

A REVIEW OF SACRAMENTO CITY'S  
NOISE ABATEMENT PROGRAM

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## INTRODUCTION

### Purpose

This report describes a review of the city of Sacramento's noise abatement program. The report contains the results of the review and provides observations and recommendations for the city's consideration. The review was performed as a result of a direct request from Mayor Phillip L. Isenberg to the Associate Deputy Secretary of the U.S. Department of Transportation. Because of the Federal Highway Administrations's (FHWA) special interest in encouraging compatible land use development in the immediate vicinity of heavily travelled roadways (where traffic noise levels are high), FHWA authorized the writer to undertake this review. The findings, observations, and recommendations in this report are those of the writer and do not necessarily represent the official views of either the FHWA or the U.S. Department of Transportation.

### Methodology

The review was performed by using the following general steps:

1. Obtained and reviewed various documents relevant to the city's noise abatement program. The documents which were used in the review are listed in Table 1.
2. Met with, interviewed, and held discussions with various State and local officials. The list of individuals and organizations included in these meetings and discussions is shown in Table 2.
3. Made field visits to various sites to observe the results of the city's noise abatement efforts.
4. Identified and analyzed the legal framework and the administrative mechanisms of the city's noise abatement program.
5. Studied and formulated observations and recommendations to improve the city's noise abatement program.

The documents obtained under step 1 and the meetings and discussions held in step 2 were the basis for the identification and analysis in step 4. These together with the observations in step 3 led to the formulation of the findings in step 5. The remainder of this report contains the results of steps 4 and 5.

### THE LEGAL FRAMEWORK AND ADMINISTRATIVE MECHANISMS

The legal framework and the administrative mechanisms for Sacramento's noise abatement program are probably known and clearly understood by the city officials for whom this report is intended. It is important, however, for other readers of this report and especially for the writer to clearly understand these workings in order for the subsequent observations and recommendations to be meaningful.

TABLE 1DOCUMENTS USED IN REVIEW OF  
SACRAMENTO'S NOISE ABATEMENT PROGRAM

- 1) Chapter 66 of the Sacramento City Code (an ordinance on community noise control).
- 2) California Motor Vehicle Noise Limits from the California Vehicle Code.
- 3) City of Sacramento Zoning Ordinance - August 1979 edition.
- 4) California Administrative Code, Article 5, Section 65302(g) - Requirement for a noise element in the general plan for each local government.
- 5) Sacramento City General Plan.
- 6) Section 9 of the General Plan for Sacramento - The Noise Element.
- 7) City of Sacramento - Subdivision Regulations.
- 8) California Administrative Code, Title 25, Chapter 1, Subchapter 1, Section 1092, Article 4: Noise Insulation Standards.
- 9) City of Sacramento - Tentative Subdivision Map Filing Instructions.
- 10) City of Sacramento - Application filing instructions for rezoning special permit, planned unit development, and variance.
- 11) City - State Memorandum of Understanding to Implement South Natomas Interstate 5 Corridor.
- 12) South Natomas Community Plan.
- 13) California DOT Policy and Procedure.
- 14) Memorandum #P77-40- Sound Barrier Construction by Others Within or Near State Highway Right-of-Way.
- 15) Noise Contour Maps for the city of Sacramento.
- 16) Various Acoustical Reports Prepared by Developers.

TABLE 2CONTACTS MADE DURING REVIEW OF  
SACRAMENTO'S NOISE ABATEMENT PROGRAM

- |   |                                       |
|---|---------------------------------------|
| 1) Mayor of Sacramento                    | 6) City Police Department             |
| 2) City Council                           | 7) City Building Inspector Director   |
| 3) City Planning Commission               | 8) Sacramento County Health Agency    |
| 4) City Planning Department               | 9) California DOT Headquarters Office |
| 5) City Associate Planner for Environment | 10) California Highway Patrol         |

### Community Noise Ordinance

The city's community noise ordinance became effective in 1977. It establishes noise measurement procedures, exterior noise standards (for nuisances) for residential and agricultural properties, and interior noise standards for multifamily residences. It establishes property-line noise standards for compressors, air conditioners, pumps, fans, and other stationary mechanical equipment. It also establishes standards for waste disposal vehicles and off-road vehicles. The community noise ordinance prohibits the following: the nonwarning use of horns and signaling devices; yelling and shouting between 12 p.m. and 7 a.m., the operation of power tools, pile drivers, and other construction equipment between 10 a.m. and 7 p.m.; shouting and calling by peddlers, hawkers, and vendors; the keeping of noisy animals and birds; and other loud, bothersome noise. The Sacramento County Government enforces the ordinance for the city under the terms of an intergovernmental agreement. Enforcement actions are taken mainly on the basis of complaints.

### Motor Vehicle Noise Code

The California Vehicle Code sets limits on motor vehicle noise emission levels for new and in-use vehicles, including automobiles, trucks, and motorcycles. In addition, the Code requires all motor vehicles to be equipped with an adequate muffler in constant operation (without cutouts or bypasses) and properly maintained. At one time, the California Highway Patrol had a state wide program to enforce the noise portion of the motor vehicle code. Several well-trained teams of enforcement officers from the California Highway Patrol were active in this work throughout the State. Recent legislative action by the State legislature has required the abolishment of these enforcement teams. While the motor vehicle noise section remains in the California Vehicle Code, all future enforcement will have to be by local government.

### Zoning Ordinance

The Sacramento Zoning Ordinance establishes land use zones for different types of activity and development, including different classes of residential, commercial, industrial, agricultural, and flood-plain uses. The zoning ordinance contains maps which record the current zoning for all portions of the city. The Ordinance provides a mechanism for rezoning, special-use permits, and variances. Applications for rezoning, special use, and variances are filed with the City Planning Department, which makes a thorough review before forwarding the application to the City Planning Commission with its recommendation. After action by the Planning Commission, the application is forwarded to the City Council for final action. While the zoning ordinance contains no direct reference to noise, the Associate Planner for Environment reviews most applications for rezoning, special use, and variance for compliance with the Noise Element of the General Plan.

## Noise Element of the General Plan

Section 65302(g) of the California Administrative Code requires each local government to include a noise element in its general plan. The noise element is required to contain maps showing both present and future noise levels. These maps are to be used in achieving noise-compatible land use. The sources which must be included in preparing this noise map are: highways, freeways, primary arterials, major streets, rail lines, airports, and industrial activities. The constructors, owners, or operators of the previously listed activities are required to furnish (to the local government) present and future noise contour maps, or the information needed to prepare such maps. The noise element is required to recommend mitigating measures and possible solutions to present and future noise problems. The local government must specify in the noise element the manner in which it will be integrated into the zoning plan and the land use elements. This section of the California Administrative Code requires the Noise Element of the General Plan to be used in determining compliance with the State's noise insulation standards (established by Section 1092 of Title 25 of the California Administrative Code).

Sacramento's Noise Element identifies the location of the following major transportation noise sources: railroads, airports and freeways. A map is included in the General Plan showing noise contours in 5 decibel increments.

The city's Noise Element establishes land use compatibility criteria (desirable community noise levels) for different land uses. These criteria use different noise level ranges to describe three categories of compatibility for residential, recreational, agricultural, industrial, commercial, and public-use activities. The three categories are a) satisfactory, with no special requirements, b) use permitted only after careful study and inclusion of needed protective measures, and c) use discouraged and permitted only if noise reduction measures are taken.

In addition to the land use compatibility criteria, the Noise Element contains noise standards for new development near freeways. The standards employ the FHWA's design noise levels and require noise barriers to be constructed where the design noise levels are exceeded. A minimum mass density of 3.5 pounds per square foot is specified for noise barrier construction. Barrier heights in excess of 12 feet cannot be required. The Noise Element requires the FHWA design noise levels to take precedence when the city's land use compatibility criteria and FHWA design noise levels differ.

The Noise Element establishes other noise abatement policies and requirements including the following:

1. An annual report to the City Council. The report must explain progress that is being made toward achieving the city's land use compatibility criteria and recommendations on further measures that should be undertaken.
2. A review and update of the Noise Element of the General Plan every 5 to 7 years.

3. Continuous review and updating of the city's subdivision and zoning regulations which will encourage a reduction of noise problems through better site design and building location.
4. Enforcement of the motor vehicle noise portion of the California Vehicle Code.

### Subdivision Regulations

The purposes of the Subdivision Regulations are to regulate and control the design and improvement of all lands subdivided into two or more lots. The Subdivision Regulations require the following specific physical improvements in subdivisions: sidewalks, lighting, curbs and gutters, paved streets, underground utilities, and noise barriers to protect those portions of subdivisions abutting a freeway. The regulations require the preparation (by the developer) of a tentative subdivision map for approval by the city. The map must include existing topography, proposed lot boundaries, utilities, streets, building setback locations, soils report, grading plan, and noise abatement features. Tentative subdivision maps are reviewed by the Planning Department which makes its recommendations to the City Council. The City Council acts on these recommendations by making either full or conditional approvals of subdivision maps.

### Processing Building Permits

The processing of building permits and approval actions are performed by the City Building Inspector. Applications are reviewed by the Building Inspector for compliance with Title 25, Section 1092, of the California Administrative Code, Re: Noise Insulation Standards. The Code sets maximum interior noise levels (from exterior sources) for new hotels, motels, apartments, condominiums and other multifamily dwellings. The applications are also routed to the Planning Department and to other departments for review. The Associate Planner for Environment is not routinely included in the review of building permit applications.

Section 1092 of the California Administrative code sets a peak noise level limit of 45 dBA for sleeping rooms and 55 dBA for other habitable rooms. An acoustical report (submitted with the building permit application) is required as evidence of compliance.

Building permit applications for single family residences are reviewed by the Building Inspector for compliance with conditions, statements, and requirements, such as noise barriers, acoustic insulation, etc., contained on final (approved) subdivision maps.

## Processing of Other Entitlements

The city has issued instructions to developers to aid in the filing of tentative subdivision maps for approval. Similar instructions have also been issued for filing applications for other entitlements, such as rezoning, special permits, planned unit developments, and variances. Each application must be accompanied by a completed environmental questionnaire. Applications for these entitlements are coordinated by the Planning Department. The applications are routinely routed to the Associate Planner for Environment who checks the application against the Noise Element of the General Plan and against the noise contour maps. An acoustic report is required when the entitlement is within the noise impact contour for an airport, railroad, or freeway. The acoustic report is reviewed for technical adequacy (under a contractual arrangement) by acoustic specialists in the Sacramento County Health Department. Approval recommendations, including conditional requirements on noise, are prepared by the Associate Planner for Environment and forwarded by the Planning Department of the Planning Commission. The Planning Commission reviews and considers the staff recommendations and refers the application, together with its recommendations, to the City Council for final action.

## CONCLUSIONS

### Specific Findings

While the primary emphasis in this review was on the land use management aspects of noise, some attention was also given to the general community noise program and the noise provisions in the California Motor Vehicle Code. The following is a discussion of 14 significant observations made as a result of the review. Immediately following each observation is a corresponding recommendation relating to each observation.

### OBSERVATION #1

To date, there has not been any general review of the noise abatement program to determine the results of the conditional approvals made on approval of subdivision maps, building permits, rezoning applications, special-use permits, etc.

### RECOMMENDATION #1

The city Planning Department possibly, in cooperation with the city Building Inspector, should undertake periodic program reviews (a 2-or 3-year cycle should be sufficient) to assess the effectiveness of the noise program. A sample of completed developments, buildings, and facilities should be examined to determine the extent to which the noise abatement measures in the city's conditional approvals have been incorporated and evaluate the effectiveness of those measures.

OBSERVATION #2

There is no individual employee of the city government having a good overview of the noise program, how it works, and how the various elements fit together. Furthermore, whatever effectiveness has been accomplished to date has been due to the dedication and efforts of the Building Inspector and the Associate Planner for Environment and to the support which others have given to them. Most of their capability stems from knowledge which has been acquired and personal operating procedures which have been developed over many months. Neither the knowledge nor the operating procedures have been recorded. If the Building Inspector or the Associate Planner for Environment (or both) should leave the city government or become incapacitated, their replacements would have to start from the beginning and develop their own knowledge and operating procedures.

RECOMMENDATION #2

The city should prepare a manual which gives an overview of the workings of the noise program. This manual should explain the relationships between the Noise Element of the General Plan, Section 1092 of Title 25 of the California Administrative Code, the city Subdivision Regulations, and the City Zoning Regulations. The manual should explain 1) the responsibilities and relationships of the various departments involved, 2) the requirements for the various reviews and approvals, and 3) detailed responsibilities and job duties of each individual involved.

OBSERVATION #3

The city's community noise ordinance, which covers those activities other than transportation, is enforced by Sacramento County. Most enforcement is performed on the basis of complaints. The bulk of the complaints have been for noisy air conditioners and other mechanical equipment. This activity seems to be working in a satisfactory fashion.

RECOMMENDATION #3

None.

OBSERVATION #4

By an act of the California Legislature, the California Highway Patrol is no longer permitted to actively enforce that portion of the State Motor Vehicle Code pertaining to noise-emission levels from in-use vehicles. It is the legislature's view that such enforcement is a local responsibility. An active enforcement program by the California Highway Patrol for more than 8 years was successful in producing dramatic reductions in motor vehicle noise by requiring improperly maintained vehicles to be corrected. Those local governments, which do not move to fill the gap left by the legislature's act, will probably experience rapid deterioration of some motor vehicles and a general increase in traffic noise levels. The uncontrolled increase in noise emissions of even a few motor vehicles can negate the effectiveness of all other portions of a local noise abatement program. This is likely to be the case in Sacramento because the City Police Department does not actively enforce that portion of the State Motor Vehicle Code dealing with noise emissions.



RECOMMENDATION #4

The City Police Department should take advantage of the excellent training program administered by the State Department of Health Services to get several officers trained in noise enforcement. The Police Department should schedule at least 1 day a week for one or two enforcement teams to actively enforce the State motor vehicle noise emission standards.

OBSERVATION #5

The Noise Element of the General Plan is comprehensive. That is, it incorporates noise-level goals for nearly every conceivable noise-sensitive land use. The administrative mechanisms for implementing the Noise Element are, however, incomplete in coverage. This coverage is limited to subdivision of land where noise barriers may be required, and the review of building permit applications for multifamily housing, hotels, motels and condominiums where noise insulation may be required. The Planning Department does, however, review special-use permits and rezoning applications for compliance with the noise goals in the General Plan. At the present time, applicants for entitlements involving new development are not required to address noise prior to submitting an application. This often leads to discovery of noise problems late in the review process when mitigation measures are more difficult to incorporate. For single-family detached residences and all public, commercial, and private facilities (which do not have sleeping facilities) there is usually no review for noise unless rezoning or special-use permits are involved.

RECOMMENDATION #5

The city's administrative mechanisms should be expanded to provide the same comprehensive coverage to noise that exists in the General Plan and to provide for timely attention to noise in the processing of entitlement applications. The simplest method for accomplishing this would be to revise the zoning ordinance as follows:

- A. Use the noise contours provided by CALTRANS, the railroads, and airport operators to prepare noise impact zones.
- B. Require the approval of a special-use permit for any development or construction within the noise impact overlay zones.
- C. Require the sponsor's plan for attainment of both the interior and exterior noise levels prescribed by the Noise Element of the General Plan to be submitted with the application for the special-use permit.

Notwithstanding this recommendation, positive steps should be taken to assure that developers a) be given early advance notice of lands which are in noise impact zones, b) be required to have an acoustic report prepared to demonstrate compliance with the Noise Element of the General Plan, and c) be required to submit the acoustic report with their application for tentative subdivision map approval or application for other entitlement.

OBSERVATION #6

The Noise Element of the General Plan for the city of Sacramento is a creative and useful response to Section 65302(g) of the California Government Code which requires local governments to adopt such noise elements. Overall, the Sacramento Noise Element is well conceived and provides a solid foundation on which to base a noise control program. There are, however, several deficiencies which should be considered for correction when the Noise Element is revised between 1980 and 1982.

RECOMMENDATION #6

The following suggestions are made for consideration in the 1980-82 revision of the Noise Element of the Sacramento General Plan:

- A. Amphitheatres should be moved from the moderately sensitive category to the sensitive category of Table 4 titled Land Use Sensitivity.
- B. Table 5 titled Land Use Compatibility for Community Noise would provide more flexibility for creative design solutions if it were separated into two parts, one for interior activities and one for exterior activities. Under such an arrangement, it is doubtful that exterior levels would be needed for most commercial and industrial activities or for churches, meeting halls, and libraries. Conversely, it is doubtful that interior levels are needed for parks, cemeteries, playgrounds, recreation areas, etc. All residential uses (including transient lodging and nursing homes), schools, and possibly hospitals should have both interior and exterior criteria. Amphitheatres should be in a separate category with a maximum desirable level of Ldn = 55dBA. There does not appear to be any benefit for maximum levels for agricultural use.
- C. The section on Freeway Noise Standards has the following deficiencies which should be corrected:
  - (1) This section addresses only exterior noise levels and by so doing places total reliance on noise barriers to abate freeway noise. This section should be revised to enable the use of site planning, noise insulation, or special acoustic design features (such as acoustic windows, insulated walls, etc.) to assure a satisfactory interior environment for those land uses which do not have any exterior activity and for the upper stories of residences which project above the tops of noise barriers.
  - (2) This section implies that walls are preferable to earth berms. Where space is available, earth berms are actually preferable to walls. An earth berm provides 3 decibels greater attenuation, is usually more attractive, and is usually maintenance-free. This section should be revised to give either equal or preferred treatment to earth berms.

- (3) This section specifies a minimum surface weight of 3.5 pounds/square foot for all barriers. This "rule of thumb" requirement is outdated and should be replaced. For earth, masonry, and concrete, no minimum weight is needed since the structural stability requirements provide sufficient mass. A thickness dimension of 20 or 22 gauge for steel and 1 and 1/2 inches for wood is considered more suitable than 3.5 pounds/square foot.
- (4) This section specifies that in no case will a noise barrier be required to be higher than 12 feet above ground level. For freeways at or below ground level, this will usually provide satisfactory results. For freeways on an embankment, this provision could negate all potential noise reduction benefits of a barrier. For example, a 12-foot high barrier next to a freeway on a 12-foot high embankment would not provide any abatement. This section should be revised to limit required barrier heights to 12 feet above ground level (for freeways at or below ground level) and to 12 feet above the roadway (for elevated freeways).
- (5) This section (Table 6) uses the FHWA's design noise levels for mitigating freeway noise. The FHWA design noise levels were not intended for land use planning purposes. The Sacramento Noise Element improperly requires noise reduction just to the levels in Table 6, whereas FHWA requires highway agencies to make their best efforts to obtain substantial noise reductions when the FHWA design noise levels are exceeded. The Noise Element further states that the FHWA design noise levels shall take precedence over the values in Table 5 when the noise source is freeway traffic. The use of two different noise criteria in the Noise Element provides conflicting and confusing information. It is recommended that all reference to FHWA design noise levels be deleted from the Noise Element of the General Plan.
- D. The Noise Element does not contain mitigation standards for noise sensitive uses abutting railroads. When the Noise Element was prepared, it was felt that the frequency and nature of line activities and trackage design features prevented the development of meaningful and workable criteria. Sufficient knowledge and experience have been gained in the past 5 years to permit development and adoption of land use impact criteria from railroad noise. Inclusion of such criteria is recommended for the 1980-82 revision of the Noise Element.
- E. Noise Abatement Policy number 12 of the Noise Element provides the approval of the subdivision map as the only administrative mechanism for implementing the Noise Element. It also provides noise barriers as the only abatement measure. During the revision of the Noise Element, this policy should be amended to include special permits, planned unit developments, rezoning applications, and building permits as administrative mechanisms to implement the Noise Element. This policy should also be revised to include noise insulation of buildings, site planning, and noise barriers as mitigation measures.
- F. Strong consideration should be given to the adoption (in the Noise Element) of the land use compatibility guidelines from Guidelines for Considering Noise in Land Use Planning and Control issued in June 1980 by the Federal Interagency Committee on Urban Noise.

OBSERVATION #7

The city's noise program for highway traffic presently applies only to freeways. While freeways are normally the greatest potential traffic noise source, arterials (particularly those with large volumes of trucks) also have the potential for creating traffic noise problems.

RECOMMENDATION #7

The city should determine the noise impact zone for several selected arterials where trucks are permitted. During the 1980-82 revision of the Noise Element of the General Plan, the city should evaluate the effect and the desirability of extending the coverage to these and other arterials.

OBSERVATION #8

Concern has been expressed by several individuals in the city government City Council, CALTRANS, and by individual citizens over the visual quality of noise barriers, particularly unpainted self-weathering steel.

RECOMMENDATION #8

During the 1980-82 revision of the Noise Element of the General Plan, the city should consider adoption of visual quality standards or architectural review board approval for noise barriers proposed by developers.

OBSERVATION #9

Section 65302(g) of the California Government Code requires railroad, transit, airport, and freeway operators to furnish noise contour maps (or information from which such maps can be prepared) to local governments for land use planning purposes. The operators of commercial and military airfields in the vicinity have provided such contour maps. These maps still appear to be current. CALTRANS furnished noise contour maps for freeways to the city in 1975. The maps appear to be out of date. CALTRANS is currently revising these maps for the city. Neither the Southern Pacific nor the Western Pacific railroads have provided the noise contour maps to the city. Several years ago, each railroad did provide information on the number of trains per day and the approximate speed for different sections of track in the city. City staff used this information to construct train noise maps for the city. It appears that this information may be out of date and that the contour maps may be inaccurate.

RECOMMENDATION #9

The city should formally request both the Southern Pacific and the Western Pacific railroads to furnish current and accurate noise contour maps (or information from which such maps can be prepared) as required by Section 65302(g).

OBSERVATION #10

The Subdivision Regulations require developers to construct noise barriers to reduce noise impacts as a condition of approval of the subdivision map (for subdivisions adjacent to freeways and railroads). Where such conditional approvals are given, evidence that the barriers have been constructed must be given before building permits are approved. There are no provisions in the Subdivision Regulations for building setbacks, for limitations on building heights behind the barrier, or for noise insulation of buildings. During a field visit to a new development in the South Natomas area, it was observed that a noise barrier had been erected by the developer between the proposed residences and the I-5 freeway as stipulated on the approved subdivision map. It was observed that the developer was constructing both 1- and 2-story houses on the tract. While the acoustical study and recommendations for the development and the noise barrier design were predicted on 1-story houses, the approved subdivision map did not contain any conditions other than the requirement of a 12 foot high barrier. While it is not known whether any 2-story houses will be constructed adjacent to the barrier, there are no provisions on the approved subdivision map to protect the upper stories of such houses.

RECOMMENDATION #10

The Subdivision Regulations should be revised to permit conditional approvals to be recorded on the tentative map as a condition of approval. These conditions should include as a minimum: noise barriers, building-height limitations of residences in the near vicinity of noise barriers, noise insulation of noise impacted buildings, and setback distances for buildings.

OBSERVATION #11

Since there are no internal operating procedures for administering the city's noise program, and since Section 1092, Title 25, of the California Administrative Code deals only with interior noise levels, the review of building permit applications for hotels, motels, apartments, and other buildings rarely ever includes a check for the noise impact on the exterior activities. While the Building Inspector systematically checks interior levels (for compliance with Section 1092, Title 25, of the California Administrative Code), he was not aware of the exterior noise level goals in the Noise Element of the General Plan. During reviews by the Planning Department, these applications are not normally sent to the Associate Planner for Environment for a noise review. The result is that the noise impact on exterior activities in these categories is almost always overlooked.

RECOMMENDATION #11

The city of Sacramento could creatively use the legal authority under Section 65302(g) of the California Government Code to bridge this gap. This section of the law requires the Noise Element of a local government's general plan to be used as a guideline for compliance with Section 1092 of Title 25 (all buildings other than single-family detached residences). Responsibility for this review of the impact on exterior activity could be assigned (as an element of internal operating procedures manual suggested in recommendation #2) to either of two departments:

- a. The Planning Department in a manner similar to the review of rezoning permits, special permits, and subdivision tentative maps, or
- b. The Building Inspector Department as a supplement to the interior noise level review.

Positive steps should be taken to assure that responsibility for this function is assigned to one of the Departments.

#### OBSERVATION #12

Many instances were observed where developers have constructed noise barriers adjacent to but just outside the freeway right-of-way. In some instances, these new developments are next to older developments eligible for retrofit noise barriers to be constructed by CALTRANS with highway funds. In one such instance, the retrofit barrier has been constructed. Because it was constructed on the highway right-of-way, it is not aligned with nor connected to the adjacent wall built by a developer. In addition to reduced acoustic effectiveness, this produces a problem of visual discontinuity. Fortunately, the barriers were of the same material, so there was no problem of color or texture discontinuity.

Other instances were observed where because a freeway is on an embankment, a developer has encountered difficulty designing a sufficiently high wall outside the highway right-of-way to provide the desired noise reduction. The city was not aware that CALTRANS has an existing policy which permits developers to construct noise barriers on highway rights-of-way.

#### RECOMMENDATION #12

In any of the instances such as those described above, or others where a more effective or visually compatible result could occur, the city should coordinate with CALTRANS and the developer to get the developer's noise barrier constructed on highway right-of-way.

#### OBSERVATION #13

The City Council has not always been fully supportive of the noise program. One example is the Agean Gardens residential development adjacent to Meadowview Road and the Western Pacific Railroad. The developer proposed to construct a metal wall of unspecified thickness between the development and the railroad. The planning staff (supported by the Planning Commission) recommended against the metal wall, insisting that the 3.5 pounds per square foot wall required by the General Plan be used. The City Council ruled in favor of the developer, a legitimate exercise of its authority. It erred, however, in not stipulating any acoustic performance, structural, and visual criteria (such as a particular sound transmission class for the wall, a minimum surface weight or thickness, or structural ability), or in not referring the resolution of design details back to the planning staff. The wall has been constructed and is now in place. Nobody in the city government seemed to know how thick the wall is or how effective it will be. It appears that little effort has been made to educate and inform the City Council on the properties of noise, its transmission and abatement, nor on the overall value and function of the city's noise abatement program.

RECOMMENDATION #13

a. The planning staff should prepare a concise informative presentation for the Council explaining 1) the Noise Element of the General Plan, 2) Section 1092 of Title 25 of the California Administrative Code, 3) and the properties of noise and its transmission and abatement.

b. In future instances where the City Council accepts a noise solution which is substantially different from the recommendation of the planning staff and the Planning Commission, it should either stipulate the performance criteria and construction details, or refer the proposal back to the Planning Department for resolution of details.

OBSERVATION #14

Many instances were observed where individuals in city government have had to make recommendations or decisions based upon incomplete information or without the proper understanding of the physical laws or properties involved. It does not seem reasonable to expect every local government in the country to have in its employ an individual with sufficient technical expertise to independently exercise such judgment.

RECOMMENDATION #14

A handbook is needed for local governments to use in reviewing and acting upon proposed development plans. This handbook should contain (as a minimum) information on simple noise forecasting from highways and railroads; height, weight, length, and attenuation relationships for various noise barrier materials; noise reduction factors for different types of exterior wall construction; noise reduction-distance relationships; and noise impact criteria for different land uses. While considerable work has been done in this area, a concise compilation of the necessary information into a simple easy-to-use handbook has not yet been done. Until such time that such a handbook is developed, local governments should contact the Environmental Protection Agency and the Department of Housing and Urban Development for technical assistance.

SUMMARY OF FINDINGS

The noise abatement program in the city of Sacramento is working. It is obtaining some good results. The personnel and administrative mechanisms already in existence provide a solid basis for effective pursuit of the city's stated goals for a quiet community. There are, however, several areas where changes could strengthen the city's pursuit of this goal.

In any organization (government in particular) the desired results of laws, codes, ordinances, plans, regulations, and directives are only as good as the people who carry them out. The people involved in Sacramento's noise program are knowledgeable of their own area of responsibility, dedicated to their work, and sincere in their attitude. The people presently employed by the city appear to be sufficient in number to accomplish what needs to be done. The city's administrative procedures and internal operating procedures,

however, could be improved. It does not appear that anybody in the city government has a good understanding of all the various elements of the city's noise requirements, or how they do or should fit together. The operations in the various departments are fragmented and compartmentalized. There appears to be little or no continuity or communication between the departments on noise. In addition, there have been instances where the City Council has taken an action which should have been referred back to the Planning Department staff to work out the final details. In at least one instance, this was not done, and the developer proceeded without further guidance or review. Although the city's laws, ordinances, regulations and other administrative mechanisms related to noise have accomplished a great deal, they are in need of revision. In some instances they are outdated or contradictory. In other instances they contain incorrect information or are incomplete in their coverage. There are some gaps in the existing legal framework and the administrative mechanisms which should be filled in order to fully deal with the noise problem. The noise program in Sacramento is working. A considerable improvement could be made, however, by supporting the city's talented and dedicated staff through the adoption of many of the recommendations contained in this report.