linda, and Sacramento West U.S.G.S., 7.5' Series quadrangles)

Source: David Chavez & Associates

0 3200 6400 Ft.

land reclamation and agricultural activities. These conclusions do not, however, preclude the potential for buried archaeological deposits which cannot be detected through conventional reconnaissance methods.

O. ARCHAEOLOGICAL AND HISTORICAL RESOURCES--THE IMPACTS

Regardless of the Community Plan alternative selected, only one prehistoric archaeological site has been identified which could be adversely effected. The results of the cultural resources studies, however, suggest a reasonable potential for the occurrence of subsurface resources throughout the Study Area. It is entirely possible that with the implementation of any of the alternatives, archaeological remains may be encountered during subsurface construction. Further discussion of the impacts resulting from the five Community Plan alternatives is included in the following sections.

Alternative A

This land use plan would result in relatively little change of existing conditions in the Study Area. Agricultural use of the property where the recorded archaeological site is located would be continued. It is likely that this alternative, as in the past, would result in a very slow process of site disturbance and loss of potential archaeological information due to continued agricultural activities.

Alternatives B,C,D and E

Each of these four alternatives propose a combination of residential and commercial development for the archaeological site location. Construction activities associated with these types of development would result in disturbance, if not total destruction, of the archaeological resource. The significance of this impact would depend on the nature and extent of the recorded site.

Five Individual Applications

The potentially affected archaeological resource is situated within the Gateway Point project, in an area proposed for commercial and residential development. Construction activities associated with these types of

development would result in disturbance, if not total destruction, of the archaeological resource.

No presently discernable impacts to known cultural resources would occur within those portion of the other four land use applications (Fong, Schumacher-Iversen, Reid-Ketscher and Payne) which have been surveyed; therefore, no mitigation procedures are required. It is, however, recommended that all unsurveyed portions of the five land use applications should be surveyed when the ground surface is clear of crops. If cultural resources are recorded at that time then impact and mitigation evaluation should be developed.

O. ARCHAEOLOGICAL AND HISTORICAL RESOURCES -- MITIGATION MEASURES

Alternatives A, B, C, D and E

- Several parcels within the Study Area were not surveyed, as they were under various stages of cultivation (see Exhibit O-6). These parcels are located within areas identified as having high to medium sensitivity for potential occurrence of prehistoric archaeological sites (see Exhibit O-3). With repect to proposed development projects on the unsurveyed parcels, a comprehensive field reconnaissance should be accomplished which is at least as comprehensive as the investigations completed for this EIR. A copy of the survey, along with conclusions and recommendations should be included as part of the application for land use entitlements submitted to the City. For any of the five land use applications already on file with the City which were not surveyed as part of this EIR the comprehensive field reconnaissance should be required as a condition of project approval.

- The Community Plan that is proposed for adoption should include a specific policy that states in the event that archaeological remains are encountered during subsurface construction all land alteration work in the general vicinity of the find should be halted and a qualified archaeologist consulted. Prompt evaluations could then be made regarding the finds, local Native American organizations consulted, and a course of action acceptable to all concerned parties should then be adopted. The Community Plan should also include a policy that would require completion of a comprehensive field reconnaissance for all unsurveyed parcels as part of the consideration of individual projects.

Alternatives B,C,D and E

- At the time when a specific development plan is available for the area in the vicinity of the recorded archaeological site, a subsurface archaeological testing program should be initiated. A combination of excavating auger holes and small sized shovel units (and possibly one meter by one meter test units) is recommended. The archaeological testing program should focus on specifically defining the vertical and horizontal extent, the cultural complexity and significance (as per State Assembly Bill 952) of the resource. (AB 952 provides guidance in determining significance of cultural resources and states that only impacts to significant cultural resources need be mitigated). All testing activities should be accomplished within the context of an acceptable archaeological research design and in full consultation with the local Native American community and the State Historic Preservation Office. Upon completion of the testing procedures, the archaeological data should then be compared to detailed development plans, and specific impact and mitigation evaluations presented.

- Mitigation of impacts to the archaeological site would be required if the site is found to be of a significant nature.

- The purpose of a mitigation program should be to reduce the potential loss of resource data to an acceptable level. In keeping with current cultural resources management guidelines and legislative mandates, the preferred means of mitigation would be the in-place preservation of the archaeological site. Preservation of the resource would likely require the redesigning of development plans so as to incorporate the site into an open space area. If preservation of the site cannot be accomplished by this or other means, then alternative mitigation measures would be necessary.

1 "Archaeological Survey Report of State Route 99 from Interstate 5 to Striplin Road", Harry O. Bass and Wayne C. Wiant, 1983. "An Archaeological Reconnaissance of the South Natomas Area for the South Natomas Community Plan, Sacramento County, California", Steven B. Dondero, 1978. "An Archaeological Reconnaissance of the Proposed Expansion of the Sacramento Metropolitan Airport", Jerald J. Johnson, 1975. "Cultural Resource Assessment of the Proposed Frates Ranch, Phase II Development, Sacramento, California", Peak and Associates, 1978. "Cultural Resource Assessment of the Metro Airport Waste Water Treatment Project, Sacramento County, California", Peak and Associates, 1980.

2 "An Archaeological Reconnaissance of the Proposed Sacramento Metropolitan Airport", op. cit. "Cultural Resource Assessment of the Metro Airport Waster Water Treatment Project", op. cit. "Archaeological Survey Report of State Route 99 from Interstate 5 to Striplin Road", op. cit.

3 "The Sacramento Valley From the American River to Butte Creek", Surveyed and drawn by order of General Riley Commander of the 10th Military Department by Lieutenant Derby, Topographic Engineers, September and October 1849.

4 "Cultural Resources Evaluation of Keller Ranch", Holman and Associates, 1982.

P. VISUAL AND AESTHETIC CONSIDERATIONS -- THE SETTING

Typical examples of the visual character of the Study Area are provided in Exhibit P-3, A through H.

The Study Area is most visible from Interstates 5 and 80 where 38,000 and 55,000 vehicles pass each day, respectively. I-80 cuts through the Study Area in an east-west direction, providing panoramic views of the agricultural land north of the freeway and the developing Northgate industrial area. I-5 passes through the Study Area in a north-south direction, also providing panoramic views of the majority of the Study Area.

The views of the Study Area are predominantly of extensive farmland (see Exhibit P-3, Photograph A). Except for the northeast corner where some hilly terrain exists, the Study Area appears flat and visually uniform when an observer is at ground level. This, coupled with the general absence of trees, generates a feeling of spaciousness and allows distant views. Foreground views become visually interesting mainly from elevated places, such as from freeway overpasses and levee roads, which provide opportunities to appreciate the geometric patterns of row crops and rice paddies. The Natomas East Main Drainage Canal mainly is visible from East Levee Road which runs parallel to the canal. The canal is the most visually significant drainageway in the area (see Exhibit P-3, Photograph B).

Distant views give North Natomas a sense of place. The skyline of downtown Sacramento can be seen to the south (Exhibit P-3, Photograph C), and under good weather conditions the Sierra Nevada is visible to the east (Exhibit P-7). Closer views of planes arriving and departing at Metropolitan Airport help establish the western edge of the Study Area and animate the visual environment.

Within the Study Area, tall objects dominate and contrast with the flat, relatively uniform ground. The radio tower in the Northgate industrial area and the electrical transmission lines which run parallel to East Levee Road, for example, are prominent visual features of North Natomas (see Exhibit P-3, Photograph D). Isolated farm buildings take on exaggerated visual importance (see Exhibit P-3, Photograph E), and freeway interchanges can be seen from great distances (see Exhibit P-3, Photograph F). Automobile traffic also attracts the eye and is another source of animation in the visual scene.

The visual quality of development in North Natomas varies. Metro Airport provides a visual gateway for visitors to the Sacramento metropolitan area. The landscaped approach to and from I-5 contributes to the airport's visual quality. Development to date in the Northgate industrial park is reasonably attractive (see Exhibit P-3, Photograph G). On the other hand, the existing residential neighborhood north of Del Paso Road is of average quality with some of the structures appearing to need rehabilitation (see Exhibit P-3, Photograph H).

The City of Sacramento has adopted an Interstate 5 Corridor Overlay Zone in order to create a landscaped area ensuring high visual quality along Interstate 5 between Metro Airport and downtown Sacramento. [1] In adopting the overlay zone it was observed that I-5 is now surrounded by agricultural lands and that it offers an attractive entrance to the City of Sacramento. Furthermore, it was stated that urban development adjacent to the Interstate will present an adverse aesthetic impact on users of the freeway due to the loss of agricultural lands and open space. [2]

VISUAL AND AESTHETIC CONSIDERATIONS -- THE IMPACTS

Implementation of Alternative A would intensify development in the areas where urbanization already has occurred: in the southeast corner of North Natomas near Northgate Boulevard and on the northwestern boundary of the Study Area adjacent to Metro Airport. Remaining lands would continue in agricultural use, largely unaffected visually by the new development which would occur in North Natomas.

Under Alternatives B through E the Study Area east of I-5 would be transformed visually by development replacing flat, open farmland. Agricultural land preserved by Alternative B west of I-5 and south of Elkhorn Boulevard would continue to be seen as it presently is viewed. Alternatives C, D, and E would convert the Study Area to urban use. Urbanization would contrast with the area's present visual quality and with the agricultural lands remaining outside the Study Area which would abut new development.

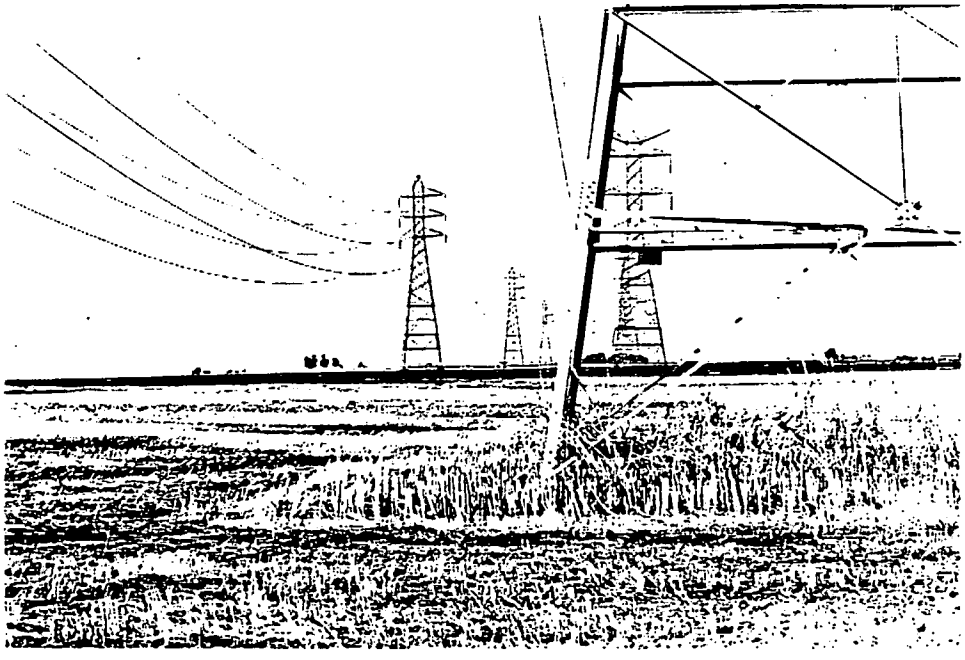
The Draft Community Plan (Alternative C) illustrates typical sections along roads within the Study Area. These sections illustrate recommended front and rear setbacks for development and provision of landscaped medians (see Exhibits P-8 through P-11). The Draft Plan also contains conceptual plans which illustrate the planners' view of how development might occur around specific land use elements: along a linear roadway park, around a regional

A. View of extensive farmland within study area.

B. The Natomas East Drainage Canal mainly is visible from East Levee Road.

EXHIBIT P-3 VISUAL CHARACTER OF THE STUDY AREA

C. Distant views of downtown Sacramento can be seen to the south.



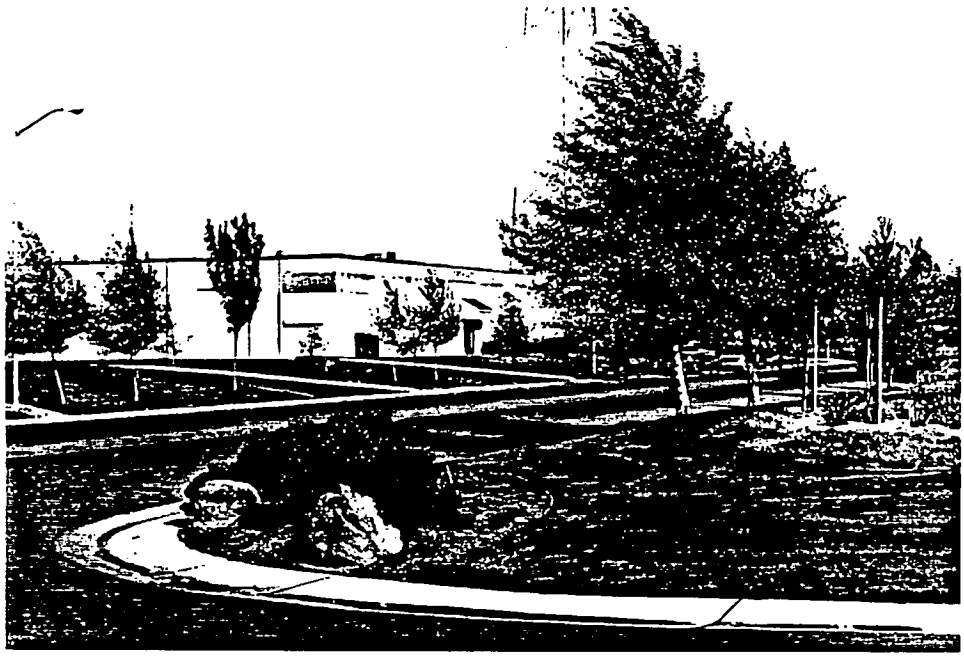
D. Transmission lines which parallel East Levee Road are highly visible.

EXHIBIT P-3 VISUAL CHARACTER OF THE STUDY AREA

E. Isolated farm buildings take on exaggerated visual importance.

F. Freeway interchanges can be seen from great distances.

EXHIBIT P-3 VISUAL CHARACTER OF THE STUDY AREA



G. Development in Northgate Industrial Park is reasonably attractive.

H. Existing residential neighborhood north of Northgate.

EXHIBIT P-3 VISUAL CHARACTER OF THE STUDY AREA

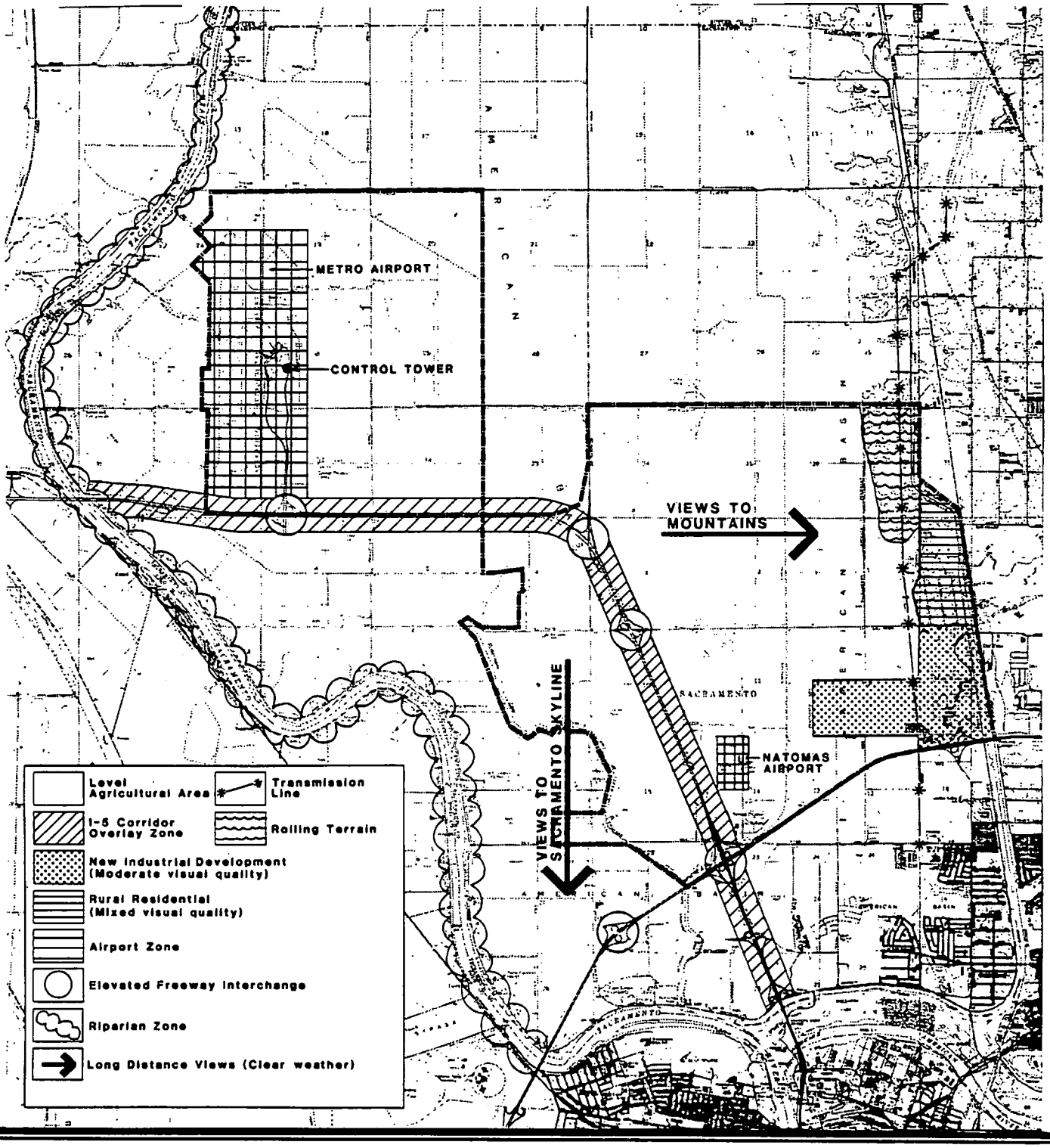
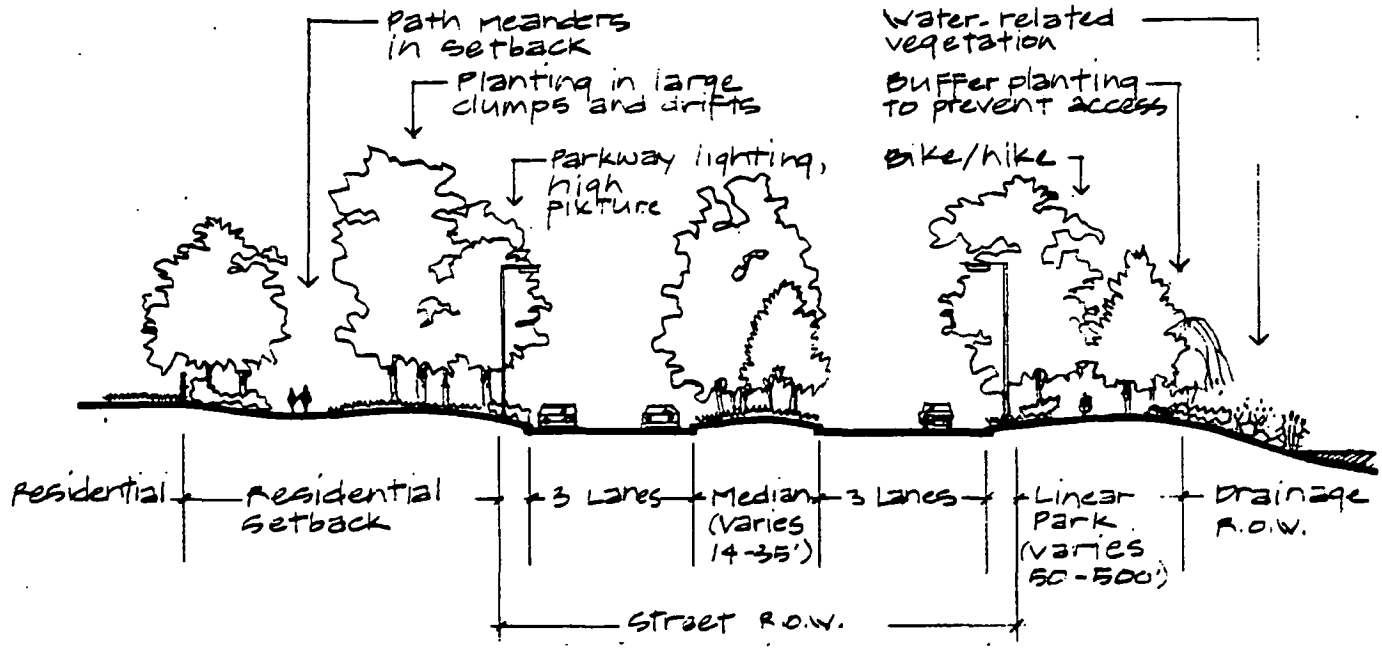


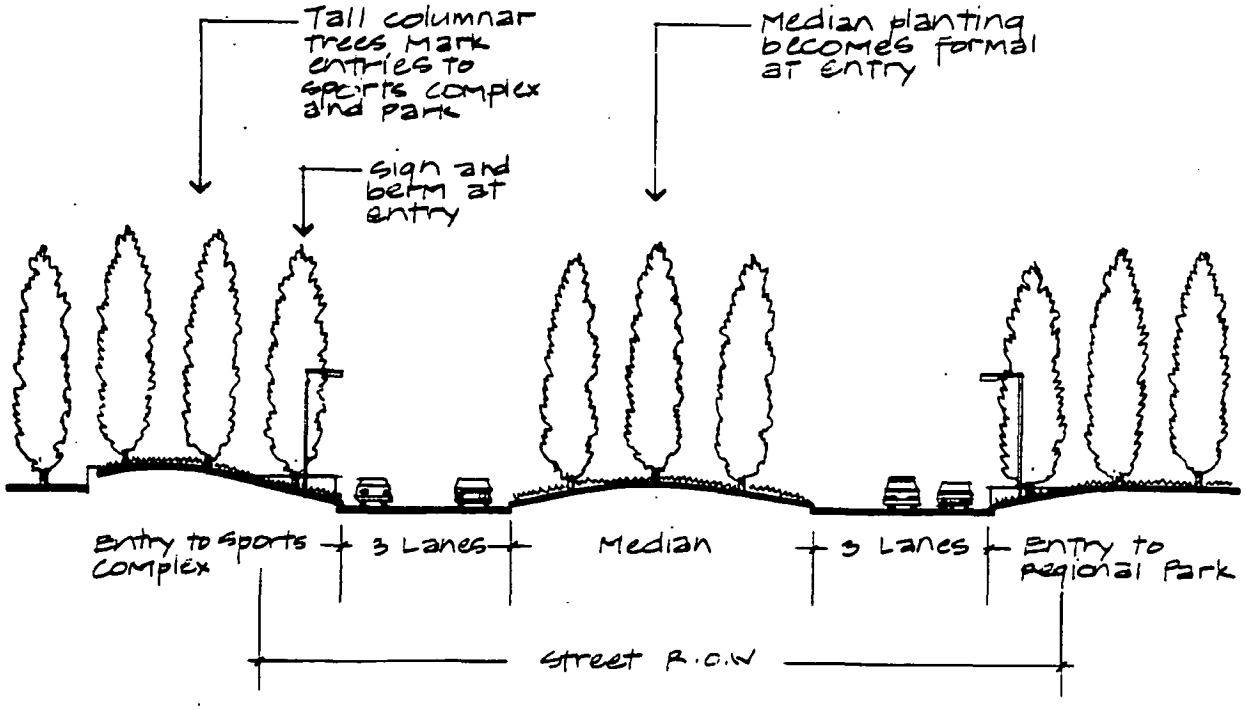
EXHIBIT P-7
VISUAL CONDITIONS

0 3200 6400 Ft.

Source: The SWA Group



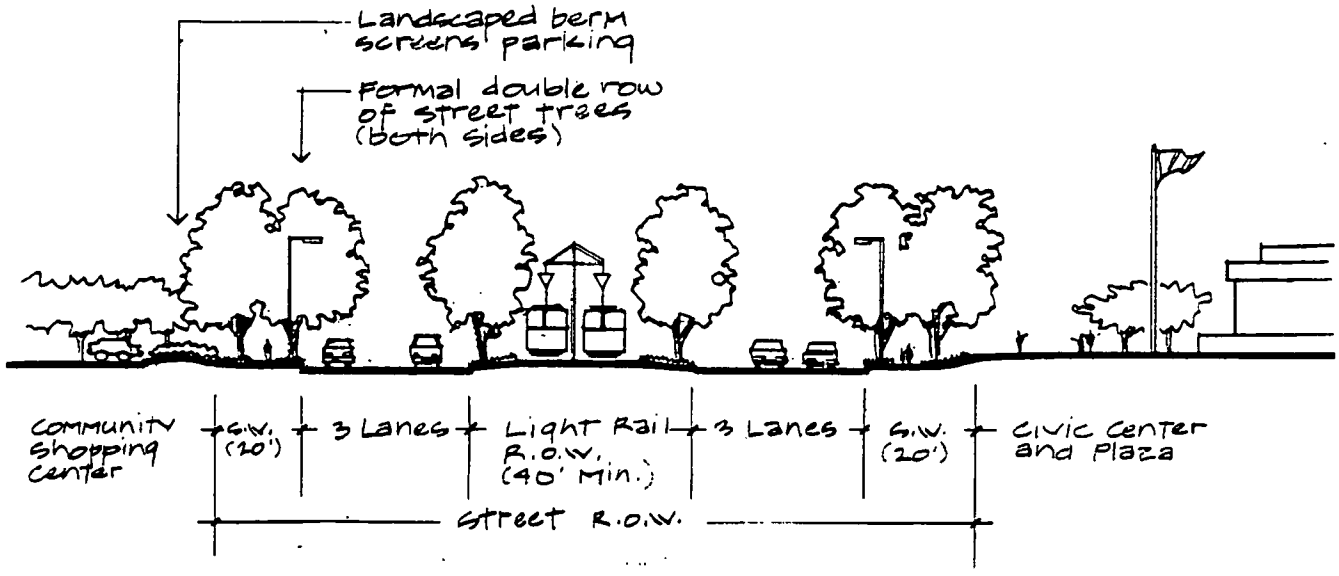
TYPICAL SECTION



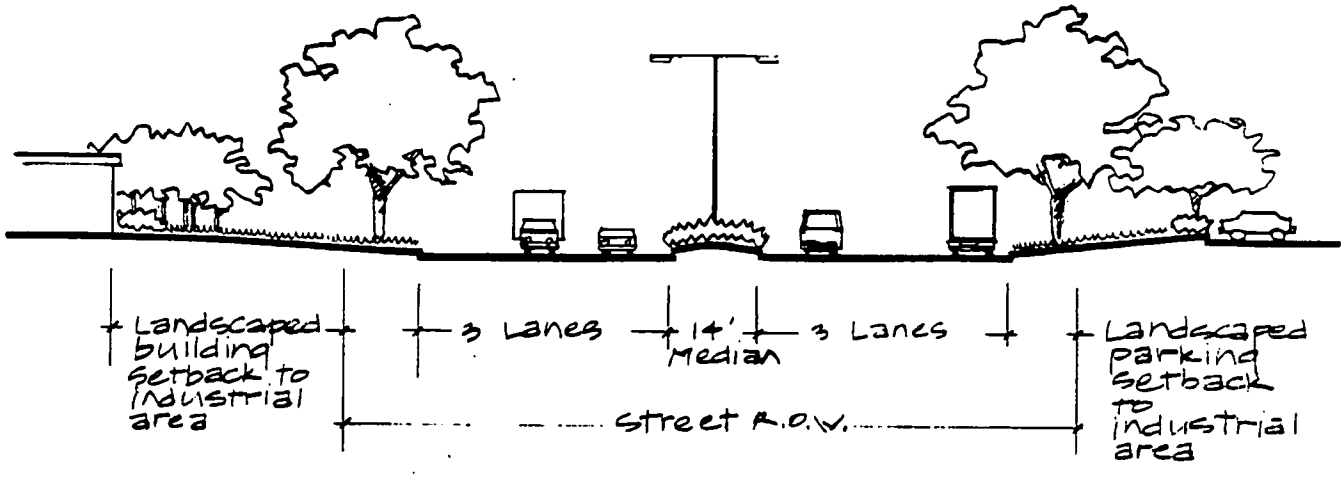
SECTION AT ENTRY TO SPORTS COMPLEX

EXHIBIT P-8
TYPICAL SECTIONS TRUXEL ROAD

Source: The SWA Group



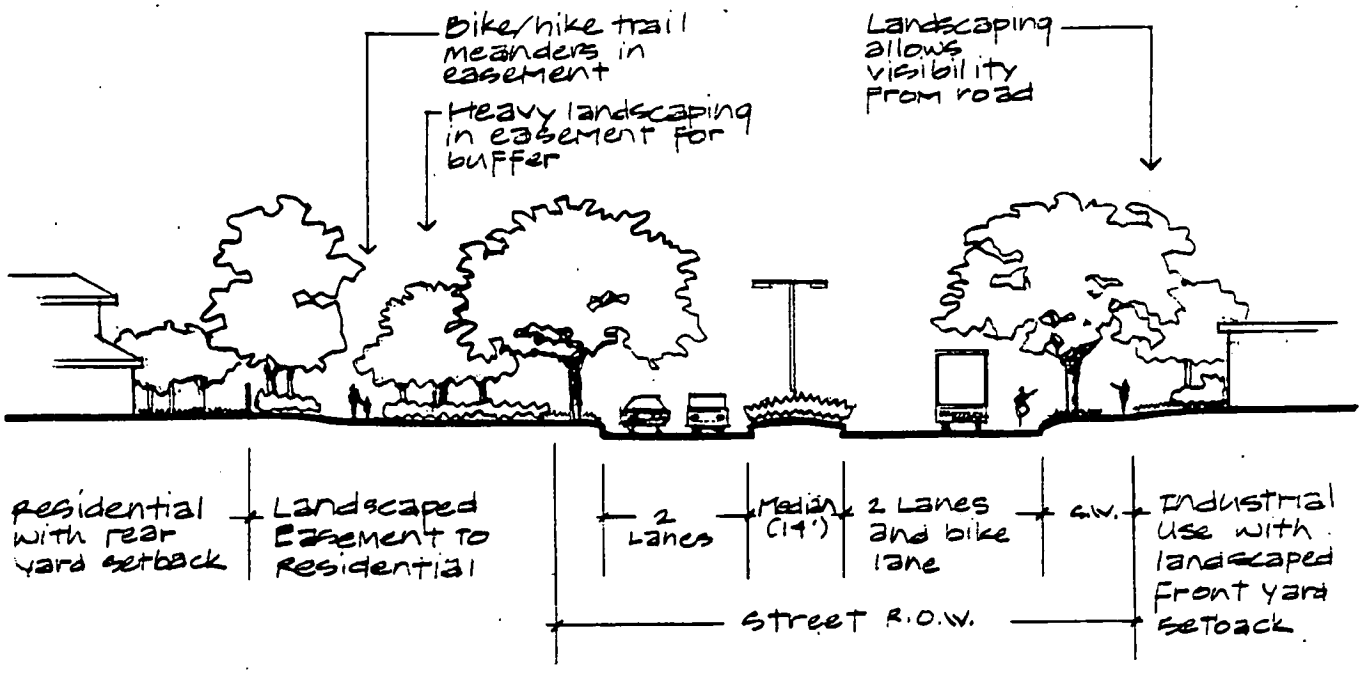
DEL PASO BOULEVARD



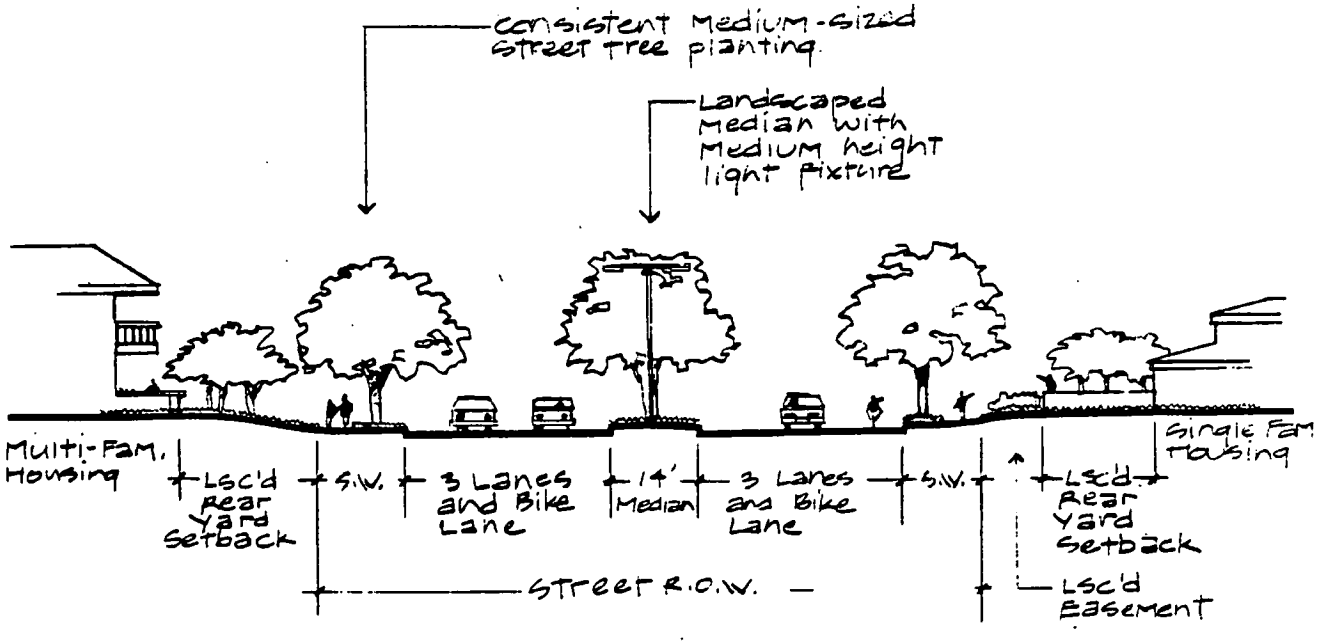
NORTH MARKET BOULEVARD

EXHIBIT P-9
TYPICAL ROAD SECTION

Source: The SWA Group



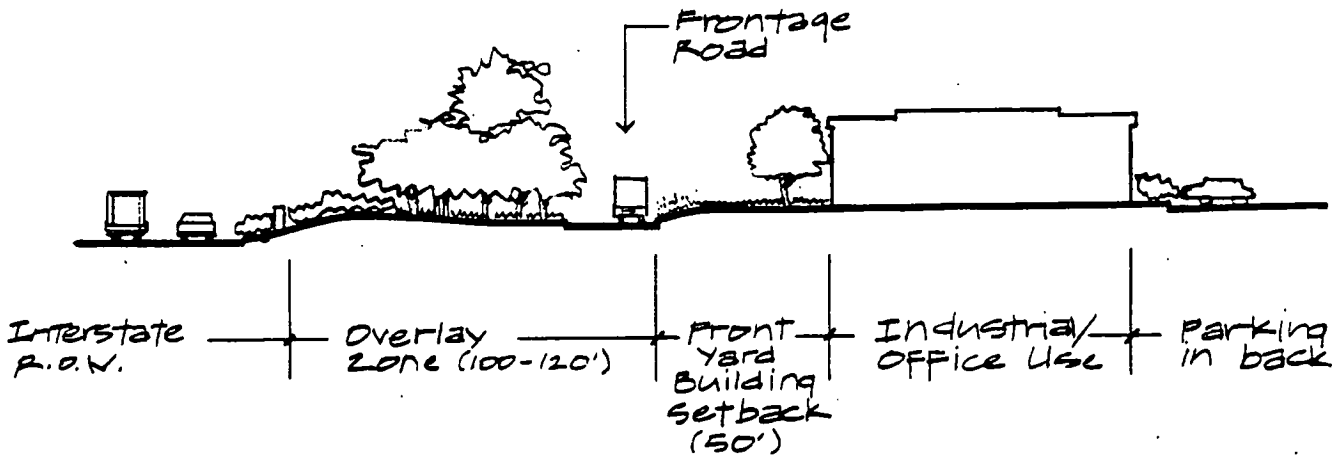
WEST COMMERCE WAY



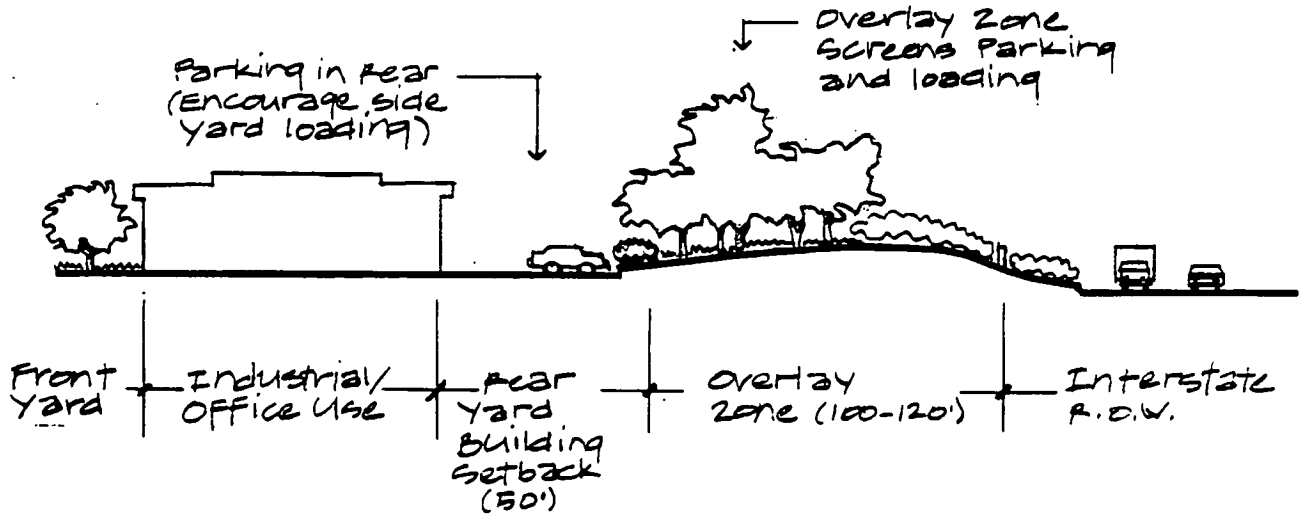
NATOMAS LOOP ROAD

EXHIBIT P-10
TYPICAL ROAD SECTION

Source: The SWA Group



FRONT SETBACK CONDITION



REAR SETBACK CONDITION

EXHIBIT P-11
TYPICAL SECTION INTERSTATE CORRIDOR

Source: The SWA Group

park, and around a retention basin developed as a lake (see Exhibits P-13 through P-16).

These recommendations represent planning, site design, land use interrelationship, and landscaping concepts which, if adopted, the Community Plan would strive to achieve in North Natomas. These generalized illustrations do not necessarily represent how development of individual projects actually would occur. Their inclusion in an adopted Community Plan, however, could guide planners and architects for specific projects. They also would permit decisionmakers to evaluate the extent to which proposed projects could produce the form and character desired in North Natomas.

Whether the features illustrated in Exhibits P-14 through P-16 are implemented would depend largely, therefore, on how specific projects are proposed and built, on how subsequent projects relate to earlier ones, and, together, how development projects a degree of consistency. It also should be noted that these illustrations reflect "best case" conditions, showing mature and presumably well-maintained vegetation upon buildout of the Study Area.

The following discussion analyzes the probable visual consequences of implementing the land use designations proposed by the five Community Plan alternatives. The visual impacts of the alternatives are summarized on Exhibit P-17 and are described below.

ALTERNATIVE A

New industrial development under Alternative A would be concentrated in the Northgate Industrial Park and Metro Airport SPA areas. In the Northgate industrial area development probably would have a visual character similar to existing buildings and landscaping. Much of the construction typical of these developments consists of tilt-up concrete structures of utilitarian, industrial character exhibiting few exceptional architectural features when viewed from ground level or from elevated roadways. Industrial, office park complexes also generally consist of freestanding buildings surrounded by paved shipping and receiving areas and parking lots. The amount and maturity of landscaping in these areas would vary. The landscaping standards already established in the Northgate industrial area potentially could be maintained with future development under Alternative A. This would result in more development of the character which already exists there. Such development would not be expected to have unusual visual attributes or

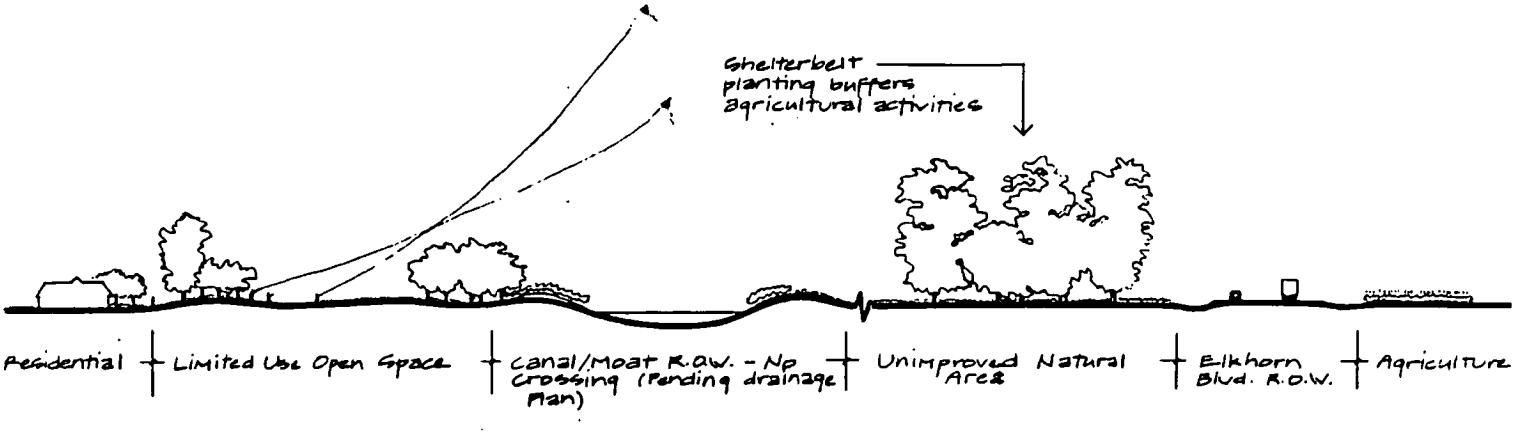


EXHIBIT P-13
TYPICAL SECTION -- GREENBELT

Source: The SWA Group

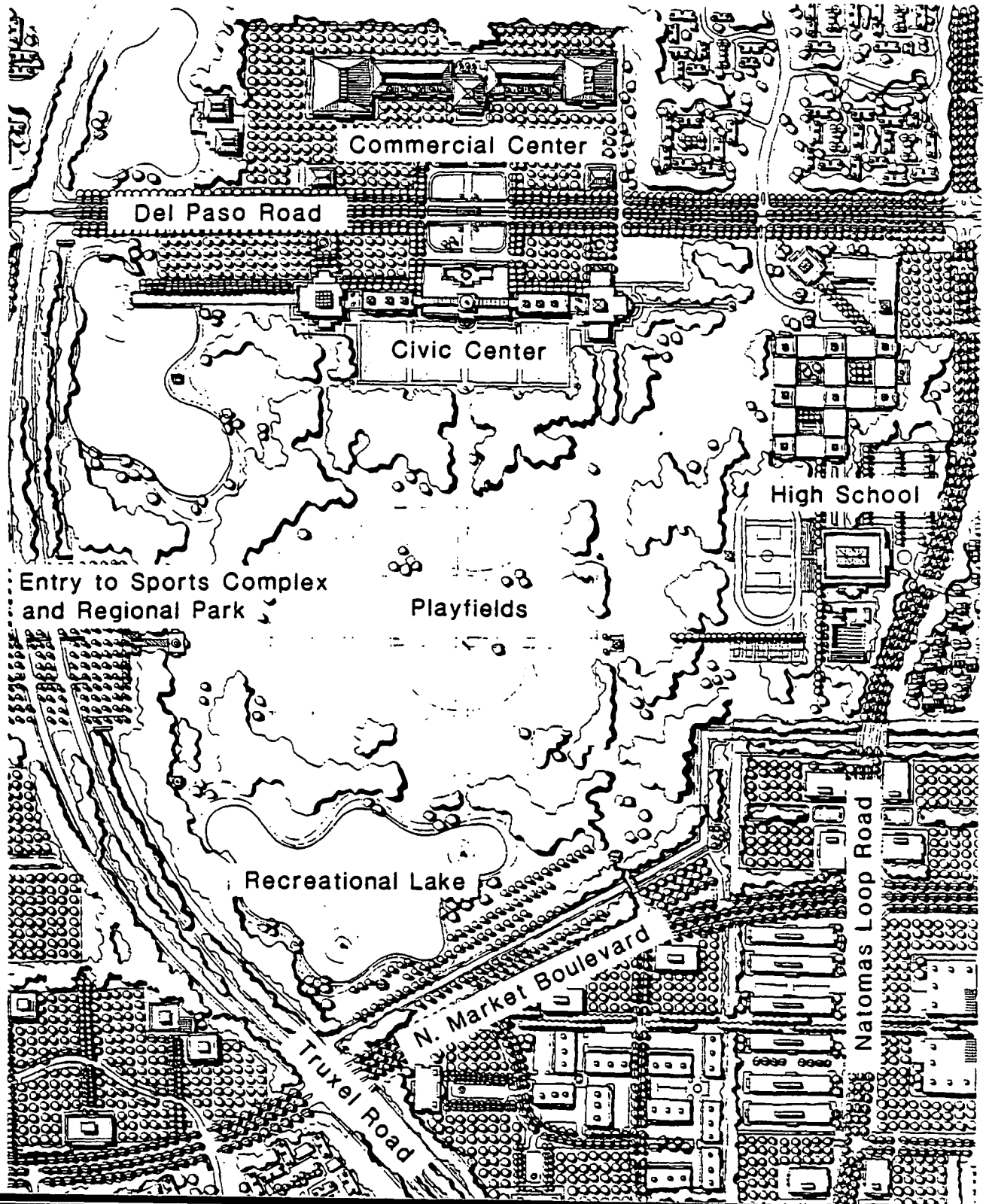


EXHIBIT P-14
CONCEPTUAL PLAN -- REGIONAL PARK

Source: The SWA Group

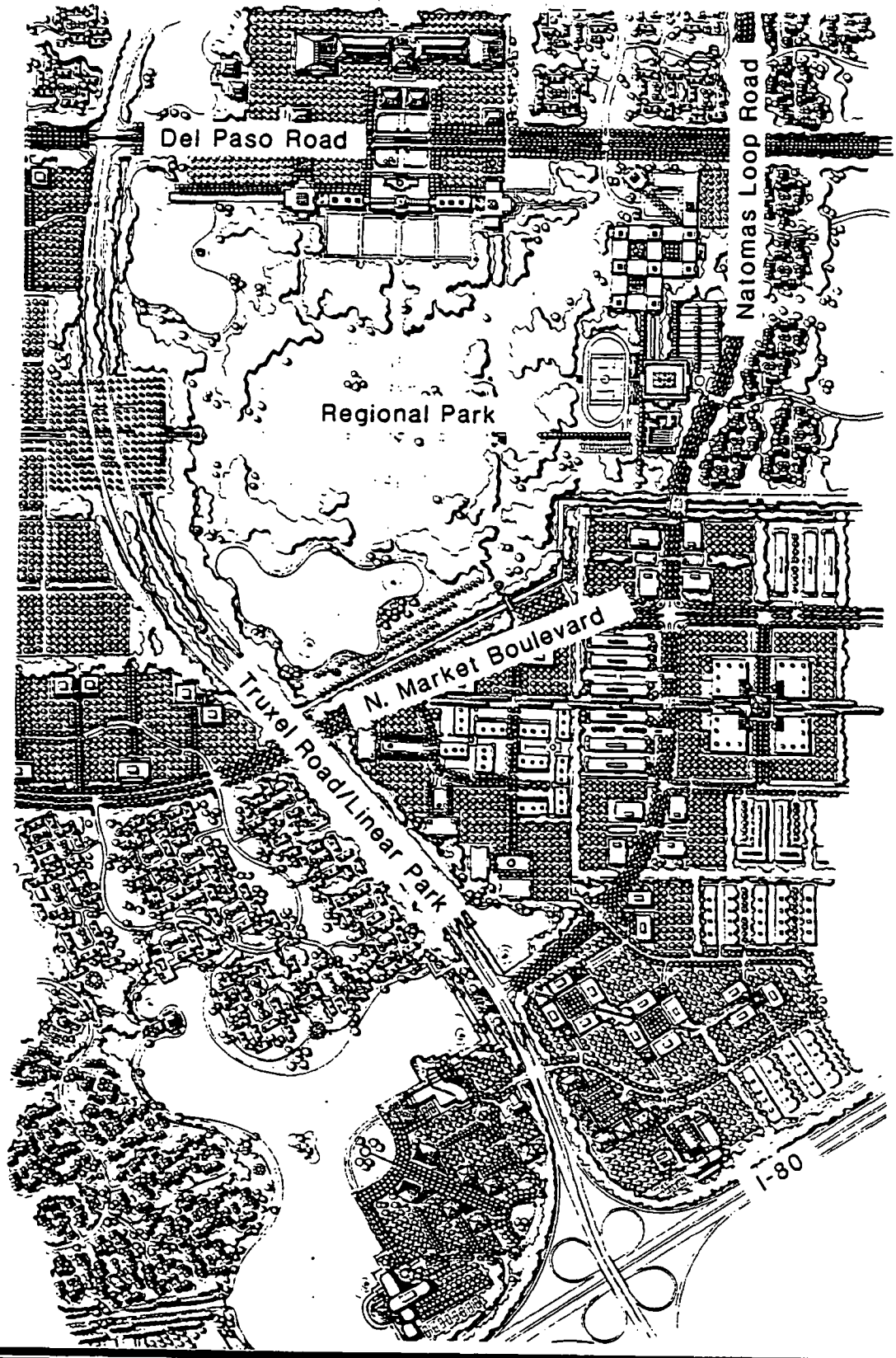


EXHIBIT P-15
CONCEPTUAL PLAN -- DEVELOPMENT ALONG LINEAR PARK

Source: The SWA Group

EXHIBIT P-16
CONCEPTUAL PLAN -- CONCEPTUAL LAKE DEVELOPMENT

Source: The SWA Group

EXHIBIT P-17

Summary of Visual Impacts from Alternatives

Probable Visual Effects	Alternatives	Potentially Significant Impact	Probably Insignificant Impact
Light Industrial development in the Northgate industrial area could appear similar to existing development there.	A through E		A-E
Airport-related development in the SPA could detract from the character of the visual gateway established by Metro Airport.	A through E	A-E	
Residential densities would express an urbanized character of Study Area development.	B through E	B-E	
Feathering of residential densities might produce a visual transition for some viewers from concentrated development to no development.	B through E	B-E	
Landscaping of residential neighborhoods at development or on maturity would give visual character to these areas but probably would not be visible to persons outside these neighborhoods.	B through E		B-E
Office, business, and high technology industrial parks on prime sites probably would regard visibility as an asset and could be expected to result in good quality development visually.	B through E		B-E
Office, business, and high technology uses would require large parking areas. This means that buildings would not form a continuous wall of development. Large paved areas and many cars would be visible, even with landscaping; cars would be a source of reflected light and glare.	B through E	B-E	
Use of PUD zoning for Highway Commercial areas could encourage coordinated planning and provide the basis for design review of individual projects, thus reducing the potential for adverse visual impacts of businesses which must attract the traveling public by means of distinctive architectural styles and outdoor signs.	Alternative C	B, D, E	C
Community and neighborhood commercial development could contribute visual interest to the Study Area if low-scale in character and if well landscaped.	B through E		B-E
The scale of a sports complex which would result from its function would not be compatible with the scale of other uses proposed in North Natomas.	B through E	B-E	

EXHIBIT P-17 -- CONTINUED

Summary of Visual Impacts of Alternatives

Probable Visual Effects	Alternatives	Potentially Significant Impact	Probably Insignificant Impact
Landscaped parks, drainageways, freeway corridors, and greenbelt buffers would mitigate visual impacts of development but not substantially.	B through E		B-E
Unless adequate visual separation is provided, development in North Natomas would contrast visibly with adjacent agricultural lands.	B through E	C-E	B
The 20-year buildout period would result in visual impacts due to the area's incomplete appearance until sufficient, coordinated development produces an identifiable community image for North Natomas.	B through E	B-E	
Implementation of the five individual applications would result in visual impacts similar to Alternatives B through E, except for the Fong project. Adverse visual impacts of the Payne project could not be mitigated to insignificant levels.	Alternative E	E	

to produce significant adverse impacts. This visual character also would result with Alternatives B, C, D, and E, although the design guidelines of Alternative C might reduce the potential for impacts.

While the visual standards currently attained at Metro Airport potentially could be achieved by specific development projects within the SPA, the airport would not control adjacent private development. Airport-related industrial development in the SPA would not be expected to reflect the visual character now present at the airport or anticipated in the Northgate industrial area due to the functions to be accommodated in the SPA. Warehouses, repair facilities and services, and other land-extensive uses would characterize development in the SPA. The space needs would be utilitarian, and the users of these areas might be less inclined to be conscious of the visual quality of their activities. Unless required to adhere to design guidelines or to install and maintain amenities, such as landscaping, this area could detract visually from the gateway established at Metro Airport.

Development in both industrial areas probably would be low rise, one- to two-story buildings. This scale is typical of similar structures elsewhere, but development would be highly visible from great distances due to the area's flat topography. In addition, the roofs of buildings could be visually prominent to drivers on freeway overpasses and embankments. Unless hidden from view, mechanical equipment could be visible.

Alternative A plans no new residential construction in North Natomas, although the existing mobile home park located west of I-5 might be built-out independent of the community plan process. The appearance of existing neighborhoods would not be expected to change substantially. Without improvements, however, existing structures could deteriorate further, resulting in a more dilapidated appearance and a negative community image.

ALTERNATIVES B, C, D, AND E

Alternatives B through E would transform most to all of North Natomas from open farmland -- with predominantly scattered agricultural and some more-concentrated industrial development -- to a developed urban area. Proposed development projects and implementation of public amenities (such as parks, greenbelts, or landscaped drainageways) would be subject to and guided by goals and policies of the community plan to be adopted. Their ultimate aim, as now recommended, would be to "assure a community of distinction" and to "achieve a high quality environment". [3] Except for preliminary landscape

guidelines [4], specific design guidelines have not been proposed at this time, although some general policy recommendations suggest the resulting appearance of development (see Exhibits P-14 through P-16). [5]

Residential Development

All alternatives propose a range of housing types and densities. In order to provide a diverse housing stock in North Natomas, the Draft Community Plan recommends that projects of 20 to 30 acres in size should have a minimum of two housing types and that projects larger than 30 areas in size should have at least three housing types. [6] This would avoid monotony in the appearance of development and could give visual texture to the community.

Roughly two-thirds of all units proposed by Alternatives B and C would be medium and high density housing, nearly three-quarters of units under Alternative D would be medium or high density housing, and 95 percent of units in Alternative E would be medium and high density housing. Residential uses, therefore, would express an urbanized visual character due to the preponderance of medium to high density development.

If developers do not install landscaping initially in order to enhance the marketability of housing units, it is expected that residential developments eventually would be well landscaped. Residential areas would be near parks and other visual amenities. These features could help to define the visual quality of development. Residential neighborhoods would be well removed from major transportation corridors in order to protect future residents from adverse traffic and noise impacts. Consequently, the visual attributes which could be achieved by establishing and implementing design guidelines for residential development largely would be hidden from view of persons outside the community. This means that the character of residential neighborhoods would not necessarily define the community's visual quality to passersby and primarily would benefit residents or visitors to these neighborhoods.

Alternatives B, C, and D generally "feather" or taper residential densities outward from the most concentrated to the least dense around the periphery of the Study Area. [7] Some people view the practice of feathering densities as providing a visual transition from urban to suburban to rural land use intensities, and very low density, rural estate development can be seen by some people as rural in character. Only Alternatives A and C, however, actually retain one-acre residential development (Alternative C

would increase this land use by 74 units), while other alternatives' lowest densities of seven (7) units per acre are more typical of suburban subdivisions than rural ranchettes.

As discussed in the Land Use analysis, agriculturally zoned lands (A) could be subdivided into five-acre lots. The remnants of agricultural land remaining in North Natomas under Alternatives C, D, and E suggest that parcelization and rural ranchette development of those lands would occur in the future. The area most vulnerable to conversion is located in the southwest corner of the Study Area adjacent to proposed low to medium density housing in all three alternatives. [8] If rural estate development occurred here, it would be visible from I-80, southwest of the Study Area, and would be seen as a finger of urbanization extending onto agricultural land. As development in North Natomas proceeds west of I-5, it will look like uncontained urban expansion which is common in other areas of Sacramento and in valley communities. Development west of I-5 visually would foretell that urbanization ultimately would extend across remaining open land to the Sacramento River.

Compared with residential use, employment-generating development would have more of an influence on the visual character and identity of North Natomas. This would be expected because of the proposed proximity of these uses to major roadways and because of the amount of development envisaged by Alternatives B through E.

Office Development

Office development would result in the greatest intensity of development of all employment-generating land uses, resulting in an average of 16,500 square feet of building area per net acre. At buildout of North Natomas, from 1,320,000 (Alternative B) to 2,805,000 (Alternative D) square feet of office space could be provided in OB areas. [9] OB and the next most intense land uses (M-20 and M-50 lands [10]) primarily would be located on visible sites next to freeways. These uses generally regard visibility as an asset; Alternatives B through E propose these locations for this reason and to buffer more sensitive uses from the adjacent freeways.

High Technology and Light Industrial Development

Office, business, high technology, and light industrial parks typical of M-20 and M-50 developments generally are characterized by a "campus-like"

environment. They usually consist of low-rise, one- to four-story, freestanding buildings surrounded by parking. Generous landscaping and/or recreational facilities often are provided because they contribute to companies' images. Projects developed on prime sites in North Natomas are likely to "put their best faces forward". In addition, competition between North and South Natomas for office, business, and high technology projects could result in good quality development in both communities. Development probably would have a suburban character, similar to a well designed and maintained shopping center or community college.

Parking

The large workforce which would be created in North Natomas would generate substantial demands for vehicular parking, even with provision of public transit, implementation of TSM programs, and residency of a large proportion of North Natomas workers in the community (who could walk or ride bicycles, for instance, to and from their jobs). [11] Even when areas of asphalt parking lots are broken up into smaller areas and even when generous amounts of landscaping are planted, parking lots usually are visually prominent and cannot be disguised. In addition they create sources of reflected light and glare. Developers often are reluctant to install enough vegetation adequate to screen and shade parking lots because of the expense and because of security concerns of employees and visitors, especially those using parking facilities after dark. [12] Even with mitigation such as ample landscaping, parking lots would be a feature of future views in the Study Area.

The large parking areas surrounding OB, M-20, and M-50 development means that there would not be a continuous, unbroken wall of development along I-5 and I-80 which would obstruct views into the Study Area. The OB, M-20, and M-50 areas, however, would substantially influence the perceptions of North Natomas to passersby and for people entering the community.

Commercial Development

Commercial development would be scattered throughout North Natomas. Of community, neighborhood, or highway commercial facilities, the last would be visible to many people because of the necessity of these uses to locate near and be seen from major transportation corridors. Development could include highway-oriented restaurants, hotels and motels, and service stations. These uses are dominated by business chains which have established visual trademarks, both for their buildings' architectural styles and outdoor

signs. Non-chain entrepreneurs often mimic these established trademarks because they are so recognizable. Highway commercial development cannot (nor does it want to) be disguised visually because it must advertise itself to passersby in order to remain in business. Architectural review and outdoor advertising controls would be essential requirements for highway commercial projects because these uses can do so much to contribute positively or negatively to community image, thus either complementing or detracting from the visual quality achieved by office and MRD development adjacent to the I-5 and I-80 freeways.

The Draft Community Plan proposes Highway Commercial (H-C) and Planned Unit Development (PUD) zoning designations for highway commercial uses. [13] H-C zoning provides for accommodations and services for motorists and other specialized, non-merchandizing activities. [14] PUD zoning can be used for residential, residential-business, or industrial uses. [15] Industrial PUDs provide for "well-designed and controlled groupings of research, service, or light industrial uses within an area containing visual and operational amenities and features, such as selective occupancies, setbacks, landscaping, and bulk and building material controls". [16] Special permits are required; schematic plan and development plan approvals also must be obtained for developments in PUD zones.

PUD zoning would provide a basis for discouraging commercial strips, as recommended by the City's General Plan [17], if highway commercial land uses are planned and designed as coordinated development. PUD zoning also would provide the basis for discretionary review of design and construction elements, as quoted above. This review would conform with the overall intent of the City's Interstate 5 Corridor Overlay Zone and also would apply to highway commercial uses adjacent to I-80.

Community and neighborhood commercial development would affect visual quality as experienced within the community. If strip commercial development is avoided, streetfront parking areas are adequately landscaped, and there is continuity in building scale and siting (such as setbacks from streets), community and neighborhood commercial projects potentially could contribute interesting visual elements to the streetscape. Low-scale, "town and country" type shopping centers, for instance, can be attractive commercial uses. In order to avoid visual impacts, commercial projects should recognize and be compatible with the scale of adjacent development.

Commercial development is proposed to separate residential neighborhoods from more-intensive employment-generating development. Thus, commercial facilities can be used to make the transition between these potentially

incompatible uses. One way to avoid conflicting with the residential scale and character of nearby medium to high density housing would be to minimize the bulk and mass of anchor tenants (department stores, supermarkets, super drug stores, etc.) by keeping building heights low and by articulating the facades of structures.

Stadium and Arena

Implementation of Alternatives B through E would result in development of an enclosed sports arena and an outdoor stadium. ERA's analysis of these facilities assumed that an 18,000-seat arena would require a 58-acre site and that a 60,000-seat stadium would need a 132-acre site. [18] If developed together (for a savings of 35 to 50 acres), these two facilities could require 140 to 155 acres. [19] The building footprints could account for eight acres for an arena and 10 to 12 acres for a stadium, with the remaining area devoted to parking. The result would be building coverage of 871,200 square feet plus 132 to 143 acres of paved parking lots. [20] Both facilities would be large in scale because of interior height requirements, such as for sports. They would stand alone, apart from other nearby development, surrounded by flat parking lots. As a result, the sports complex would be visible from surrounding locations. Due to functional requirements, these facilities would not achieve a visual scale or character compatible with adjacent development unless specific measures were taken in their siting and design to do so. The isolation of these buildings from other development would highlight their visibility and their large scale.

The sports complex would stand out when viewed from locations within the community. It also is likely that the complex (at least the stadium) would be visible from I-5 and I-80. [21] This is because intervening development is expected to be low scale in character. In addition, because of parking requirements for employees and visitors, intervening development would not form a continuous wall shielding the arena and stadium from view. Developers of these facilities would be expected specifically to want them to be visible in order to make them accessible to the public and in order to make a civic statement simultaneously about their project and Sacramento.

Preparation of a North Natomas Community Plan gives the City an opportunity to decide what type of community it wants before any development occurs there. This applies to the types of land uses and to the visual scale and character of subsequent development.

Due to the amount of development envisaged by Alternatives B through E, North Natomas will become a new focus for growth in the region. This can occur with large-scale development or low-profile buildings. The appearance of the community will define North Natomas visually and will reflect Sacramento's image of downtown at the same time. If predominantly low-scale development is preferred in North Natomas, the visual message to Sacramentans and visitors would be that the downtown is preeminent. If development proceeds in the form of large-scale buildings, the importance of North Natomas would be accentuated visually while the importance of downtown Sacramento simultaneously would be diminished. These consequences would apply regardless of land use: visual scale would define character.

In this context, the scale of a sports complex could have one of several possible results:

- If the City prefers a low-scale, suburban community, a large sports complex would not conform with this desired character. A low-scale sports complex built partly or entirely below grade could complement a predominantly low-scale character of the community.

- If the City wishes to highlight Sacramento's growth and vitality visually, a sports complex could be viewed as a "centerpiece" of and compatible with large-scale development.

As now envisaged, Alternatives B through E would result in low-scale development. If this is the character the City wishes to maintain, a sports complex would need to be designed to reflect this character. Otherwise it would conflict visually.

Parks, Drainageways, Freeway Landscaping, Greenbelt Buffers

In addition to the built environment, parks, landscaped drainageways, freeway landscaping, and greenbelt buffers would be developed in North Natomas. These features potentially could represent visual amenities. They could soften the appearance of development, although it is not expected that they would shield development, even in the long-term when vegetation is mature.

Agricultural Lands

Alternatives A and B would retain productive agricultural land west of I-5. Development east of I-5 under Alternative B would contrast visually with the essentially undeveloped agricultural lands to the west. Views of remaining farmland, compared with development east of I-5, would remind passersby of the historical but diminishing significance of agriculture in the region's economy.

Under Alternatives C, D, and E, farmland would be eliminated as a visual resource. Most to all agricultural land within North Natomas would be converted to (or affected by) urban uses, and views of the agricultural lands outside the Study Area would be blocked by development in North Natomas. Consequently, North Natomas would be undifferentiated visually from the adjacent urban area -- it would become an extension of the existing cityscape.

Five Development Applications

Five applications have been received to develop parcels of land located east of I-5. All five applications would change the existing visual resources of the area by replacing open agricultural land with development.

The largest area covered by these applications is the Gateway Point project. It covers 1,410 acres immediately east of I-5 between I-80 and Del Paso Road. Development is proposed for approximately 1,300 acres or 92 percent of the Gateway Point parcel. Implementation of this project would result in manufacturing, research, and development on prime sites visible from freeways and resulting in visual effects similar to those discussed above. The visual "centerpiece" of this project would be an 170-acre sports complex which would be a prominent feature of this area's viewscape. Because the Gateway Point parcel is located adjacent to two major transportation corridors, development which occurs there would be seen by many people traveling on I-5 and I-80 every day. Its land use components basically are those envisaged by Alternatives B through E. For these reasons, the visual consequences of the Gateway Point project would not differ appreciably from those of Alternatives B through E in this part of the Study Area.

The Fong Ranch application covers 109 acres immediately east of the Gateway Point parcel and north of I-80. This application proposes development of employment-generating uses and would commit 100 percent of the parcel to urbanization. The Fong Ranch abuts existing development on the east and

north where it is adjacent to the Northgate industrial area, an area characterized by light industrial and warehousing uses. This application envisages development of 95 acres (87 percent of the parcel) with manufacturing, research, and development uses, all of which would be built adjacent to existing business parks. This would result in the continuation and concentration of an established use and would be expected to differ little visually from the existing development nearby. Highway commercial uses envisaged by the Fong application are proposed to be developed with an hotel -- a use which potentially could be compatible visually with adjacent development.

The Schumacher-Iverson, Reid-Ketscher, and Payne applications all cover land located north of Del Paso Road. The 554-acre Schumacher-Iverson parcel is contiguous to I-5 and Highway 99 between Del Paso Road and Elkhorn Boulevard. This application calls for predominantly manufacturing, research, and development on prime highway frontage sites (480 acres or 87 percent of the site's total size), together with a small, 30-acre commercial area at the I-5/Del Paso Road interchange. Developed portions of the site would have visual implications similar to those discussed above for these uses.

At the Elkhorn Boulevard/El Centro Road intersection, the Schumacher-Iverson application proposes 44 acres of an open space greenbelt. Farther east on Elkhorn Boulevard, another 27 acres of open space are proposed on the Payne parcel. If a similar greenbelt band on the intervening lands between the parcels covered by the Schumacher-Iverson and Payne applications also is maintained in open space, these two undeveloped parcels could make planning and visual sense. This would depend, however, on whether they are landscaped and shield development to the south. If left unlandscaped and not maintained, they would set development back from Elkhorn Boulevard but could be unattractive visually. While designated as open space, these parcels also would appear to be temporary uses or holding zones for future development due to the proximity of the Schumacher-Iverson and Payne projects on their respective parcels.

While the proposed greenbelt area on the Schumacher-Iverson parcel potentially could be compatible visually with adjacent manufacturing, research, and development uses if well landscaped, the proximity of commercial development to open space on the Payne parcel would be expected to detract from the visual quality of the greenbelt. The majority of the 323-acre Payne parcel would be developed (92 percent), consisting of single family and multiple-unit housing, manufacturing, research, and development, and commercial uses. The proposed locations of these uses suggests that

development could appear unrelated and uncoordinated within the Payne property, such as the area of MRD land surrounded by residential uses. The Payne parcel is the most isolated of all five applications in terms of its relationship to other existing or proposed development. It would look like leap-frog development and, due to its visibility, would look out of place. This appearance would not become less awkward until infill development occurred, a factor which might be taken into account in subsequently approving additional development in this area.

The Reid-Ketscher parcel is located north of Del Paso Road and abuts the Schumacher-Iverson property on the west and north. The entire parcel is proposed for development (100 percent), 98 percent of which would be with employment-generating uses and the remainder with multiple-unit housing. The largest use (173 acres) would be for manufacturing, research, and development which is proposed adjacent to MRD uses on the Schumacher-Iverson property, thus resulting in a continuation of the visual character established on that parcel. Commercial uses also would be contiguous on these two parcels, presenting an additional opportunity to provide a unified appearance. High density residential development could look much like MRD uses and, thus, might be compatible visually with the adjacent uses on the west.

The three applications covering land north of Del Paso Road do not indicate what would happen to intervening lands in other ownerships. Development on the three parcels would stand out in contrast to the nearby vacant lands until infill development occurs. This impact is similar to the visual impacts which would result from implementation of any one application without the others. (The Fong Ranch is the only exception to this finding, since it would appear related visually to existing development in the Northgate industrial area.)

With the possible exception of the Fong application, development of one or all of these projects would lead inevitably to further growth in the vicinity of those parcels. Development which would be visible due to the area's terrain and proximity to major transportation corridors, which would not be related to other developed uses, and which would contrast with adjacent undeveloped land uses would send a visual and psychological message that additional growth would follow. The visual perception could lead to this interpretation and conclusion because the initial steps to open North Natomas to development would be apparent visually. The visual statement could lead to further approvals to fill in the gaps left undeveloped by these applications and, thus, to help mitigate the adverse impacts attributable to one or more of the five applications.

Timing of Visual Impacts

None of these significant visual changes would occur immediately or all at once. Development of residential uses would proceed throughout the 20-year planning period; employment generating development, at least under Alternative E, would extend well beyond year 2005. The actual phasing of development as illustrated in Exhibits A-46 through A-50 would depend on the installation of urban services and facilities (infrastructure to serve development), market demand for land, and the extent to which development of housing keeps pace with (or is tied to) construction of employment-generating uses.

The existence of five applications for scattered parcels in North Natomas suggests that development on some of these lands might proceed sooner than elsewhere in the Study Area. [22] Nevertheless, no matter in what order individual projects are approved and built in North Natomas, the community would have an incomplete appearance for many years with development under construction, partially complete, and in use at scattered locations throughout the Study Area. As long as vacant intervening land remains, it would add to the raw, incomplete appearance of the community. Depending on the speed with which development proceeds or lags, the visual character of North Natomas could be that of an ever changing visual panorama as the long-term identity of the area begins to emerge.

While it cannot be concluded definitively on the basis of information available at this time, it is expected that the visual implications of a prolonged construction period would be significant rather than insignificant. This is because of the anticipated costs to prepare the community for development, including the expense of installing the urban infrastructure needed to support development. These capital outlays could discourage landowners from developing amenities in the initial years, such as installing protective, shielding landscaping, until development proceeds and there is a financial return on the original investment. [23] It cannot be assumed, therefore, that the uncoordinated appearance of North Natomas during buildout would be mitigated. It is not expected that the area would provide a sense of visual identity until well in the future, after many years of visual impacts.

VISUAL AND AESTHETIC CONSIDERATIONS -- MITIGATION MEASURES

ALTERNATIVES A, B, C, D, AND E

- The North Natomas Community Plan which is adopted should provide specific design guidelines for individual land uses. Special attention should be focused on the uses to be located on the community's most visible sites (OB, M-20, and M-50 lands) because development there ultimately will define the visual quality and community identity of North Natomas for the largest number of persons. Height and bulk requirements should be established for these uses in addition to existing building coverage and parking requirements of the City's Zoning Ordinance.

- Design review should be required of all projects in North Natomas in order to regulate the bulk and scale of individual projects and in order to ensure the visual compatibility of adjacent projects as development proceeds. Design review should include all outdoor signs. In order to accomplish this, the Study Area should be designated as a Design Review District by the City.

- Landscape plans should be required for all projects at the master plan and specific plan stages, and the phasing of landscape installation should be described. Where proposed projects abut major thoroughfares and transportation corridors, applicants should be required as a condition of project approval to plant landscaping around the periphery of their sites as an initial or early phase of project implementation. Use of landscaped berms should be encouraged in and around parking lots. Landscape guidelines should emphasize the planting of trees with large spreads (to help shade parking lots) and branches which grow or are pruned well up trunks so that there is an ample canopy of vegetation while maintaining visibility and safety for pedestrians, bicyclists, and drivers at ground level. Applications for residential projects (Alternatives B, C, D, and E) should be accompanied by landscaping plans. Where residential units would be sold, applicants should provide copies of Codes, Covenants, and Restrictions (CC&Rs) which include landscaping requirements for front yards, maintenance requirements, and provision for enforcement by homeowners' associations.

ALTERNATIVES B, C, D, AND E

- The City should adopt minimum standards for the provision of public amenities to be included in all developments in North Natomas. These requirements would be separate from and in addition to the City's standards for provision of public parks (see Section H, Parks and Recreation). Such privately provided amenities could include parks, recreation facilities, meeting rooms, indoor or outdoor art, etc., to which the public would be guaranteed access. Such features would contribute to the character and image of North Natomas. They should be viewed as necessities for residents and employees and should be considered as a "cost" of developing in North Natomas and doing business there.

- In addition to the requirements of the I-5 Corridor Overlay Zone, specific gateways should be designated in North Natomas where development must be accompanied by more landscaping and must achieve high quality designs suited to the capitol city's entry and the uniqueness of this community. At a minimum, gateways should be designated at the I-5/I-80 and I-5/Highway 99 interchanges and the Elkhorn Boulevard and Main Street crossings of the East Main Drainage Canal.

ALTERNATIVES C, D, AND E

- Adverse visual impacts could be mitigated substantially if no development occurs west of I-5 (implementation of Alternatives A or B). If development is allowed west of I-5, densities should be increased so that the extent of urbanization can be reduced. Tighter densities at Study Area boundaries would help to better define the community visually. The separation between urban development and adjacent agricultural lands would be more distinct and less-suggestive visually of suburban sprawl and encroachment of urbanization onto productive farmland. Higher densities only should be allowed, however, if the total amount of land committed to development in North Natomas is reduced and if the development which occurs is pulled back away from permanent agricultural lands.

ALTERNATIVES A, B, C, D, AND E

- The Community Plan should contain specific policies defining what agricultural buffers or containment edges would consist of, when they would be provided, and who, public or private, would be responsible for their long-term maintenance. These barriers must appear strong and formidable visually for them to be meaningful either aesthetically or practically. If they are not serious, substantial visual statements, they will be viewed as temporary and breachable, thus ineffective. One way to accomplish this could be to create wide, densely planted bands of eucalyptus trees to resemble wind breaks elsewhere in central valley farming areas. If combined with a maintenance program and physical barriers to prohibit encroachment by anyone but maintenance personnel (North Natomas residents, workers, domestic pets, etc.), these could be effective in reducing visual impacts to less than significant levels. The optimal way to reduce visual impacts with these buffers would be to provide for their public ownership and maintenance. Maintenance could be provided under the City's parks' maintenance program or by establishment of an assessment district covering all lands within North Natomas.

ALTERNATIVES B, C, D, AND E

- Even extensive landscaping with tall trees around OB, M-20, and M-50 uses and between them and a sports complex would not be adequate to effectively mitigate the visibility and aesthetic incompatibility of a stadium and arena with their surroundings. The visual impacts of this complex could be reduced but not eliminated by developing a landscaped park around these facilities (generously planted, large, bermed islands within the parking lot, or below grade parking with a landscaped roof). Consideration should be given to designing these facilities all or partially below grade so that their scale would be compatible with adjacent development or so that planters might be placed on the exterior facades to create "hanging gardens". [24] Facade articulation could be designed to reduce the apparent bulk and scale of these structures.

- All building heights in North Natomas should be regulated, and a low scale of development should be required. This should be done to maintain the visibility and identifiability of downtown Sacramento when seen from within North Natomas or along major transportation corridors.

This also should be done to ensure that North Natomas does not appear visually to be another or competing downtown.

- In order to mitigate the incomplete community appearance during the 20-year buildout period for North Natomas, landscaping should be installed and maintained around the perimeter of project sites as an initial phase of project implementation. In addition, consideration should be given to installing urban infrastructure in phases according to geographic subareas within the Study Area and only extending public facilities into adjacent subareas after buildout occurs in the initial subarea(s) to be opened to development. This would help concentrate construction (rather than having construction occur at widely scattered sites simultaneously) and also would concentrate developed areas of the community as construction is completed.

ALTERNATIVE E

- If approval of the Fong Ranch application is conditional on maintaining or improving on the visual character of adjacent development in the Northgate industrial area, no additional mitigation measures would be necessary, although care should be taken in site planning and building design of highway commercial uses, due to the visibility of this parcel.

- Measures discussed above for the Study Area should be required of the Gateway Point, Schumacher-Iverson, and Reid-Ketscher projects if those applications are approved. If approved as proposed, the timing of development should be coordinated to reduce short-term visual impacts which would result if the projects north of Del Paso Road precede development in Gateway Point. These three applicants should coordinate among themselves prior to the specific plan stage to ensure that there would be visual continuity of development on these parcels in terms of scale, building heights, landscaping, and relationship of land uses not only within their parcels but also with respect to adjacent development proposed.

- An open space greenbelt band should be established by the City from the Schumacher-Iverson property east along Elkhorn Boulevard to the City boundary, if these two projects are approved as proposed. The City Ordinance establishing this greenbelt should specify landscaping and maintenance requirements. This greenbelt should be regarded as a

permanent visual transition between the urban area to the south and permanent agricultural land to the north.

- The visual impacts of development on the Payne parcel could not be mitigated. These adverse impacts could extend for the long-term, depending on whether any development proceeds on parcels in the vicinity which currently are not proposed for urbanization. Although this parcel is somewhat removed from major transportation corridors, development there would be visible to people working at or living on the parcels covered by the four other applications pending with the City.

1 City of Sacramento Zoning Ordinance, op. cit., page 100.
2 Ibid.
3 North Natomas Draft Commuity Plan, op. cit., page 13.
4 Ibid., page 80.
5 While recommended policies only were prepared for Alternative C, it is assumed that similar or identical policies would be adopted if Alternative B, D, or E were to be selected as the North Natomas Community Plan.
6 North Natomas Draft Community Plan, op. cit., page [20]. The page is misnumbered as page 19 in the plan.
7 Alternative E provides only 5 percent of housing as low density units (1,932 units) and 95 percent in medium and high density developments. With so little low density housing, the units which are proposed at the Study Area boundaries would be medium density.
8 The other remaining parcel of agricultural land in North Natomas would be in the southwest quadrant of the I-5/Highway 99 interchange under Alternatives C and D (it is designated M-50 under Alternative E). It is more likely that pressures would develop to convert this parcel to employment-generating uses rather than residential uses -- at whatever density.
9 Not including offices permitted on M-50 and M-20 lands. Alternative E does not provide for any OB or M-20 development. If 50 percent of the proposed 2,050 acres of M-50 lands were developed with offices, however (1,025 acres), there potentially could be 16,912,500 square feet of office area in North Natomas.
10 M-20 could be developed with up to 12,750 square feet per net acre and M-50 with up to 15,750 square feet per net acre. The least intensive use, however, highway commercial development (6,750 square feet per net acre), also would be located on sites visible from regional transportation corridors.
11 Two factors would contribute to parking demands. One would be the surplus of jobs to housing under all alternatives which will require large numbers of employees to live elsehwere in the region. The other would result from the Study Area's proximity to freeways which would encourage vehicular commuting by employees, and, thus, would require significant areas to be devoted to parking. Because North Natomas is the City's northernmost community, not a centrally-located one, commutes of long distances could be expected, discouraging all but dedicated public transit users or poor employees to patronize public bus or light rail service.
12 Shopping center developers share these concerns for similar reasons and for vehicular and pedestrian safety. The result usually is sparse landscaping or predominantly low-growing shrubbery.
13 Draft North Natomas Community Plan, op. cit., page 95.
14 Zoning Ordinance, City of Sacramento, page 1-3.
15 Ibid., page 8-1.
16 Ibid.
17 City of Sacramento General Plan, op. cit., page 2-10.
18 Economic Analysis of an Arena and/or Stadium for Sacramento, California, op. cit., pages IV-1 and IV-2.
19 Ibid. A 200-acre site is proposed under Alternatives B through E.
20 Eight (8) acres x 43,560 square feet/acre = 348,480-square foot arena plus 12 acres x 43,560 square feet = 522,720-square foot stadium =

871,200 square feet of building coverage.

21 Light towers at an open air stadium would increase this facility's overall height, probably in excess of the arena's total height.

22 The actual uses developed on these parcels would depend on which alternative is selected as the community plan and may not necessarily reflect the pending applications filed with the City. The existence of the applications, however, indicates interest in proceeding with development on the lands covered.

23 Development which is phased over long periods is not necessarily conducted by one owner who would be interested in a project from start to finish to long-term use. In these cases a landowner will obtain initial approvals for land uses and then sell the parcel for its new "development value". The next owner might only make the improvements necessary to sell off smaller lots for individual projects. Office and industrial parks often are built on a speculative basis, to rent or sell to tenants who are not identified prior to designing and building facilities (as opposed to occupants who build their own facilities or builders who custom-design and construct for identified users). If a parcel changes hands during the development process, there may be less interest in making more than the minimum investment necessary for the next sale. When this occurs it is unlikely that public amenities would be provided until late in a project's ultimate implementation.

24 The landscaped embankment of the I-280 freeway along Potrero Hill in San Francisco and the ivy growing on the coliseum in Los Angeles are examples of how the large stadium might be designed.

Q. ELECTRICAL FACILITIES -- THE SETTING

GENERATION

Electricity is supplied to the North Natomas Study Area by the Sacramento Municipal Utility District (SMUD). SMUD furnishes electrical power and services to over 369,000 customers in its service area. In 1984 SMUD reached a peak demand of 1,730,000 kilowatts (kW). SMUD owns and operates eight hydroelectric plants which have an aggregate rating of 649,000 kW, and a nuclear-fueled generating plant which has a capacity of 913,000 kW and a geothermal plant with a capacity of 65 kW for a total generation capacity of of 1,562,065 kW.

Along with District facilities, SMUD currently purchases power from the Western Area Power Administration and has agreements with Pacific Gas and Electric Company (PG&E) to help meet demands for electricity. The District purchases 360,000 kW of Central Valley Project power each month from the Federal government. The District and PG&E have a sale, exchange, and integration agreement under which SMUD and PG&E provide energy to each other on an exchange basis in the event that their power supply requirements exceed their resources. This agreement terminates on January 1, 1988.

TRANSMISSION

Electricity is transmitted throughout the SMUD service area on 230,000 volt transmission lines to bulk power substations. There currently are 9 major bulk substations operating, under construction or planned in the service area. The bulk substation closest to the Study Area is the Elverta Substation which is located southeast of the intersection of Elverta Road and Sorento Road (see Exhibit Q-2).

A major north-south transmission line corridor exists in the eastern portion of the Study Area. Two sets of steel lattice towers have been built in the corridor. One set of towers contains a double circuit 230,000 volt line owned by the Western Area Power Administration. The second set of towers carries SMUD transmission lines -- a single circuit 230,000 volt line and a single circuit 115,000 volt line. The 115,000 volt line is scheduled for conversion to 230,000 volts. The earliest this would occur, however, is 1990.

Exhibit Q-2 also shows the location of existing SMUD facilities in the Study Area and the immediate vicinity. A 69,000 volt line presently departs the

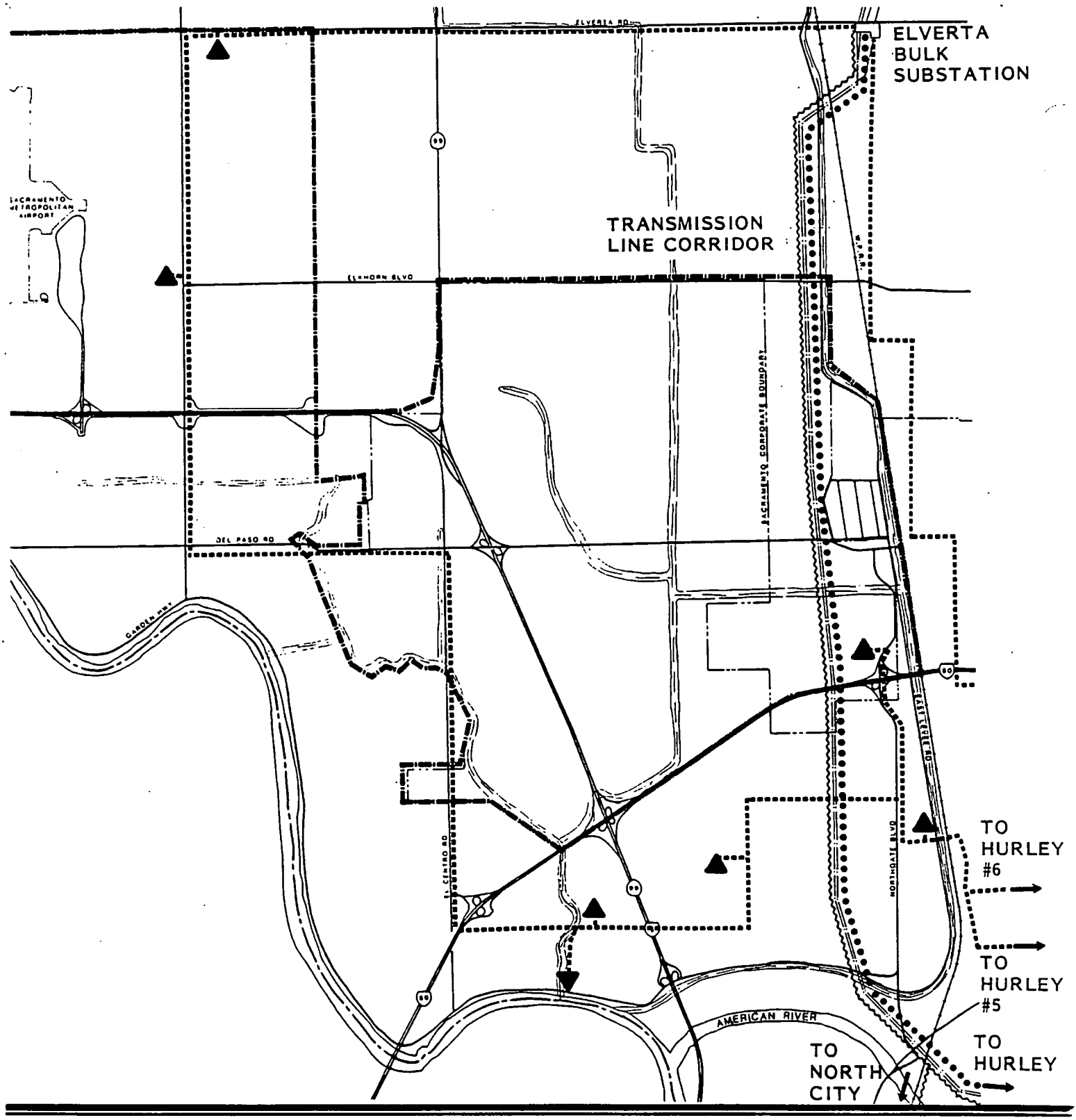


EXHIBIT Q-2
EXISTING ELECTRICAL FACILITIES

▲ 69/12 kV Neighborhood Substation

69 kV

115 kV Transmission Line

230 kV Transmission Line

0 3200 6400 Ft.

Elverta Substation and runs parallel to Elverta Road west to Power Line Road where it turns south to Del Paso Road, continues east to El Centro Road, and then proceeds to I-80. One neighborhood substation in the Study Area is located on Elverta Road east of Power Line Road, a second is located on Power Line Road, north of Elkhorn Boulevard and a third is located in the Northgate industrial area.

Power is stepped down at the Elverta Substation from 230,000 volts to 115,000 and 69,000 volts. One existing 115 kV line is routed from Elverta south to North City substation in the downtown area where the voltage is reduced to 21 kV. The existing 69 kV lines (from Elverta) route power to 12 kV neighborhood substations located within and outside of the Study Area. The 12 kV and 21 kV substations feed the distribution system. Pole and surface-mounted transformers make the final voltage reduction from 21,000 and 12,000 volts to 240 or 120 volts for customers.

PROPOSED GEOTHERMAL PUBLIC POWER LINE PROJECT

The California Energy Commission (CEC) currently is studying a proposal for construction of a 230,000 volt transmission line in northern California, known as the Geothermal Public Power Line (GPPL) project. The GPPL would deliver power from several geothermal power plants in the Geysers Known Geothermal Resource Area to a termination point in the Sacramento Valley. The GPPL is expected to be constructed and jointly owned by SMUD, the Modesto Irrigation District, the City of Santa Clara, and the Northern California Power Agency. The joint owners prefer a northern route to the Williams Substation area which is located north of Williams, California. The CEC has not made a decision on the adequacy of the Notice of Intent (NOI). The NOI will set the baseline conditions for the implementation of the GPPL project. This decision is expected to be made in July, 1985. Following that decision the CEC will take a position on the end point of the project. As part of the process the CEC has proposed to study one corridor (known as 38S) which traverses the Study Area (see Exhibit Q-4).

SITING CRITERIA

In 1977 SMUD adopted Resolution No. 9318 which established transmission facility location criteria and transmission facilities financing policy. This policy applies only to facilities which operate at 100,000 volts or greater.

EXHIBIT Q-4
CALIFORNIA ENERGY COMMISSION PROPOSED GPPL STUDY CORRIDOR

0 3200 6400 Ft.

Source: California Energy Commission

SMUD's policy calls for avoiding siting transmission lines in residential communities and encourages placing facilities in existing transmission line corridors, commercial and industrial areas, and along major transportation corridors. SMUD's siting policy states that single family or low or high density residential development will be avoided by using: (1) existing SMUD transmission (100 kV or greater) right of way, (2) placing facilities along a railroad right of way, state controlled access freeway or adopted freeway route, (3) placing facilities along arterial streets where existing and projected land uses are commercial or industrial, or (4) placing the facility adjacent to existing or projected commercial or industrial uses.

In determining the location of the transmission line, consideration is given to location of all other tranmission and substation facilities that are known or anticipated to be constructed in the same area. Finally, considerations for location and alignment include: (1) economics, (2) reliability (3) maintance accessibilty, (4) aesthetics and (5) service area needs.

The policy further states that environmental costs of overhead transmission facilities must be considered in transmission route selection along with other costs. Where local government requirements result in greater transmission facilities' costs, the additional increment of cost is borne by all rate payers, since the maintenance of such community standards benefits all rate payers.

The City of Sacramento has the authority to review and approve (or disapprove) the location and construction of high voltage transmission facilities in the City. High voltage transmission facilities include transmission lines and substations which operate at 100,000 volts or greater. Under Section 29 of the City's Zoning Ordinance the City requires a permit to construct a high voltage transmission facility in the City.

The City of Sacramento's electrical siting policies include:

- Discourage lattice tower construction.

- Require that mitigation shall include (where feasible) undergrounding or rerouting to reduce visual impacts and nuisance effects, landscaping to screen or soften visual impacts, and incorporation of sound attenuation measures.

- Establishes preferred locations for siting substations in industrial and commercial areas or on undeveloped and agricultural lands.

- Prefers locations for siting transmission lines within existing utility and transportation corridors (such as railroads and freeways) and within commercial, industrial, and agricultural areas.

Following the aproval of a land use plan for the North Natomas Study Area and the certification of the EIR SMUD will apply to the City for all transmission facility permits for the facilities that are addressed in this EIR and necessary to provide service to the area.

Q. ELECTRICAL FACILITIES -- THE IMPACTS

ELECTRICAL DEMAND

Exhibit Q-7 provides the demand density factors used to calculate estimated electrical demands for the five Community Plan alternatives.

Exhibit Q-8 shows the peak electrical demand for alternatives A, B, C, D, and E based on the demand density factors in Exhibit Q-7. High technology industrial users would affect demand differently. Due to uncertainty about the specifics of the mix of industrial/office uses which are possible in the area, it should be noted that the projected peak electrical demands are approximate. Implementation of any of the five Community Plan alternatives would result in an electrical demand ranging from 245,000 kW to 670,000 kW, depending on the alternative selected.

Implementation of any alternative would have a major impact on the SMUD system due to increased demands for electricity. Increased demand during normal load conditions would affect SMUD's normal operations. For example, estimated electrical demand could consume between 16 percent (Alternative A) and 43 percent (Alternative E) of SMUD's generation capacity.

ELECTRICAL FACILITY ALTERNATIVES

SMUD evaluated the options available to supply electricity to the Study Area in order to:

EXHIBIT Q-7

Demand Density Factors [1/]

Land Use	Demand Density		
Industrial Commercial Uses:	Square Feet/ Acre [2/]	Watts/ Square Feet	Kilowatts/ Acre [3/]
• M-50 (MRD up to 50% offices)	15,750	12.5	197
• M-20 (MRD up to 20% offices)	12,750	14.0	179
• Light Industrial	11,000	6.5	72
• SPA (30% offices & 70% warehousing)	11,000	5.1	56
• Office/Business	16,500	10.0	165
• Community Commercial	9,000	6.0	54
• Highway Commercial	6,750	6.0	41
Sports Complex:			
• Total Estimated Demand:			4 mw [4/]
Residential Uses:			
• Rural Estate (1 unit/acre)			5
• Low Density (7 units/acre)			25
• Medium Density (12 units/acre)			24
• High Density (22 units/acre)			27
Other Uses:			
• Schools			25
• Agriculture			1
• Public/Quasi-Public			50
Airport:			
• Total Estimated Demand:			4 mw [4/]

1/ Estimated peak demand densities for the various land uses proposed in the Natomas area. Exhibit Q-8 estimates the peak demands for each Community Plan alternative based on these peak demand estimates for each type of load.

2/ North Natomas Draft Community Plan, op. cit.

3/ Kilowatts/acre = 1×10^3 watts per acre.

4/ 4 mw = 4×10^6 watts which is total estimated demand at buildout for these categories.

Source: Sacramento Municipal Utility District

EXHIBIT Q-8

Peak Electrical Demand for Community Plan Alternatives

LAND USE	ALTERNATIVE A		ALTERNATIVE B		ALTERNATIVE C		ALTERNATIVE D		ALTERNATIVE E	
	Net Acres	MW	Net Acres	MW	Net Acres	MW	Net Acres	MW	Net Acres	MW
Industrial/Commercial										
M-50 (up to 50% office)	-	-	-	-	208	41.0	455	89.6	2,050	403.9
M-20 (up to 20% office)	350	62.7	839	150.2	733	131.2	850	152.2	-	-
Light Industrial	275	19.8	320	23.2	500	36.0	545	39.2	230	16.6
SPA	2,000	144.0	250	18.0	500	36.0	500	36.0	2,000	144.0
Office/Business	-	-	80	13.2	122	20.1	170	28.1	-	-
Community Commercial	-	-	90	4.9	100	5.4	140	7.6	220	11.9
Highway Commercial	-	-	15	0.6	63	2.6	120	4.9	200	4.5
Sports Complex	-	-	200	4.0	200	4.0	200	4.0	200	4.0
Subtotal	2,625	226.5	1,794	213.9	2,426	276.3	2,980	362.6	4,810	589.9
Residential										
Rural Estate (1 unit/acre)	300	1.5	-	-	374	1.9	-	-	-	-
Low Density (7 units/acre)	-	-	1,000	25.0	1,518	38.0	1,400	35.1	276	7.0
Medium Density (12 units/acre)	37	0.9	600	14.4	1,171	26.9	843	20.2	1,990	47.8
High Density (22 units/acre)	-	-	300	8.1	300	8.1	634	17.1	770	20.8
Subtotal	337	2.4	1,900	47.5	3,313	74.9	2,877	72.4	3,036	75.6
Civic/Public										
Elementary School	-	-	48	1.2	72	1.8	78	2.0	84	2.1
Junior High School (20 acres each)	15	0.4	40	1.0	60	1.5	60	1.5	100	2.5
Senior High School (40 acres each)	-	-	40	1.0	40	1.0	40	1.0	40	1.0
Other Civic Uses	82	4.1	103	5.2	158	7.9	115	5.8	-	-
Airport	2,900	4.0	2,900	4.0	2,900	4.0	2,900	4.0	2,900	4.0
Subtotal	2,997	8.5	3,131	12.4	3,230	16.2	3,193	14.3	3,124	9.6
Open Space										
Parks	-	-	95	0.0	600	0.0	350	0.0	-	-
Greenbelt	-	-	500	0.0	700	0.0	950	0.0	350	0.0
Buffers and Drainages	300	0.0	400	0.0	600	0.0	560	0.0	500	0.0
Agriculture	7,341	7.3	3,630	3.6	386	0.4	190	0.2	80	0.1
Agriculture/Reserve	-	-	1,750	1.8	1,500	1.5	1,500	1.5	-	-
Roads	700	0.0	1,100	0.0	1,545	0.0	1,700	0.0	2,400	0.0
Subtotal	8,341	7.3	7,475	5.4	5,331	1.9	5,250	1.7	3,330	0.1
Total Acreage	14,300		14,300		14,300		14,300		14,300	
Total MW		245.0		249.0		369.0		450.0		670.0

Note: 1 MW = 1 x 10^6 watts.
Source: Sacramento Municipal Utility District.

- Notify the City and County of Sacramento of SMUD's cumulative electric development requirements prior to adoption of a Community Plan.

- Give SMUD's planning and design staffs direction about the need for new facilities should development proceed.

- Allow SMUD's transmission line and substation requirements to be integrated into the adopted Community Plan.

- Provide information necessary to allow SMUD to begin obtaining permits, rights-of-way, and substation sites once the electrical design has been established.

ELECTRICAL DESIGN CRITERIA

SMUD's first step in developing alternative plans was to establish electrical design criteria. The criteria are as follows:

- The new 115 kV transmission lines would use wood or steel pole construction. No new steel lattice 115 kV tower lines would be used. 69 kV lines would use wood or steel pole construction also.

- Existing easements would be utilized as much as possible, environmental impacts of required new easements would be minimized by double circuit construction wherever feasible, and routing would be along railroad tracks, freeways, and major streets whenever possible.

- Maintain the potential for 69 kV service to large industrial customers.

- Minimize 230 kV transmission line construction through the area.

- Provide sufficient backup capability to eliminate overloads during outages.

- Provide sufficient reserve capacity within neighborhood substations to pick up one complete circuit from any adjacent neighborhood substation during outages.

- Substations should be located near the load centers of their service areas.

- Along freeways SMUD would setback transmission facilities outside of on the edge of the landscape buffers, where possible, to minimize visual impacts.

Based on these criteria, two electrical system alternatives were developed by SMUD to serve the projected load densities of Alternative C. For both SMUD alternatives, service to the Study Area would require overhead transmission or subtransmission lines (either 115,000 or 69,000 volt), a number of neighborhood substations, one or more bulk substation, and an extensive underground electrical distribution system which would include both high (21 and 12 kV) and low (480 and 120 volts) voltage cable, pad-mounted transformers, and pad-mounted switching enclosures.

Neighborhood substation sites would require a site of approximately 15,000 square feet plus access and would contain one or two transformers, switching equipment, and capacitors. All the electrical equipment would be enclosed by a eight-foot high fence. After the substation equipment is installed, SMUD would install landscaping which would be planted to conform with the surrounding neighborhood.

SMUD would install either 69,000 or 115,000 volt lines on overhead, single wood or steel poles in the Study Area. SMUD may place 69 kV volt or 115 kV lines underground if the customer pays the difference between overhead and underground installation. The cost for installation of an underground 69 kV line is approximately $630,000 per mile versus a cost to install an overhead 69 kV line of approximately $80,000 per mile. The cost to underground a 115,000 kV line is approximately $1,000,000 per mile versus a cost of $300,000 per mile to install an overhead 115,000 kV line per mile. [1]

Exhibit Q-11 shows the North Natomas Study Area and the immediate surrounding area which would remain in SMUD's 12 kV service area. Exhibit Q-12 shows an electrical distribution configuration based on a 115,000 volt system, and Exhibit Q-13 shows a configuration based on a 69,000 volt system. Under both electrical service alternatives the area east and south of the Study Area would continued to be provided with 12 kV service.

Exhibits Q-12 and Q-13 illustrate the following:

- SMUD's projected location for the required bulk substation.

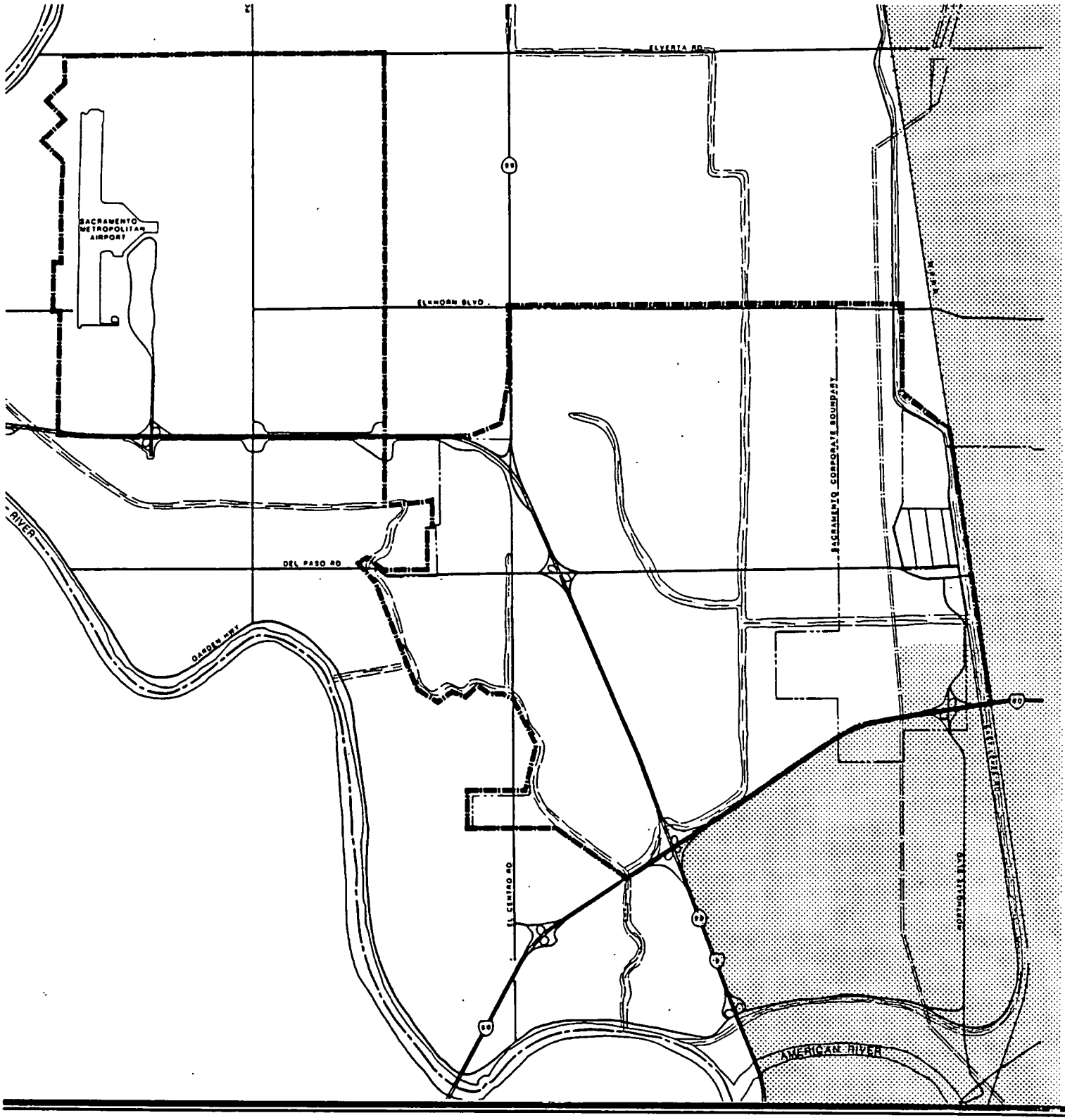
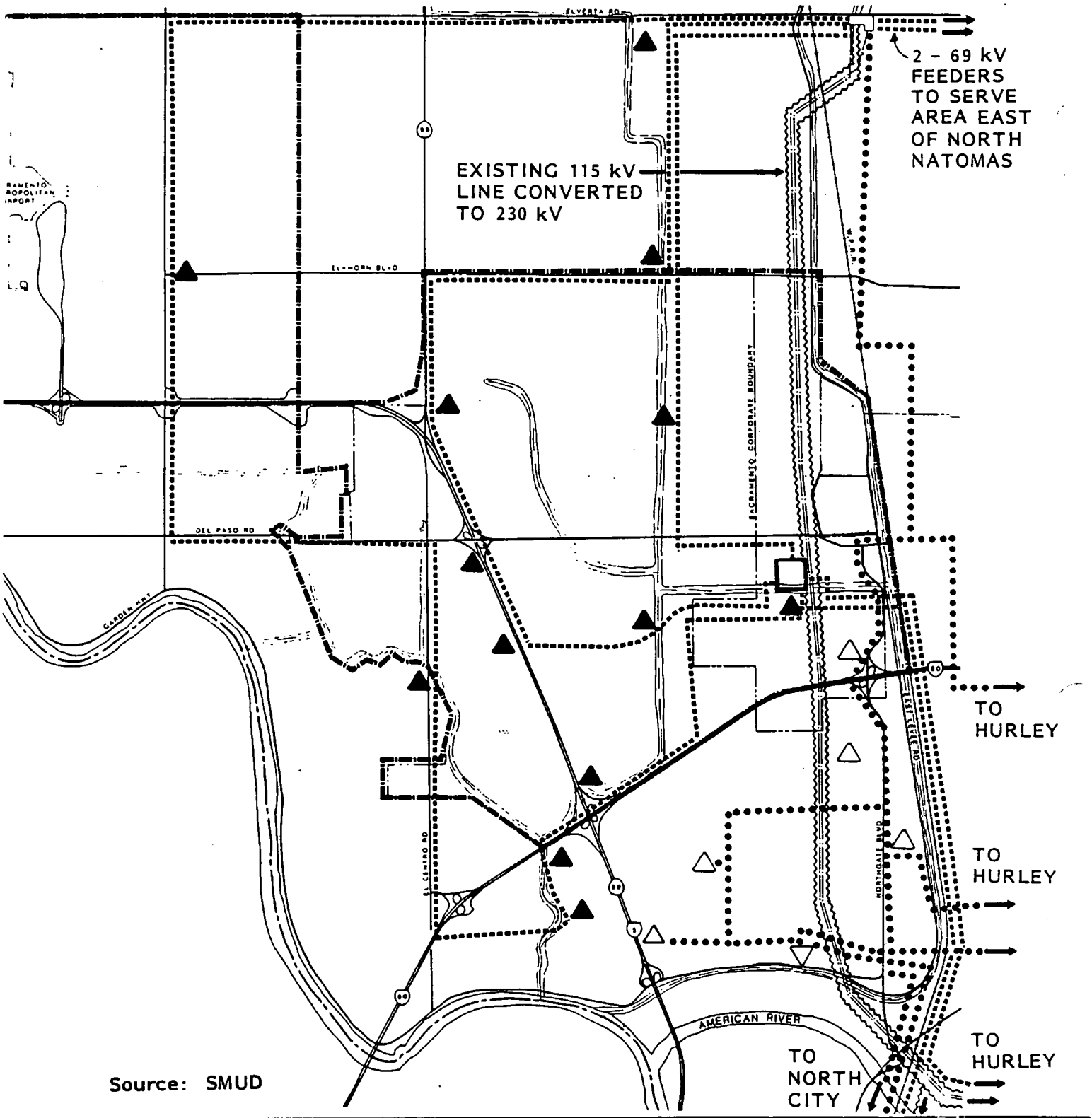


EXHIBIT Q-11
21 kV SERVICE AREA BOUNDARY

12 kV Service Area

0 3200 6400 Ft.

Source: SMUD



Source: SMUD

EXHIBIT Q-12
115 kV OPTION - BUILDOUT CONFIGURATION FOR ALTERNATIVE C

- 230 kV Transmission Lines
- 115 kV Transmission Lines
- 69 kV Subtransmission Lines
- New Bulk Substation 230/115 kV
- 115/21 kV Neighborhood Substations
- 69/12 kV Neighborhood Substations

0 3200 6400 Ft.

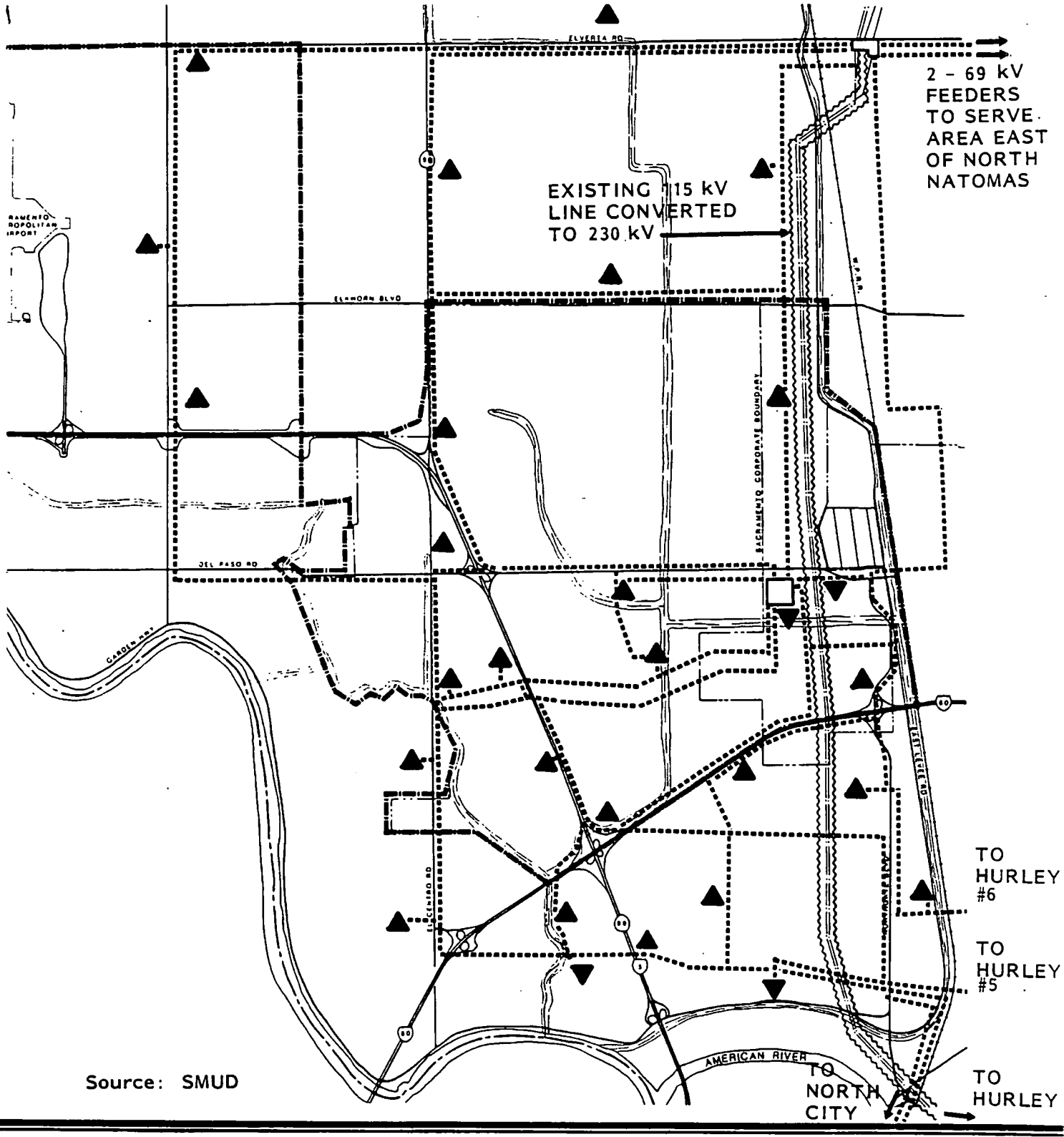


EXHIBIT Q-13
69 kV OPTION - BUILDOUT CONFIGURATION FOR ALTERNATIVE C

230 kV Transmission Lines
69 kV Subtransmission Lines
New Bulk Substation
69/12 kV Neighborhood Substations

0 3200 6400 Ft.

- Approximate number and routes of 69 kV subtransmission and 115 kV transmissions lines.

- Approximate number and distribution of neighborhood substations.

- Buildout configurations for the Study Area plus additional facilities necessary to integrate with existing facilities in the area.

It must be stressed that the configurations shown in Exhibits Q-12 and Q-13 are only approximate and are intended to only show the basic features of the two alternative electric systems at buildout. Line routing and substation locations are based on the criteria discussed above. Estimates of electric load alternative plans were developed on the basis of land use data in Alternative C.

69,000 Volt Alternative

The basic features of the 69 kV alternative are as follows:

- Approximately 18 substations would be required.

- Each substation would require a site of approximately 10,900 to 14,400 square feet plus access.

- At least one transformer would be installed at each neighborhood substation.

- Substations would have 30 MVA transformers in residential areas and 40 MVA transformers in industrial/commercial areas.

- A total of 16 69 kV feeders as follows: eight feeders from the new bulk substation, six from Elverta Bulk Substation and two from North City.

- Direct 69 kV service to large industrial loads may be required.

- The Elverta Bulk Substation would remain, and a new bulk substation in the southeast corner of the Study Area would be necessary.

- 230/69 kV capacity expansion into existing 115/21 substation at North City with two new 69 kV crossings across the American River into South Natomas.

115,000 Volt Alternative

- Approximately 11 or 12 neighborhood substations would be required.
- Each substation would require a site of approximately 15,900 to 19,400 square feet plus access.
- Two transformers would normally be installed at each neighborhood substation.
- Substations would normally have 60 MVA transformers in residential areas and 80 MVA transformers in industrial/commercial areas.
- A total of three 115 kV loops between the Elverta Bulk Substation and the new bulk substation. There would be three 69 kV feeders from Elverta and two from North City.
- A double circuit 115 kV line would be necessary between the new bulk substation and the downtown 115 kV system with one circuit going to North City and another going to Hurley.
- Direct 115 kV or 69 kV service to dedicated substations within 115 kV areas for large industrial loads may be necessary in a few cases, increasing the total miles of overhead 69 kV or 115 kV in the Study Area.
- The Elverta Bulk Substation would remain, and a new bulk substation would be necessary.
- 230/69 kV capacity expansion into existing 115/21 kV substation at North City with two new 69 kV crossings across the American River into South Natomas.

Exhibits Q-12 and Q-13 show a system configuration based on the projected load densities from implementation of Alternative C. Adoption of Alternative A, B, D, or E as the Community Plan would require modification to and affect the design of the electrical system. Exhibit Q-16 compares the basic requirements of a 69,000 volt system and a 115,000 volt system for all five Community Plan alternatives.

EXHIBIT Q-16

Comparison of 69 kV and 115 kV Electric Systems for All Community Plan Alternatives

ELECTRIC ALTERNATIVES	COMMUNITY PLAN ALTERNATIVES				
	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
69 kV Only					
Approximate Number of Substations in Study Area	10-14	11-15	15-19	17-23	24-33
Approximate Number of 69 kV Circuits in/through Study Area	7-9	8-10	10-12	10-13	12-15
69 kV Circuits to North City	1-2	1-2	1-2	1-2	1-2
Need for Bulk Stations	Probable	Yes	Yes	Yes	Possibly Two
115 kV Option					
Approximate Number of Substations in Study Area	5-8	6-9	8-11	9-13	12-17
Approximate Number of 69 kV Circuits in/through Study Area	1-2	1-3	1-3	2-4	2-6
Approximate Number of 115 kV Loops in Study Area	2-3	2-3	3-4	4-5	6-7
69 kV Circuits to North City	1-2	1-2	1-2	1-2	1-2
115 kV to North City and	1-2	1-2	2	2	2-3
Need for Bulk Station	Probable	Yes	Yes	Yes	Possibly Two

Source: Sacramento Municipal Utility District

Bulk Substations

For both the 69 kV and the 115 kV electric system alternatives the Elverta Bulk Substation would continue to serve the Study Area for a number of years. Eventually, however, a new bulk substation would be necessary. Estimates of when the new bulk substation would be necessary are as follows:

69 kV System: Alternative A -- 1993-1994
Alternative C -- 1991-1992
Alternative E -- 1989-1990

115 kV System: Alternative A -- 1998-2000
Alternative C -- 1994-1996
Alternative E -- 1991-1992

The preferred location of the new bulk substation would be adjacent to the existing 230/115 kV transmission line corridor which runs north-south through the eastern edge of the Study Area. Building a bulk substation as far south as possible along this corridor would be preferred in order to locate the bulk substation near the center of the electrical load. Locating the substation along this existing transmission line corridor would eliminate the need to route new 230 kV lines through the Study Area. If a suitable site cannot be located for this bulk substation at least three miles south of Elverta Road along the existing transmission line corridor, the preferred location then would be toward the western side of the Study Area.

The maximum number of transformers and feeders at the new bulk substation would be:

69 kV System: Up to 3 transformers
Up to 4-230 kV breaker positions
Up to 12-69 kV feeders

115 kV System: Up to 3 transformers
Up to 4-230 kV breaker positions
Up to 4-69 kV feeders and 6-115 kV feeders

The Elverta Bulk Substation combined with North City and the new bulk substation would serve the entire North and South Natomas area at buildout.

If Alternative E is adopted as the Community Plan, an additional bulk substation may be necessary. The preferred location would be somewhere in the vicinity of I-5 and El Centro Road.

COMPARISON OF SMUD ALTERNATIVES

These electrical facility alternatives represent possible options to satisfy the land use requirements of the North Natomas area. These were designed with the information that has been provided to SMUD by the City of Sacramento Planning Department as contained in Status Report #12. Following approval of an accepted land use plan for the North Natomas Community Plan SMUD will then decide which of the two options (115,000 volts or 69,000 volts) would be best suited to satisfy the electrical needs in the North Natomas area.

The cumulative impacts of development in the area (including both North and South Natomas) represents an impact to SMUD's transmission and distribution systems. Final system and engineering studies are on-going to evaluate both options for reliability, suitability and cost. These detailed studies are not finalized but will be before the final layout of the respective system. Until that time the options presented here are considered probable system configurations and should be viewed as such and not as final selected routes.

The major differences between SMUD's two electric system alternatives are as follows:

- The number of substations needed to serve the Study Area with the 115 kV alternative would be about one-half the number needed for the 69 kV alternative. The 115 system substations, however, have higher MVA ratings -- 60 to 80 MVA as opposed to 30 to 40 MVA for the 69 kV system.

- The number of 69 kV circuits in or through the Study Area would differ for each Community Plan alternative. With Alternative C, for example, ten to twelve 69 kV circuits would be required with the 69 kV system while one to three 69 kV circuits would be required for the 115 kV system. Three to four 115 kV loops in or through the Study Area may be required. There is very little difference between the 69 kV single pole and a 115 kV single pole which would be used in the area. It is estimated that on the average the poles for 115 kV lines would be

approximately 10 feet higher than poles used for 69 kV line construction.

- Both 69 kV and 115 kV systems would require at least one bulk substation in the Study Area. Alternative E would likely require two bulk substations.

In reviewing the two alternatives, SMUD has determined the advantages of each alternative, as follows:

- 69 kV Alternative

  -- The size of 69 kV facilities would be slightly smaller than the 115 kV facilities. 69 kV wood poles are approximately 10 feet shorter than 115 kV wood poles, and substations under the 115 kV option may require slightly larger sites. No steel lattice tower 115 kV construction is projected. The visual impact of 115 kV facilities, however, is not significantly different than 69 kV facilities.

  -- There would be more flexibility in serving large blocks of unexpected loads. A transmission facilities permit is required to locate and construct a high voltage transmission facility. A high voltage facility is defined as electrical transmission lines greater than 100,000 volts. Acquiring construction permits for additional 115 kV overhead lines and substations in order to serve unplanned development of large blocks of loads is a major concern to SMUD.

- 115 kV Alternative

  -- Fewer substations would be required and fewer miles of total overhead lines would be required. As load densities increase, these two advantages would become increasingly more important. For Alternative E the 69 kV grid would become so close (with overhead lines following almost every street) and the number of substations would be so numerous (33) that the 115 kV option would be most likely.

  -- The design would be more reliable than the 69 kV design. Closed loop configuration allows automatic load transfer which results in

only momentary outages. The 69 kV lines are radially operated which could result in longer term blackouts.

-- The need for a new bulk substation for Alternative E would not be as likely as it would be for the 69 kV option.

-- The 115 kV option would be very difficult to implement unless the proposed land uses within the Community Plan to be adopted by the City and County are followed closely.

LAND USE

The transmission line location criteria of both the City and SMUD generally are consistent. These policies guide SMUD's facility siting proposals, and the two electrical system alternatives follow the intent of the adopted policies.

It is recognized that Section 29 of the City Zoning Code only applies to high voltage transmission facilities (defined as facilities of 100,000 volts of greater). Although the 69 kV lines and neighborhood substations would not be subject to this Ordinance, the Ordinance provides guidance on the preferred locations for these facilities.

Both electric system alternatives generally would follow existing transmission corridors (such as the joint WAPA/SMUD corridor) and freeways (both I-5 and I-80). In other instances, existing major roadways would be followed, such as Elverta Road, Power Line Road, Del Paso Road, and El Centro Road. In some cases, corridors have been selected along future major arterials shown in the Draft Community Plan.

By selecting existing and future roadways, the 69 kV subtransmission lines and the 115 kV transmission lines could be located adjacent to the planned commercial and industrial uses rather than cutting through these areas. In some instances, however, the 69 kV or 115 kV lines would be adjacent to planned residential uses.

The neighborhood substations primarily would be located within designated industrial or commercial areas. In limited circumstances, a neighborhood substation would be located in an area designated for residential use.

Alternative C

69 kV Alternative

The siting of the subtransmission lines under this alternative is planned to follow existing freeways, electrical transmission corridors, railroad tracks, and planned major arterials in the Study Area. Based on the buildout configuration (Exhibit Q-13) and the land use plan for Alternative C, some potential land use conflicts would occur. These are as follows:

- The 69 kV line located in the existing 230 kV corridor would be adjacent to residential uses. It should be noted, however, that 69 kV lines and facilities are located adjacent to and within residential communities throughout the Sacramento area. The specific location of the line within the corridor -- whether it would be within the proposed landscaped buffer or adjacent to it -- would determine the impact the line would have on adjacent residential uses.

- The 69 kV line located on the north side of Del Paso Road would be adjacent to future residential uses.

- The 69 kV line located on the north side of North Market Boulevard would be adjacent to the regional community park.

- The circulation system for Alternative C shows El Centro Road terminating just south of the Study Area boundary. El Centro Road would not be continuous (as it is today). The 69 kV Line shown adjacent to El Centro Road, therefore, would not run adjacent to a major road for its entire length.

- The 69 kV line adjacent to the realigned El Centro Road (Natomas Loop) would be adjacent to future residential uses.

The 69 kV alternative would require more miles of lines and more neighborhood substations than the 115 kV alternative. There is an increased potential for conflicts, therefore, with surrounding land uses with the 69 kV alternative compared with the 115 kV alternative.

The majority of the neighborhood substations would be located along the boundary of the Study Area and along existing freeways, utility corridors, and planned major arterials. For the most part, the neighborhood substations would be located in industrial, office, or commercial areas. By necessity, however, some would be in residential areas.

115 kV Alternative

Under the 115 kV system, fewer lines and fewer neighborhood substations would be constructed in the Study Area. Transmission lines would follow existing freeways, utility corridors, and major streets.

Potential conflicts with Alternative C land uses would occur at the following locations:

- Along the east side of the East Drainage Canal where low, medium, and high density residential uses are designated.
- Along the south side of Del Paso Road where medium density residential use is designated.
- Along the north side of North Market Boulevard adjacent to the regional community park.
- Along portions of the existing El Centro Road alignment where El Centro Road is proposed to be abandoned.
- East of the bulk substation where transmission lines would run through an area designated for light industrial use.
- Along the realigned El Centro Road south of Del Paso Road where the transmission line would run adjacent to medium and low density residential uses.

The Draft Community Plan presents Design Guidelines which are proposed to encourage attractive, high quality development in North Natomas. The Design Guidelines provide typical sections for the major roads in the Study Area (see Figures 17, 18, 19, 20, 21, 22, and 23 in the North Natomas Draft Community Plan which also are reproduced in Section P of this EIR, Visual and Aesthetic Considerations). These sections show landscaped building setbacks, linear parks, and landscaped park and setback areas along most major streets. Landscaped buffers along drainageways and the existing 230 kV transmission line corridor also are shown.

Although the Community Plan does not indicate it, it is assumed that SMUD's electric transmission lines would be located within or adjacent to these

landscaped areas. If this occurs, such siting would significantly reduce or eliminate conflicts between electrical lines and adjacent land uses.

Bulk Substation

Under both electric system alternatives, the bulk substation would be located in an area designated for industrial use in Alternatives A, B, C, and E. Under Alternative C, however, the bulk substation would be built in an area designated for medium density residential use near an elementary school site. Such a location may pose land use conflicts in the future.

A second bulk substation may be necessary with Alternative E. The preferred location would be west of Highway 99 at the bend of I-5. This location would be outside the Study Area near land designated for industrial uses.

NOISE

Alternatives A, B, C, D and E

Electrical transmission lines and substations generate audible noise. The amount of noise generated is directly related to the electrical capacity of the transmission line or substation transformer.

Transmission line-generated noise is called "corona discharge". The corona discharge is heard as a random cracking or hissing sound. Corona discharge occurs when particles such as dust or water droplets contact a conductor. The electrical discharge from the conductor to these particles causes the cracking or buzzing sound. This noise is much louder during wet weather than during dry weather. During dry weather, sound of the corona discharge generally is inaudible to a person standing directly below a transmission line. During wet weather, however, there is a potential of audible noise within several hundred feet of a high voltage transmission line.

SMUD performed a noise analysis of the transmission lines being considered for the Study Area. SMUD calculated that the sound level generated by 115 kV or 69 kV lines under adverse weather conditions (such as fog and rain) would be below 30 decibels (dBA) directly below the lines. Outdoors in a suburban area this noise level would be barely audible in the middle of the night.

The greatest potential for noise would be along the WAPA/SMUD transmission corridor after the existing 115 kV line has been replaced with a 230 kV line and a new single circuit 115 kV line has been installed. SMUD calculates that under these conditions sound levels could be as high as 45 dBA within 250 feet of the transmission line corridor. Outdoors during the daytime this noise would be a just audible. Outdoors at night it would be clearly audible. It should be noted that the upgrade of the 115 kV line to a 230 kV line would occur regardless of what happens in North Natomas.

Based on the SMUD calculations, no noise impacts would result from the 115 kV or 69 kV lines, regardless of their location. Some noise could be expected, however, in the eastern portion of the Study Area adjacent to the 230 kV line transmission corridor where housing is proposed in Alternatives B, C, D, and E. Since this noise would occur under adverse weather conditions, it can be assumed that windows would be closed and that people would be indoors. Under these conditions, the sound of the corona discharge would be 45 dBA at a distance of 250 feet from the lines and would be inaudible indoors.

Preliminary calculations indicate that the proposed bulk substation (consisting of three power transformers) could generate a sound level of 55 dBA at a distance of approximately 410 feet, 50 dBA at a distance of approximately 730 feet and 45 dBA at a distance of about 1,300 feet from the transformers. The neighborhood substations would have one 80 MVA transformer at most. A transformer of this size would be expected to generate a noise level of 45 dBA at a distance of 180 feet from the transformer and 40 dBA at a distance of 300 feet from the transformer.

The noise generated by the bulk substation would not be a problem if it is located in an industrial or research and development area. This primarily is due to the fact that these buildings would be occupied only during the daytime and that they generally are constructed with fixed windows which would result in less sound penetration. In a residential area, however, where people could be expected to have their windows open at night, the bulk substation noise could be a audible. For example, at a distance of 1,300 feet from the transformers with the windows open, transformer noise could be expected to be audible inside a home and, because of its tonal quality, potentially annoying to residents.

Neighborhood substations would generate significantly lower noise levels. The largest of these substations would be expected to generate a noise level of 40 dBA at a distance of 300 feet. This would result in a noise level of about 25 dBA inside a home at this distance with the windows open. Although

the sound of the transformer would be audible inside a home built this close to a substation, the sound would not be expected to interfere with sleep or to be annoying to most people.

VISUAL AND AESTHETIC CONSIDERATIONS

This discussion assesses the visual impacts of transmission lines and substations and reviews the conformance of their proposed locations with the City's and SMUD's transmission siting criteria. The Draft Community Plan's goals, objectives, and recommended actions related to the aesthetic quality of the community also are discussed insofar as they relate to visual impacts of transmission line siting and substation development.

Freeway Scenic Corridors and City Permits

As shown on Exhibits Q-12 and Q-13, electrical lines would be located adjacent to I-5 and I-80 in both the 69 kV and 115 kV electrical system alternatives. Under both electrical system alternatives, electrical lines would be proposed to be constructed on poles with maximum heights of approximately 55 feet. [2] Neighborhood substations would be enclosed with an eight-foot chain link fence; landscaping would be installed after the substation is built to conform with the surrounding neighborhood. The 69 kV system alternative shows a minimum of two overhead crossings of I-5, and additional crossing may be necessary depending on the final location of the neighborhood substations. The 115 kV alternative also would be likely to require crossing of I-5, depending on the location of the neighborhood substations. Any overhead crossing of I-5 would be highly visible to motorists using this route.

In designing the electrical system alternatives for the Study Area, SMUD has utilized the policies and routing criteria contained in Section 29 (High Voltage Transmission Facilities) of the City of Sacramento Zoning Ordinance. Section 29 authorizes City review and approval of the location and construction of facilities for the transmission of electrical energy operating at 100 kV or more. Section 29 gives a high priority preference to the location of transmission lines adjacent to adopted freeway routes, but permits the City to incorporate into a project appropriate mitigation measures whenever feasible, such as undergrounding, or re-routing transmission lines to reduce visual impacts, to reduce the number of poles or towers used for a project, or to use landscaping to screen or soften the visual impacts of high voltage transmission projects.

In addition, Section 27 (I-5 Corridor Overlay Zone) applies to projects - including transmission facilities - located along the length of I-5 within the Study Area. One purpose of the Overlay Zone is to prevent adverse aesthetic impacts on freeway motorists from the loss of agricultural lands and open space. Another purpose is to provide an attractive entrance to the City from Metro Airport and all areas to the north of Sacramento. Subsection 27.40 of the Ordinance permits the City Planning Commission to condition projects within the Overlay Zone as it deems necessary to implement the City General Plan and to mitigate or avoid any significant adverse environmental impact, including conditions related to the location, design and capacity of utilities. Although the Ordinance does not specifiy the width of the I-5 Corridor, it would apply to both the 69 kV and 115 kV electrical system alternatives if located within the Corridor.

In compliance with the intent of the I-5 Corridor Overlay Zone, page 60 of the Draft Community Plan designates the land adjacent to both I-5 and I-80 as a Freeway Open Space Corridor, and page 81 indicates that the Corridor is to be an average of 100 to 120 feet in width beginning at the freeway right-of-way. In addition, although the City does not have an adopted Scenic Element to its General Plan, the County's Scenic Element designates both I-5 and I-80 as Scenic Corridors which extend 660 feet on each side beyond the right-of-way. There are no official State Scenic Highways which have been designated by the State Department of Transportation in the Study Area.

Prior to the preparation of the recommended Community Plan for the Study Area, the City must 1) resolve the apparent conflicts between the application of Sections 27 and 29 of the Zoning Ordinance to this project, 2) determine the width of the Freeway Scenic Corridor within the Study Area, and 3) determine the extent to which the location of overhead transmission facilities within or adjacent to the Freeway Scenic Corridors is in keeping with the intent of the City and County General Plan provisions.

69 kV Alternative

The 69 kV system ultimately would require from ten (Alternative A) to 33 (Alternative E) substations. Each substation would house a single transformer (30 MVA in residential areas and 40 MVA in commercial areas) and would cover from 10,900 to 14,400 square feet of area.

The 69 kV feeder system would be operated in a radial configuration with from seven (Alternative A) to 15 (Alternative E) circuits. Alternative C

would require approximately 31 miles of new line in addition to direct service to large industrial users. One single circuit 115 kV line would be upgraded to 230 kV on existing double circuit lattice steel towers which would extend six miles within existing transmission line right-of-way between the proposed bulk substation and the Hurley Bulk Substation. This upgrade is, however, unrelated to development within North Natomas and would occur regardless of the final outcome of the Community Plan process. Maximum projected development at the bulk substation would include: three (3) transformers, four (4) 230 kV breaker positions, and 12 69 kV feeders.

The final electrical configuration would vary, depending on the Community Plan alternative selected. Under Alternative A, no new residential development is proposed, and a much smaller electrical service system would be required, compared with the other Community Plan alternatives. Alternatives B, C, and D are very similar in terms of electrical service facility requirements. The most intensive development would occur with implementation of Alternative E which would require a second bulk substation in the vicinity of I-5 and El Centro Road.

115 kV Alternative

The 115 kV system would require five (Alternative A) to 17 (Alternative E) substations (rated 60 MVA in residential areas and 80 MVA in commercial and industrial areas). Each substation would have up to two transformers and would occupy an area of 15,900 to 19,400 square feet.

The 115 kV alternative would be operated in a loop-flow configuration throughout the Study Area. Direct 115 kV or 69 kV service would be provided to dedicated substations within the 115 kV areas for large industrial loads. Approximately 30 miles of new overhead transmission line (a portion of which was previously existing 69 kV line) would be required under this electrical system alternative for the three loops between the Elverta Bulk Substation and the new bulk substation for Alternative C. In addition, a double circuit 115 kV line would be required between downtown Sacramento and the new bulk substation.

A new bulk substation would be required and generally would consist of the same components as needed for the 69 kV alternative. With the 69 kV alternative, however, the bulk substation would be built approximately three to five years earlier than would be required under the 115 kV alternative.

The major visual impact of implementing either the 69 kV or 115 kV alternatives would result from the location of overhead lines especially within the I-5 scenic freeway corridor. Under both the 69 kV and 115 kV alternatives, lines would transmit power to neighborhood substations where it would be stepped-down to 21 kV. All 69 kV and 115 kV lines would be constructed on overhead lines usually on wood poles, although poles for 69 kV lines would be approximately ten feet shorter than those for 115 kV lines.

Most distribution lines (21 kV) from the neighborhood substations would be placed underground. SMUD has had an Underground Residential Distribution (URD) system since 1964. Since that time all new residential subdivisions have had underground service. The URD system consists of both high and low voltage cable (120/240 volt), transformers, and switch and fuse enclosures.

While the 69 kV alternative would use shorter poles and would require smaller substations than the 115 kV alternative, the difference in the height of the pole or the size of the substation is not significant. The 69 kV and 115 kV poles would look similar, and it is not likely that the visual impact of a 115 kV line would differ significantly from that of a 69 kV line.

A significant difference between the two electric system alternatives, however, is that the 69 kV system would require more substations and slightly more miles of overhead line than the 115 kV alternative. This difference would become more significant as development densities of Community Plan alternatives increase. Alternative E, for example, would require 33 substations and would require overhead lines on almost every street which would result in significant visual impacts.

SMUD is willing to install higher voltage lines underground in commercial and industrial areas if developers and property owners are willing to pay the difference in cost between constructing high voltage lines above ground and underground. Underground construction, however, is significantly more expensive than overhead line construction. [3] Line outages are minimized when lines are placed underground. However, outage duration can be extended for long periods of time, impacting the customers in the immediate area. [4] SMUD is concerned, therefore, that there could be delays in servicing lines when outages occur. Placing electrical facilities underground improves the appearance of a community, and architecture and landscape design are not marred by poles. It should also be noted that in an area with a high water table (such as North Natomas) undergrounding becomes a problem from an electrcial design and system operations standpoint.

Substations

In addition to overhead lines, the other primary visual impact of the two alternative systems involves the relationship of substations to adjacent land uses.

Provision of electrical service for the level of urbanization proposed under Alternative C served by a 69 kV system would require 15 to 19 new neighborhood substations while a 115 kV system would require eight to ten new neighborhood substations. Service for Alternative C under either electrical system alternative would require a new bulk substation. The location of the bulk substation needed under Community Plan Alternatives A, B, D, and E would be preferable to that envisaged by Alternative C. Under Alternative C, the bulk substation would be adjacent to an elementary school site in a residential neighborhood.

Alternative C

Neighborhood substations generally are proposed along major arterials and in industrial areas. Neighborhood substations were located specifically to satisfy the demand to supply needed electrical power to specific residential areas. Neighborhood substations are a necessary component of a neighboorhood electrical distribution system. The following substations, however, may impact visually and be inconsistent with City policy:

- Approximately four substations are proposed in areas designated for residential uses in Alternative C:

  -- Two would be located north of Del Paso Road on the periphery of residential neighborhoods and adjacent to landscaped buffers.

  -- One would be located just south of the new bulk substation within an area which is designated for medium density residential development and which includes an elementary school site.

  -- One would be located in a low-density development between West Commerce and North Natomas Loop (69 kV alternative only).

- Two substations would be located within a regional/community park in the proposed North Natomas Community Civic Center.

Transmission Lines for Alternative C

The 69 kV electric system for Alternative C would require ten to 12 new 69 kV circuits and the 115 kV system for Alternative C would require one to three new 69 kV circuits, three to four new 115 kV loops, and two new 115 kV lines to the North City and Hurley Substations. Electric service under either system alternative would include upgrading the existing 115 kV circuit to 230 kV line on the existing steel lattice towers in the high voltage transmission line corridor on the eastern border of the Study Area. This upgrade will take place with or without development in the Study Area.

69 kV Electric System Alternative

The 69 kV subtransmission lines which would have the greatest visual impact on future development in North Natomas are as follows:

- Under the 69 kV alternative the area north of Del Paso Road would be bounded by 69 kV lines although none would run through this portion of the community. A new 69 kV line would run parallel and adjacent to the existing high voltage transmission line corridor.

- In Alternative C, Del Paso Road would be the "main street" in North Natomas, and landscaping guidelines are proposed by the Draft Community Plan. Under the 69 kV alternative, electric lines would run along Del Paso Road parallel to the light rail line as early as 1989. A light rail vehicle (LRV) line is proposed to run down the Del Paso Road median strip which is planned as a six-lane, divided roadway, and pedestrian and bicycle paths also are proposed along this corridor. Residential, office, commercial, and industrial uses, a high school, and a sports complex would be developed adjacent to Del Paso Road. West of I-5, an existing 69 kV line would run along Del Paso Road, and a double circut new 69 kV line would be built parallel to Del Paso Road at its eastern end. The new lines would be constructed parallel to the LRV line and would pass medium and high density residential neighborhoods and a regional/community park.

- One of the 69 kV circuits along Del Paso Road would turn south at Truxel Road and would extend approximately one mile to the intersection

with a substation proposed near the community park on North Market Boulevard.

- A double circuit 69 kV line is proposed on North Market Boulevard along the southern boundary of the community park, along a high density residential neighborhood south of Market Boulevard at Truxel Road, and along a low density residential neighborhood bounded by West Commerce Road and the Natomas Loop.

- A residential area proposed between West Commerce and the Natomas Loop would be bisected by an existing 69 kV line.

- A single line would follow North Market Boulevard and would feed into the proposed bulk substation located between North Market and Del Paso Road.

- 69 kV subtransmission lines would run parallel to I-80 and I-5; freeways in the Study Area are planned to be screened with landscape barriers.

115 kV Electric System Alternative

Under the 115 alternative, fewer lines would be required to serve the Study Area as proposed to be developed under Alternative C. Lines generally would follow routes similar to those under the 69 kV alternative with similiar visual impacts with the following exceptions:

- A single 115 kV line would run parallel to Del Paso Road for approximately one mile where it would turn north and pass through proposed residential neighborhoods to Elkhorn Road until two lines join to run north to Elverta Road through agricultural fields.

- The existing 69 kV transmission line along the western end of Del Paso Road would be replaced with a 115 kV line in the existing corridor. The 115 kV lines would be constructed on a single poles. This would reduce visual intrusions from the construction of a line along Del Paso Road and the light rail corridor.

- At full buildout a line would cross Del Paso Road in two locations. A 115 kV line would run along North Market Boulevard, and two 115 kV double circuit lines would run along this road in the Northgate industrial area. This 115 kV line would pass the regional/community

park and the sports complex and could be visible from the park as well as the sports complex. Design guidelines in the Draft Community Plan propose extensive tree planting and landscaping along North Market Boulevard similar to that proposed for Del Paso Road.

- Under both electric system alternatives Truxel Road would be crossed by at least one line and would be paralleled by new lines. Truxel Road is planned as a six-lane, divided parkway which would be integrated closely into the major drainageway and linear park system. The Draft Community Plan proposes screening surrounding residential properties from traffic noise and safety hazards.

- Under both electrical system alternatives, the four-lane Natomas Loop would be crossed twice by electrical lines.

Electrical system buildout configurations have not been prepared for Alternatives A, B, D, or E. Based on general system requirements, however, the following conclusions can be drawn:

Alternative A

Due to the limited amount of residential use, locations for substation sites primarily would be in agricultural and industrial areas. Under both electrical system alternatives, lines generally would follow roadways and existing transmission line corridors. The 230 kV transmission lines would run parallel to Rural Estate residential development.

Alternative B

The impacts associated with neighborhood substations in residential areas would be similar under Alternatives B, C, and D. The most significant impact related to transmission lines under Alternative B would occur along Del Paso Road and along I-5 and I-80; impacts would be similar to those resulting from implementation of Alternative C.

Alternative D

Visual impacts associated with Alternative D would be similar but less significant than those from Alternative C due to the presence of additional industrial and commercial development instead of residential development.

The visual impact along I-5 and I-80, however, would probably be the same as for Alternative C.

Alternative E

Alternative E would result in the most intensive development of all the Community Plan alternatives and, thus, would require the most extensive electrical service system. This is the planning alternative which most likely requires a second bulk substation, thus requiring construction of overhead 230 kV transmission lines on the north side of Elkhorn Boulevard. The requirement for extensive electrical facilities would make Alternative E the least attractive and most intrusive development alternative.

PUBLIC HEALTH AND SAFETY

Alternatives A, B, C, D and E

A concern associated with transmission lines is the potential for short- and long-term health effects and safety hazards. While standards have been developed to control safety hazards and short-term effects, research is proceeding to assess the potential for physiological health effects from long-term exposure to electric fields.

Voltage across a wire produces an electric field, and electric current running through a wire produces a magnetic field. Voltage is equivalent to electric pressure forcing a current to move. Electric and magnetic fields produce "corona" and "field" effects. These effects and methods to reduce them are described below.

Both voltage and current are required to transmit electrical energy over a transmission line. Voltage basically is a measure of the tendency of an electric current to move and is measured in volts (V) or kilovolts (thousand volts, kV). (Ordinary household power is supplied at 115 V.)

Voltage across a wire produces an electric field. Electric fields can be described as invisible lines of force which repel or attract electrical charges. The electric field created by high voltage transmission lines extends from the energized conductors to other conducting objects, such as the ground, towers, vegetation, buildings, vehicles, and people. This electric field strength is described in terms of voltage per unit distance at a specified position. This value typically is measured in kV per meter

(kV/M). For example, 1 kV/M means that, for two points in the air one meter apart, there is a voltage difference of 1 kV. [5] An electric field of 4 kV/M is perceivable, and a 6 kV/M field is annoying. [6] Measurable electric fields are limited to a short distance from the line, and the intensity of fields decreases rapidly with distance. [7]

Public Health Considerations

The electrical effects of transmission lines and substations include "corona effects" and "field effects".

Corona Effects

Corona occurs when air molecules on the surface of a conductor (wire cable) break into charged particles. Corona also occurs when nicks or foreign particles are present, such as insects, dust, and water. Effects of corona are audible noise, visible light, radio and television interference, and production of photochemical oxidants (ozone and NO_x).

Noise effects and radio and television interference are discussed elsewhere in this section. Photochemical oxidant production is discussed below.

Trace qualities of ozone and nitrous oxide would be generated by corona discharge around high voltage conductors. It is well documented, however, that these levels are barely measurable and are of no environmental consequence. The incremental level of ozone predicted for lines at significantly higher voltages (765 kV) than those proposed in the Study Area under worst case conditions is approximately 8 parts per billion (ppb) -- or 15 times lower than the EPA national air quality standard limit of 0.12 ppm. [8]

Field Effects

Field effects are induced currents and voltages which are generated by magnetic and electric fields at ground level.

Electrostatic field effects take the form of tingling sensations or more serious shocks which result if someone touches ungrounded objects within the transmission line right-of-way. Induced electric shock from stationary objects in areas adjacent to transmission corridors only occur

occasionally. [9] No national standards exist for electric fields from transmission lines. Several states, however, have established recommended maximum limits for edge of right-of-way levels (see Exhibit Q-36). Although California does not have limits, the California Energy Commission (CEC) staff recommends a maximum of 1.0 kV/M at the edge of a 230 kV right-of-way. [10]

SMUD performed a computer analysis of the electrical fields associated with transmission lines of varying voltage levels which are being considered in the Study Area. The highest electrical field strengths are measured underneath the lines and drop off rapidly as one moves to the edge of the right-of-way. The maximum electrical field strength underneath the line and 50 feet away from the line for the various lines being considered in North Natomas are as follows:

Line Combination	Maximum Electrical Field Strength	
	Directly under the line	Fifty feet away
Single Circuit 69 kV Line	0.36 kV/M	0.08 kV/M
Single Circuit 115 kV Line	0.92 kV/M	0.20 kV/M
Double Circuit 115 kV Line	1.01 kV/M	less than 0.10 kV/M
Double Circuit 115 kV Line and Single Circuit 69 kV Line	1.11 kV/M	0.147 kV/M
Double Circuit 230 kV Line	2.77 kV/M	0.019 kV/M

At the edge of the right-of-way the electrical fields associated with lines at voltages proposed to serve the Study Area would be well below the CEC staff recommended limits.

Current is a flow of electric charge which is measured in amperes (A). Current running through a conductor produces a magnetic field. The strength of a magnetic field is measured in terms of force per unit area or gauss (G).

The currents carried by each of the conductors of 69, 115, and 230 kV lines would generate a magnetic field which can create induced voltages in

EXHIBIT Q-36

Recommended Limits for Electric Fields from AC Transmission Lines

State	Maximum	Limit kV/M 1/		
		Edge of Right-of-Way	Public Road	Private Road
Minnesota 2/ 3/	8.0	-	6	8
New Jersey 4/	-	3	-	-
New York 3/	11.8	1	7	11
North Dakota 2/	8.0	-	-	-
Oregon 2/	9.0	-	-	-
Montana	-	1 5/	-	-

1/ kV/M means that for two points in the air one meter apart there is a voltage difference of 1 kV.

2/ Review of State/Federal Environmental Regulations Pertaining to the Electrical Effects of Overhead Transmission Lines, K. R. Shah, prepared for the US Department of Energy, Division of Control Technology, 1979, publication HCP/EV-1802, UC11.

3/ Health and Safety Effects of EHV Transmission Lines: A Review of the Literature, J. E. Herrold, Michigan Public Service Commission, April, 1979.

4/ New Jersey Department of Environmental Protection, press release dated June 4, 1981.

5/ 500 kV line.

conducting objects beneath the line. A voltage may be induced in any conductive object which is in close proximity and runs adjacent to a transmission line. The induced voltage is dependent on: line geometry, current magnitude, the distance to the conducting object, the distance for which the conducting object is parallel to the transmission line, and the grounding and the shielding of the conducting object. Under most conditions the magnitude of the magnetic field is too small to induce a substantial potential in a conductive object. In general, electromagnetic induction effects are only of concern where long conducting objects such as fences are parallel to the line.

The SMUD staff performed computer simulations of magnetic fields which would be associated with lines at differing voltages. The magnetic field strengths associated with lines at proposed voltage levels are highest measured underneath the line and drop off rapidly as one moves to the edge of the right-of-way. The maximum field strengths (measures in gauss) directly underneath the lines and 50 feet from the line are as follows:

Line Combination	Maximum Magnetic Field Strength	
	Directly under the line	Fifty feet away
Single Circuit 69 kV Line	0.070 G to 0.01 G	
Single Circuit 115 kV Line	0.106 G to 0.02 G	
Double Circuit 115 kV Line	0.092 G to less than 0.02 G	
Double Circuit 115 kV Line and Single Circuit 69 kV Line	0.125 G to 0.037 G	
Double Circuit 230 kV Line	0.117 G to 0.023 G	

The maximum ground level magnetic field produced by lines at voltage levels proposed for the Study Area under normal operating conditions is not expected to exceed 0.15 gauss which is considerably less than magnetic fields for such household appliances as color TV sets (1.0 to 50.0 G) and hair dryers (10.0 to 25.0 G). The magnetic field around a high voltage transmission line is very weak compared with fields near household appliances and compared with the earth's average magnetic field (approximately 0.6 gauss). These effects can be mitigated through proper

grounding of objects near the transmission line. SMUD has established guidelines for grounding of all objects within and adjacent to transmission line corridors in compliance with Public Utilities Code General Order 95.

With the increased size and carrying capacity of transmission lines, concern has been expressed about the potential biological and health effects of long-term exposure to electric and magnetic fields. This concern has been raised primarily in hearings related to transmission lines with voltages higher than those proposed for the Study Area (500 kV and higher) and is the subject of considerable debate and ongoing research. Several reviews of related research have been conducted recently. With some exceptions [11], the consensus among researchers generally is that there are no apparent human health hazards associated with exposure to electric fields found under transmission lines, particularly where the electric field is under 10 kV/M. [12]

Research also has been conducted on the effects of electric fields on pacemakers of the demand (synchronous) type. The conclusion is that the risk is minimal. Most pacemakers in use today are of the demand type and are designed to provide a spacing pulse synchronous with patients' normal cardiac cycles. People with pacemakers may experience "competitive pacing" caused by dual stimulation of the heart from normal biological rhythms and the artificial signals produced by an electric field. [13] The threshold for interference for the most sensitive pacemaker is 3.4 kV/M. [14] Periods of operation in this mode are considered to be acceptable and do not constitute a clinical problem. [15] As previously discussed, maximum field strength associated with lines proposed for the Study Area would not be expected to exceed 2.77 kV/M. It is interesting to note that the reversion of pacemakers also can occur from everyday sources of electromagnetic fields, such as electric appliances, TV transmitters, radar pulses, automobile ignition systems, and anti-theft systems.

Safety Considerations

The electric potential of a transmission tower can increase significantly if lightening strikes a tower. Ground rods would be provided for low structure footing resistance, however, thus reducing the area of high potential and reducing the danger.

The electrical field present beneath a transmission line can produce a buildup of electrical potential on ungrounded or poorly grounded conductive objects. This condition can result in the discharge of a spark which could

create a fire hazard when fueling a vehicle parked under the transmission line. There have been no reported incidents, however, of fuel ignition due to transmission line-caused sparking. The occurrence of fuel ignition is unlikely because the following events must occur simultaneously:

- The vehicle must be well insulated from the ground, as when it is moved on dry pavement on a dry day.
- The spout pouring gasoline must be grounded (for instance, through the body of a person standing on humid ground or vegetation).
- The spark must occur in the region where the fuel vapor and air mixture has a concentration close to the stoichiometric proportion. [16]

Transmission lines are designed for clearances at road crossings. This design reduces the electric field strength and further lowers the probability of fuel ignition. As a protective measure, farmers and other equipment operators whose property is crossed by transmission lines should be cautioned against refueling directly under the lines.

Substation sites also can pose safety hazards by the presence of high voltage facilities at ground level. Substation sites would be securely enclosed with an eight-foot fence. Pad-mounted equipment has been designed to be tamper-resistant in accordance with industrywide standards. It has been SMUD's experience that this design is very effective against intrusion.

NUISANCE CONSIDERATIONS

Implementation of either the 69 kV or 115 kV electric system alternative could result in nuisances in the Study Area. Electrical discharges from transmission lines can produce interference which could disrupt an electromagnetic signal, such as television and radio waves. While this electromagnetic interference poses no health or safety hazards, it can be a nuisance. Those electrical effects which do not pose health and safety threats but which are a nuisance are discussed below.

Interference can be generated by corona or gap discharges. Gap discharges occur where hardware is loose, creating a gap over which electrical discharge occurs. Gap discharge accounts for approximately 90 percent of transmission line related interference. [17] Gap sources can be located easily and can be eliminated by tightening hardware. Gap discharge

generally is of greater concern when wood pole structures are used rather than steel. This is due to the tendency of wood to expand and contract which can result in loosening of hardware. [18]

As discussed previously, corona effects result in the breakdown of air molecules on transmission line conductors and insulators into charged particles. Corona also can produce radio and television interference as well as audible noise.

Audible Noise

Corona generated noise generally is heard as a cracking, hissing sound and a hum at frequencies of 120 hertz. Audible noise generally is most prevalent during foul weather when fog, snow, or rain wet the conductors, causing corona discharge. Noise also will be generated during normal operation of the equipment installed at substations (refer to the Noise Subsection for a further discussion of noise effects).

Radio and Television Interference

Corona on transmission line conductors also generates electromagnetic noise or static at the frequencies from 530 to 1650 kilohertz (KHz) at which AM band radio signals are transmitted. FM band radio operates at a higher frequency (88 to 108 megahertz, MHz) which is rarely affected by electromagnetic noise. In addition, the FM signal is "frequency modulated" rather than "amplitude modulated". Ham radio operators may be affected by poor reception through weaker, distant signals. Two-way radios use FM units and, therefore, would not be affected.

The neighborhood and bulk substations should not produce significant electromagnetic noise problems, since construction plans call for a landscaped buffer between the electrical equipment and the property line. This would reduce the effects of electromagnetic interference from the substations on the surrounding area.

Corona-generated electromagnetic interference also can affect TV reception and can be seen as bands moving slowly across the picture screen. Television interference generally is of concern with transmission lines with voltages of 345 kV or greater. [19] The landscaped buffer areas around the substations should reduce the effects of electrical interference in the

surrounding area. Practically all fair weather television interference can be attributed to gap sources on transmission lines. [20]

Maximum radio and television interference occurs near the outside conductor and decreases with distance from the transmission line. The effects generally are limited to a short distance from the line.

SMUD experience with existing 230 kV transmission lines indicates that the construction and operation of the lines at the voltages proposed for the Study Area would not affect AM radio and TV reception significantly.

ENERGY CONSERVATION

Alternatives A, B, C, D and E

The City of Sacramento has taken several steps to incorporate energy conservation measures into site and building design, including adopting a Conservation Element of the General Plan. Energy conservation policies of the Conservation Element related to the North Natomas Community Plan include:

- Reduce the consumption of fuels used in automobile travel by providing community plan policies which encourage the use of alternative transportation modes such as the bus and bike.

- Promote patterns of land use which decrease consumption of fuel for transportation and space heating by:

  -- Encouraging construction of energy efficient planned unit developments, including residential, industrial, and mixed-use projects.

  -- Reducing energy consumed for residential space heating by promoting the construction and renovation of attached single- and multi-unit dwellings.

  -- Encouraging development of housing adjacent to employment areas.

  -- Promoting consolidation of neighborhood retail, office, and community service centers located on major transit and arterial streets.

- Increase access to transit by promoting medium to high density residential, employment-intensive commercial, and medium density development along major transit streets.

- Encourage north-south structure orientation to help ensure greater solar access. Proper lot or street orientation achieves this, especially when combined with adequate south wall solar access.

The City of Sacramento also has adopted an energy conservation review checklist and development guidelines for project and site plan review. One purpose of the guidelines is to encourage consideration of energy conservation measures at the earliest possible stage of development in order to decrease the amount of energy used by the final project. The guidelines provide a solar access, site analysis, and project analysis checklist for energy conservation.

Based on the City's energy policies, several amendments have been made to the City Code and Zoning Ordinance. These amendments deal with project-specific criteria, such as requiring a certain percentage of new single family homes in subdivisions of 20 or more single family lots to have southern exposures.

The Draft Community Plan does not contain specific recommended goals or actions for energy conservation. The Draft Community Plan, however, contains several elements which would conserve energy in new developments. These are as follows:

- The Draft Community Plan recommends higher residential densities than exist in other Sacramento communities. In Alternative C, 64 percent of all housing units would be either medium or high density units. Higher densities are likely to lead to the construction of more attached units. Compared with detached units, attached units consume less energy per unit for maintenance and operation.

- The Draft Community Plan proposes development of housing in close proximity to employment areas. Housing adjacent to employment should result in a decreased fuel consumption for commuting.

- The Draft Community Plan proposes development of pedestrianways, bikeways, and public transit, including a light rail line.

- Future development in the Study Area would be required to comply with energy conservation policies in effect at the time development occurs.

City policies would result in some decreased energy use compared with projects not implementing these policies.

In addition to the City's efforts, SMUD has an Energy Conservation Program within its service area. The SMUD Board of Directors adopted a long-range conservation policy in April, 1977 and adopted the following objectives in 1982 as part of the District's energy conservation effort: [21]

- Promote the cost-effective use of energy, and
- Optimize the use of District resources through conservation, load management, and pricing techniques.

Individual project applicants should work with SMUD's Conservation Department to incorporate load management programs to help reduce peak load demands. Industrial developers especially should be encouraged to incorporate load management programs into their projects.

The California Energy Commission has adopted energy conservation standards for both residential and non-residential construction. These standards have been in effect since July, 1978. Revised residential standards became effective on July 31, 1982, and revised office building standards (which currently are voluntary) become mandatory in January, 1987. Other non-residential standards currently are being reviewed. Individual buildings within the Study Area would be built in accordance with the standards in effect at the time of building approval, thereby assuring compliance with the State conservation methods in design and construction.

Q. ELECTRICAL FACILITIES -- MITIGATION MEASURES

LAND USE

- When SMUD determines its preferred electric system alternative, these transmission line and substation requirements should be considered for integration into the Community Plan recommended for City adoption.
- Where electrical facilities are proposed in residential neighborhoods adjacent to planned landscaped areas and buffered corridors, the new electrical lines should be constructed where ever possible within landscaped buffer areas, rather than outside of them, in order to reduce impacts on adjacent land uses.

- Land use designations proposed under Alternatives A, B, D, and E for areas adjacent to the proposed bulk substation site are preferable to those designated by Alternative C. If Alternative C is adopted as the Community Plan, the bulk substation site should be located to the east of the existing transmission line corridor where light industrial uses are designated. If this is not practical, the site of the proposed elementary school should be relocated.

- The screening of substations by SMUD should follow the landscape guidelines included in the Community Plan in consultation with SMUD officials to ensure that selected landscaping materials would be compatible with long-term operation of the electrical facilities.

NOISE

Potential noise problems associated with the electrical facilities could be minimized by taking the following steps:

- No homes should be located within 250 feet of the 230 kV transmission line corridor.

- The proposed bulk substation should be located in an industrial area. If the substation must be located in a residential area (as envisaged in Alternative C), the fence surrounding the substation should be constructed by SMUD to serve as a noise barrier; this would allow homes to be built closer to the substation. Alternatively, homes should be located no nearer than 1,300 feet to the substation.

- The neighborhood substations could be located, insofar as possible, in noisy areas, such as close to transportation facilities. If the substations are located in the quieter portions of neighborhoods, homes should be located no nearer than 300 feet from the transformers or a noise barrier constructed surrounding the substation.

VISUAL AND AESTHETIC QUALITY

- Consideration could be given to installing electrical lines underground and paying for this cost either by an assessment district or by mutual agreement, on a case by case basis, among the City, SMUD, and developers. It may be desirable from an economic standpoint to place some but not all lines underground. First preference for

undergrounding should be given to Del Paso Road, followed by North Market Boulevard and the Natomas Loop.

The following measures are recommended to mitigate visual impacts of overhead electrical line construction:

- Judicious pole siting would reduce visual impacts to a great extent. Coordination of landscaping activities for transmission lines and substations with community development plans would improve community appearance and would prevent conflicts between vegetation, land use, and electrical facilities.

- Siting of electric lines near residential areas should be avoided and lines should be rerouted where necessary to avoid residential areas. Where lines visible from residential areas cannot be avoided, landscaping which adequately buffers the lines from view should be required to avoid visual intrusion.

- Walls could be built around substations (instead of chain link fences) to provide a visual barrier. A wall also can help to minimize noise impacts.

- The 115 kV line proposed to run along the East Drainage Canal either should be relocated to the existing high voltage transmission corridor or should be included within landscape plans for the channel.

- Transmission lines along I-80 and I-5 should be developed in concert with landscape plans for freeways and consistent with the Community Plan guidelines. The Community Plan calls for berming and vegetative screening of industrial uses adjacent to freeways.

- Double circuit 69 kV lines proposed along North Market Boulevard which would pass the regional/community park and residential neighborhoods (south of Market Boulevard at Truxel Road and west of West Commerce Road) should be rerouted to the south through areas proposed for industrial development. Transmission lines should run south of North Market Boulevard near the proposed park and should be screened by trees along the park boundary.

- Existing 69 kV lines which affect residential developments either should be rerouted, or the City should amend this portion of the Community Plan to relocate or change this use. In particular, the lines between West Commerce and the Natomas Loop would be bisected by

an existing 69 kV line under the 69 kV electrical system alternative. (Under the 115 kV alternative, this line would be a double circuit 115 kV/69 kV line.)

- Electrical lines should be located along the south side of Del Paso Boulevard to minimize impact on residential uses proposed to the north.

- Landscaping should be tall enough to effectively screen transmission lines from view, particularly through residential neighborhoods and near the planned regional/community park.

- Siting of any lines and substations within agricultural areas should be undertaken in consultation with agricultural landowners and persons who spray pesticides by plane. Electric line and substation siting should avoid crossing over or taking lands in agricultural production.

- Placement of electrical lines should be coordinated with landscape plans and should be compatible with landscape patterns. When the poles of parallel lines are dissimilar and uncoordinated, they draw attention to themselves.

- Electric line and substation construction and related landscaping plans should be coordinated along transportation corridors. This would be particularly important since lines are planned to follow major roadways through the community and because in several cases substations would be located adjacent to roadways.

- If it is determined to be electrically the best design, consideration should be given to locating the bulk substation on the east of the existing transmission corridor in order to avoid aesthetic impacts on the neighboring residential area and planned elementary school site designated by Alternative C.

- Where lines are proposed to run parallel to buffer zones and utility corridors, new lines could be designed to be constructed behind landscaped barriers and within existing corridors in order to ensure that lines would be screened from view to the greatest extent possible at the lowest cost. For example, the transmission line proposed for the northeastern portion of the Study Area under the 115 kV alternative should be placed inside the planned landscape buffer for the major drainageway and Truxel Road. This should screen this line effectively from adjacent proposed residential developments. Consideration also

could be given to rerouting this line to the high voltage transmission corridor. In addition, the transmission line proposed for the northeastern portion of the Study Area under the 69 kV alternative could be planned in the existing high voltage transmission corridor and planned landscaped buffer.

PUBLIC HEALTH AND SAFETY

Due to the low voltages proposed to provide electrical service to the North Natomas area, no significant health or safety impacts would be anticipated which could not be mitigated. Recommended mitigation measures include:

- All appropriate structures adjacent to and/or within transmission line corridors should be grounded according to SMUD procedures in order to reduce electrostatic impacts to a minimum.

- As a protective measure, farmers and other equipment operators whose property would be crossed by transmission lines should be cautioned by SMUD against refueling directly under the lines.

- Lighting on poles near the airport should be provided according to FAA regulations.

NUISANCES

The following measures are recommended to prevent nuisance problems:

- Transmission line siting should avoid going through residential communities.

- If radio interference is generated by operation of substations and transmission lines or if television reception is degraded, mitigation measures should be applied on a case-by-case basis through agreement between the complainant and SMUD. Typical mitigation measures would involve cleaning insulators, tightening hardware, re-locating customers' antennae, and installing high gain or directional antennae.

- Proper design and construction of the electric lines by SMUD with adequate clearances and careful installation of conductors and all hardware would minimize radio and television interference.

- If a conductor is damaged during installation or if faulty hardware becomes a source of radio or television noise, that portion of the line should be repaired or replaced as necessary in order to eliminate the problem.

ENERGY CONSERVATION

- The Community Plan recommended for adoption should incorporate the City's existing energy conservation policies. It also would be advantageous for the Community Plan to contain an analysis of energy conservation opportunities which would be available to future Study Area developers.

- Individual developers should work closely with SMUD during the design stages of their projects to ensure that Conservation and Load Management measures are implemented to the maximum extent feasible.

1 Nichols-Berman conversation with Paul Olmstead, SMUD, May, 1985.
2 Nichols-Berman conversation with Paul Olmstead, SMUD, April 17, 1985.
3 SMUD statistics, 1984, and PG&E statistics prepared by Dennis Reising, April 15, 1985.
4 Handbook of Practical Electric Design, J. F. McPartland, 1984, page 8.20.
5 Bonneville Power Administration, 1982.
6 San Diego Gas and Electric, 1982.
7 Bonneville Power Association, op. cit.
8 "Potential Environmental Effects of 765 kV Transmission Lines", Barry Scott-Walton, Views Before the New York Public Service Commission, Cases 26529 and 26559, 1976-1978, Department of Energy, DOE-EIV, November 19, 1979, page V-12.
9 Lakeville to El Sobrante Transmission Line EIR, prepared for the California Public Utilities Commission by EDAW, Inc., 1981.
10 California Energy Commission, 1981.
11 Marino and Becker, 1979.
12 Devers-Mirage 230 kV Transmission Line EIR, prepared for the California Public Utilities Commission by WESCO, 1982, and Devers-Valley Serrano Transmission Line Project Eir, prepared for the California Public Utilities Commission by Thomas Reed Associates, 1982.
13 Lakeville to El Sobronte Transmission Line EIR, op. cit.
14 California Public Utilities Commission, 1982.
15 SMUD, 1984.
16 SMUD, 1984, op. cit.
17 "Review of Technical Considerations on Limits to Interference from Power Lines and Stations", IEEE Radio Noise and Corona Subcommittee, IEEE Paper #F-78-165-3.
18 "Electrical Effects of the 500 kV APS/SDG&E Interconnection Transmission Line", San Diego Gas and Electric Company, March, 1980.
19 EMI Correction Techniques for Transmission Line Corona, M. O. Loftness, V. L. Chartier, and G. L. Reiner, presented at the International Symposium on Electromagnetic Compatibility, August, 1981.
20 "BPA 1100 kV Transmission System Development, Corona and Electric Fields Studies", D. E. Perry, V. L. Chartier, and G. I. Reiner, IEEE Transaction on Power Apparatus and Systems, Volume DAS-98, September/October, 1979.
21 SMUD's 1983 Annual Report, Conservation Programs and Activities, provides a detailed account of the District's conservation policy.

R. REFERENCES

PUBLICATIONS CONSULTED

Association of Bay Area Governments, Silicon Valley and Beyond: High Technology Growth for the San Francisco Bay Area, December, 1981.

Bardach, J., Ryther, J., and McLarney, W., Aquaculture, 1972.

Bass, Harry O., and Waint, Wayne C., "Archaeological Survey Report of State Route 99 from Interstate 5 to Striplin Road", 1983.

Beck, Warren, and Haase, Ynez, Historical Atlas of California, 1974.

Blayney-Dyett, South Natomas Community Plan Revision, "Working Paper #1: Existing Conditions, Planning Issues, and Options", March, 1984, "Working Paper #2: Alternative Sketch Plans", May, 1984, and "Working Paper #3, Draft Plan", June, 1984, prepared for the City of Sacramento.

California Mosquito and Vector Control Association, Yearbook.

California, State of, Department of Fish and Game, Pesticide Investigation, 1984.

California, State of, Department of Transportation (Caltrans), Environmental Evaluation for Highway Route 99, December, 1983.

___, Final Environmental Impact Statement, 99 in Sacramento and Sutter Counties from Interstate 5 to State Route 70, 1975.

___, "Noise Impact Report, Sacramento Light Rail Transit System", July, 1982.

___, 14th Progress Report on Trip Ends Generation Research Counts, July, 1982.

California, State of, Department of Water Resources, Evaluation of Groundwater Resources: Sacramento Valley, 1978.

___, Sacramento Valley Seepage Investigation, 1967.

California, State of, Hazardous Waste Management Council, Draft Hazardous Waste Management Plan, January, 1984.

CH2MHill, Sacramento Sewerage Expansion Study for the North Natomas Area, prepared for the City of Sacramento, January, 1985.

Collins, R. H., and Washino, R. K., "Why Do Some Rice Fields Produce More Mosquitoes Than Other Fields?", Proceedings Paper, 49th Conference, California Mosquito Vector Control Association, 1981.

Crain & Associates et al, Sacramento County East Area Transportation Study and Highway Plan Technical Report, September, 1984.

Lieutenant Derby, "The Sacramento Valley from the American River to Butte Creek", surveyed and drawn by order of General Piley, Commander of the 10th Military Department Topographic Engineers, 1849.

Detwiler, Peter, and Rikala, Steve, Room to Grow, July, 1982.

Dewante and Stowell, Report on Drainage Study, North Natomas, prepared for the City of Sacramento.

___, Report on Water Study North Natomas Study Area, prepared for the City of Sacramento, December, 1985.

Dondero, Steven B., "An Archaeological Reconnaissance of the South Natomas Area for the South Natomas Community Plan, Sacramento County, California", 1978.

Economic Research Associates, Economic Analysis of an Arena and/or Stadium for Sacramento, California, prepared for the City of Sacramento, September, 1984.

EDAW, Inc., Lakeville to El Sobrante Transmission Line EIR, prepared for the California Public Utilities Commission, 1981.

Garcia, R., Tozer, W., and Des Rochers, B., "Mosquito Control in Rice Fields with Bacillus thuringiensis var, Israelensis", Proceedings of Symposium on Rice Field Mosquito Control, 1981.

Georghiou, G. P., "Insecticide Resistence in Mosquitoes: Research on New Chemicals and Techniques for Management", Mosquito Control Research, University of California Division of Agriculture and Natural Resources, 1984.

Greensfelder, R. W., "Maximum Credible Rock Accelerations from Earthquakes in California", 1974.

Gruen Gruen + Associates, Planning for Development in South Placer County, prepared for Placer County, March, 1981.

Hall, F. L., Direct Comparison of Community Response to Road Traffic Noise and to Aircraft Noise, December, 1981.

Hansen, G. E., and Brode, J. M., "Status of the Giant Garter Snake, Thamnophis couchi gigas (Fitch)", Inland Fisheries Endangered Species Program Special Publication, California Department of Fish and Game, 1980.

Hays, W. W., "Procedures for Estimating Earthquake Ground Motions", US Geological Survey Professional Paper No. 1114, 1980.

Helsing, Lyse Duhamel, "Current and Future Directions in Technology and Business", Managing Hazardous Wastes, 1984.

Hill, J. E., "Rice Culture in California", Proceedings of Symposium on Rice Field Mosquito Control.

Holman and Associates, "Cultural Resources Evaluation of Keller Ranch", 1982.

Hornbeck, David, and Kane, Phillip, California Patterns: A Geographical and Historical Atlas, 1983.

Hoy, J. B., Kaufman, E. E., and O'Berg, A. G., "A Large-Scale Field Test for Gambusia affinia and Chlorpyriphos for Mosquito Control", Mosquito News, 1972.

IEEE, "Review of Technical Considerations on Limits to Interference from Power Lines and Stations", IEEE Radio Noise and Corona Subcommittee, IEEE Paper # F-78-165-3.

Institute of Transportation Engineers, Transportation and Traffic Engineering Handbook, 1982.

___, Trip Generation, Third Edition, 1982.

Johnson, Jerald J., "An Archaeological Reconnaissance of the Proposed Expansion of the Sacramento Metropolitan Airport", 1975.

J. H. Kleinfelder and Associates and F. Beach Leighton, Seismic Safety Element, prepared for the San Joaquin Council of Governments, 1973.

Loftness, M. O., Chartier, V. L., Reiner, G. L., EMI Correction Techniques for Transmission Line Corona, presented at the International Symposium on Electromagnetic Compatibility, August, 1981.

McDonald & Associates, 2005 Dwelling Unit, Population, and Employment Forecasts, prepared for the City of Sacramento, February, 1985.

___, Sacramento Area Employment and Land Use Projections, prepared for the City of Sacramento, January, 1982.

McPartland, J. F., Handbook of Practical Electric Design, 1984.

Mundie & Associates, Agriculture in Sacramento's North Natomas Area: Production, Economic Impacts, and Urban Conversion Issues, prepared for the City of Sacramento, January, 1982.

Mitchell, C. J., Mosquitoes, University of California Divisaion of Agricultural Sciences Leaflet, 1975.

Nichols-Berman, Draft EIR Airport-Meadowview Community Plan, prepared for the City of Sacramento, October, 1983.

___, CIF Corporation Office Building Environmental Assessment, prepared for the City of Burlingame, June, 1983.

___, Delta Shores Village Draft and Final EIRs, prepared for the City of Sacramento, October, 1982 and May, 1983.

Peak and Associates, "Cultural Resource Assessment of the Proposed Frates Ranch, Phase II Development, Sacramento, California", 1978.

___, "Cultural Resource Assessment of the Metro Airport Waste Water Treatment Project", 1980.

People for Open Space, Endangered Harvest, November, 1980.

Perry, D. E., Chartier, V. L., and Reiner, G. I., "BPA 1100 kV Transmission System Development, Corona and Electric Fields Studies", IEEE Transaction on Power Apparatus and Systems, September/October, 1979.

Questor Associates, Economic Analysis and Program Assessment, Affordable Housing Study for City of Sacramento, prepared for the City of Sacramento, February, 1981.

Thomas Reed Associates, Devers-Valley Serrano Transmission Line Project EIR, prepared for the California Public Utilities Commission, 1982.

Remsen, J. V., "Bird Species of Special Concern in California", Nongame Wildlife Investigation, Administrative Report No 78-1, California Department of Fish and Game, 1978.

Richter, C., Elementary Seismology, 1958.

Sacramento Area Council of Governments, Air Quality Plan, October, 1981.

___, Attainment of National Ambient Air Quality Standards in the Sacramento Area, July, 1982.

___, Regional Aviation System Plan, June, 1984.

Sacramento Bee, "Sacramento Has Lowest Housing Prices", August 11, 1984.

Sacramento, City of, Air Quality Plan, City of Sacramento, November, 1981.

___, Amount of Vacant Land, General Plan Update Technical Report #1, August, 1981.

___, Creekside Oaks and Gateway Centre DEIR, June, 1984.

___, Growth Policy Conclusions and Recommendations, Accelerated General Plan Update, March, 1982.

___, Housing Element of the Sacramento General Plan, 1980.

___, Master Plan for Park Facilities and Recreation Services, June, 1984.

___, More Numbers, More Background, More Information, Accelerated General Plan Update, Sacramento Planning Department, 1982.

___, Plan Noise Element of the Sacramento General.

___, North Sacramento Community Plan (draft), January, 1983.

___, Sacramento General Plan, 1974.

___, South Natomas Community Plan Revision (draft), November, 1984.

___, South Natomas Community Plan Update and Related Projects DEIR, November, 1984.

___, Zoning Ordinance of the City of Sacramento, revised February, 1985.

Sacramento City-County Bikeway Task Force, Sacramento Bikeways Master Plan, January, 1977.

Sacramento, County of, Sacramento County General Plan, July, 1982, as amended as of 1983.

___, An Ordinance Amending the Zoning Code of Sacramento County Establishing a Special Planning Area Known as the Metropolitan Airport/Vicinity Special Planning Zone, Ordinance Number 83-SPA3, December, 1983.

___, Airport Land Use Commission, Metropolitan Airport Comprehensive Land Use Plan, February, 1984.

___, Department of Agriculture, Annual Crop Report, 1983.

___, Sacramento County Solid Waste Management Plan, 1983 Revision.

Sacramento County Local Agency Formation Commission, City of Sacramento Sphere of Influence Study, October, 1981.

Sacramento Municipal Utility District, 1983 Annual Report, Conservation Programs and Activities.

Sacramento Yolo Mosquito Abatement District, Rice Field Source Map

San Diego Gas and Electric Company, "Electrical Effects of 500 kV APS/SDG&E Interconnection Transmission Line", March, 1980.

Scientific American, February, 1985.

Scott-Watson, Barry, "Potential Environmental Effects of 765 kV Transmissions Lines", Views Before the New York Public Service Commission, US Department of Energy DOE-EIV, November, 1979.

Spiller, D., Mosquito Problems of California's Central Valley, University of California Division of Agricultural Sciences, 1968.

Sutter, County of, Sutter County General Plan, July, 1983.

The SWA Group et al., North Natomas Community Plan Analysis Report, prepared for the City of Sacramento, September, 1984.

__, North Natomas Community Plan Background Report, prepared for the City of Sacramento, June, 1984.

___, North Natomas Draft Community Plan, prepared for the City of Sacramento, December, 1984.

Toppozada, T. R. and Pierziaski, D. C., "Seismicity in California", California Geology, July, 1979.

Transportation Research Board, Interim on Highway Capacity, Circular 212, January, 1980.

___, Report 187 Quick-Response Urban Travel Estimation Techniques and Transferable Parameters, 1978.

___, Transportation Forecasting and Travel Behavior, 1978.

Troeh, Frederick, and Hobb, Arthur, Soil and Water Conservation for Productivity and Environmental Protection, 1980.

United States, Department of Agriculture, "Summary: Needs Assessment for the Food and Agricultural Sciences, A Report to Congress form the Secretary of Agriculture", 1984

___, , Soil Conservation Service, National Agricultural Lands Study, 1981.

___, , Soil Conservation Service, "Preliminary Soil Survey No. 067", 1984.

___, , Soil Conservation Service, Soil Survey, 1954.

United States, Environmental Protection Agency, White Paper, 1984.

United States, Department of the Interior, Bureau of Reclamation, Central Valley Fish and Wildlife Management Study: Wildlife Habitat on Irrigated Farmlands, 1984.

United States, Department of Transportation, Federal Highway Administration, Computer Programs for Urban Transportation Planning Planpac/Backpac, General Information, April, 1977.

___, Urban Mass Transportation Administration and Sacramento Transit Development Agency, Sacramento Light Rail Transit Project Final Environmental Impact Statement, August, 1983.

United States, Federal Register, Public Law 97-98, December 22, 1981.

___, Code of Federal Regulations Part 122, Section 122.26(c), September 26, 1984.

University of California, Davis, California Aquaculture Newsletter, Cooperative Extension, February, 1985.

David Wade & Associates, Report on Current and Projected Student Yield Rate and Estimate of School Facility Requirements in the South Natomas Community, January, 1985.

Wagner, D. L., Jennings, C. W., Bedrossian, T. L., and Bortugno, E. J., "Geologic Map of the Sacramento Quadrangle", California Division of Mines and Geology, 1981.

Washino, R. K., "Integrated Mosquito Pest Management: Facts and Folklore", Proceedings of the Utah Mosquito Abatement Association, 1981.

___, "Rice Field Mosquitoes: Life History, Ecology, and Population Dynamics of the Mosquito Species Associated with Rice Culture", Proceedings of Symposium on Rice Field Mosquito Control, R. E. Fontaine and J. E. Hill (editors), University of California Cooperative Extension, Division of Agricultural Sciences, 1981.

WESCO, Devers-Mirage 230 kV Transmission Line EIR, prepared for the California Public Utilities Commission, 1982.

Wesson, R. L., Helly, E. J., Lajoie, K. R., and Wentworth, C. M., Studies for Seismic Zonation of the San Francisco Bay Region, US Geological Survey Professional Paper, 1975.

Yates, M. M., "A Portable System for Aerial Applications of Very Low Volumes of Technical Grade Concentrations of Bacillus thruingiensis var. Israelensis", Chambers County Mosquito Abatement District, Anahuac, Texas (unpublished manuscript).

Yolo, County of, East Yolo General Plan, December, 1976.

___, General Plan, July, 1983.

___, Southport Area Plan, August, 1982.

Youd, T. L., "Liquefaction Hazards in the Eastern San Francisco Bay Area", Conference on Earthquake Hazards i nthe Eastern San Francisco Bay Area (proceedings), California Division of Mines and Geology Special Publication, 1982.

Youd, T. L. and Hoose, S. N., "Historic Ground Failures in Northern California Triggered by Earthquakes", US Geological Survey Professional Paper, 1978.

Youd, T. L., Nichols, D. R., Helly, E. J., and Lajoie, K. R., "Liquefaction Potential", Studies for Seismic Zonation of the San Francsisco Bay Region, US Geologic Survey Professional Paper 941-A, 1975.

PERSONS AND ORGANIZATIONS CONSULTED

Laura Baker, League of Women Voters of Sacramento
Ken Bandow, Caltrans
Jim Barclay, Sacramento Police Department
Joe Benvenuti, Sacramento Sports Association
Thomas Betts, Reclamation District 1000
Bob Blake, Caltrans
Jim Bloodgood, City of Sacramento Traffic Engineering Department
Bob Blymer, Sacramento Regional Transit
Bonneville Power Administration
Gary Bricker, Pacific Central Properties
John Brode, California Department of Fish and Game
Al Bulf, Modern Transit Society
Robert Burness, Sacramento County Planning Department
Mike Busch, City of Sacramento Police Department

California Energy Commission
Joe Caputo, Caltrans
Clif Carstens, City of Sacramento Planning Department
Ira Carter, Grant Joint Union School District
Harman Clement, Manager, Kern Coounty Mosquito Abatement District
Jim Clifton, Manager, Reclamation District 1000
John Cornacchia, State Water Quality Control Board
Ed Crowley, Yolo County Planning Department

Steve DeCou, CH2MHILL
Bob Doyle, Natomas Community Association

Randy Faust, Sacramento County Department of Highways and Bridges
Jerry Fidler
Roger Fong, Fong Ranch

Tad Gantenbein, John Taylor Fertilizer Company
Dan Goldstein, City of Sacramento Traffic Engineering Department
Gordon Gould, California Department of Fish and Game
Ed Greaves, Sacramento Audubon Society
Pat Groff, Sacramento County Department of Highways and Bridges

Karen Hall, Sacramento County Local Agency Formation Commission
Ed Harper, Sacramento Audubon Society
Pete Hathaway, Caltrans, Chief, District 3 Transporation Planning Division
Joe Heller, Caltrans
Al Hendrickson, City of Sacramento Engineering Department
John Horrell
Allen Hubbard, Sacramento Yolo Mosquito Abatement District

Louise Inderkum

Steve Jenkins, Project Coordinator for North Natomas Planning Program
Ron Jurek, California Department of Fish and Game

Bob Kershaw, Sacramento Transit Development Agency
D.W. Ketscher, Reid-Ketscher Application
Russell Kilmer, Natomas Air Park
Ken Klug, George S. Nolte & Associates
Larry Kozub, Sacramento County Department of Airports

Janet Larson, Sacramento Public Library and Information Service
Jeff Loudon, Caltrans
Greg Lukenbill, Sacramento Sports Association

Tom Manolis, Sacramento Audubon Society
Glenn Marshall, City of Sacramento Engineering Department
Toke Masuda, City of Sacramento Planning Department
Charles A. Mellor, Sacramento County Department of Agriculture
F. Michney, US Fish and Wildlife Service
Gene Moir, Sacramento Regional Transit
Kathy Molloy, City of Sacramento Planning Department

Arlene Newman

Charles Oldham, Sacramento Regional Transit
Paul Olmstead, Sacramento Municipal Utility District

Greg Pearson, SMUD

Maurice Read, Sacramento Sports Association
Dennis Reising, Pacific Gas and Electric Company
Bob Roche, RJB
Gene Robinson, City of Sacramento Parks Superintendent
Pilka Robinson, Sacramento Regional Transit

Dick Salmen, Caltrans, Transportation Planning Division
Steve Sanders, Transportation Coalition
San Diego Gas and Electric
Irv Schauer, Sacramento Yolo Mosquito Abatement District
Ron Schlorff, California Department of Fish and Game
John Schumann, Sacramento Transit Development Agency
Keith Seegmiller, Natomas Community Planning Advisory Council
Larry Seiders, COMSIS Corporation
Mike Seward, Sacramento Metro Chamber of Commerce
Karolyn Simon, ECOS
Wayne Shijo, Sacramento Area Council of Governments
Dennis Smith, City of Sacramento Fire Department
Ron Smith, The Spink Corporation
Ted Smith, The Spink Corporation
Tom Sparks, Sacramento County Planning Department
Brian Steele, Natomas Union School District
Craig Stevens, Sacramento Area Council of Governments
M. Stopher, California Department of Fish and Game

Ivan Strand, Golden West Mobile Estates
Merle Switzer, Sacramento County Sheriff's Department

Tina Thomas, Attorney
Greg Thatch, Attorney
Arlene Tugel, Soil Conservation Service

Mark Vogel, Dewante and Stowell

R. K. Washino
Brian Wells, Caltrans
Dennis Westcot, California Regional Water Quality Control Board
Kenneth Whitesell, Manager, Colusa Mosquito Abatement District
Robert Winchester, Natomas General Mutual Water Company

Reg Young, City of Sacramento
Glenn Yoshimura, Sacramento Yolo Mosquito Abatement District

Gary Ziegenfuss, City of Sacramento Planning Department

S. REPORT PREPARATION

This EIR has been prepared by Nichols-Berman under contract to the City of Sacramento (City Agreement Number 83198) for a cost not to exceed $282,500.00. The Transportation Section was prepared under a separate contract to the City (City Agreement Number 83199) by Omni-Means, Ltd. for a cost not to exceed $28,415.00, and the Fiscal Section was prepared under a separate contract to the City (City Agreement Number 83200) by McDonald & Associates for a cost not to exceed $18,899.73.

The persons involved in the prepatation of this report are as follows:

- Nichols-Berman, Environmental Planning

  Bob Berman
  Louise Nichols
  Eric Anderson, PhD
  Theresa Burns
  Elizabeth Patterson
  Carol Ruga
  S. Bradely Thomson
  William Voigt

- Donald Ballanti, Air Quality Meteorologist

- David Chavez & Associates, Cultural Resources Consultants

  David Chavez
  Cindy Desgrandchamp
  William G. Slater
  Laurence H. Shoup

- Robert C. Dixon, Certified Professional Agronomist

- Economic and Planning Systems

  Richard Borkson
  Walter Keiser
  Mark Ward
  Tim Youmans

- Holton Associates, Biologists

  Edward Beedy, PhD
  Stephen Granholm, PhD
  Booker Holton, PhD
  Rexford Palmer, PhD

- Angus McDonald & Associates, Economists

  Linda Howells
  Angus McDonald
  Scott Mende
  Brian Welch

- Merrill & Seeley, Inc., Geotechnical Engineering and Geology
  Karen Hee
  William Short
  Marc Seeley, CEG

- Omni-Means, Ltd., Transportation

  Gary Hansen
  Martin Inouye

- Shute, Mihaly & Weinberger, Attorneys at Law

  Marc Mihaly

- Charles M. Salter Associates, Consultants in Acoustics

  Richard Illingworth, PE
  Alan Rosen

- Philip Williams & Associates, Consultants in Hydrology

  Jane Kerlinger
  William Vandivere
  Philip Williams, PhD, PE

Draft
Environmental
Impact Report

North Natomas Community Plan
Volume 2

Fiscal and Financial Analysis

Prepared by

City of Sacramento
Department of Planning
and Development
Planning Division

Technical Assistance from

- Angus McDonald & Associates
- Omni-Means, Ltd.
- CH_2M HILL
- Dewante and Stowell, Consulting Engineers

M84•007
SCH No. 84073010
July 1985

CONSULTANT TEAM
NORTH NATOMAS COMMUNITY PLANNING PROGRAM

The following Consultants have assisted the City and County of Sacramento in preparing the various studies associated with the North Natomas Community Planning Program:

PROJECT MANAGEMENT AND COORDINATION

Stephen L. Jenkins, AICP	Planning Consultant

ENVIRONMENTAL IMPACT REPORT

Nichols•Berman	Prime Consultant
Donald Ballanti	Air Quality Meteorologist
David Chavez and Associates	Cultural Resources Consultant
Robert C. Dixon	Certified Professional Agronomist
Economic and Planning Systems	Agricultural Analysis
Holton Associates	Biologists
Merrill and Seeley, Inc.	Geotechnical Engineering
Shute, Mihaly and Weinberger	Legal Assistance
Charles M. Salter Associates	Acoustical Consultant
Philip Williams and Associates	Hydrologists

COMMUNITY PLANNING

The SWA Group	Prime Consultant
LSA, Inc.	Environmental Analysis
Buchanan, Falik and Dupree	Legal Assistance

ECONOMIC AND FINANCIAL ANALYSIS

Angus McDonald and Associates	Prime Consultant

STADIUM/ARENA MARKET AND FINANCIAL ANALYSIS

Economics Research Associates	Prime Consultant
HNTB	Architects

TRANSPORTATION PLANNING AND ANALYSIS

Omni-Means, LTD	Prime Consultant

WASTEWATER ENGINEERING ANALYSIS

CH2M Hill	Prime Consultant

WATER AND DRAINAGE ENGINEERING ANALYSIS

Dewante and Stowell	Prime Consultant

WORD PROCESSING AND FILE MANAGEMENT

Lorna Russell	Project Technician

CITY OF SACRAMENTO

DEPARTMENT OF PLANNING AND DEVELOPMENT
1231 "I" Street Sacramento, Ca. 95814

Administration
Room 300 449-5571
Building Inspections
Room 200 449-5716
Planning
Room 200 449-5604

July 1, 1985

Interested Persons:

SUBJECT: Draft EIR for North Natomas Community Plan Alternatives (M84-007)

The City Planning Division is forwarding this document for review and comment to all agencies, organizations, and interested persons indicated on the enclosed distribution list. Reviewers should focus on the comprehensiveness and accuracy of the EIR in discussing possible impacts upon the environment, ways adverse aspects might be mitigated, and alternatives to the project.

This document is being circulated for a 45-day review period; consequently, comments should be received by the Planning Division at 1231 I Street, Suite 300, Sacramento, California, 95814 NOT LATER THAN 5:00 P.M., AUGUST 15, 1985. A joint session of the Sacramento City Planning Commission and Sacramento County Policy Planning Commission will consider this document at their special meeting on August 1, 1985, at 5:30 p.m. in the Council Chamber of City Hall, 915 I Street, Sacramento, California. Persons commenting on this document are urged to submit written comments to this office prior to the public hearing. Failure to do so will not preclude your right to testify at the hearing. Written comments and oral testimony submitted at the public hearing will be incorporated into the Final EIR. This Draft EIR will also act as part of the Final EIR unless substantial changes are made. Comments on this draft document and replies will be sent to those who comment; therefore, it is requested that you keep this document. The Draft EIR, plus an addendum consisting of comments and responses and any additional information, will constitute the Final EIR.

A copy of this document has been forwarded for public review to the following libraries: Arcade, Carmichael, Central (downtown), McKinley, McClatchy, Del Paso, Martin Luther King, Southgate, North Sacramento, Hagginwood, Cosumnes College, and to the CSUS Science/Tech Library. In addition, a copy may be reviewed or obtained for $27.00 at the City Planning Division.

If you have any questions regarding this Draft EIR, please contact Stephen L. Jenkins, Project Coordinator or Kathy Molloy at (916)449-5381, or Clif Carstens at (916)449-2073.

Sincerely,

Marty Van Duyn
Planning Director

MVD:SLJ:lr
Enclosure

Table of Contents

NORTH NATOMAS COMMUNITY PLAN EIR
J. Fiscal and Financial Analysis

Table of Contents (continued)

NORTH NATOMAS COMMUNITY PLAN EIR
Fiscal and Financial Analysis

List of Exhibits

NORTH NATOMAS COMMUNITY PLAN EIR
J. Fiscal and Financial Analysis

J. FISCAL AND FINANCIAL ANALYSIS

I. INTRODUCTION AND ECONOMIC SETTING

A. Introduction

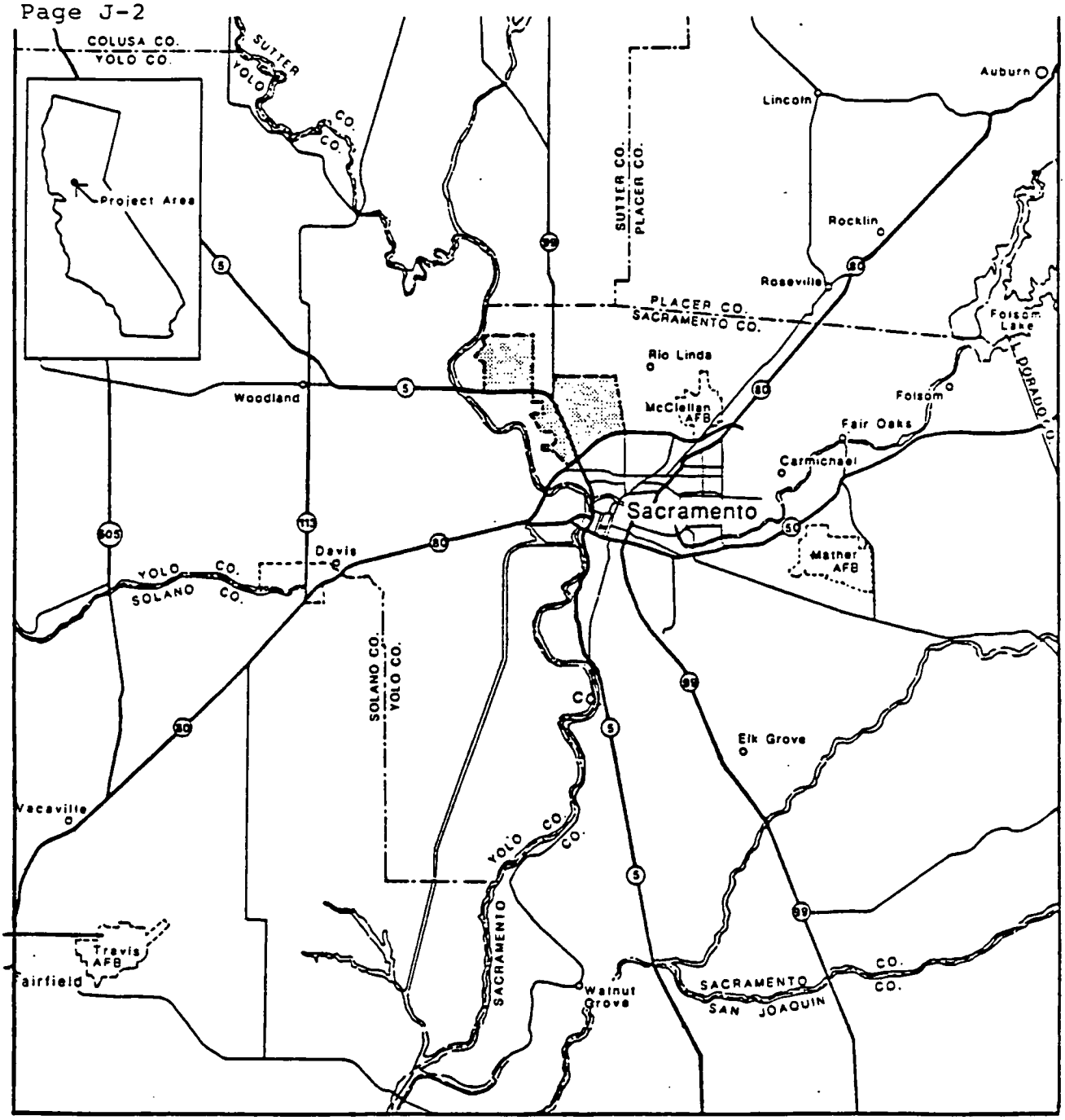
The North Natomas Community Plan Study Area (Exhibit J-2) is comprised of approximately 14,300 acres located within both the City and County of Sacramento. Including all drainageways and roadways as well as land parcels, the site includes 7,778 acres within the City and 6,552 acres within the County's unincorporated area. General boundaries include all territory north of Interstate 80 south of Elkhorn Road and west of the East Main Drainage Canal, plus the Sacramento Metropolitan Airport and approximately 2,000 acres designated for airport-related uses immediately east of the airport.

The primary land use within the Study Area is agriculture. Current City and County General Plan and zoning policies emphasize continued preservation of agricultural land through the year 1995. Ownership patterns reflect this agricultural land use pattern, with a high percentage of the area held by a few land owners. The Study Area is quite flat and is crossed by numerous drainage canals that are essential for drainage given the area's clayey soils and high water table. In terms of transportation, Interstate 5 and Interstate 80 provide regional access to the Study Area, while numerous other roads provide local and internal circulation.

Exhibit J-3 summarizes the project descriptions that are the subject of the present fiscal and financial analysis. The Draft North Natomas Community Plan, Alternative C, will be compared to its alternatives, labeled Alternatives B, D and E. The "No-Project" Alternative is termed Alternative A. As indicated on Exhibit J-3, the quantity of development within the Study Area increases alphabetically from Alternative A, with a relatively small amount of development, to Alternative E, which has substantial residential and non-residential development. Maps showing land uses proposed by each of the five alternative plans are included in Appendix J-1.

B. Report Organization

The scale of development that is included in Alternatives B through E will require major financing of public infrastructure. The total cost of improvements to North Natomas plus the net cost (if any) of providing on-going municipal services constitute the financing requirements.



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

The SWA Group - Community Planning
LSA, Inc. - Environmental Analysis

0 MI 4 6

Exhibit J-2

REGIONAL LOCATION
North Natomas Community Plan EIR

Exhibit J-3

SUMMARY OF LAND USE DESIGNATIONS
North Natomas Community Plan EIR

NOTE: THIS DATA REPRESENTS THE ULTIMATE HOLDING CAPACITY OF EACH PLAN, INCLUDING EXISTING LAND USES.

LAND USE	ALTERNATIVE A NET ACRES	ALTERNATIVE A EMPLOYEES	ALTERNATIVE B NET ACRES	ALTERNATIVE B EMPLOYEES	ALTERNATIVE C NET ACRES	ALTERNATIVE C EMPLOYEES	ALTERNATIVE D NET ACRES	ALTERNATIVE D EMPLOYEES	ALTERNATIVE E NET ACRES	ALTERNATIVE E EMPLOYEES
Major Employers										
M-50 (45 emp/ac)	-	-	-	-	208	9,360	455	20,475	2,050	92,250
M-20 (30 emp/ac)	350	10,500	839	25,170	733	21,990	850	25,500	-	-
Light Industrial (20 emp/ac)	275	5,500	320	6,400	500	10,000	545	10,900	230	4,600
SPA (5 emp/ac)	2,000	10,000	250	1,250	500	2,500	500	2,500	2,000	10,000
Office/Business (55 emp/ac)	-	-	80	4,400	122	6,710	170	9,350	-	-
Community Commercial (30 emp/ac)	-	-	90	2,700	100	3,000	140	4,200	220	6,600
Highway Commercial (30 emp/ac)	-	-	15	450	63	1,890	120	3,600	110	3,300
Sports Complex (5 emp/ac)	-	-	200	1,000	200	1,000	200	1,000	200	1,000
TOTAL	2,625	26,000	1,794	41,370	2,426	56,450	2,980	77,525	4,810	117,750
Residential		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS		DWELLING UNITS
Rural Estate (1 du/ac)	300	300	-	-	374	374	-	-	-	-
Low Density (7 du/ac)	-	-	1,000	7,000	1,518	10,626	1,400	9,800	276	1,932
Medium Density (12 du/ac)	37	444	600	7,200	1,121	13,452	843	10,116	1,990	23,880
High Density (22 du/ac)	-	-	300	6,600	300	6,600	634	13,948	770	16,940
TOTAL	337	744	1,900	20,800	3,313	31,052	2,877	33,864	3,036	42,752
Civic/Public	GROSS ACRES		GROSS ACRES		GROSS ACRES		GROSS ACRES		GROSS ACRES	
Elementary School (6 ac. each)	-		48		72		78		84	
Junior High School (20 ac. each)	15		40		60		60		100	
Senior High School (40 ac. each)	-		40		40		40		40	
Other Civic Uses	82		103		158		115		-	
Airport	2,900		2,900		2,900		2,900		2,900	
TOTAL	2,997		3,131		3,230		3,193		3,124	
Open Space										
Parks[1]	-		95		600		350		-	
Greenbelt[2]	-		500		700		950		350	
Buffers and Drainages[3]	300		400		600		560		500	
Agriculture	7,341		3,630		386		190		80	
Agriculture/SPA Reserve	-		1,750		1,500		1,500		-	
Roads	700		1,100		1,545		1,700		2,400	
TOTAL	8,341		7,475		5,331		5,250		3,330	
TOTAL ACREAGE	14,300		14,300		14,300		14,300		14,300	
TOTAL POPULATION	1,613		41,766		63,907		65,792		76,626	
JOB/HOUSING BALANCE[4]	3%		60%		66%		52%		44%	

1 Includes regional park, linear park, community parks, and neighborhood parks associated with schools.

2 Refers to greenbelt abutting agriculture on the northern and western borders of the incorporated study area. Does not include agriculture/greenbelt areas.

3 Includes drainage canals and maintenance areas, freeway open space corridors, PG&E easement, and existing open space corridor along east border of study area.

4 Assumes 1.2 employed persons per household.

Source: City of Sacramento. Status Report No. 12--Dated January 29, 1985

North Natomas is in a special situation regarding infrastructure. With the exception of the freeway and highway network, virtually all of the public service capacity that will be required if North Natomas develops will be added in advance of or during development. In contrast to the situation in South Natomas, there is virtually no available capacity that would serve the proposed development. Accordingly, the full cost of public improvements must be associated directly with development of North Natomas, rather than being shared with other developing areas in Sacramento.

The cost of public improvements are potentially so substantial that infrastructure cost alone could be a reason for preferring one or another of the Community Plan Alternatives. As a result, a cost comparison is quite useful in:

- comparing the relative public costs of the Alternatives;
- determining whether each Alternative considered by itself is financially feasible, given the required investment for public services and the capacity of the land uses in each Alternative to bear these costs.

The analysis in the following Chapters focuses on a development period from 1985 to 2005. Fiscal and financial conclusions for Alternatives A, C, D and E are based upon McDonald & Associates' judgment on the quantity of development that would be absorbed by the market during this twenty-year period, which differs from the total developable acreages (or buildout acreages) shown on the Community Plan maps and Exhibit J-3. While the entire amount of Alternative B land uses would be absorbed during the study period, actual buildout of Alternatives A, C, D and E is expected to occur after the year 2005.

C. The Regional Context

The project descriptions for Alternatives B through E indicate substantial residential and non-residential development. The employment and population forecasts that guided the preparation of Alternative C's project description are presented in the North Natomas Community Plan Background Report. The scale of development associated with Alternative C relative to the Sacramento region is discussed in the North Natomas Draft Community Plan. The North Natomas Community Plan Analysis Report includes a discussion about market forces and the current economic setting. The present chapter provides a summary of these topics, as well as a discussion of project phasing. Copies of the above reports are available for inspection at the Sacramento City Planning Department, and are incorporated by reference as part of this Draft EIR.

North Natomas is part of the Sacramento region, as shown on Exhibit J-6. At the present time, North Natomas contains an insignificant share of the region's population and employment. Continuation of current zoning and General Plan designations (represented by Alternative A) for North Natomas would not result in a significant departure from this situation. The adoption of Alternatives B, C, D or E would dramatically alter this situation. Any of these Alternatives would result in North Natomas becoming one of the region's focal points for residential and non-residential growth.

However, a portion of the population and employment growth in North Natomas during the 1985 to 2005 planning period would have occurred elsewhere in the region, without North Natomas. Exhibit J-7 shows the net regional impact attributable to opening North Natomas for development. While Alternatives B through E have differing population and employment totals, the regional growth forecasts on Exhibit J-7 are unchanged. The extent to which North Natomas development represents "true" population and employment growth, rather than growth that would have occurred elsewhere within the region without North Natomas, varies among the Alternatives.

D. Land Absorption at North Natomas

The fiscal and financial analysis in Chapters II and III of this report is based upon the land absorption summaries shown on Exhibit J-8. The Exhibit specifies that in most cases, the proposed land uses could be absorbed during the twenty-year planning period. However, in some instances, such as the SPA (Airport-Related Special Planning Area) and Alternative E, the regional growth forecasts indicated that the total land uses designated would not be fully absorbed during the study period. In those cases, acreages are shown as developing "After 2005", and were not included in the fiscal and financial analysis.

Project phasing is shown on Exhibit J-8 for Alternative C only. Detailed, phase-by-phase engineering cost estimates and ongoing cost impacts were prepared only for Alternative C, enabling a phase-by-phase fiscal and financial analysis. Preliminary analysis of Alternatives B, D and E indicated traffic and financial impacts so severe that a phase-by-phase analysis appeared unwarranted. The financial comparison of the Alternatives may therefore favor Alternatives B, D and E over Alternative C because engineering costs for B, D and E do not include the additional costs associated with Alternative C phasing.

The phasing shown on Exhibit J-8 was prepared based primarily on the requirement to maintain a jobs/housing

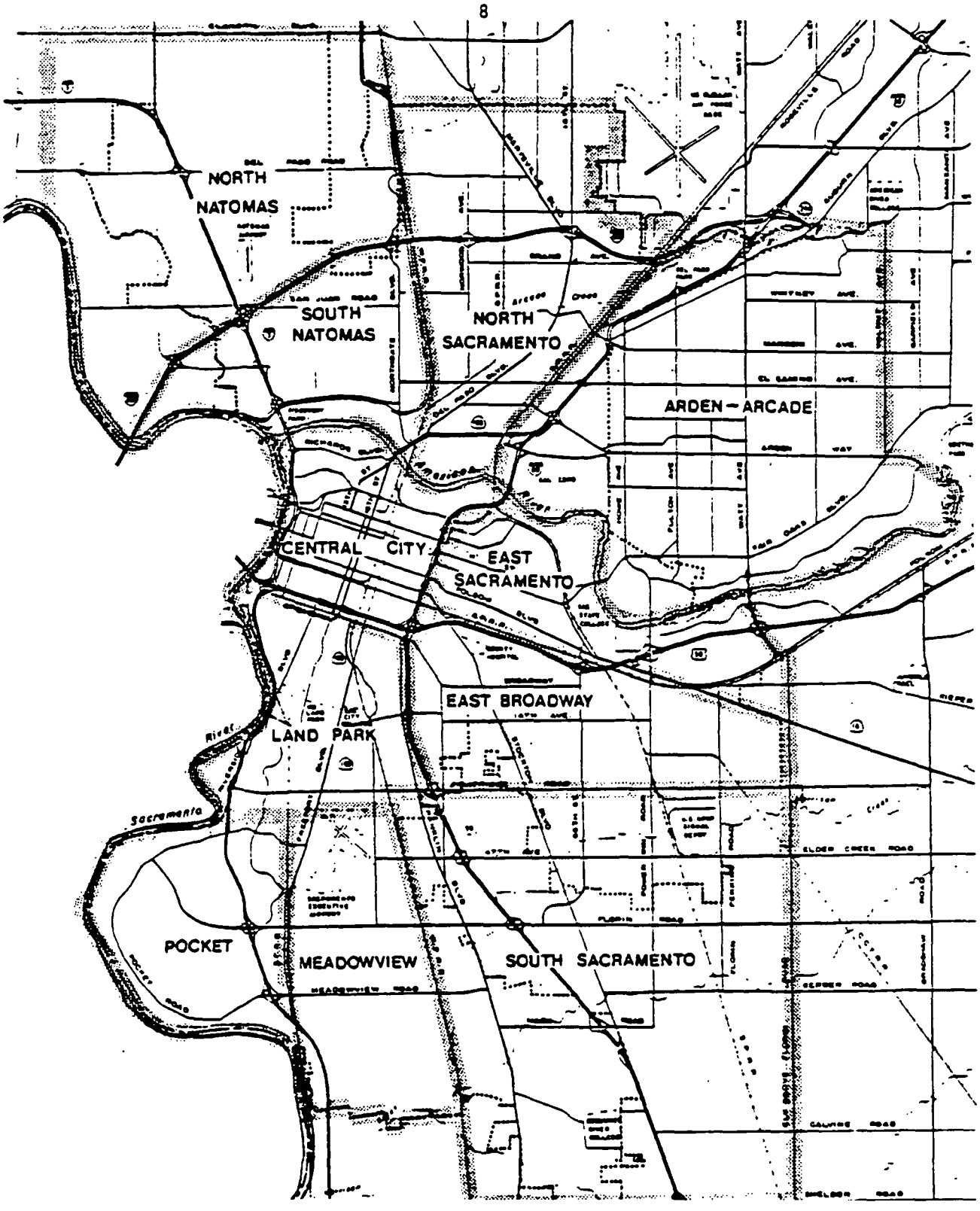


Exhibit J-6

THE SACRAMENTO REGION
North Natomas Community Plan EIR

Note: Does not show Placer and Yolo Counties.

Exhibit J-7

POPULATION AND EMPLOYMENT FORECASTS WITH AND WITHOUT NORTH NATOMAS
North Natomas Community Plan EIR

	WITHOUT NORTH NATOMAS		WITH NORTH NATOMAS	
YEAR	POPULATION	EMPLOYMENT	POPULATION	EMPLOYMENT
1983	1,086,600	423,100	1,086,600	423,100
1985	1,107,200	442,700	1,109,300	444,500
1990	1,207,800	496,400	1,220,300	502,900
1995	1,367,200	557,100	1,396,100	569,000
2000	1,515,600	671,600	1,559,800	693,800
2005	1,676,600	703,400	1,737,400	728,400

Notes: (1) Market region includes Placer, Sacramento and Yolo Counties.
(2) "Without North Natomas" assumes selection of Alternative A, the "No-Project Alternative."

Source: McDonald & Associates

Exhibit J-8

SUMMARY OF LAND ABSORPTION AT NORTH NATOMAS
North Natomas Community Plan EIR

	M-50	M-20	Light Indust.	SPA	Office/ Bus.	Comm. Comm.	Highway Comm.	Sports Complex	Rural Estate	Low Density	Medium Density	High Density	Total Developed Acres	Open Space/ Public Acres	Total Acres	Total Jobs	Total DUs
EXISTING	0	7	172	0	0	0	0	0	300	0	37	0	516	13,784	14,300	3,650	744
ALTERNATIVE A																	
1985 to 2005	0	343	103	500	0	0	0	0	0	0	0	0	946			14,850	0
AFTER 2005	0	0	0	1,500	0	0	0	0	0	0	0	0	1,500			7,500	0
GRAND TOTAL (1)	0	350	275	2,000	0	0	0	0	300	0	37	0	2,962	11,338	14,300	26,000	744
ALTERNATIVE B																	
1985 to 2005	0	832	148	250	80	90	15	200	0	1,000	563	300	3,478			37,720	20,356
AFTER 2005	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0
GRAND TOTAL (1)	0	839	320	250	80	90	15	200	0	1,000	600	300	3,694	10,606	14,300	41,370	20,800
ALTERNATIVE C																	
Phase 1	60	180	65	150	31	20	13	100	20	410	280	81	1,410			13,345	8,032
Phase 2	60	180	78	200	31	25	16	100	20	410	306	81	1,507			14,095	8,344
Phase 3	60	219	96	100	36	30	19	0	20	455	326	90	1,451			15,140	9,097
Phase 4	18	110	64	50	18	20	12	0	14	243	172	48	769			7,590	4,835
SUBTOTAL	198	689	303	500	116	95	60	200	74	1,518	1,084	300	5,137			50,170	30308
AFTER 2005	10	37	25	0	6	5	3	0	0	0	0	0	86			2,630	0
GRAND TOTAL (1)	208	733	500	500	122	100	63	200	374	1,518	1,121	300	5,739	8,561	14,300	56,540	31,052
ALTERNATIVE D																	
1985 to 2005	446	806	373	500	170	140	117	200	0	1,400	806	634	5,592			72,270	33,420
AFTER 2005	9	37	0	0	0	0	3	0	0	0	0	0	49			1,605	0
GRAND TOTAL (1)	455	850	545	500	170	140	120	200	0	1,400	843	634	5,857	8,443	14,300	77,525	33,864
ALTERNATIVE E																	
1985 to 2005	1,145	0	58	500	0	135	110	200	0	276	1,955	770	5,147			63,535	42,308
AFTER 2005	905	0	0	1,500	0	85	0	0	0	0	0	0	2,490			50,775	0
GRAND TOTAL (1)	2,050	0	230	2,000	0	220	110	200	0	276	1,990	770	7,846	6,454	14,30[illegible]	117,750	42,752

Note: (1) Grand Total includes existing acreage (from row 1 of this table). Alternatives B, D and E convert the 300 existing Rural Estate acres to other land use categories. Alternative E converts the 7 existing M-20 acres to other land use categories.

Source: McDonald & Associates and City of Sacramento Planning Department

balance during each phase. Other factors affecting project phasing, such as availability of infrastructure and market absorption may have been overriden by the jobs/housing balance objective.

E. The Effect of North Natomas on Other Areas

1. Results of Interviews

There was little consensus among the realtors who were interviewed on the issue of how other areas in the Sacramento region might be affected by the development of North Natomas. Three alternative concepts regarding market impact have been expressed.

Concept 1 - NO IMPACT. Several realtors claimed that developing North Natomas would have no impact on the other areas in the region. One reason cited for this conclusion by residential brokers is that areas such as Laguna, Antelope/North Highlands, and even Delta Shores are in different market areas. Thus, people looking for homes in Laguna would not be apt to consider looking in North Natomas as well. This argument may be valid for the residential market, but it is not valid for the commercial and industrial markets, where developers (or buyers) tend to look at the Sacramento region as a whole.

Concept 2 - SPILLOVER BENEFITS. The optimistic brokers of the Sacramento region claim that opening up North Natomas would create spillover benefits for all areas of development in the Sacramento region. Opening North Natomas would "put Sacramento on the map." As demand for locating in the area increases, there would still be commercial/residential buyers who would want to locate in areas with lower rents or market prices. "Secondary sites", such as Delta Shores and Laguna, would be the most likely to benefit under this theory.

Concept 3 - INCREASING SUPPLY WITH A FIXED DEMAND. If North Natomas is opened up, under this theory, it will draw potential buyers away from the other areas in the region to North Natomas. One realtor went so far as to say that "Laguna would never 'happen' if North Natomas gets opened up." This implicitly assumes that North Natomas is superior to the other areas in the region (which was generally the conclusion from the price comparison analysis) as well as assuming a <u>fixed</u> and <u>homogeneous</u> demand for land (and development) in the Sacramento region.

2. The Consultants' Judgement

A judgement was made by McDonald & Associates regarding the composite impact of the EIR alternatives on growth and development elsewhere in the region. This judgement was based in part on the results of the interviews described above, and in part on the con-

clusions in the Background Report and the Analysis of the Community Plan Alternatives. The following paragraphs refer to the impact on the regional pattern of development if significant development of North Natomas occurs. These impacts would be increasingly more severe for Alternatives B, C, D, and E, respectively.

The residential market for the Sacramento region can absorb all of the land (including North Natomas) that is currently zoned or planned for residential development over the next twenty years. However, there is a less optimistic scenario for absorption of other land uses. If North Natomas is opened for development in the near term, the following impacts can be expected.

Highway 50 Corridor. Growth along the Highway 50 corridor is currently constrained by the capacities of the highway. Without North Natomas, market pressures would induce a costly solution to the capacity problems. Development of North Natomas would reduce the market demand for office/industrial land along the corridor to that which could be accommodated without large-scale improvements to Highway 50. To a major extent, the market is already searching for alternative sites. North Natomas would provide a visible epicenter for this market demand.

South Sacramento (Laguna and Delta Shores). These major land areas will experience reduced demand for residential and particularly employment generating land uses, especially in the short term. North Natomas will dominate the housing and office/industrial market, looking to South Sacramento as secondary sites. These areas will not be able to compete for higher-end developments. Rather, South Sacramento will be characterized by mid- and lower-end (less profitable) development.

Antelope/North Highlands. The Antelope and North Highlands areas will benefit from the overall shift in development patterns to the north, away from the South and East. Residential demand should be boosted by major employment opportunities in the Natomas area.

North Sacramento. Development of North Natomas as an office/industrial center will effectively eliminate prime office/industrial potential for North Sacramento. The market would look to this area to provide primarily lower-end housing opportunities.

East Yolo. Industrial and commercial potential in East Yolo will develop independently of the decision about land uses in North Natomas. The East Yolo area will continue to attract land-intensive industrial and commercial uses that would not be economically competitive in North Natomas. Land uses in East Yolo would also be unable to support land prices typical of other areas elsewhere in Sacramento County.

Roseville. The City of Roseville offers major housing and office/industrial opportunities. Optimistic forecasts depicted Roseville (and other sections of South Placer County) as undergoing explosive growth. Recently however, development has been stifled in that the high technology boom failed to materialize in the region.

Development of North Natomas represents a very plausible site for establishing a nucleus of high growth industry. Spinoff growth to Roseville would more likely occur if development occurred in North Natomas than if development occurred, for example, in South Sacramento.

South Natomas. Industrial areas in South Natomas will develop in conjunction with North Natomas. Office/industrial growth will compete on a price basis directly with North Natomas.

Downtown. The downtown office market serves primarily "headquarters" firms requiring face-to-face contact. North Natomas, however, would serve larger office operations requiring a consolidated location. Firms requiring extensive interaction with others but not required to be among other "headquarters" firms might tend to locate in the newer buildings at North Natomas, which would be designed as office parks with easier auto access.

Regional Shopping Centers. A regional shopping center is not proposed at North Natomas, so existing shopping centers would experience growth in taxable sales resulting from increases in the residential base.

II. FINANCING THE COST OF PUBLIC IMPROVEMENTS

Chapter II is concerned with the relative feasibility of financing the public improvements that will be required at North Natomas if one or another of the Community Plan alternatives is implemented. The City tax base and ongoing costs of public services are considered in Chapter IV.

A. Financing Required

Cost estimates for public improvements at North Natomas are summarized in Exhibit J-13. Preparing estimates of the cost of public improvements was a major effort during the Community Plan program. The cost estimates are from detailed engineering studies, which were the subject of their own reports.

The analysis of financing in the present EIR is intended as one basis of comparison for the five Community Plan alternatives. The comparison is limited to the costs summarized in Exhibit J-13. This Exhibit does not include the major investment in Sacramento's regional roadway system that will be required whichever Community Plan alternative is selected. (Regional roadway requirements are discussed in Volume 1, Section E of the present EIR.)

The cost comparison for the Community Plan Alternatives shown in Exhibit J-13 is expressed in constant 1984/85 dollars. This exhibit does not include the additional "soft costs" associated with issuing tax-free municipal bonds to finance public improvements. Examples of "soft costs" include reserve requirements to assure timely payment of semi-annual debt service, and costs of preparing and marketing each bond issue. The Exhibit also excludes the effects of price inflation. The improvements that are constructed at the start of Phase 4 (i.e., 15 years hence) will cost more in actual dollars insofar as prices at that time are higher than today's prices.

Exhibit J-14 incorporates an estimate of the effects both of inflation and of costs of issuance. The direct costs of constructing facilities that would be financed locally with bonded debt (expressed in constant 1984/85 dollars) is converted into an estimate of direct cost expressed in actual year dollars. The cost of debt issuance is then added to this estimate of actual year construction costs. The totals sum to $886,681,000. This amount represents the cumulative total bond issues associated with development of Alternative C at North Natomas, considering both the effects of inflation and the cost of issuance of bonded debt.

It should be understood that a financial contribution from North Natomas may be required to finance a portion of the cost of

Exhibit J-13

TOTAL CAPITAL COST OF PUBLIC IMPROVEMENTS
North Natomas Community Plan EIR

Total Cost for Each Community Plan Alternative

Community Plan Alternative	Total Capital Cost (Constant 1984/85 Dollars)
Alternative A	$ 62,098,000
Alternative B	$ 370,456,000
Alternative C	$ 576,641,000
Alternative D	$ 592,622,000
Alternative E	$ 612,577,000

Cost for Each Phase of Community Plan Alternative C
(All figures are expressed in constant 1984/85 dollars)

Improvement	Phase 1	Phase 2	Phase 3	Phase 4	Total
Drainage	$ 48,699,000	$ 64,601,000	$ 14,500,000	$ 8,400,000	$136,200,000
Fire	1,857,000	970,000	1,270,000	0	4,097,000
Libraries	0	2,045,000	0	0	2,045,000
Light Rail	1,979,000	0	0	0	1,979,000
Police	1,640,000	0	0	0	1,640,000
Parks & Recreation	33,565,000	34,832,000	37,998,000	20,266,000	126,661,000
Roads	56,430,000	22,605,000	10,934,000	996,000	90,965,000
Regional Transit	4,958,000	4,489,000	5,032,000	3,201,000	17,680,000
Elementary Schools	11,497,000	11,497,000	15,329,000	7,665,000	45,988,000
Intermediate Schools	6,252,000	6,252,000	0	6,252,000	18,756,000
High Schools	5,764,000	3,787,000	3,850,000	928,000	14,329,000
Sewer					58,750,000[1)]
Solid Waste	245,000	245,000	245,000	245,000	980,000
Water Supply	17,870,000	16,281,000	16,670,000	5,750,000	56,571,000
TOTAL	$190,756,000	$167,604,000	$105,828,000	$ 53,703,000	$576,641,000

Notes:

1) Sewer improvements include major collectors and treatment capacity only. Costs for each phase were not estimated separately. Sewer costs are not included in the total for any phase.

2) Cost estimates are for land plus improvements. Bond issuance costs are excluded.

3) This exhibit is for purposes of financial comparison only. It is not a complete financing plan. Costs have not been included for an extensive list of regional roadway improvements that would be required regardless of which Community Plan alternative is selected.

Source: North Natomas Planning Team

Exhibit J-14

DIRECT AND TOTAL COST FOR PUBLIC IMPROVEMENTS
COMMUNITY PLAN ALTERNATIVE C
North Natomas Community Plan EIR

Phase	Target Year	Direct Cost(1) (Constant 1984/85 Dollars)	Direct Cost(2) (Actual Year Dollars)	Total Cost(3) (Actual Year Dollars)
Phase 1	1985/86	$ 190,756,000	$ 202,201,000	$ 230,662,000
Phase 2	1990/91	$ 167,604,000	$ 237,750,000	$ 271,205,000
Phase 3	1995/96	$ 105,828,000	$ 200,893,000	$ 229,170,000
Phase 4	2000/01	$ 53,703,000	$ 136,425,000	$ 155,644,000
TOTAL		$ 517,891,000	$ 777,269,000	$ 886,681,000

Notes:

1) Does not include major sewer collection or sewer treatment costs.

2) Direct costs are assumed to increase at 6%/year compounded.

3) Total costs include direct costs plus cost of bond issuance.

Source: McDonald & Associates

roadway improvements occurring beyond the Study Area boundaries. This possible financing requirement would not be a financing impact in that it would not differ significantly depending on the choice of a Community Plan alternative. Nonetheless, it may impose a future financial burden on North Natomas land uses.

Because of the quantity of developable land included in all of the Community Plan Alternatives, many years would be required to develop the area completely. The public improvements required to serve these land uses would also be implemented over a multi-year period.

A detailed phase-by-phase schedule of land development and construction of the supporting public improvements was prepared for Community Plan Alternative C. This scheduled or phased public investment schedule is also summarized in Exhibit J-13. Because detailed phase-by-phase investment schedules were not prepared for the other Community Plan Alternatives, the conclusions from the phased financial analysis for Community Plan Alternative C were applied in an approximate manner to the other Community Plan alternatives. This approximation involved two steps:

- A calculation was made of the annual payment that would be necessary to repay assumed financing from bonded debt that would be applied to each land use in Community Plan Alternative C. (The assumptions about financing are described subsequently.)

- The estimated relative tax rates for each land use were applied to the land uses in the other Community Plan alternatives. (The absolute tax rates were adjusted to reflect the total capital cost of the alternative.)

This approximation procedure eliminated the need to prepare detailed phase by phase engineering studies for the other Community Plan alternatives.

B. Sources of Financing

There are two reasons to consider the manner in which public improvements at North Natomas would be financed. First, given the magnitude of the costs for public improvements, it must be demonstrated that each Community Plan alternative is financially feasible. Second, the costs of financing public improvements, compared to the tax base available to bear the burden of financing, may be an important basis for comparing the Community Plan alternatives before one is selected for adoption.

The following paragraphs describe the assumptions about financing that were used as a basis for comparing Community Plan alternatives.

1. Improvements Requiring Financing

For purposes of comparing the Community Plan alternatives in the context of an EIR, it was assumed that all the costs shown in Exhibit J-13 would require local financing (i.e., from North Natomas sources). The exception to that rule was that financing for the sewer collection and treatment system was excluded from the analysis. It was assumed that the Sacramento Regional County Sanitation District would finance required improvements from a combination of development or connection fees and user fees, in the same way that collection and treatment are currently financed elsewhere in the District.

The assumption that all improvements (with the exception of sewage collection and treatment) would be financed in a comparable manner was done as a convenience, to permit comparison of the costs of the alternatives. In the event that one or another Community Plan alternative appeared to be financially infeasible, it would then be appropriate to make a reasonable estimate of the extent to which external financing sources might be available to relieve the burden on local property owners. In the absence of an overwhelming necessity for external financing, a comparison based on assumed local financing would remove uncertainties about availability of external sources and the relative ability of one or another Community Plan alternative to compete successfully for these external sources of financing. In fact, the selected Community Plan alternative would undoubtedly be financed from a number of sources, including financing sources external to North Natomas.

The cost of school facilities is a particularly important case in point. For purposes of comparison, it was assumed that all school facilities would be financed locally. In fact, there is increasingly strong support being generated for a statewide approach to financing new schools. As one example, Senate Bill (S.B.) 999, authored by Senator Leroy Greene, would establish a uniform statewide levy, which would form the exclusive local source of financing for permanent school facilities. However, rather than conjecture in the EIR about the future of S.B. 999 or about other sources of school financing over the long-term future, it was assumed, for purposes of comparison, that local financing would be used. A more refined assumption will be required after a Community Plan has been selected.

A comparable disclaimer could be made for parks. State bond issues, which were usable, in part, to finance local and regional parks, have been issued periodically over the last twenty years, and may be usable again in the future.

Additionally, some of the major North Natomas road improvements may be available for financing from the State Transportation Improvement Program (STIP). In fact, it will be shown subsequently that some source of financing external to North Natomas would be necessary to assure the financial feasibility of Community Plan alternative B, C, D and E. Financial mitigation measures that deal with this issue are presented in Section C of Chapter IV.

2. Assumption About Land Acquisition

For purposes of analysis, it was assumed that all land designated for public purposes included in each Community Plan alternative would be acquired and preserved by public purchase at market value. This land category includes drainage canals and greenbelts, as well as parks, rights of ways, etc. that are for direct public use. This assumption was made purely for purposes of presenting a valid financial comparison of the Community Plan alternatives. The assumption defers the necessity to make additional assumptions about patterns of land ownership and about the equity of requiring land dedication for public purposes, as a condition of entitlements to develop major areas for urban uses.

The assumption that parks and greenbelts will be purchased at prices reflecting urban values is reasonable only if land acquisition is financed from the local North Natomas tax base. It would be entirely inappropriate to assume City-wide financing of lands purchased at urban values. A public decision to permit urbanization, in effect, creates the urban values. If City-wide financing were involved, the reasonable and conventional approach would be to consider approval of the entire North Natomas area as a "package". Authorization of entitlements for urban usage would be accompanied by requirements that major land areas (particularly the buffers and green space that contribute to the urban amenities that support the urban land values) be preserved by dedication or by permanent, enforceable deed restrictions.

This procedure, in turn, would be practical and equitable only if the entire North Natomas Study Area were processed as a single unit. Under that assumption, the private market place could be expected to deal with disparities in value between land slated for intense urban use and lands slated for open space designations. Lands actually available for development would have significant per acre values after approval, but such approval would be forthcoming only after lands designated for open space had been acquired and offered for dedication or deed restriction.

For purposes of analysis only, and given the underlying assumption that all costs would be a burden on the net acreage shown for urban uses in each Community Plan alternative, it was possible to avoid conjectures about transfers of ownership. The

simplifying assumption is that all lands would be preserved through direct purchase of fee title.

3. Bonded Debt: Forms and Repayment Sources

Having assumed, for purposes of comparison, that the required public improvements would be financed locally, the next step was to examine the forms of local financing that might be considered.

The most basic question was whether to assume "pay as you go" financing or to assume the use of bonded debt. The selected assumption was that tax-free municipal bonds would be used to finance the required public improvements. The alternative assumption -- financing improvements with development fees or other forms of a "pay as you go" mechanism -- would not illustrate the advantage of lower-cost tax-exempt financing. Because of the very large costs involved, a "pay as you go" assumption might hasten the conclusion that one or another Community Plan alternative was infeasible.

Finally, in practice, "pay as you go" financing for major improvements is extremely vulnerable to short-term variations in the development cycle. "Pay as you go" financing is available only at the time that development actually takes place. Dependence on "pay as you go" financing would require testing the ability of one or another Community Plan alternative to be implemented in the face of short-term slowdowns in the development cycle.

Having assumed that use of bonded debt would be the basis for a comparison of financial feasibility, alternative forms of bond issues and alternative sources of repayment were considered. Examples of forms of debt and source of repayment include:

- Conventional 1915 Act special assessment bonds that could be repaid by any allocation or "spread" to benefited property that properly reflected the special benefit conferred on the land because of the existence of the improvement.

- A Mello-Roos Community Facilities District that could assign a special tax to the lands at North Natomas, using any reasonable procedure for allocating cost of debt service among land users.

- Revenue bonds to finance enterprise-type services such as water supply, with repayment from a combination of connection fees and user charges.

The details of issuance of these alternative forms of debt would consider fixed versus variable interest rates, availability of debt repayment insurance or other credit enhancements, etc.

In fact, a detailed consideration of these terms of bond issues is unnecessary for purposes of preparing a twenty-year financing comparison. The economic characteristics of all available bond financing techniques are extremely similar. All bonding techniques depend on three factors:

- There must be sufficient underlying economic value of the benefited property with the resulting willingness of the economically motivated landowner to continue to make debt service payments, or

- There must be a level of development, or other economic activity that would produce the revenues necessary to service a revenue bond issue and

- There must be a reserve fund financed out of the proceeds of the bond issue, to assure the bond buyer that debt service payments would be made if the obligated party failed to make payments in a timely manner.

A "generic" financing plan that incorporates the above principles was used as the basis for preparing a multi-year financing plan. For purposes of illustration, it was assumed that bonds would be sold annually to finance the improvements that were programmed for each year in the planning period. In practice, after more detailed analysis, Sacramento's bond underwriter would recommend the actual bond schedule.

The City's underwriter would also recommend the structural details for each bond issue. For purposes of long-term planning and for purposes of comparing, it is necessary only to assume a generic form of land-value-based financing (with a debt service reserve requirement) and to make reasonable assumptions about interest rate, term, etc. The assumptions used in the present analysis are summarized on Exhibit J-20.

The "generic" financing plan utilizes concepts that have previously been applied by McDonald & Associates when recommending Mello-Roos Community Facilities Districts. Thus the term "special tax" occurs in the following discussion. The concept of a uniform tax rate rather than an annual levy sufficient to finance debt repayment would not be applicable to a conventional special assessment.

Assume, for purposes of illustration, that bonds are issued annually, each for a fifteen year repayment term. The cash flow would be as illustrated in Exhibit J-21. There is an irregular inflow of cash from the proceeds of each bond sale. The debt service of the first issue begins in year one and continues through year sixteen. The debt service on the year 15 bond issue

Exhibit J-20

ASSUMPTIONS ABOUT FINANCING
North Natomas Community Plan EIR

Tax-Exempt Status: It was assumed that interest on municipal debt for public improvements of the type required at North Natomas would continue to be exempt from U.S. and State of California income taxes.

Schedule of Issuance: For purpose of analysis, it was assumed that bonds would be issued each year, to accommodate that year's estimated financing requirement.

Bond Interest Rate: A uniform nominal rate of 11% per year was assumed. (This assumption was intended to be consistent with the assumption about credit enhancements).

Credit Enhancements: No repayment insurance or other form of credit enhancement (e.g., a letter of credit) was assumed to be available.

Term and Repayment Schedule: Twenty-year serial annuity bonds were assumed.

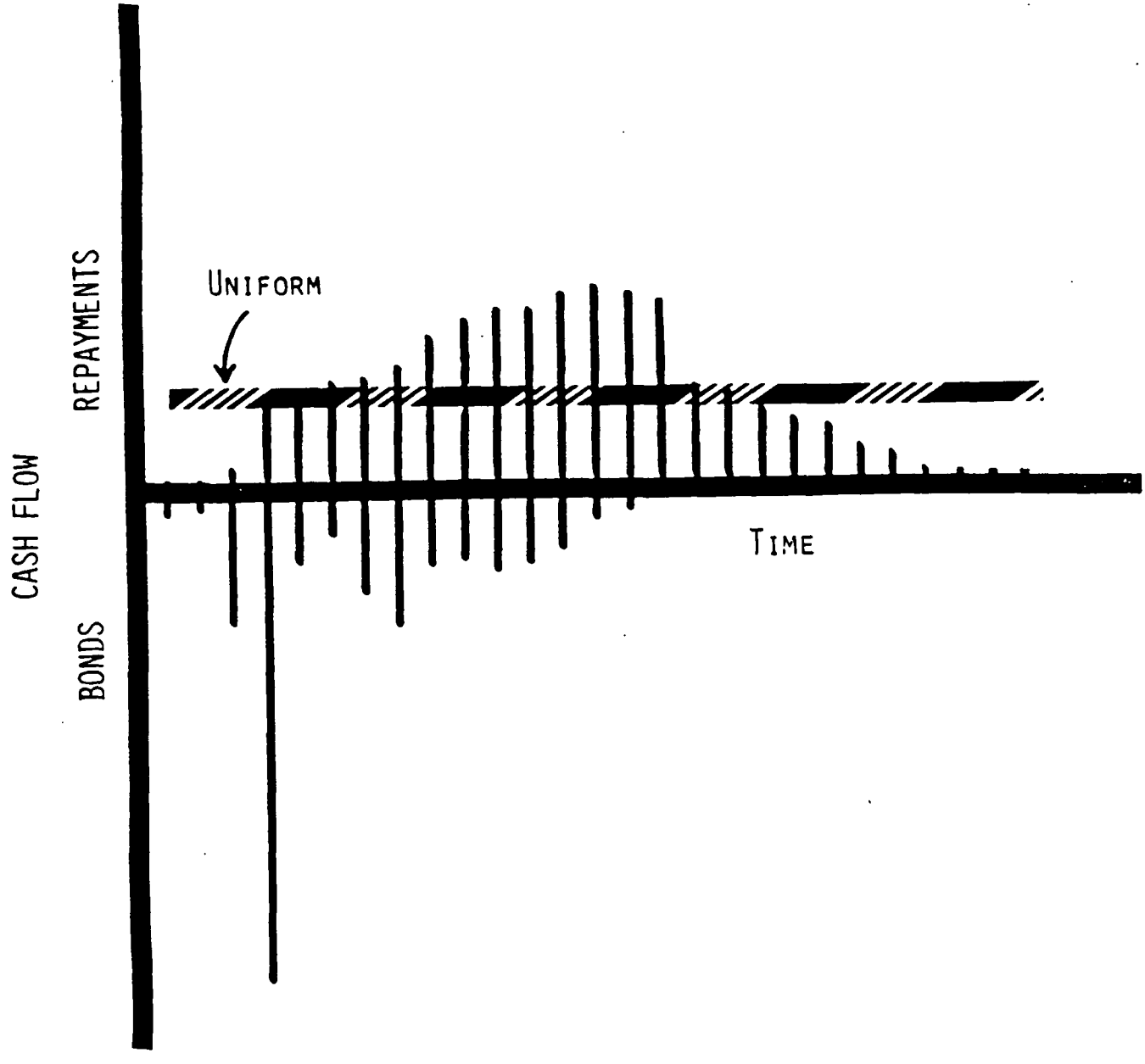
Reserve Requirements: A reserve of 10% of the face amount of each bond was maintained throughout the life of each bond, to assure a source of timely payment. The reserve fund was used to pay final-year debt service.

Interest Earnings: Interest on reserves and idle funds was assumed to accrue at a rate of 9% per year.

Source: McDonald & Associates

Exhibit J-21

REQUIRED CASH FLOW AND THE ANNUAL TAX LEVY
North Natomas Community Plan EIR



begins in year sixteen and continues through year thirty. Cash outflows for debt service on the bonds continue until the last bond issue is repaid. The peak cash payment required occurs in year sixteen, where a portion of the payment is for the first bonds issued, a portion is for the year 15 bonds issued, and there is a portion for every other intervening bond issue.

It would be possible to set an annual special tax rate such that the annual levy would exactly total the annual cash required for debt service. The maximum tax rate approved by the landowners would then have to equal the "year sixteen" requirement shown in Exhibit J-21. The City Council would annually set the actual tax levy at the rate required to fund the actual cash flow.

There are a number of disadvantages to taxing in a manner sufficient to finance the cash flow. First, the homeowner or other landowner would be subjected to a widely varying annual charge over the life of the project. Secondly, a lender would normally test a home buyer's qualifying income against the maximum tax, even though this tax would be collected only in the sixteenth year. Finally, the landowners or voters would be extremely unlikely to approve a maximum tax rate considerably in excess of the average annual requirement. There might be a fear that a future City Council might tax at the higher rate for other purposes.

An alternative approach avoids all of these difficulties. A uniform annual tax rate is calculated that would be sufficient to fund cash outflow requirements considering:

- actual annual cash flow required to service that year's debt:

- interest earnings from fund balances, because the amount collected in the early years would exceed the actual cash requirement.

The combinations of the uniform annual tax collection, annual interest earnings and accumulated surpluses would be calculated so that the sum of all these three sources of revenue would be just sufficient to pay the estimated required debt service. This equivalent uniform annual tax rate is illustrated in Exhibit J-21.

The uniform annual tax rate would constitute the maximum tax rate approved by the landowners or voters when the tax rate is authorized. This tax would be the amount which all concerned - homeowners, other landowners, public works officials, and the City's financial administration and financial advisors - could plan to spend or pay.

Nonetheless, the City Council must act annually to set the tax rate for the coming year. If financial circumstances were more favorable than those used in calculating the uniform tax rate, or if facilities requirements changed in the future, the City Council could set the annual tax rate in a given year that was lower than the uniform annual tax. (The City Council could not raise the annual tax rate above the maximum without approval of the voters.)

4. The Required Land Values

As noted above, it is assumed that the value of the land benefited by the public improvements is the security for the types of bonded debt that might reasonably be used at North Natomas. The bond buyer would look to the value of the improved land before making a judgement about the credit-worthiness of the bond issue.

The feasibility of a special assessment bond issue is conventionally tested by considering the assessment compared to the market value of the land after public improvements have been completed. For example, a conventional and (by today's standards) conservative assumption in an urban area is that land values after the improvements are in place should at least be equal to three times the cost of the improvements.

The "coverage" requirement, i.e., the relationship between market value of the improved land and cost of the improvement, becomes less demanding as the land area "proves itself" in the marketplace. Land value multiplier requirements are reduced as the area matures. For purposes of evaluation, the minimum multipliers shown in Exhibit J-23 were used in evaluating the North Natomas financing.

Exhibit J-23

LAND VALUES REQUIRED TO SUPPORT BONDED DEBT

Development Phase	Land Value Multiplier[1]
Phase 1	3.0
Phase 2	3.0
Phase 3	2.5
Phase 4	2.0

Notes:
1) The multiplier, applied to total outstanding bonded debt, indicates the minimum total market value of the land securing the bonded debt. If actual values are below the minimum, there might be difficulty in selling the bonds.

Source: McDonald & Associates

C. Phasing the Public Improvements

In several instances (e.g., drainage) it would be uneconomic to build the entire system of public improvements at one time. If capacity that would not be needed for ten or fifteen years were to be constructed at the outset, this unused capacity would also be financed at the outset. Accordingly, major public improvements for Community Plan Alternative C were phased over time, to reflect the assumption that some of the facilities would not be required until later in the planning period.

Water and drainage improvements were designed with the requirement to stage implementation. The systems were designed to have the lowest net present value of total capital and operating costs, considering:

- the expected time at which lands would actually be developed, and capacity of public improvements would actually be used;
- the economies that result from oversizing the first stages of a public improvement (compared to the capacity that would be required only for the first stage) to achieve economies in later phases;
- the concept of discounting, or the time value of money.

It was recognized that an equitable procedure was required to allocate the costs of public improvements that served more than one phase and more than one portion of the study area at North Natomas. The costs of phased improvements were to be allocated according to the following principles:

- each phase should be charged a share of the total cost of the joint system that is proportional to the cost of a separate "stand alone" system for that phase;
- the timing of the installation of each improvement should be recognized by basing the cost allocation on the discounted present value of each improvement.

The recommended cost allocation procedure is illustrated in Exhibit J-25. This Exhibit includes a discussion of the concept of cost allocation.

As noted previously, a detailed phase by phase analysis was prepared only for Community Plan Alternative C. The results of this detailed analysis were then applied to the other Community Plan alternatives.

Exhibit J-25

THE COST ALLOCATION PROCEDURE FOR PHASED PUBLIC IMPROVEMENTS
North Natomas Community Plan EIR
(Dollar Amounts are in constant 1984/85 dollars unless noted)

	PHASE	Phase 1	Phase 2	Phase 3	Phase 4	TOTAL
1	Size (Acres)	1,410	1,507	1,451	769	5,137
2						
3	COST - System Built "All at Once"					
4	Total					$132,800,000
5	Per Acre					$25,900
6						
7	COST - Phased System					
8	Total	$48,700,000	$64,600,000	$14,500,000	$8,400,000	$136,200,000
9	Per Acre	$34,500	$42,900	$10,000	$10,900	$26,500
10						
11	PRESENT VALUE - Phased System					
12	Total	$48,700,000	$53,096,000	$9,796,000	$4,664,000	$116,256,000
13	Per Acre	$34,500	$35,200	$6,800	$6,100	$22,600
14						
15	COST - Separate Systems Each Phase					
16	Total	$43,800,000	$52,600,000	$51,400,000	$41,800,000	$189,600,000
17	Per Acre	$31,100	$34,900	$35,400	$54,400	$36,900
18						
19	PRESENT VALUE - Separate Systems Each Phase					
20	Total	$43,800,000	$43,233,366	$34,724,000	$23,210,000	$144,967,000
21	Per Acre	$31,100	$28,700	$23,900	$30,200	$28,200
22	Percent	30.2%	29.8%	24.0%	16.0%	100.0%
23						
24						
25	JOINT COST (Present Value)	$4,900,000	$9,863,000			$14,763,000
26	JOINT SAVINGS (Present Value)			($24,928,000)	($18,546,000)	($43,474,000)
27	NET SAVINGS (Present Value)					($28,711,000)
28						
29	ALLOCATION OF PRESENT VALUE OF TOTAL COST					
30	Total	$35,125,000	$34,671,000	$27,847,000	$18,613,000	$116,256,000
31	Per Acre	$24,900	$23,000	$19,200	$24,200	$22,600
33						
34	ALLOCATION OF PRESENT VALUE OF COST IN CONSTANT 1984/1985 DOLLARS					
35						
36	Construction	Allocation of Construction Phase to				
37	Phase	Land in	Land in	Land in	Land in	
38		Phase A	Phase B	Phase C	Phase D	Total
39						
40	Phase 1 Improvements	$35,125,000	$5,801,000	$4,659,000	$3,114,000	$48,700,000
41	Phase 2 Improvements		$28,870,000	$14,520,000	$9,706,000	$53,096,000
42	Phase 3 Improvements			$8,668,000	$1,129,000	$9,796,000
43	Phase 4 Improvements				$4,664,000	$4,664,000
44						
45	Total	$35,125,000	$34,671,000	$27,847,000	$18,613,000	$116,256,000
46						
47	ALLOCATION OF TOTAL UNDISCOUNTED COST IN CONSTANT 1984/1985 DOLLARS					
48						
49	Construction	Allocation of Construction Phase to				
50	Phase	Land in	Land in	Land in	Land in	
51		Phase A	Phase B	Phase C	Phase D	Total
52						
53	Phase 1 Improvements	$35,125,000	$5,801,000	$4,659,000	$3,114,000	$48,700,000
54	Phase 2 Improvements		$35,125,000	$17,666,000	$11,809,000	$64,599,000
55	Phase 3 Improvements			$12,831,000	$1,671,000	$14,500,000
56	Phase 4 Improvements				$8,400,000	$8,400,000
57						
58	Total	$35,125,000	$40,926,000	$35,156,000	24,994,000	$136,199,000

Source: McDonald & Associates

LINES	EXPLANATION
3	The total cost of a system built in phases ($136,200,000) is more expensive than a system that could be built "all at once" (i.e., $132,800,000). However, when consideration is given to the fact that investment in Phase B is deferred for five years and the investment in Phase C is deferred for ten years, the discounted present value of the cost ($116,256,000) reflects a savings compared to a system built "all at once."
20	The present value of costs of "stand alone" systems for each phase ($144,967,000) reflects a cost premium of $28,711,000 over the present value of a phased system (Line 12).
25 thru 27	A phased system enforces a cost premium of $14,763,000 for Phases A and B, but produces a total savings for Phases C and D of $43,474,000 for a net savings of $28,711,000
30	Present value of total cost ($116,256,000) is allocated in proportion to the relative cost of separate systems (Line 22).
40	The cost of the Phase A improvements in excess of the Phase A cost allocation ($48,700,000-$35,125,000= $13,575,000 is allocated between Phases B,C and D in proportion to the present value of the relative cost of their separate systems (i.e., $43,233,000: $43,233,000+$34,724,000+$23,210,000) from Line 20.
41 thru 43	In this four-phase example, all allocations after the Phase A allocation are controlled by the requirement that the total allocation (Line 45) be preserved.
53 thru 56	Discounted present values of costs for Phases B,C and D are converted to then-year, undiscounted values.

D. Dwelling Unit Equivalents - The Responsibility To Pay

For purposes of comparison of the Alternatives, it is assumed that responsibility for payment of the cost of capital improvements will be assigned to the various land uses in the North Natomas area on the basis of:

- Consumption or use from each type of improvement, in the case of enterprise-type activities, such as water supply.
- Benefits conferred, in the case of improvements that directly benefit property, such as drainage.
- General welfare, in the case of services that confer an overall benefit, such as parks, police protection and schools.

Consumption, direct benefit or general benefit is measured in terms of the activity that would be permitted by the zoning for each parcel of land. Thus, responsibility to pay reflects availability of capacity or availability of a service. Costs assigned to each land use would be calculated in terms of dwelling unit equivalents (DUE's). A dwelling unit equivalent is defined as:

> The financial responsibility of one acre of a given land use compared to the financial responsibility of one acre of land slated for one single-family detached dwelling unit per acre (i.e., the Rural Estate land use category on the Community Plan Alternative maps).

The intent of the DUE approach is to insure that each beneficiary of the capital improvements will pay a reasonable share of the total cost. A DUE schedule accomplishes this by establishing a basic standard that allows comparison of service availability or of benefit among residential and non-residential land uses.

The rationale for the DUE schedule used in the present analysis is summarized on Exhibit J-27, and the schedule itself is shown on Exhibit J-28. This schedule is based upon factors used by North Natomas engineering consultants and McDonald & Associates' experience with other projects. It does not necessarily reflect the policy or professional opinion of the public agencies who would actually provide each public service.

In practice, a financing plan for the North Natomas Study Area would have to respond to future changes in zoning or land use entitlements. The original financing plan would have been a public facilities plan that was prepared in response to assumed land uses or zoning entitlements. Cost estimates would have been converted into tax rates, based both on the DUE schedule and on the assumed land use plan.

Exhibit J-27

BASIS FOR COST ALLOCATION
North Natomas Community Plan EIR

Public Facility or Service	Basis for Cost Allocation: Factor	Units	Comments
Drainage	Acreage	Acreage	
Fire, Police	Building area	Square feet	
Parks and Recreation; Library	Population or employment	Residents or employees	Employees were weighted 1/3, compared to residents.
Roads, Regional Transit, LRT	Trip generation	Peak hour trips per ac.	
Schools	Population or employment	Residents or employees	Separate DUE's prepared for elementary, intermediate, & high schools. Employees were weighted 1/2, compared to residents.
Solid Waste	Refuse generation	Lbs./person/wk. or lbs./sq.ft./wk.	Majority of responsibility to pay assigned to residential uses.
Water Supply	Water use	Avg. max. day gallons per gross acre	

Notes: (1) For purposes of providing a reasonable cost allocation the sports complex was assigned DUEs similar to those assigned to the Light Industrial land use category.

Source: McDonald & Associates

Exhibit J-28

FACTORS FOR ASSIGNMENT OF COSTS TO ZONED LAND USES
North Natomas Community Plan EIR

	Dwelling Unit Equivalent Factors											
FACILITY TYPES	CC	HC	HD	LD	LI	M20	M50	MD	O/B	RE	SP	SPA
DRAINAGE FACILITIES	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
FIRE FACILITIES	4.5	3.4	11.0	5.3	5.5	6.4	7.9	6.0	8.3	1.0	5.5	5.5
LIBRARY FACILITIES	3.9	3.9	13.3	7.0	2.6	3.9	5.9	9.0	7.2	1.0	0.0	0.7
LIGHT RAIL TRANSIT	79.4	80.0	11.0	7.0	12.0	13.9	20.8	7.6	34.8	1.0	12.0	3.0
POLICE FACILITIES	4.5	3.4	11.0	5.3	5.5	6.4	7.9	6.0	8.3	1.0	5.5	5.5
PARKS & REC. FACILITIES	3.9	3.9	13.3	7.0	2.6	3.9	5.9	9.0	7.2	1.0	0.0	0.7
ROAD FACILITIES	79.4	80.0	11.0	7.0	12.0	13.9	20.8	7.6	34.8	1.0	12.0	3.0
REGIONAL TRANSIT FACILITY	79.4	80.0	11.0	7.0	12.0	13.9	20.8	7.6	34.8	1.0	12.0	3.0
ELEM. SCHOOL FACILITIES	5.9	5.9	8.3	7.0	3.9	5.9	8.8	4.9	10.7	1.0	0.0	1.0
HIGH SCHOOL FACILITIES	5.9	5.9	5.5	7.0	3.9	5.9	8.8	3.0	10.7	1.0	0.0	1.0
INTER. SCHOOL FACILITIES	5.9	5.9	7.3	7.0	3.9	5.9	8.8	4.0	10.7	1.0	0.0	1.0
SOLID WASTE CAPITAL EQUIP	1.1	0.8	13.0	7.0	1.4	1.6	1.9	9.0	2.0	1.0	1.4	1.4
WATER SUPPLY FACILITIES	1.0	1.4	2.1	2.0	1.1	1.4	1.6	2.0	1.4	1.0	1.1	1.5

NOTES:

(1) The cost of financial responsibility assigned to one acre of the zoned land use, after development, is indexed to reflect its requirements for each capital improvement. A single-family residence zoned one dwelling unit per acre is defined as 1.0 Dwelling Unit Equivalent.
Example: For $1 of cost assigned for roads to a Rural Estate on a one-acre lot, $20.80 would be assigned to an acre zoned and developed in the M50 land use category.

(2) Key to land use category codes:

CC: Community Commercial
HC: Highway Commercial
HD: High Density Residential
LD: Low Density Residential
LI: Light Industrial
M20: Manufacturing Research Development (20 Percent Office)
M50: Manufacturing Research Development (50 Percent Office)
MD: Medium Density Residential
O/B: Office/Business
RE: Rural Estate
SP: Sprots Complex
SPA: Airport-Related Special Planning Area

Source: McDonald & Associates

If rezonings are approved in the future, the tax rates for the rezoned land could be adjusted to reflect:

- a change in the cost of the facilities that would be required, given the revised land uses,
- a changed responsibility to finance the improvements.

Taxes prior to rezoning would have been underpaid. The land was being taxed at a rate appropriate to a less intense use but is now being proposed for more intense use.

Practical procedures can be incorporated into a detailed financing plan that would neither excessively penalize nor unfairly reward a landowner who is rezoned from a less intense to a more intense land use.

In all cases, the Rural Estate land use designation was assigned one DUE for its particular benefit or use characteristic. For example, one acre of Rural Estates generates 0.9 peak hour trips. All other land uses can then be compared to the Rural Estate land use, resulting in a range of responsibility to pay across land uses. The M-50 land use designation, for example, generates 18.72 peak hour trips per acre, or 20.8 DUE's (18.72 divided by 0.9). This calculation approach was used for all other improvements, as summarized below.

Drainage. DUE's for drainage improvements are spread on a simple per acre basis for all land uses. In other words, the charge per acre for one acre of Low Density residential is the same as the charge per acre for one acre of M-50. This method is based upon the City of Sacramento's traditional approach to spreading drainage costs in assessment districts.

Fire and Police. The benefits attributable to capital improvements that are related to police and fire protection were judged to be proportional to the building area (square footage) of property constructed in each land use designation.

Parks and Recreation; and Library. Beneficiaries of parks and recreation and library facilities would include both residents and the employees of firms located in the North Natomas area. The financial responsibility for residential uses was based upon the number of total residents produced by each land use designation. Employees of firms located in the North Natomas area would benefit from park and recreation plus library facilities in a number of ways. Employees could join sports leagues that would use North Natomas facilities; employees would enjoy park and library facilities during lunch hours; and the availability of these facilities would be a major attraction for firms that

consider locating in North Natomas. McDonald & Associates assumed that each employee benefits approximately one-third times that of a resident.

Road Facilities; Regional Transit; and Light Rail. DUE's for these facilities were based upon projected assumed traffic generation, measured by peak hour trips per acre. Light Rail improvements financed in this report are limited to Right-of-Way Protection (land acquisition) costs. Peak hour trips per acre are identical to those used by North Natomas planning team traffic consultants to estimate road facility requirements.

Schools. When calculating the DUE factors for school facilities, residents were compared to employees, noting that both residential and non-residential land uses benefit from these facilities. Two basic assumptions were utilized in calculating school facilities DUE's. First, the use of schools can be estimated by how many students are generated by a particular land use. Second, the assumption was made that each employee's responsibility should correspond to approximately one-half that of a resident. This assumption is based upon the locational advantages to an employer of adequate neighborhood school facilities.

Because elementary, junior high, and high school student generation factors vary among residential land uses, separate DUE schedules were prepared for each type of school facility. "Use per unit" for residential land uses is based upon the total number of students generated by one acre of each residential land use category. The "use per unit" for Rural Estates is one DUE, and all other residential DUE's can be compared to Rural Estates.

Non-residential DUE's were calculated by dividing the employees per acre by two, and dividing the result by 2.55. This 2.55 figure is the residents per acre associated with Rural Estates. The calculation described therefore relates residential land uses to non-residential land uses, counting employees as one-half a resident. This approach results in identical non-residential DUE schedules for all school facilities, differing from the separate residential schedules.

Solid Waste. Solid Waste DUE's are provided to spread the cost of Side Load Refuse Packers, which will be required for refuse collection services at North Natomas. The DUE's are based on refuse generation associated with the land use categories. Residential uses have been assigned the majority of responsibility to pay for the Side Load Refuse Packers, which will be used almost exclusively for residential refuse collection. Non-residential uses will have only limited benefit from the Refuse Packers; private firms will perform the bulk of non-residential refuse collection.

Water Supply. DUE's for the proposed North Natomas water supply system are based on the average maximum day gallons per gross acre for each land use category. The cost of facilities can thus be allocated in proportion to expected use, after development. Average maximum day gallons per gross acre figures used in calculating DUE's are identical to those used by North Natomas engineering consultants to size water supply facilities.

E. Results of the Cost Allocation

The "Total Cost Per Unit" figures on Exhibits J-32 and J-33 reflect the assignment of the total capital investment of Alternative C to each land use. This assignment is based on the DUE schedule discussed above, as well as the financing principles explained earlier in this Chapter. On a phase-by-phase basis, the total cost per acre or per DU does not vary significantly, although Phase 2 and 4 capital cost assignments tend to be the highest. This is primarily due to the relatively high amount of capital investment in Phase 2, and the relatively small amount of acreage in Phase 4 compared to the other phases.

The majority of capital costs are assigned to residential land uses. Non-residential land uses are assigned a smaller share, which is consistent with the residential/non-residential land use mix. Rural Estates have the highest per dwelling unit capital cost assignments, which are explained by the drainage cost allocation procedure. The procedure, which is consistent with current City policy, equally weights (for example) one acre of Rural Estates (1 dwelling unit) and one acre of High Density Residential (22 dwelling units). Highway and Community Commercial land uses have the highest non-residential capital cost assignments per acre. These assignments, which exceed $200,000 per acre, are attributable to the high road facility DUE factors associated with the Commercial land uses.

Exhibit J-34 shows the land values that would be required to support Alternative C's bonded debt, on a phase-by-phase basis. These land values are based upon the capital cost assignments from Exhibit J-32 and the land value multipliers discussed above. Required market values are high in Phase 2, characterized by substantial capital costs as well as a coverage ratio of 3.0. The required coverage ratios decline in Phases 3 and 4, but the total investment per acre is high in Phase 4 so that the required land value in Phase 4 is also high.

Exhibit J-34 also provides comparable current market values for the Sacramento region. For all phases, the required market values at North Natomas far exceed comparable Sacramento region values. Chapter IV, Section C of this volume provides the mitigation measures that would be necessary to achieve market values at North Natomas that are comparable to the Sacramento region.

Exhibit J-32

ASSIGNMENT OF CAPITAL COSTS TO LAND USES
ALTERNATIVE C SUMMARY
North Natomas Community Plan EIR

	Phase 1 Total Cost Per Unit		Phase 2 Total Cost Per Unit		Phase 3 Total Cost Per Unit		Phase 4 Total Cost Per Unit	
Land Use	Per Acre	Per DU	Per Acre	Per DU	Per Acre	Per DU	Per Acre	Per DU
RESIDENTIAL								
Rural Estates	$45,800	$45,800	$48,800	$48,800	$45,700	$45,700	$55,500	$55,500
Low Density	$111,700	$16,000	$115,400	$16,500	$112,500	$16,100	$123,700	$17,700
Medium Density	$114,400	$9,500	$116,400	$9,700	$114,000	$9,500	$126,800	$10,600
High Density	$141,200	$6,400	$152,800	$6,900	$149,700	$6,800	$161,300	$7,300
AVERAGE-RESIDENTIAL	$103,300	$19,400	$108,400	$20,500	$105,500	$19,500	$116,800	$22,800
COMMERCIAL								
Community Commercial	$203,400		$204,000		$206,200		$212,200	
Highway Commercial	$235,500		$229,300		$234,400		$242,800	
AVERAGE-COMMERCIAL	$219,500		$216,700		$220,300		$227,500	
OFFICE/INDUSTRIAL								
Light Industrial	$87,700		$93,800		$90,400		$99,700	
M-20	$106,000		$109,400		$107,500		$117,900	
M-50	$134,900		$140,200		$137,000		$164,600	
Office/Business	$177,400		$180,700		$175,400		$180,300	
AVERAGE-OFFICE/IND.	$126,500		$131,000		$127,600		$140,600	
AIRPORT SPA (Special Planning Area)	$55,000		$60,200		$55,400		$66,000	
SPORTS COMPLEX	$60,900		$63,900					

Notes: (1) All dollar amounts are expressed in constant 1984/85 dollars.
(2) This exhibit is for purposes of financial comparison only. It is not a financing plan. Costs have not been included for an extensive list of regional roadway improvements that would be required regardless of which Community Plan Alternative is selected.

Source: McDonald & Associates

Exhibit J-33

ASSIGNMENT OF CAPITAL COSTS TO LAND USES
ALTERNATIVE C TOTALS
North Natomas Community Plan EIR

Land Use	Quantity: Acres	Quantity: DUs	Cost Allocation: Total Cost	Cost Allocation: Percent of Total	Total Cost Per Unit: Per Acre	Total Cost Per Unit: Per DU
RESIDENTIAL						
Rural Estates	74	74	$3,582,000	0.6%	$48,400	$48,400
Low Density	1,518	10,626	$174,394,000	30.2%	$114,900	$16,400
Medium Density	1,084	13,008	$126,610,000	22.0%	$116,800	$9,700
High Density	300	6,600	$45,027,000	7.8%	$150,100	$6,800
AVERAGE-RESIDENTIAL	2,976	30,308	$349,613,000	60.6%	$107,600	$20,300
COMMERCIAL						
Community Commercial	95		$19,597,000	3.4%	$206,300	
Highway Commercial	60		$14,097,000	2.4%	$235,000	
AVERAGE-COMMERCIAL	155		$33,694,000	5.8%	$220,700	
OFFICE/INDUSTRIAL						
Light Industrial	303		$28,078,000	4.9%	$92,700	
M-20	689		$75,288,000	13.1%	$109,300	
M-50	198		$27,688,000	4.8%	$139,800	
Office/Business	116		$20,660,000	3.6%	$178,100	
AVERAGE-OFFICE/IND.	1,306		$151,714,000	26.3%	$130,000	
AIRPORT SPA (Special Planning Area)	500		$29,144,000	5.1%	$58,300	
SPORTS COMPLEX	200		$12,476,000	2.2%	$62,400	
TOTALS	5,137	30,308	$576,641,000	100.00%		

Notes: (1) All dollar amounts are expressed in constant 1984/85 dollars.
(2) This exhibit is for purposes of financial comparison only. It is not a financing plan. Costs have not been included for an extensive list of regional roadway improvements that would be required regardless of which Community Plan Alternative is selected.

Source: McDonald & Associates

Exhibit J-34

LAND VALUES REQUIRED TO SUPPORT BONDED DEBT
ALTERNATIVE C
North Natomas Community Plan EIR

Land Use Category	Required Market Value After Improvements Are In Place (Constant 1984/85 dollars per net square foot of land) Phase 1	Phase 2	Phase 3	Phase 4	Current Market Values- Sacramento Region
RESIDENTIAL					
Rural Estates	$3.60	$3.80	$3.60	$4.40	$1.40
Low Density	$8.80	$9.10	$8.80	$9.70	$1.50
Medium Density	$9.00	$9.10	$9.00	$10.00	$1.80
High Density	$11.10	$12.00	$11.80	$12.70	$2.90
COMMERCIAL					
Community Commercial	$16.00	$16.00	$16.20	$16.70	$6.00
Highway Commercial	$18.50	$18.00	$18.40	$19.10	$4.00
OFFICE/INDUSTRIAL					
Light Industrial	$6.90	$7.40	$7.10	$7.80	$2.30
M-20	$8.30	$8.60	$8.40	$9.30	$4.00
M-50	$10.60	$11.00	$10.80	$12.90	$7.00
Office/Business	$13.90	$14.20	$13.80	$14.20	$12.00
AIRPORT SPA (Special Planning Area)	$4.30	$4.70	$4.30	$5.20	
SPORTS COMPLEX	$4.80	$5.00			

Note: (1) This exhibit is for purposes of financial comparison only. It is not a financing plan. Costs have not been included for an extensive list of regional roadway improvements that would be required regardless of which Community Plan Alternative is selected.

Source: McDonald & Associates

Exhibit J-36 illustrates the annual charges that would be levied against each land use, in each phase, to finance Alternative C public investment. The charges are based upon the financing principles discussed above, and range from $30,700 per acre per year for the Highway Commercial land use category in Phase 4 to $4,100 per acre per year for Rural Estates in Phase 1. Similar to the total capital cost assignments, the majority of the annual cost per unit would be paid by residential land uses.

The implied tax rate shown on Exhibit J-37 is particularly important for the residential land use categories, where affordability becomes a critical issue. Volume 1, Section C of this EIR points out that only the Medium Density and High Density units would be affordable to the median Sacramento region household, without allowing for any special tax or annual levy. Affordability of these units would be jeopardized by the addition of the special tax or levy. After imposition of the special tax or levy, Rural Estates and Low Density units would be affordable to an even smaller portion of the Sacramento region's buyer's. Section C of Chapter IV, within this Volume, provides a discussion of the mitigation measures that would be required to preserve the affordability of proposed residential development at North Natomas.

Exhibit J-36

ANNUALIZED TAX OR LEVY TO FINANCE CAPITAL IMPROVEMENTS
ALTERNATIVE C SUMMARY
North Natomas Community Plan EIR

	Phase 1 Annual Cost Per Unit (3)		Phase 2 Annual Cost Per Unit (3)(4)		Phase 3 Annual Cost Per Unit (3)(4)		Phase 4 Annual Cost Per Unit (3)(4)	
Land Use	Per Acre	Per DU	Per Acre	Per DU	Per Acre	Per DU	Per Acre	Per DU
RESIDENTIAL								
Rural Estates	$4,100	$4,100	$6,800	$6,800	$7,200	$7,200	$10,600	$10,600
Low Density	$9,700	$1,400	$12,900	$1,800	$13,700	$2,000	$17,800	$2,500
Medium Density	$10,000	$800	$13,000	$1,100	$13,800	$1,200	$18,200	$1,500
High Density	$13,100	$600	$16,400	$700	$17,200	$800	$21,400	$1,000
AVERAGE-RESIDENTIAL	$9,200	$1,700	$12,300	$2,600	$13,000	$2,800	$17,000	$3,900
COMMERCIAL								
Community Commercial	$24,500		$21,600		$23,100		$26,000	
Highway Commercial	$22,600		$24,100		$25,900		$30,700	
AVERAGE-COMMERCIAL	$23,600		$22,900		$24,500		$28,400	
OFFICE/INDUSTRIAL								
Light Industrial	$8,100		$11,300		$11,800		$15,400	
M-20	$9,600		$12,700		$13,300		$17,200	
M-50	$12,300		$15,600		$16,200		$22,800	
Office/Business	$16,500		$19,600		$20,000		$22,700	
AVERAGE-OFFICE/IND.	$11,600		$14,800		$15,300		$19,500	
AIRPORT SPA (Special Planning Area)	$4,800		$7,700		$8,200		$12,000	
SPORTS COMPLEX	$5,600		$8,400					

Notes: (1) All dollar amounts are expressed in constant 1984/85 dollars.

(2) This exhibit is for purposes of financial comparison only. It is not a financing plan. Costs have not been included for an extensive list of regional roadway improvements that would be required regardless of which Community Plan Alternative is selected.

(3) The per acre rate is applied until development takes place. After development, the charge would be assigned per DU.

(4) This exhibit shows the total tax or levy to finance the basic facilities charged to Phases 1 through 4, plus the additional amount charged to Phase 2,3 or 4 to account for phased drainage and water improvements.

Source: McDonald & Associates

Exhibit J-37

TOTAL ANNUAL TAX PAYMENT OR LEVY
ALTERNATIVE C, PHASE 4
North Natomas Community Plan EIR

Land Use Category	Market Value Per Unit (1)	Annual Tax Payment or Levy			Total Implied Tax Rate (5)
		Basic at 1.00 % (2)	Special Tax or Annual Levy (3)	Total Taxes and Levies (4)	
RESIDENTIAL					
Rural Estates	$125,000	$1,250	$10,600	$11,850	9.5%
Low Density	$75,000	$750	$2,500	$3,250	4.3%
Medium Density	$62,500	$625	$1,500	$2,125	3.4%
High Density	$60,000	$600	$1,000	$1,600	2.7%
COMMERCIAL					
Community Commercial	$720,000	$7,200	$26,000	$33,200	4.6%
Highway Commercial	$472,500	$4,725	$30,700	$35,425	7.5%
OFFICE/INDUSTRIAL					
Light Industrial	$550,000	$5,500	$15,400	$20,900	3.8%
M-20	$1,020,000	$10,200	$17,200	$27,400	2.7%
M-50	$1,417,500	$14,175	$22,800	$36,975	2.6%
Office/Business	$1,650,000	$16,500	$22,700	$39,200	2.4%
AIRPORT SPA (Special Planning Area)	$330,000	$3,300	$12,000	$15,300	4.6%

Notes: (1) Market value assumptions represent the higher end of the existing range in the Sacramento region.
(2) The basic 1.00 percent tax rate includes apportionments for the City of Sacramento, County of Sacramento, and special districts (including schools).
(3) Does not include major sewer collection or sewer treatment costs, which would be financed by fees.
(4) Total taxes and levies are the sum of the basic property tax plus any special tax or levy.
(5) The total implied tax rate is equivalent to total taxes and levies divided by the market value per unit, expressed as a percent.

Source: McDonald & Associates

III. FISCAL ANALYSIS -- ONGOING COSTS AND REVENUES

Given the limitation on California's local governments' ability to raise revenues imposed by the passage of Article XIIIA of the California Constitution, it is necessary to test whether a local tax base will support the costs of ongoing public services. The present section considers the question of whether ongoing public revenues would support the cost of these ongoing services.

As with the evaluation of the cost of public improvements, the analysis of ongoing costs and revenues is useful primarily for purposes of comparing the five Alternatives. A single year after completion of development at North Natomas is used for comparison of Alternatives B, C, D and E. For purposes of a more detailed examination of changes in costs and revenues over time, Alternative C has been analyzed in four 5-year phases. As discussed in Chapter I, the results of the fiscal analysis of Alternative A, the "No-Project" Alternative, are not comparable to the other four Alternatives, due to insufficient data required to compute costs and revenues.

A detailed comparison of costs and revenues is provided for the Study Area in the City only. Although the County would be responsible for municipal services in the unincorporated area, the extent of this development is limited in each of the five Alternatives. Further, experience with municipal services in other projects indicates that the relative mix of commercial/industrial land uses compared to residential land uses proposed for North Natomas would produce a positive revenue/cost balance for the County.

Sacramento County will also continue to be responsible for providing non-municipal services to all citizens, whether they live in incorporated or unincorporated areas (e.g., public health). However, the costs of providing such services to residents in the City is expected to be more than offset by the property tax revenues generated for the County by development in the Study Area.

A. City of Sacramento

A preliminary estimate of annual City costs for operations and maintenance (assuming full build-out of each Alternative) and of City revenues that would be available to support these costs under Alternative C is given in Exhibit J-39. This Exhibit provides an example of the analysis undertaken for each of the five Alternatives. The Exhibit indicates that the tax base associated with Alternative C would support the annual cost for ongoing City services. The general fund balance remains positive throughout the four phases of development. However, as shown in Exhibit J-39, the fund balance drops dramatically in the fourth phase.

Exhibit J-39

COSTS, REVENUES AND FUND BALANCES FOR THE CITY OF SACRAMENTO(1)
ALTERNATIVE C
North Natomas Community Plan EIR
(Constant 1984/85 Dollars)

	Phase 1 1989/1990	Phase 2 1994/1995	Phase 3 1990/2000	Phase 4 2004/2005
GENERAL FUND				
Revenues				
Property Tax	$ 2,793,200	$ 5,397,600	$ 7,830,200	$ 8,572,600
Sales Tax	1,468,600	2,989,700	4,458,300	5,245,000
Utility Users Tax	907,000	1,832,700	2,852,300	3,396,500
Other General Fund Revenues	1,526,700	2,742,100	3,703,800	3,871,200
Total Revenues	6,695,500	12,962,100	18,844,600	21,085,300
Annual Operating Expenses				
Police Department	2,250,000	4,860,000	7,200,000	8,460,000
Fire Department	1,421,200	1,607,900	2,227,700	2,227,700
Road Maintenance (General Fund Portion)	205,300	260,300	291,500	309,100
Parks and Recreation	1,466,200	2,987,800	4,647,700	5,533,000
Public Works and Planning	178,500	360,700	561,300	668,400
Other General Fund Expenses	980,100	1,980,400	3,082,100	3,670,100
Total Expenses	6,501,300	12,057,100	18,010,300	20,868,300
FUND BALANCE	194,200	905,000	834,300	217,000
GAS TAX AND TRAFFIC SAFETY FUNDS				
Dedicated Revenues	226,500	342,200	410,400	339,600
Road and Traffic Safety Expenditures(2)	278,000	357,000	405,200	432,100
FUND BALANCE	(51,500)	(14,800)	5,200	(92,500)
TOTAL OF FUND BALANCES	142,700	890,200	839,500	124,500

Notes:
(1) Funds other than the General Fund, Gas Tax Fund and Traffic Safety Fund are either included elsewhere or were not included in this analysis. See text of report.
(2) Includes road maintenance expenditures conventionally financed by the City of Sacramento from the Gas Tax and Traffic Safety Fund.

Source: McDonald & Associates

Whereas the first three phases show revenues (and costs) associated with new development, the fourth phase is intended to represent the ongoing balance in the absence of substantial new development. While costs increase over $2.8 million between the years 2000 and 2005, revenues only increase by about $2.2 million over this period. This discrepancy is due primarily to the decline in property transfer tax revenues which are dependent upon development and property turnover. The analysis indicates, however, that Alternative C will maintain a positive fund balance, even in the absence of new development.

The Gas Tax and Traffic Safety Fund balances for Alternative C are negative in all phases except Phase 3. As is often the case, road-related revenues will not support annual expenditures for road maintenance. If necessary, the general fund surpluses are more than sufficient to cover road fund deficits, as shown by the positive total of fund balances in each of the four phases.

1. City General Fund

The expenditure requirements of the major City service departments which will serve North Natomas were calculated on a case study basis utilizing data supplied by the relevant City department heads. This approach was used to estimate the additional costs expected with development of North Natomas for police, fire, road maintenance, and parks and community services under each of the five Alternative plans. These estimates include all costs associated with operations and maintenance of service provision, including equipment, supplies, and personnel costs including benefits and insurance.

The various City departments used differing levels of refinement in calculating as well as expressing estimates of cost impact.

For example, the Police Department projects growth in expenditures based on costs associated with personnel. The Department provided an annual cost of a sworn officer of $45,000 and the number of new officers required with each Alternative. The City's current ratio of 1.6 (sworn) officers per 1,000 residents was applied to the project population to arrive at the personnel cost estimates for the three Alternatives. Service and equipment costs are said to be approximately equal to total personnel costs, and were estimated on this basis.

Approximately 95 police officers will be serving the incorporated area of North Natomas in 2005 under Alternative C. This compares with 63 officers under Alternative B, 100 officers under Alternative D, and 113 officers under Alternative E. Annual services and equipment costs increase with the number of officers, with $1,701,000 for Alternative B at build-out, $2,700,000 for Alternative D, and $3,051,000 for Alternative E.

The City's Fire Department provided data on capital outlay requirements and then linked these capital costs to subsequent operating and maintenance costs. Cost estimates were provided showing the number of fire stations, the amount of equipment, and the required staff which would be needed in North Natomas for each of the EIR Alternatives.

The Fire Department is expected to add 49 additional staff by 2005 under Alternative C to serve the North Natomas area. Twenty-seven of these staff will be firefighters. All fire equipment costs were included in the capital cost analysis.

City of Sacramento road maintenance costs were calculated by multiplying the total number of square yards of road required for development by the City's annual cost of $0.60 per square yard to maintain the roads required in each of the 5 Alternatives. The required road surface area figures were supplied by Omni-Means, Ltd. for four of the five Alternatives. These cost estimates were then increased by 25% to reflect curb, gutter, sidewalk, signs, markings, and street cleaning maintenance costs. Additionally, signal maintenance costs were estimated at $2000 per intersection per year.

The annual operating and maintenance costs associated with the City's Park and Recreation facilities include two major elements: parks and grounds maintenance, and recreation programs. It should be noted that per capita cost estimates associated with Alternatives B, C, and D are substantially higher than the current average per capita park expenditure level. Alternatives C and D have close to twice the per capita spending level of the Citywide average (approximately $50 per capita Citywide; $100 per capita in Alternatives C and D). Alternatives B, C, and D have substantial park improvements planned, each including a community recreation center, tennis and basketball courts, baseball diamonds, and parking and play areas. Alternative E, on the other hand, includes no park acreage. Therefore, as shown in Exhibit J-39, park development costs associated with this Alternative are substantially lower, including land costs only.

The City of Sacramento's departments of Public Works and Planning and Development were combined for purposes of this analysis. The costs shown under this merged department represent net costs, (i.e., net of all fees and service charges associated with either of the two departments). In general, public works and planning costs are most related to growth in residential population, and therefore grow with residential growth both by Alternatives alphabetically (i.e., Alternative D costs are higher than Alternative C costs) and through the phases of Alternative C.

A number of the remaining City departments funded through the General Fund, including general services, finance, and city officers, have been calculated on a city-wide per capita basis. Net cost totals, by budget unit, were applied on a per capita basis to the cumulative population estimates for Alternatives B, C, D, and E. The per capita figure utilized was based on each budget unit's funding requirements as shown in the 1984/85 adopted City budget, and the January 1985 estimate of City population of 309,400 supplied by the State of California Department of Finance.

Exhibit J-39 also lists the major revenues, by fund, that would accrue to the City as a result of new development in North Natomas under Alternative C. A number of General Fund and other fund revenue items have been "netted out" as part of the net City cost calculation procedure. When this procedure was utilized, the revenue amount was used to offset (reduce) City cost.

A detailed explanation of the procedures used to calculate many of the revenue items is located in Appendix J-2.

2. Other City Funds

Both the revenues associated with the Federal Revenue Sharing Fund and the costs associated with the City's two internal service funds -- the Fleet Management Fund and Risk Management Fund -- are shown in the City's General Fund. The City's entitlements to revenue sharing are being used to partially offset the cost of fire protection services.

An internal service fund provides services to all City departments, and bills the various other funds for services rendered (i.e., costs applied). Those City departments which were analyzed by the case study method (i.e., police, fire, library, parks and recreation, and road maintenance) included both fleet management and employee-related risk management charges as part of their cost estimates. Therefore, that proportion of total fleet management or employee-related risk management costs which would be billed to those departments was "netted out" of total Internal Service Fund costs. (Employee-related costs include workers' compensation, group benefits and unemployment insurance.) A net City-wide per capita multiplier was then applied to determine the costs associated with development of North Natomas and is included in "other General Fund expenses" in Exhibit J-39.

Gas Tax and Traffic Safety Funds. Street maintenance is jointly financed by three funds: the Gas Tax Fund (35%), the Traffic Safety Fund (25%), and the General Fund (45%). In order to calculate these fund balances at build-out, the street maintenance costs estimated under each Alternative were spread between these three funds in the same proportion as they are spread in the 1984/85 adopted City budget.

The Gas Tax Fund is supported by Sections 2106 and 2107 fuel tax revenues. The estimates generated by McDonald & Associates' fiscal modeling system for year 2005 are intended to represent ongoing revenues after build-out. The Traffic Safety Fund is supported by City fines and forfeits and was calculated on a City-wide per capita basis. As shown in Exhibit J-39, by 2005 (build-out) these revenues are no longer sufficient to cover road maintenance requirements for any of the four Alternatives. This negative fund balance at build-out is due in part to the fact that road maintenance cost growth continues to rise throughout project development while revenue growth declines as population growth declines. Exhibit J-39 displays this trend, with Gas Tax & Traffic Fund balances showing substantial growth between phases one and two, maintenance of the growth through phase three, then dropping off dramatically in phase 4 with its minimal population increase.

Major Street Construction Fund. The Major Street Construction Fund is funded through a street construction tax levied against residential, commercial, and industrial development. This tax is based upon the value of the new structures and is levied on all new construction, including additions to existing structures. While use of the revenues is not restricted to construction of new major streets serving the new development, this Fund would finance a portion of these infrastructure requirements. This tax is in addition to, and thus does not replace, the requirement for provision of the internal street network for a development. The tax is assumed to be levied prior to completion of development at North Natomas, and is, therefore, not relevant to analysis of ongoing costs and revenues "at build-out".

Grants and Other Intergovernmental Revenue Funds. The Community Development Block Grant (CDBG), Sacramento Housing and Redevelopment Agency (SHRA), and Operating Grants Funds all receive intergovernmental support. CDBG is a federal entitlement program, SHRA funds are provided through the Sacramento County General Fund, and the Operating Grants Fund contains monies from federal, state, county, and private sources. Neither costs nor revenues in these funds were analyzed in this report. Development of North Natomas is not expected to have a major impact upon grant monies. Many exogenous factors may substantially affect the availability of these funds over the next 20 years, but the availability of such funds for North Natomas is expected to be minimal.

Enterprise Funds. The City's enterprise funds are financed through user fees and charges for services provided. They are assumed to be self-supporting under the assumption that fees can be increased to cover any increases in costs.

At the time of the writing of the North Natomas Sketch Plan Alternatives Analysis, the outcome of Proposition 36 was undecided. If passed, the Proposition would have required a two-thirds vote of the public in order for the City to increase fees that exceeded the United States Consumer Price Index (USCPI) growth in the prior 12 months. If the measure had passed, a substantial increase in Enterprise Fund costs would no longer be assured of being met through a corresponding fee increase. This would have demanded a closer examination of those funds which would be most strongly affected by development at North Natomas. Proposition 36 was defeated in the November, 1984 election, thus removing the threat of the City's being unable to increase fees to cover costs.

Furthermore, project engineers have confirmed that differences in operating costs for drainage (Drainage Maintenance Fund), wastewater (Sewer Fund), and water supply (Water Fund), the three enterprise funds which would be most strongly impacted by North Natomas development, are not of a magnitude sufficient to have a bearing on the relative merits of any Alternative. It is further assumed that operating costs at North Natomas are not substantially higher or lower than other parts of the providers' service areas. Thus, the assumption that user fees will be sufficient to cover costs is maintained for each of the funds. However, a decision by the City to provide staged storm drainage pumping (contrary to the recommended drainage plan and established City policy) could seriously impact annual drainage costs.

The Parking, Community Center, Boat Harbor, and Camp Sacramento Funds are expected to incur additional costs as a result of North Natomas development. However, the cost increases in each case are expected to be offset completely through increased user fees and service charge revenues.

The City's trust funds receive revenues through user fees and service charges, in a manner similar to the Enterprise Funds. However, trust funds are distinct from enterprise funds in that trust funds are not self- supporting. Trust funds receive intergovernmental transfers from the General Fund in addition to user fee revenues. The City currently has five trust funds: the Cultural Arts Trust Fund, the Sports Trust Fund, the Tours Trust Fund, the Building Rental Trust Fund, and the Fairytale Town Trust Fund. The net costs (i.e., user fee revenues less costs) of the trust funds to the General Fund are not significant (i.e., about $0.30 per capita for all funds combined) and were therefore excluded from the analysis.

The cost of providing library service to North Natomas (at buildout) for Alternative C was estimated to be approximately $1.3 million. This cost figure includes over 17 full-time library staff at the new branch library, as well as library maintenance,

overhead, and annual book replacement costs. The Sacramento Public Library and Information Service provides library facilities for both the City and the County. Additional library costs associated with new development in North Natomas are expected to be offset by increases in library property tax revenues.

B. Sacramento County

As noted previously, the County will be responsible for health and human services in the portion of North Natomas that is within the City of Sacramento as well as the unincorporated portion of North Natomas. The County will collect revenues generated by development both within the incorporated and unicorporated portions of North Natomas. Most significant among these revenues is the property tax raised within the incorporated area. Under Alternative C, the County can expect to collect over $11,800,000 in annual property taxes at build-out. As an approximation of County costs compared to ongoing County revenues, the per capita property taxes accruing to the County General Fund from the development Alternatives in the incorporated portions of North Natomas were compared to the County-wide per capita average.

The results of this analysis are shown in Exhibit J-46. The property tax revenues generated by growth in the incorporated area that would accrue to the County (expressed in per capita terms) would be more than 50% higher than the County-wide average. Assuming the cost of serving North Natomas is comparable to the rest of the County, revenues generated by the County in incorporated North Natomas should be sufficient to cover County Costs of providing service to North Natomas residents.

Sheriff costs associated with development in the unincorporated area of North Natomas were estimated on a case study basis. Projections were made by the Sheriff's Community Resources Bureau based upon the Countywide officer/citizen ratio. Alternative C required a total of 16 deputies, 1 sergeant, 6 patrol vehicles, and 9 portable radios at build-out. Overhead costs were estimated at 25% of total equipment and personnel costs for each Alternative. Sheriff Department costs at build-out totalled $868,200 for Alternative B, $1,040,700 for Alternative C, $1,606,900 for Alternative D, and $2,064,000 for Alternative E.

Exhibit J-46

PROPERTY TAX REVENUES FOR COUNTY SERVICES
North Natomas Community Plan EIR
(Constant 1984/85 Dollars)

		From North Natomas(1)			
	County Average	Alt. B	Alt. C	Alt. D	Alt. E
Property Tax Revenues Per Capita to the County General Fund	$ 98	$ 161	$ 167	$ 187	$ 158

Note:
(1) Includes only that portion of North Natomas located within the Sacramento City limits.

Source: McDonald & Associates

IV. SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES

A. Financial Analysis

Exhibit J-48 summarizes the capital investment associated with Alternatives A through E. Total capital costs expressed in constant 1984/85 dollars range from $62.1 million for Alternative A to $612.6 million for Alternative E. At buildout, capital costs per net acre are highest for Alternative C, followed by Alternatives B, D, E and A, respectively. Alternative C is the most expensive, on a per acre basis, primarily because the other Alternatives do not include additional engineering costs associated with phasing of drainage and water facilities. If the acreage absorbed during the 1985 to 2005 study period only is considered, Alternative E would have the highest capital cost per net acre, and Alternative A would increase from $25,400 to $65,600.

Exhibit J-49 provides the detail of Alternative C's total capital costs by improvement type. Almost 24 percent of the total capital investment amount ($576,641,000) is attributable to drainage facilities. Other relatively expensive improvements include park and recreation, road, regional sewer, and water supply improvements.

Exnibit J-50 shows the land values required to support bonded debt. For purposes of comparing the Community Plan Alternatives, it is assumed that tax exempt municipal bonds are issued to finance the improvements. The security for the types of bonded debt that might reasonably be used at North Natomas is the value of the land benefited by the public improvements. The bond buyer would look to the value of the improved land, before making a judgement about the credit-worthiness of the bond issue.

The feasibility of a bond issue can be tested by considering the assessment compared to the market value of the land after public improvements have been completed. A reasonable test of North Natomas bonded debt feasibility is whether or not land values are at least 3.0 times the cost of capital cost assignments per net acre.

As Exhibit J-50 indicates, the required land values are quite low for Alternative A, but are considerably higher for the project (Alternative C) and its Alternatives (B, D and E). Required land values are the highest for Alternative E, based upon the acreage estimated to be absorbed during the 1985 to 2005 study period. With the exception of Alternative A, the required market values for all land use categories far exceed the current values for the Sacramento region.

Exhibit J-48

SUMMARY OF NORTH NATOMAS CAPITAL INVESTMENT
North Natomas Community Plan EIR
(Dollar amounts are in constant 1984/85 dollars)

Community Plan Alternative	Total Capital Cost[1][2]	At Buildout[3] Net Acreage	At Buildout[3] Capital Cost Per Net Acre	By 2005 [4] Net Acreage	By 2005 [4] Capital Cost Per Net Acre
A	$ 62,098,000	2,446	$ 25,400	946	$ 65,600
B	$ 370,456,000	3,478	$ 106,500	3,478	$ 106,500
C	$ 576,641,000	5,223	$ 110,400	5,137	$ 112,300
D	$ 592,622,000	5,641	$ 105,100	5,592	$ 106,000
E	$ 612,577,000	7,637	$ 80,200	5,147	$ 119,000

Notes:

(1) This exhibit is for purposes of financial comparison only. It is not a complete financing plan. Costs have not been included for an extensive list of regional improvements that would be required regardless of which Community Plan Alternative is selected

(2) Total capital costs include land acquisition costs.

(3) At Buildout totals reflect acreage at buildout, rather than acreage estimated to be absorbed by the market during the 1985 to 2005 study period.

(4) By 2005 totals reflect acreage absorbed during the 1985 to 2005 study period.

Source: North Natomas Planning Team

Exhibit J-49

TOTAL PER ACRE COST BY IMPROVEMENT TYPE
ALTERNATIVE C
North Natomas Community Plan EIR

Improvement	Total Capital Cost		Capital Cost Per Net Acre		Improvement Cost As A Percent Of Total Cost Per Net Acre	
Drainage	$136,200,000		$26,100		23.6%	
Fire	$4,097,000		$800		0.7%	
Libraries	$2,045,000		$400		0.4%	
Light Rail	$1,979,000		$400		0.4%	
Police	$1,640,000		$300		0.3%	
Parks and Recreation	$126,661,000		$24,300		22.0%	
Roads	$90,965,000		$17,400		15.8%	
Regional Transit	$17,680,000		$3,400		3.1%	
Elementary Schools	$45,988,000		$8,800		8.0%	
Intermediate Schools	$18,756,000		$3,600		3.3%	
High Schools	$14,329,000		$2,700		2.4%	
SUBTOTAL-SCHOOLS		$79,073,000		$15,100		13.7%
Regional Sewer	$58,750,000		$11,200		10.1%	
Solid Waste	$980,000		$200		0.2%	
Water Supply	$56,571,000		$10,800		9.8%	
TOTAL	$576,641,000		$110,400		100.0%	

Notes: (1) All dollar amounts are expressed in constant 1984/85 dollars.
(2) This exhibit is for purposes of financial comparison only. It is not a financing plan. Costs have not been included for an extensive list of regional roadway improvements that would be required regardless of which Community Plan Alternative is selected. Total does not include cost of bond issuance.

Source: McDonald & Associates

Exhibit J-50

SUMMARY OF LAND VALUES REQUIRED TO SUPPORT BONDED DEBT
North Natomas Community Plan EIR

Land Use Category	Required Market Value After Phase 4 Improvements Are In Place (Constant 1984/85 dollars per net square foot of land) Alt. A1 (2)	Alt. A2 (3)	Alt. B	Alt. C	Alt. D	Alt. E1 (2)	Alt. E2 (3)	Current Market Values-Sacramento Region
RESIDENTIAL								
Rural Estates	$1.00	$2.60		$4.40				$1.40
Low Density			$9.40	$9.70	$9.20	$7.10	$10.50	$1.50
Medium Density	$2.30	$5.90	$9.60	$10.00	$9.50	$7.20	$10.70	$1.80
High Density			$12.20	$12.70	$12.10	$9.20	$13.70	$2.90
COMMERCIAL								
Community Commercial			$16.10	$16.70	$15.90	$12.10	$18.00	$6.00
Highway Commercial			$18.40	$19.10	$18.10	$13.80	$20.50	$4.00
OFFICE/INDUSTRIAL								
Light Industrial	$1.80	$4.70	$7.60	$7.80	$7.50	$5.70	$8.40	$2.30
M-20	$2.10	$5.50	$8.90	$9.30	$8.80			$4.00
M-50				$12.90	$12.30	$9.40	$13.90	$7.00
Office/Business			$13.70	$14.20	$13.50			$12.00
AIRPORT SPA (Special Planning Area)	$1.20	$3.10	$5.00	$5.20	$4.90	$3.80	$5.60	

(1) This exhibit is for purposes of financial comparison only. It is not a financing plan. Costs have not been included for an extensive list of regional roadway improvements that would be required regardless of which Community Plan Alternative is selected.

(2) Alternatives A1 and E1 reflect total acreage at buildout, rather than acreage estimated to be absorbed by the market during the 1985 to 2005 study period.

(3) Alternatives A2 and E2 reflect acreage absorbed during the 1985 to 2005 study period.

Source: McDonald & Associates

B. Fiscal Analysis

Costs, revenues, and fund balances for Alternatives B, C, D, and E are provided in Exhibit J-52. The Exhibit, which provides a comparison of the General Fund balances across Alternatives, illustrates the revenue impact of strong commercial (and industrial) development. Both Alternatives D and E are expected to have substantially higher sales tax and property tax revenues at the end of the study period (year 2005) than Alternatives B and C. This increase is due primarily to the relatively larger quantity of commercial development planned for the former two Alternatives. Utility User Tax Revenues on the other hand, which are based on residential population rather than taxable sales or property values, show a more uniform spread among the four Alternatives.

Alternative E appears to generate the largest general fund surplus. This is due not only to the large amount of commercial development, but also to the comparatively low park and recreation costs. Park and recreation improvements were not provided for Alternative E, as no park land is allocated in the land use plan under this Alternative.

General Fund balances are positive for each of the four Alternatives by 2005. As expected, Gas Tax and Traffic Safety Funds are negative under each Alternative by 2005. However, the total of the three fund balances remains positive, indicating that the General Fund surplus is sufficient to cover road-related fund deficits.

C. Mitigation Measures for the Financing Plan

The financial comparison of the Community Plan Alternatives in the previous section indicated that it may not be possible to finance all the required public improvements at North Natomas with assessment-type financing (i.e., financing secured by a public lien on private land). The analysis tested the feasibility of financing all improvements (except sewer collection and treatment) with a series of bond issues that would ultimately be secured by the market value of land at North Natomas. The analysis summarized in Exhibit J-50 indicates that the market value of the land may not, by itself, be sufficient to support the required lien to value ratio.

Exhibit J-52

COSTS, REVENUES AND FUND BALANCES FOR THE CITY OF SACRAMENTO(1)
North Natomas Community Plan EIR

Annual Amount at Buildout
(Constant 1984/85 Dollars)

	Land Use Alternative B	Land Use Alternative C	Land Use Alternative D	Land Use Alternative E
GENERAL FUND				
Revenues				
Property Tax	$ 5,521,200	$ 8,572,600	$ 10,224,200	$ 9,776,600
Sales Tax	3,214,600	5,245,000	8,302,800	10,828,200
Utility Users Tax	2,264,300	3,396,500	3,621,600	4,103,300
Other General Fund Revenues	2,533,800	3,871,200	4,517,100	5,273,900
Total Revenues	13,533,900	21,085,300	26,665,700	29,982,000
Annual Operating Expenses				
Police Department	5,670,000	8,460,000	9,000,000	10,170,000
Fire Department	1,576,500	2,227,700	2,189,700	3,462,700
Road Maintenance (General Fund Portion)	183,900	309,100	347,900	444,300
Parks and Recreation	2,669,400	5,533,000	4,953,700	1,200,000
Public Works and Planning	445,600	668,400	712,700	807,500
Other General Fund Expenses	2,446,700	3,670,100	3,913,500	4,433,900
Total Expenses	12,992,100	20,868,300	21,117,500	20,518,400
FUND BALANCE	541,800	217,000	5,548,200	9,463,600
GAS TAX AND TRAFFIC SAFETY FUNDS				
Dedicated Revenues	227,100	339,600	360,800	409,300
Road and Traffic Safety Expenditures(2)	258,600	432,100	485,000	615,800
FUND BALANCE	(31,500)	(92,500)	(124,200)	(206,500)
TOTAL OF FUND BALANCES	510,300	124,500	5,424,000	9,257,100

Notes:
(1) Funds other than the General Fund, Gas Tax Fund and Traffic Safety Fund are either included elsewhere or were not included in this analysis. See text of report.
(2) Includes road maintenance expenditures conventionally financed by the City of Sacramento from the Gas Tax and Traffic Safety Funds.

Source: McDonald & Associates

An independent land value appraisal would be required before bonds could be sold. It is highly likely that a credit enhancement of some sort (e.g. letter of credit) will also be required to issue assessment type bonds. The cost of the letter of credit, if attainable, would add to the cost of traditional assessment district financing and may result in financing costs similar to conventional financing. Neither the cost of credit enhancements nor extraordinary interest costs have been included in the numerical examples within this EIR.

In addition, an extremely high annual tax or assessment levy on the property owners would be necessary to repay the bond issues. Exhibit J-37 showed the implied tax rate that would be necessary if bonded debt financed all public improvements except sewer collection and treatment.

Finally, as discussed previously, the entire analysis in the preceding section omitted financing requirements for increased capacity of Sacramento's regional transportation system.

1. A Composite Financing Plan

If a mitigated financing plan were prepared that avoided excessive dependence on bonded debt, it would depend on a combination of sources of financing for the public improvements at North Natomas. A composite of three likely sources would be as follows:

- Tax exempt municipal bonds of the type that could be issued by a conventional special assessment district or a Mello Roos Community Facilities District. Total bonded debt would be limited to an amount that is reasonable, given the estimated market value of the land after the public improvements are in place. It must be noted that the City of Sacramento has not yet utilized the provisions of the Mello Roos Community Facilities Act to finance community facilities in any area of the City. Its applicability to the Study Area has not yet been determined.

- Development fees could be collected at the time each subdivision is approved or at the time building permits are issued. Examples of development fees would be the Water Development Fee and the Sewer Development Fee. Such fees are levied on developers by the City to finance public improvements required by new development. Exactions are similar to fees except that the developer directly provides the public improvement rather than paying a fee to the City which the City in turn uses to provide the improvement. Development fees must be reasonable, compared to the market value of the land. In some cases it may be possible to pass development fees forward in the form of higher prices, but

the conservative assumption is that development fees are offset against the price paid for land.

- External sources of financing would be required, since the maximum combination of bonded debt and development fees is estimated to be insufficient to pay the total cost of public improvements. Any source of financing that does not depend on land values or rates of development at North Natomas could be included in this category. Examples of external financing are state financing of roadway improvements as part of the State Transportation Improvements Program (STIP) or state financing of schools.

A preliminary illustration of a mitigated financing plan was prepared. This illustration approached but did not exceed the practical limits thought to be applicable to the use of bonded debt and the use of development fees. The result is shown in Exhibit J-55.

It should be understood that Exhibit J-55 is for purposes of illustration only. A more detailed composite financing plan would have to be prepared for the Community Plan Alternative that is ultimately approved. The Exhibit does not, for example, identify the source of external financing. There was no detailed test of the timing of development fees, compared to cash requirements to build the improvements. There was no test of the vulnerability of the financing plan if development occurs at a rate other than that assumed in the analysis. Details of this type would have to be considered carefully before a composite financing plan was actually adopted.

2. Evaluation of Financial Mitigation Measures

It is reasonable to state a conclusion about whether the Community Plan Alternatives can be financed, based on the analysis completed as part of the present EIR. This conclusion must be qualified carefully.

The conclusion is that Community Plan Alternatives B, C, D, or E could be financed if (and only if):

- development fees can be used to finance approximately one-third of the required investment in public facilities

- approximately 25% of the financing can be obtained from sources external to North Natomas (such as federal or state grants)

- the remaining 42% of the required financing can be obtained from assessment type bonded debt

Exhibit J-55

EXAMPLE OF A MITIGATED FINANCING PLAN
COMMUNITY PLAN ALTERNATIVE C
North Natomas Community Plan EIR

Source of Financing[1]	Amount (Constant 1984/85 dollars)	
Bonded Debt Secured By[2]		
Residential Property	$75,000,000	
Commercial Property	12,000,000	
Office/Industrial Property	166,620,000	$253,620,000
Development Fees[3]		198,021,000
External Financing[4]		125,000,000
TOTAL		$576,641,000

Notes:

(1) This exhibit is for purposes of financial comparison only. It is not a complete financing plan. Costs have not been included for an extensive list of regional roadway improvements that would be required regardless of which Community Plan Alternative is selected.

(2) The bonded debt amounts do not include cost of issuance.

(3) Development fees would be collected at the time development takes place. A detailed study would be required to assure adequate cash flow, considering the timing of development fees.

(4) "External Financing" refers to sources of financing that are not secured by land values or development at North Natomas. Examples include Federal or State grants.

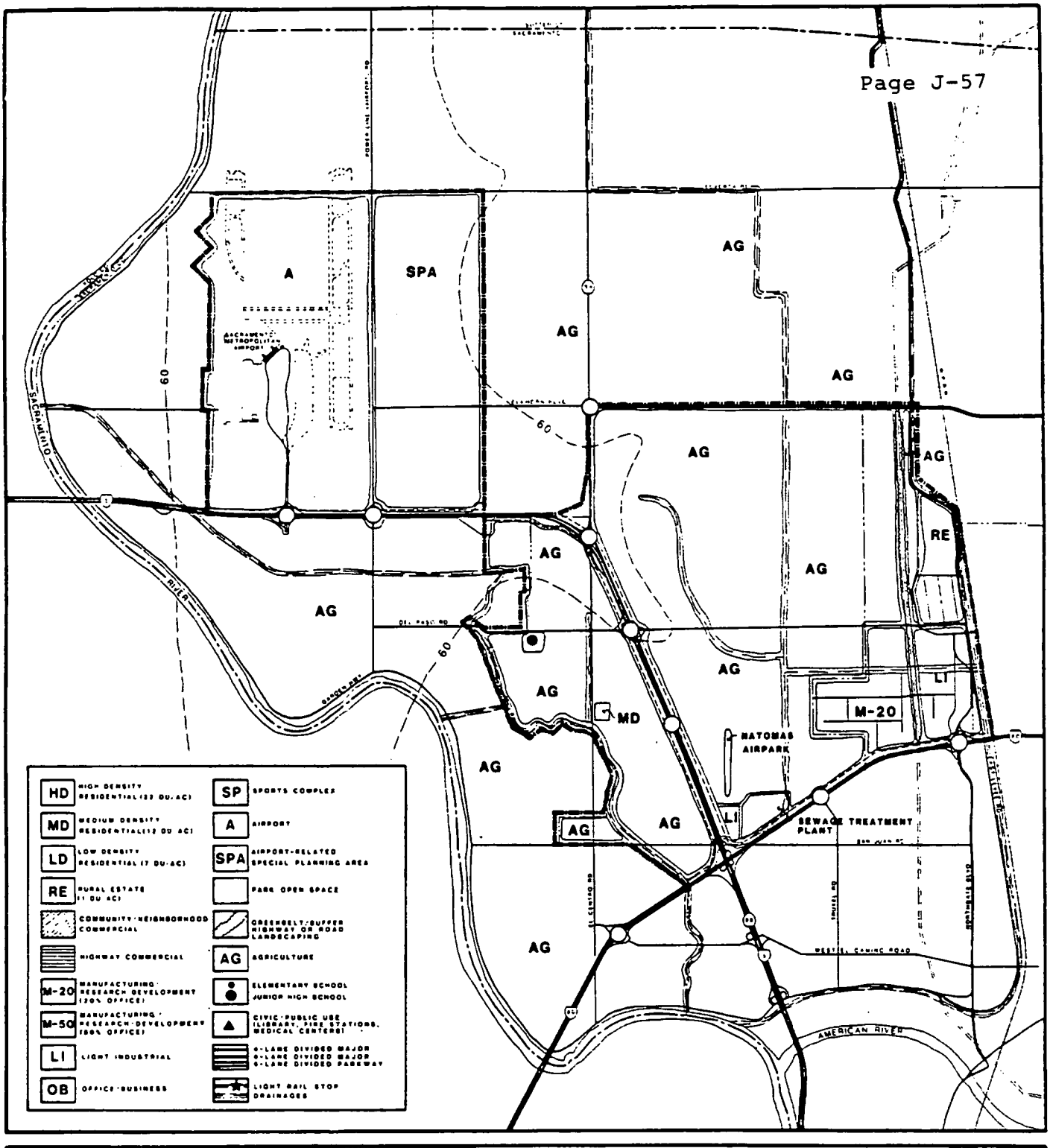
Source: McDonald & Associates

- a major investment in the regional transporation system can be financed in a way that does not increase the burden on North Natomas property owners.

The uncertainty about the above four conditions can be reduced, with further analysis. Nonetheless, a judgment must ultimately be made about whether all of the required conditions would actually come to pass. This judgement should assess market potential in the Sacramento region and possible competition for private and public financial resources that may exist over the next twenty years. Examples of possible competitors for public and private resources include the South Sacramento areas (Laguna and Delta Shores) and the Antelope area.

A decision to implement one or another of the development-oriented Community Plan Alternatives will require a political commitment to assure that each of the four conditions takes place.

It should be understood that it is not customary in the City of Sacramento for all public improvements to be financed with assessment-type financing. Further, financing for improvements to bare land, for the first phases of development confronts the bond buyer with the greatest uncertainty. There can be extreme difficulty in the use of assessment-type bond financing for early stages of development.



NORTH NATOMAS COMMUNITY PLAN

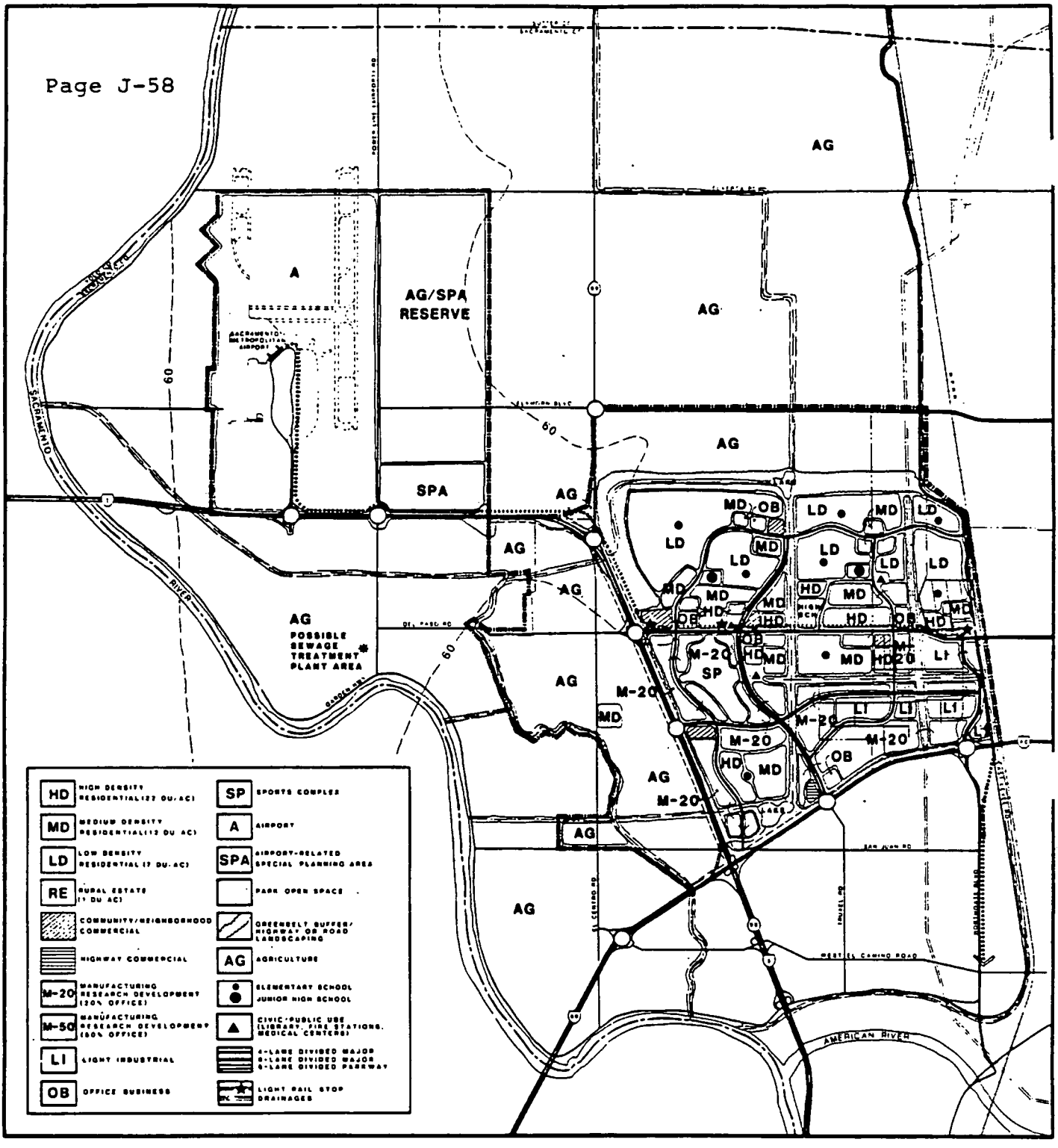
Sacramento, California

ALTERNATIVE A
NO-PROJECT / EXISTING POLICY

Prepared by
The City of Sacramento

0 FT 3200 6400

December 12, 1984



NORTH NATOMAS COMMUNITY PLAN

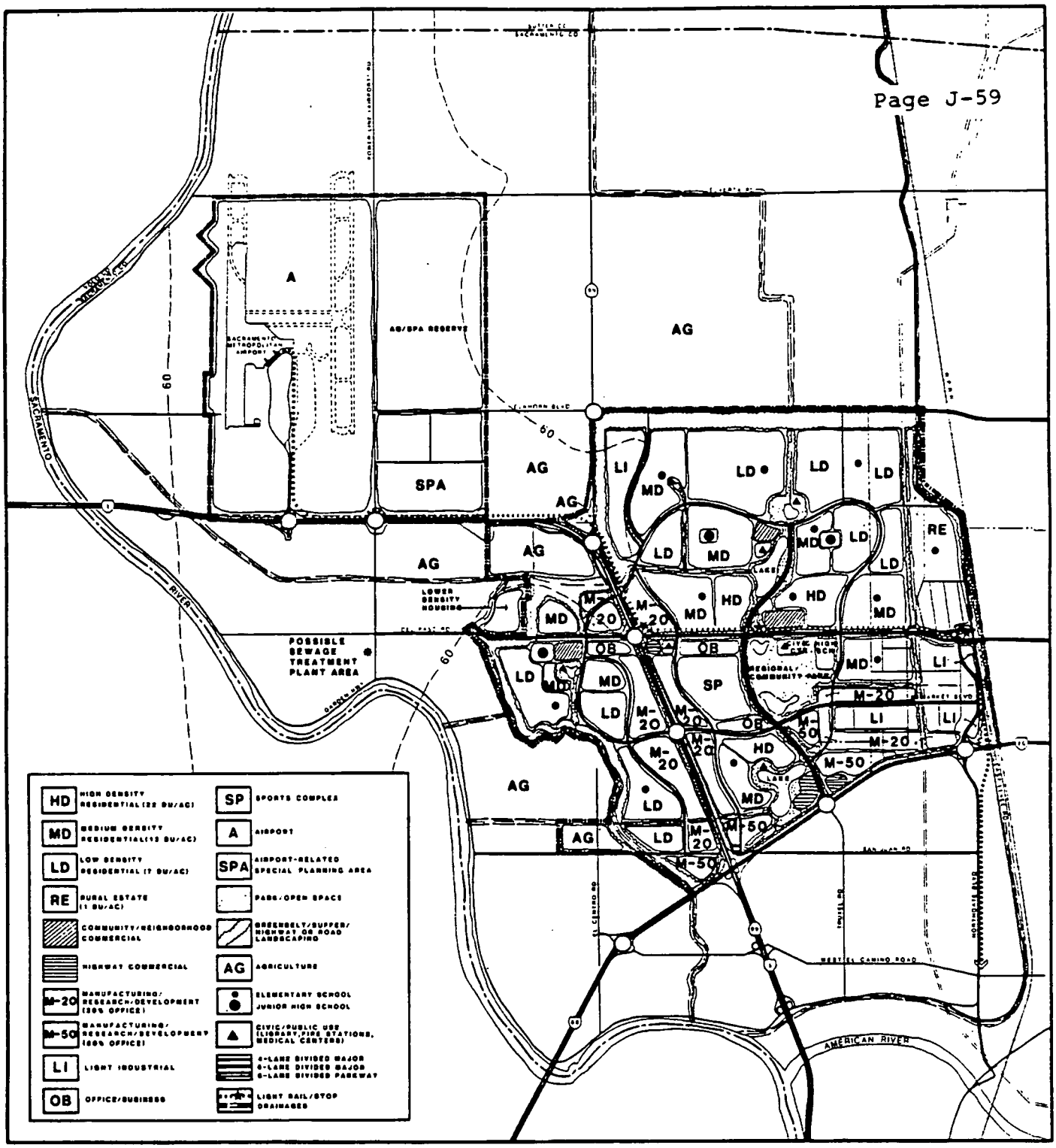
Sacramento, California

ALTERNATIVE B

Prepared by
The City of Sacramento

0 FT 3200 6400

December 12, 1984



NORTH NATOMAS COMMUNITY PLAN

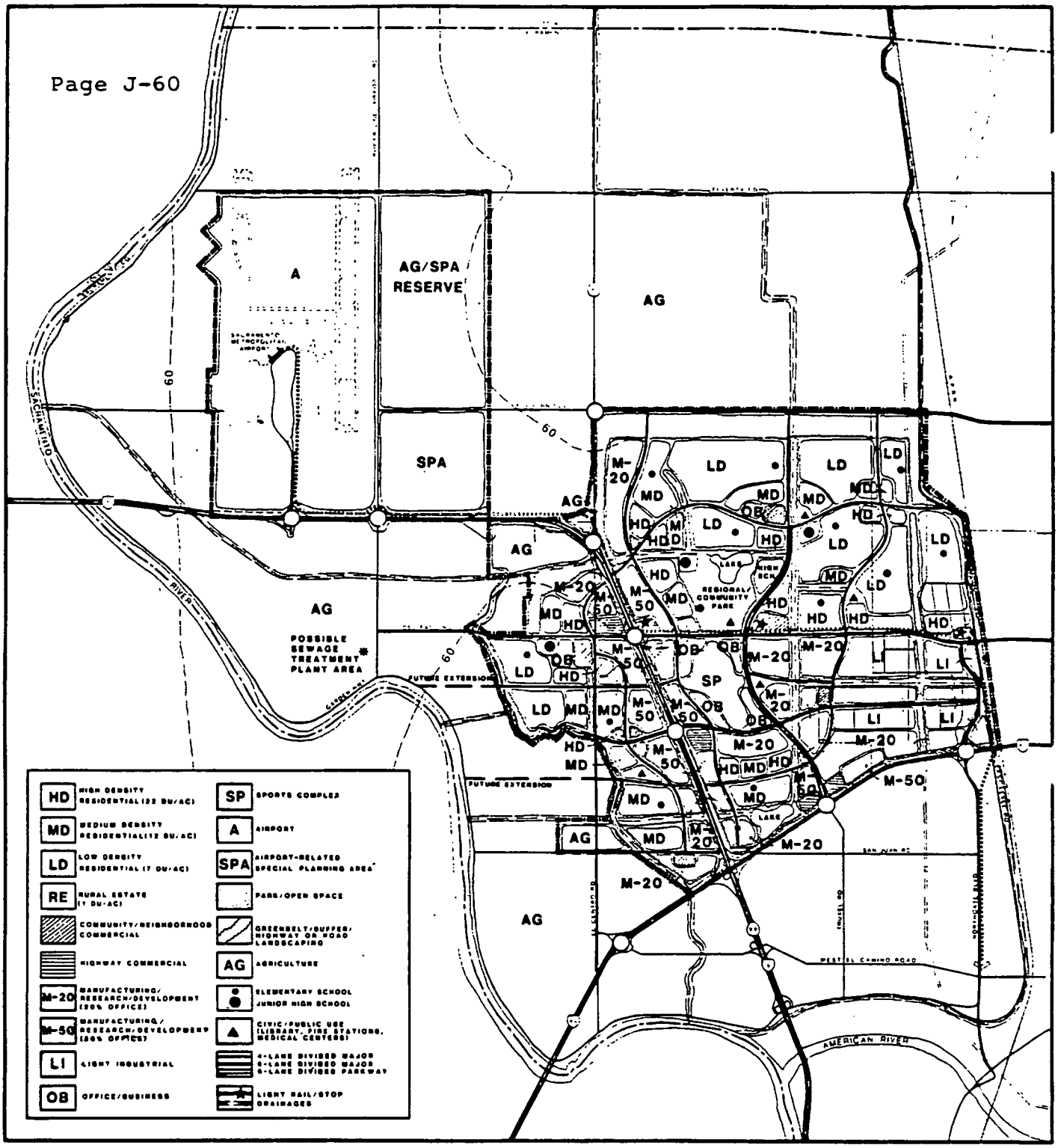
Sacramento, California

ALTERNATIVE C
DRAFT COMMUNITY PLAN

The SWA Group - Community Planning
LSA, Inc. - Environmental Analysis

0 FT 3200 8400

December 10, 1984



NORTH NATOMAS COMMUNITY PLAN

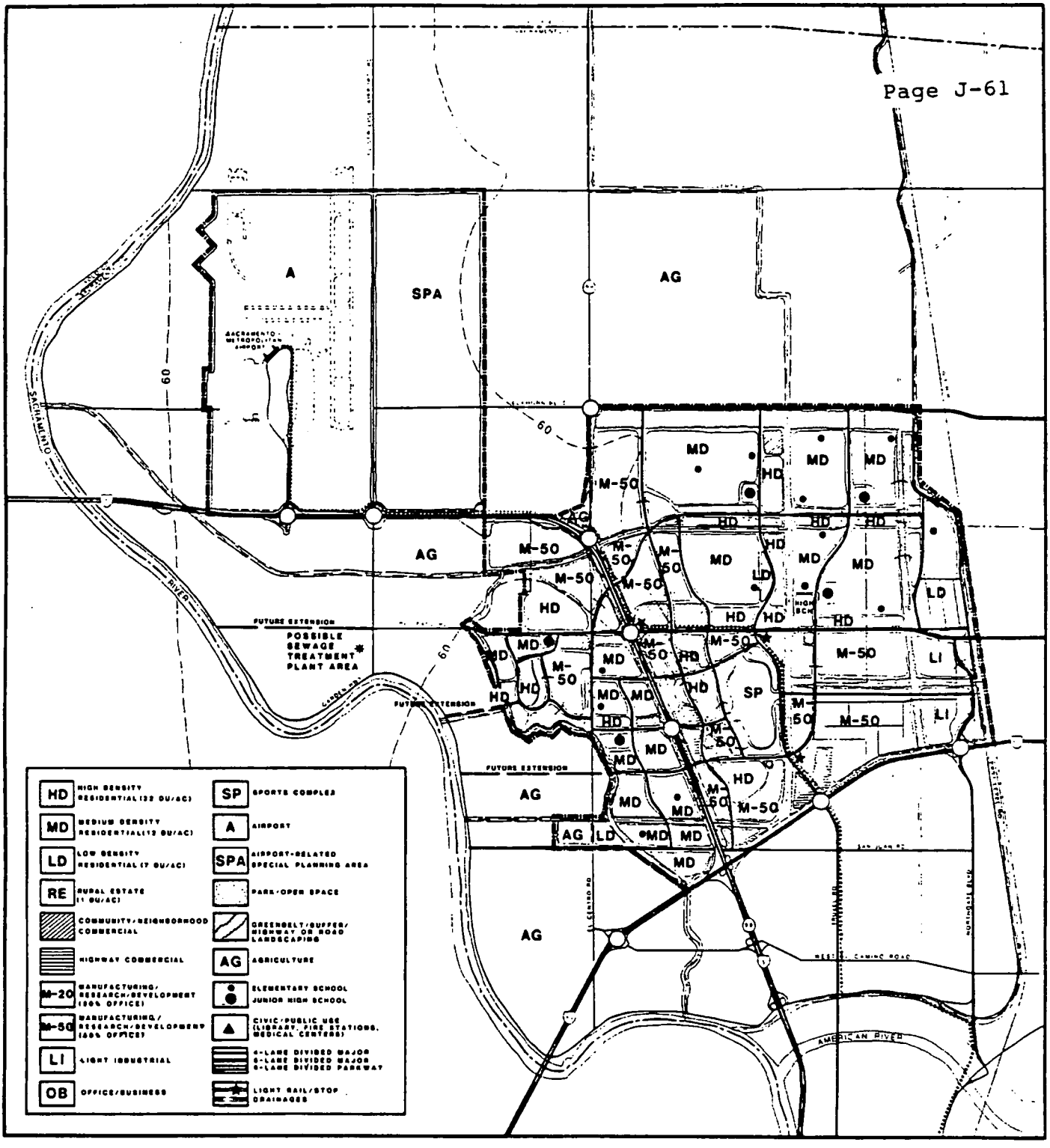
Sacramento, California

ALTERNATIVE D

Prepared by
The City of Sacramento

0 FT 3200 6400

December 12,1984



NORTH NATOMAS COMMUNITY PLAN

Sacramento, California

ALTERNATIVE E

Prepared by
The City of Sacramento

0 FT 3200 6400

December 12,1984

APPENDIX J-2 - COST/REVENUE TECHNICAL ASSUMPTIONS

A. Technical Assumptions

The following assumptions and conventions were used in the fiscal analysis of the five alternatives for the North Natomas.

1. Level of Municipal Service

All levels of municipal cost were based on the assumption that existing City-wide levels of service would continue to be provided in the North Natomas Community Plan Area (hereafter referred to as "North Natomas").

2. Continuity of Legal and Institutional Constraints

The analysis was based on the structure of municipal finance that exists in California at this time. No new revenue sources were assumed and no existing revenue sources were eliminated. The constraints and limitations of Article XIIIA of the California Constitution, the effects of the appropriations limit, and the manner in which property tax transfers are accomplished were all assumed to continue during the period being analyzed.

3. Land Use and Development

The five alternatives -- A, B, C, D, and E -- were developed by the City of Sacramento. Alternatives A, B, D, and E were analyzed in their "completion" or "build-out" state, defined to take place in the year 2005. Alternative C was analyzed on a phase-by-phase basis.

4. Cost and Revenue Inflation

The entire analysis was presented in terms of dollars of average purchasing power that exists in fiscal year 1984/85. The rationale for this assumption is that future rates of inflation are extremely difficult to predict and the City's ability to respond to future inflation (e.g., in terms of employee compensation) is equally difficult to predict. An assumption about inflation would merely compound the uncertainty that naturally accompanies any forecast for a future year. In most cases, it was therefore assumed that municipal costs and municipal revenues would respond in the same way as overall price inflation.

Nonetheless, the effects of price inflation could not be omitted from those cases where 1984/1985 purchasing power would not be maintained. In these instances, a six percent annual inflation rate was used to convert costs and revenues (i.e. to "deflate" them) into dollars of 1984/1985 purchasing power. Three examples illustrate the necessity of deflation calculations.

The first example is the property tax base. Under the terms of Article XIIIA of the California Constitution, increase in taxable value is limited to two percent per year until a change of ownership occurs. The property tax base could keep pace with housing price inflation only if all properties changed ownership once each year. Other examples are motor fuel and cigarette tax revenues. The tax rate for these two revenues is based on the number of "units" sold, rather than the price of the units being sold. Historically, neither of these revenues has kept pace with price inflation.

B. Summary of Estimating Procedures

McDonald & Associates employs procedures for estimating costs and revenues that reflect:

- The actual mechanism that determines the amount (e.g., does the budget element respond to population, to changing economic conditions or changing land uses, or solely to a policy decision?).

- The relative extent to which the amount is subject to City of Sacramento control or is determined by forces external to the City.

- The relative significance of the budget element.

McDonald & Associates calculated costs and revenues that would be generated in North Natomas (based upon the alternatives) with one of the three general procedures described below.

The particular estimating procedure chosen for each budget item reflects policy statements found in the City of Sacramento budget, as well as McDonald & Associates' knowledge of state and federal policies. These general procedures are as follows:

Formula Estimates. Many revenues respond to statutory formulae. Examples include fuel tax and motor vehicle in-lieu fee entitlements. In those instances where a formula-based revenue item was a significant part of the City's budget, McDonald & Associates simulated the actual workings of the formula to produce the revenue estimate.

Case Study Estimates. Most cost items and many important revenue items will respond to both the detailed land use assumptions in the alternative plans and to the City policies regarding delivery and level of service. In these instances, a case study is the most appropriate estimating procedure. Several of the City's major departments are analyzed using a case study approach. City

of Sacramento officials made preliminary evaluations regarding the level of service required at North Natomas under the five alternatives and the costs associated with providing such services.

Per Capita Estimates Per capita estimates are based on the assumption that changes in cost or revenue respond in an average way to changes in population. In many cases, however, the per capita approach is applied even if the actual relationship is more complex. This is usually because the item is small in terms of the overall budget and a more complex estimating relationship is therefore not justified.

No Impact. There are a number of "fixed" City costs or revenues that do not respond in any way to land use or development decisions. A simple example is the Flood and Drainage Fund interest revenue. This budget item reflects interest income on bond proceeds which were not spent by the City as originally planned. New development in the City will have no impact upon the rate of interest income growth in this fund.

C. Revenue Estimates for the City and County

The case study and agency-wide per capita methods were the predominant cost estimating procedures. A complete summary of the cost estimates are provided in the main body of this report. The estimating procedure used for each revenue accruing to the City of Sacramento is summarized and explained in detail below. These procedures were applied to the demographic and land use characteristics that make up the five alternative plans for North Natomas.

1. Property Tax Revenue

In spite of the fact that 4 of the 5 alternatives of the fiscal analysis in this report evaluated at a single point in time after buildout of each alternative, it was necessary to evaluate the property tax on a year by year basis to capture the effects of Article XIIIA of the California Constitution. Property taxes are limited to 1 percent of taxable market value of real or personal property. Increases in taxable market value may not exceed 2 percent per year unless a property changes ownership, in which case the value is set, by the Assessor, at the property's then-current fair market value. Thus, the real purchasing power of revenues from each taxable parcel declines over time, unless (1) price inflation is less than or equal to 2 percent per year; or (2) the property changes ownership every year.

The distribution of property taxes among taxing jurisdictions is also subject to legislative mandates. Following the passage of

Article XIIIA, the greatly reduced property tax revenue was redistributed to jurisdictions in accordance with their previous share of the property tax.

McDonald & Associates uses a computer model to estimate property tax revenues from the other two components. This model, driven by the land use assumptions of the alternatives, estimates year by year changes in property tax revenues. It was assumed that residential development would change ownership at an average rate of 10 percent per year (each house sells once in 10 years) while commercial property, industrial property, and undeveloped land was assumed to change ownership at the rate of once every 20 years. Thus, the nominal rate of increase for commercial property, industrial property and undeveloped land was limited to 2 percent per year; the ensuing effect of this turnover rate is a decline, in real purchasing power, of the commercial, industrial and undeveloped properties' taxable value. The average rate of general inflation was assumed to be 6 percent.

Property tax allocations were based upon an average of tax apportionment factors within the relevant tax rate areas. In the incorporated areas, the apportionment factors used were 36 percent for the County General Fund share, and 34 percent for the City of Sacramento. In the unincorporated areas, the average County tax apportionment factor was 46 percent.

2. Sales Tax Revenue

A sales tax is levied against the gross sales price of most tangible property other than property sold for resale. Exempt items include food for home consumption, prescription medicine, newspapers, periodicals, poultry, and livestock. All cities and counties in California are required by state law to levy a one percent tax on sales of these items, in addition to the 4 3/4 percent levied by the state. An additional 1/4 percent tax is levied for transit or transportation purposes. Approximately 99 percent of the city/county levy is returned to the local jurisdiction on a quarterly basis, with the balance retained by the state to cover administrative costs. The sales tax revenue returned is distributed on the basis of the location of the retail sales. The basic one percent local levy may be used for any municipal purpose.

Less than one half of one percent of the total 1/4 percent tax levy accrues to the City's Transportation Development Act (TDA) account. Instead, the majority of the revenues go to the Regional Transit District. TDA funds are also distributed based on situs of sales, and are restricted to transit and transportation purposes.

Since sales tax revenues are allocated according to the location of sales rather than location of population, different levels of per capita sales tax revenue exist between communities. A city will lose potential sales tax revenue when residents shop in other areas outside the city, and, conversely, will gain revenue when residents from outside the city shop in the city. Both of these dynamics would be expected to function in the case of development in North Natomas.

Sales tax revenues would be affected in three ways by implementation of any one of the five alternatives in North Natomas.

- Sales tax revenues would increase due to the new population of resident and employees within North Natomas who shop in North Natomas;

- Tax revenues would be supplemented by shoppers coming into North Natomas from outside the city (e.g., East Yolo County and, to a lesser extent, South Placer County);

- North Natomas would shift taxable sales potential away from other areas within the City (e.g., Downtown), partially offsetting the increases described above.

The estimate of sales tax revenues for North Natomas for purposes of this analysis was prepared in the following steps:

On-site taxable sales were estimated for sales generating uses for each alternative. The land uses generating taxable sales transactions and their corresponding per square foot or acre taxable sales are as follows:

- Community Commercial at $65 per Sq.Ft.
- Highway Commercial at $75 per Sq.Ft.
- Manufacturing (M-50) at $15 per acre
- Manufacturing (M-20) at $15 per acre
- Light Industry at $15 per acre

In a separate step, an estimate was prepared of taxable sales generated by residents and employees residing or working at North Natomas. It was assumed that residents would spend $6,000 per capita in taxable sales. Approximately 80% of these sales would be captured within North Natomas Area. Employees would generate $1,000 per capita in taxable sales, based upon $5 per day for 200 working days a year. Only 50% of the total employee-generated sales tax revenue was used, as 50% of North Natomas employees are

assumed to also be local residents. It is assumed that North Natomas residents will do about 80% of their shopping at North Natomas, about 5% in other parts of the City, and 15% outside of City limits.

Alternative C is expected to generate over $500 million in taxable sales in the City. Because of its large amount of commercial development, Alternative D is anticipated to generate about $800 million in annually taxable sales at build-out, with Alternative E generating over $1 billion.

3. Real Property Transfer Tax

Real property sales are taxed by Sacramento County at the rate of $1.10 per $1000 of property value. This tax is shared equally by the City and the County. Sales of new homes and commercial property are subject to this tax, as well as properties that transfer ownership. The City levies an additional tax of 1/4 of 1 percent against the value of consideration upon the transfer of real property.

The same assumption about turnover rate (10 percent per year for residential units) that was used in the property tax calculation was used for calculating the transfer tax.

The original equity of the new owner (i.e., the downpayment) and existing financing that is assumed by the owner are exempt from the County's, but not the City's transfer tax. A total exemption rate of 20 percent of market value was assumed in calculating County-levied transfer tax revenues. Sales of industrial property are also subject to the property transfer tax. However, this analysis assumes no turnover in industrial property, after the initial sale of new industrial property. Thus, there is no property transfer tax revenue from this land use in the "end state" analysis.

4. Business Operations Tax

A case study was employed in calculating the business operations tax. The various measures utilized by the City of Sacramento in calculating this tax were applied by McDonald & Associates.

5. Utility Users Tax

All electricity, gas, and intrastate telephone service provided within the City limits is taxed at 5 percent. McDonald & Associates used a City-wide per capita figure to estimate utility users tax revenue generated in North Natomas.

6. License and Permits

The majority of the City's license and permit fees are levied by the Department of Planning and Development and the Department of Public Works. Revenues generated from these fees were therefore subtracted from these departments' budgets, yielding a net cost estimate for planning and public works services. Revenues collected by these two departments were merged into one for purposes of this analysis. Those license and permit revenue items not "netted out" were estimated on a City-wide per capita basis.

7. Fines and Forfeits

Fines and bail forfeitures, which are imposed for violations of the State Vehicle Code or local ordinances, provide another source of revenue to the City of Sacramento. The City receives 79 percent of the fines issued by a City officer and 50 percent of the fines issued for a misdemeanor arrest by the California Highway Patrol. The County of Sacramento receives 21 percent of the fines issued by a City officer (and 50 percent of the fines issued for major violations by the California Highway Patrol). McDonald & Associates utilized the current City-wide per capita fines and forfeitures amount to estimate end-state revenues from this source in North Natomas. One-half of the fines and forfeitures revenue in the City accrues (as mandated by Section 1463 of the Penal Code) to the Traffic Safety Fund of the City.

8. Charges for Current Services

The same procedure of "netting out" all planning and public works-related licenses and permits was applied to the relevant current service charges as well. Those cost items which generate revenues through service charges or fees, such as the zoo or the Crocker Art Museum, were estimated on a net City-wide per capita basis. If these fees and assessments were used to fund capital improvements, they were analyzed on their ability to fund those specific improvements. City-wide per capita estimates were utilized to estimate a small group of miscellaneous ongoing service fees and admissions charges.

9. Admissions Tax

McDonald & Associates employed a City-wide per capita figure in estimating the impact of the North Natomas alternatives on this revenue source.

10. Franchise Fee

A franchise fee is imposed on Pacific Gas & Electric for transmitting and distributing gas via mains located in the City. The fee is the greater of 2 percent of an annual statewide revenue

per mile of right-of-way figure (calculated according to Broughton Act guidelines), or 1 percent of annual gross sales of gas within the City. Historically, the formula used has varied from year to year, depending on which sum was greater. Build-out franchise fee revenues were calculated by multiplying projected North Natomas population totals for the alternatives by existing City-wide gas sales per capita. The resulting estimate of total gas sales in North Natomas was multiplied by 1 percent to calculate franchise fee revenues. (This method was employed because of extreme uncertainty associated with the projected value of variables in the Broughton Act calculation).

11. Use of Money and Property

Revenue from use of money and property results from interest on idle funds invested in savings accounts, bonds, or other investments and from rental, lease, or sale of City property. There are no restrictions on this revenue. North Natomas' impact on this revenue source was estimated on the basis of the existing City-wide ratio of interest earnings in the General Fund to total General Fund revenues. The implicit interest rate derived using this method is 3.5 percent.

12. Enterprise Funds

The cost increases incurred in any of the City's five Enterprise Funds as a result of development in North Natomas are assumed to be fully offset with the additional revenues which would be generated as a result of increased use of the facilities and services. Thus, the net impact of North Natomas development upon the balance of these funds is assumed to be negligible.

13. Trust Funds

The City's several trust funds are supported primarily through service fees and charges. They differ from enterprise funds, however, in that they are subsidized by the General Fund through interfund transfers. Revenues generated through service charges were assumed to remain in equilibrium at buildout (like Enterprise Funds), with General Fund subsidies excluded due to their minimal significance on the City's General Fund balance.

14. State and Federal Shared Revenues

Road Fund. The state government levies an excise tax on motor fuel which is used for streets and highways construction and maintenance. Highway Users' Tax revenues to Sacramento County and its cities are allocated under four separate sections of the Streets and Highways Code: Section 2104 to counties, Section 2106 to cities and counties, Section 2107 to cities and Section 2107.5 to cities. Each Section uses vehicle registration, in part, for

the statutory allocation formula. The following procedures assume that vehicle registration is proportional to population.

Senate Bill 215 increased the State-wide fuel tax from 7 cents per gallon to 9 cents per gallon and imposed the tax on diesel fuel in the distribution of funds to cities, in addition to other increases in license fees, etc. SB 215 increased the dollar amount to be distributed in both Section 2104 to counties and Section 2107 to cities.

The calculation procedures assume that the fuel tax revenue which is tied to gallons sold rather than price, will continue to decline in real purchasing power. Senate Bill 215 (1981) was the first rate increase in nearly 20 years. There is no assurance that the rate will be increased again in the near future.

Section 2106 Revenue. The allocation of Section 2106 funds (after certain minimum guarantees for each city and each county) occurs in three steps. First, the share for each county and its cities is allocated in proportion to vehicle registration. Population was used as a surrogate for vehicle registration. Sacramento County currently comprises 3.68 percent of the State's total population. Sacramento County's population projection implies a growth rate that exceeds the State-wide average, which leads to an increase in Sacramento County's relative share (at build-out) of Section 2106 funds.

Second, total County Section 2106 funds were allocated between the County's unincorporated and incorporated areas in proportion to assessed valuation. The incorporated share of 1983/1984 total County assessed value was 37.9 percent. For purposes of this preliminary analysis, the City's share was assumed to remain constant.

In the third step, the incorporated cities' share was allocated between the County's cities in proportion to their respective populations. The City of Sacramento's population (309,400) represents about 93 percent of the total County population living in cities. This share was assumed to remain constant.

The City's estimated total share of Section 2106 funds was then allocated between North Natomas and the rest of the City on the basis of population.

Section 2107 Revenue. Section 2107, which applies to cities only, responds to the City of Sacramento's population compared to all cities in the state. If the project alternative generates growth in Sacramento at a rate greater than the State-wide average, then Sacramento's share increases. The population estimates cited previously, in addition to the assumption that the State-wide total population living in cities would increase at the same rate

as the State-wide grand total population, led to the conclusion that the City of Sacramento's share would increase from 1.5 percent to 1.9 percent.

Section 2107.5 Revenue. Section 2107.5 provides for an annual subvention of $10,000 to the City of Sacramento. The subvention is based on population increments, and would not change again until the City's population increased to 500,000. The change in population resulting from the North Natomas residential development is not large enough to affect the disbursement.

Cigarette Tax. The State of California collects an excise tax on cigarettes of $0.10 per package levied through wholesale distributors. Three cents of this $0.10 is allocated to local governments. The local government share is divided between city and county governments, statewide, on the basis of sales tax revenues from city and county jurisdictions in the previous year. Of the portion earmarked for cities, the amount remitted to each city is determined by a formula which takes into account both sales tax revenues and population. Cigarette tax is a revenue that may be used for any municipal purpose.

A formula estimate was employed to calculate cigarette tax revenues from North Natomas, based on land use and demographic data from the five alternatives. The assumptions about population were the same as those used for the fuel tax estimate. The taxable retail sales estimate described previously was used for the estimate of cigarette tax. The preceding discussion on possible shifts in taxable sales as the result of development of North Natomas is also applicable to the cigarette tax.

Vehicle License Fee. Vehicle License Fees were calculated using the per capita revenue figures supplied by the State Controller's Office. This per capita figure was applied to the most recent population estimate for the City by the State Department of Finance, 309,400.

Federal Revenues. The impact of North Natomas growth and development on the City's federal revenue sharing entitlement was calculated based on the City's current per capita experience. However, the federal revenue shares' funds have been increasing at a rate less than the rate of inflation. Hence, the per capita figure was deflated by 3% annually. No additional federal grants were assumed.

Impacts on highway projects as the result of the five cent increase in the federal fuel tax were estimated on a case study basis. Community Development Block Grant monies were not projected or included in this analysis. There is a large degree of uncertainty with regard to both the magnitude and continued availability of future Block Grant appropriations.

LIST OF PERSONS CONTACTED
FISCAL AND FINANCIAL ANALYSIS
North Natomas Community Plan EIR

MUNICIPAL SERVICES
Ira Carter, Grant Joint Union School District
Hinda Chandler, Regional Transit
Dick Folkers, Road Maintenance, City of Sacramento
Al Hendrickson, Public Works, City of Sacramento
Chief John Kearns, Police Department, City of Sacramento
Janet Larson, Sacramento Public Library
Raff McDonald, Natomas Union School District
Chief Robert McGrath, Fire Department, City of Sacramento
Gene Robinson, Parks and Recreation, City of Sacramento
Vic Scotti, Sacramento Regional County Sanitation District
Deputy Merle Switzer, Sheriff's Department, County of Sacramento
Reggie Young, Refuse Collection, City of Sacramento

MUNICIPAL FINANCE
Tom Friery, City Treasurer, City of Sacramento
Dave Hartley, Stone & Youngberg
Scott Clinton, Stone & Youngberg

PROJECT ENGINEERS
Randy Dewante, Ralph Stowell, and Marc Vogel, Dewante & Stowell (Water and Drainage Facilities)
Steve DeCou, CH2M HILL (Sewer Facilities)
Gary Hansen, Omni-Means, Ltd. (Transportation Facilities)

REFERENCES

Sacramento, City of. Sacramento, County of.
North Natomas Community Plan Background Report.
Prepared by The SWA Group; LSA, Inc.; Omni-Means, Ltd.; and McDonald & Associates.
Sacramento: June, 1984.

Sacramento, City of. Sacramento, County of.
North Natomas Community Plan Analysis Report.
Prepared by The SWA Group; LSA, Inc.; McDonald & Associates; Omni-Means, Ltd.; and Hodge, Buchanan, Falik & Dupree.
Sacramento: September, 1984.

Sacramento, City of. Sacramento, County of.
North Natomas Draft Community Plan.
Prepared by The SWA Group; LSA, Inc.; McDonald & Associates; Omni-Means, Ltd.; and Hodge, Buchanan, Falik & Dupree.
Sacramento: November, 1984.

Sacramento, City of. Department of Public Works.
Supplement to Report on Drainage Study.
North Natomas Area.
Prepared by Dewante and Stowell.
Sacramento: May, 1985.

Sacramento, City of. Department of Public Works.
Supplement to Report on Water Study.
North Natomas Area.
Prepared by Dewante and Stowell.
Sacramento: April, 1985.

Sacramento Regional County Sanitation District.
Sacramento Sewerage Expansion Study for the
North Natomas Area.
Prepared by CH2M HILL.
Sacramento: January, 1985.