

SPECIAL MEETING

SACRAMENTO CITY COUNCIL

DECEMBER 18, 1986
THURSDAY
4:00 P.M.

I HEREBY CALL a Special Meeting of the Sacramento City Council at the Regional Transit Light Rail Facility, 2700 Academy Way, Sacramento, California, on Thursday, December 18, 1986, at the hour of 4:00 p.m., for the purpose of touring the Light Rail facility.

ISSUED: This 5th day of December, 1986.

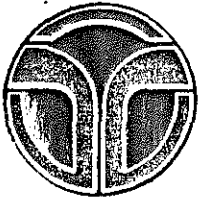


ANNE RUDIN
MAYOR

ATTEST:



LORRAINE MAGANA
CITY CLERK



REGIONAL TRANSIT

P.O. BOX 2110 • 1400 29TH STREET • SACRAMENTO, CA 95810-2110

DAVID A. BOGGS, General Manager

RECEIVED
CITY CLERKS OFFICE
CITY OF SACRAMENTO
Dec 15 9 52 AM '86

DATE: December 4, 1986
TO: Mayor Anne Rudin
Members, City Council
FROM: David A. Boggs, *DB* General Manager
RE: Light Rail Train Ride

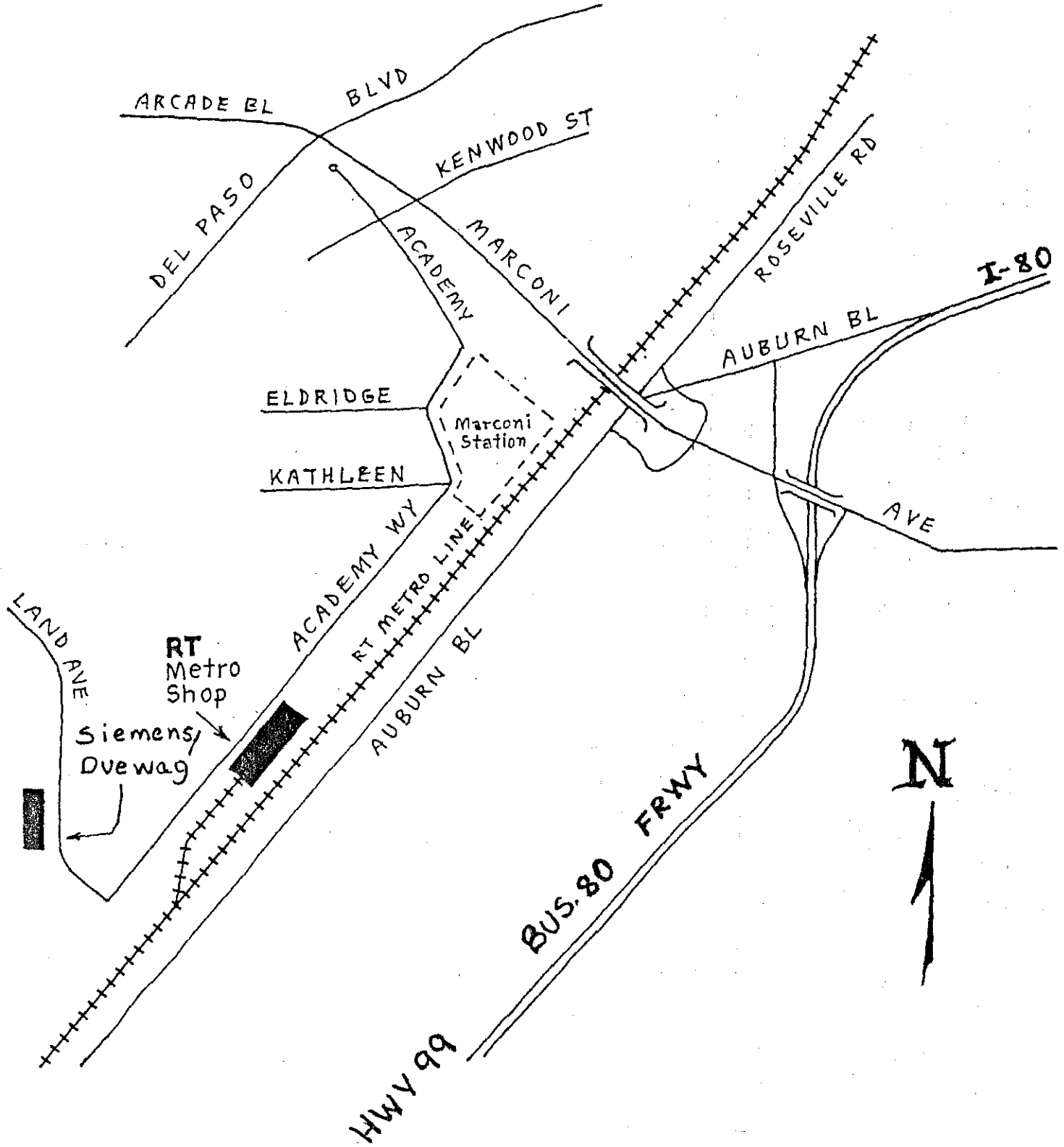
This is to confirm the light rail train ride scheduled for 4 p.m. on Thursday, December 18. Please meet me at the RT Metro operations and maintenance facility at 2700 Academy Way. A sketch map is attached for your convenience.

If you need transportation, please call my secretary, Billy Campbell, at 321-2990.

We look forward to seeing you on the 18th.

Attachment
c: Marty Flores

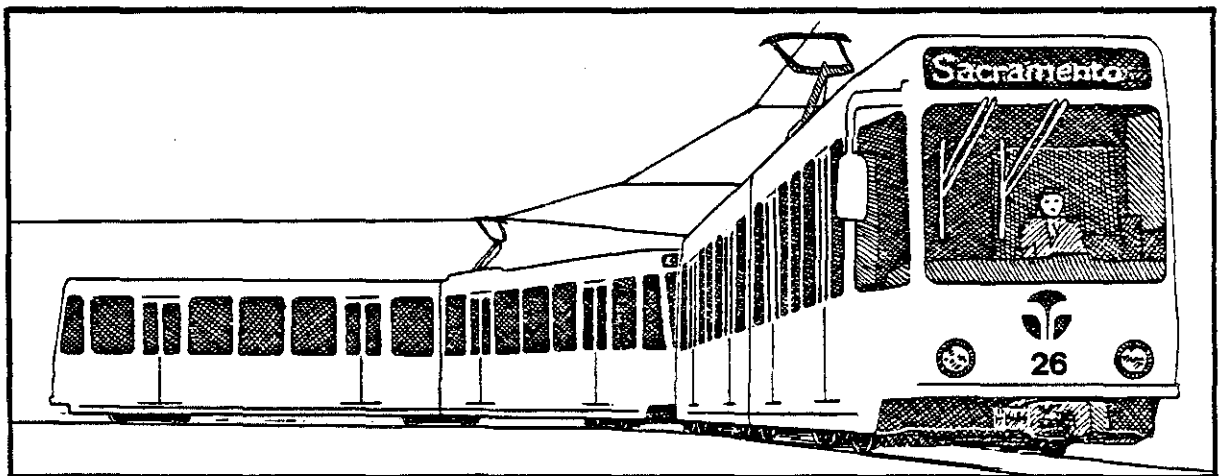
RT Metro



MAINTENANCE FACILITY 2700 ACADEMY WY

ASSEMBLY PLANT 2655 LAND AVE
Siemens/Duewag

**SACRAMENTO
TRANSIT DEVELOPMENT
AGENCY**



**APPENDIX B
TO
FINAL ASSESSMENT REPORT NO. 3
(SACRAMENTO LIGHT RAIL PROJECT COST ANALYSIS)**

Memorandum

To : Chairman and Members
California Transportation
Commission

Date: January 15, 1985
File : Item 2.2
INFORMATION

From : CALIFORNIA TRANSPORTATION COMMISSION

Commission Staff

Subject: Presentation of Consultant's Report on Sacramento Light Rail Issue

The Commission's mass transportation consultants, Wilbur Smith and Associates, have completed the enclosed review of the Sacramento Light Rail project and are available to respond to your questions about the project. In addition, staff of the project sponsor, the Sacramento Transit Development Agency (STDA), will present to you their proposed plan for financing the project's capital deficit.

Discussion:

The consultant's report estimates that the project's costs will exceed its budget by \$23.1 million, costing \$154.3 instead of \$131.2 million. In the "worst case" envisioned by the consultant, the cost overrun could reach \$31.1 million; in the best case, the overrun would be only \$14.3 million.

These estimates exclude \$1.9 million worth of items contained in the project the Commission approved in September, 1983. Under the terms of the Commission's approving resolution, MT-84-17, these items are ineligible to receive additional funding from the Commission. The estimate includes \$5.9 million worth of items added to the project the Commission approved. MT-84-17 makes these items eligible to compete for State guideway funds during the 1985-86 and subsequent years.

The report documents a conflict between MT-84-17 and the contract STDA signed with the Urban Mass Transportation Administration. To honor the terms of both agreements, STDA must complete the full LRT project, and finance additional costs (except for "add-ons" not covered by MT-84-17) without additional Federal funds or funds allocated by the Commission.

With regard to Sacramento Regional Transit District's (RT) five-year plan to finance its combined bus and LRT system, the report finds that the plan's assumptions are reasonable, although its projections of future funding deficits may be optimistic. The plan indicates that RT's annual expenditures will exceed its resources, but that a \$14 million carry-in is available to finance the system for the next three years. In the last two years of the plan, RT projects a cumulative unfunded deficit of \$5.1 million. In 1989, RT estimates an unfunded deficit of \$1.6 million, and Wilbur Smith forecasts a \$2.9 million deficit. Both estimates make assumptions about State and Federal operating assistance and farebox ratios that are subject to considerable fluctuation. The report indicates a "worst-case" shortfall of \$6.1 million in 1989, and a "best-case" surplus of \$1.6 million.

Staff recommend that you approve the following schedule for considering issues related to the Sacramento project:

- January: Consultant's report
STDA staff presentation of funding capital deficit
Notice to amend STIP
- February: Consultant's report on STDA financing plan
STDA comments
Allocation of \$5.5 million in 1984-85 guideway funds
Allocation of \$.6 million in Federal Interstate Rehabilitation funds
for acceleration lanes
- March: Review of STDA application for 1985-86 Guideway funds
- July: Convey title of I-80 Bypass land to STDA pursuant to AB 481 of 1983.



ROBERT S. NIELSEN
Executive Director

Attachment

**SACRAMENTO LIGHT RAIL PROJECT
COST ANALYSIS**

**Prepared for the
California Transportation Commission**

Wilbur Smith and Associates

January 11, 1985

Wilbur Smith and Associates, Inc.

282 SECOND STREET
2nd FLOOR
SAN FRANCISCO, CA. 94105
PHONE (415) 896-0670

CABLE WILSMITH
TELEX 57-3439

January 14, 1985

Mr. Hugh Fitzpatrick
California Transportation Commission
1120 N. Street, P.O. Box 1139
Sacramento, California 95805

Re: CTC-0610; Sacramento Light Rail Project Cost Analysis

Dear Mr. Fitzpatrick:

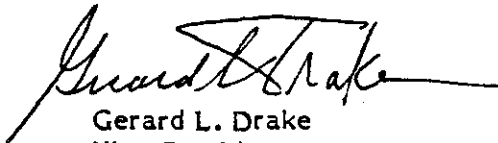
We are pleased to submit our report on the Sacramento Light Rail Project.

Included are: (1) results of our analysis of the capital costs of the project as it is now defined by the Sacramento Transit Development Agency following the identification of various cost reduction measures, and our independent projection of total project costs; (2) our identification of both scope reductions (which are not eligible for additional state funding if implemented at some later time) and scope additions which we consider eligible for additional funding; (3) a review of conflicts in the existing State and Federal funding contracts which will affect STDA's response to capital funding shortfalls; (4) a review of the status of existing Federal, State and local funding commitments; and (5) our assessment of Regional Transit's plan for funding guideway operating costs following completion of the light rail project. In performing these tasks, we have enjoyed the complete cooperation of all representatives of STDA, Caltrans and Regional Transit. One task remains, which is an assessment of STDA's plan for funding the indicated capital cost overrun, which will be undertaken when the STDA plan is made known.

We trust the Commission will find this report to be fully responsive to their needs relative to the Sacramento project.

Respectfully submitted,

WILBUR SMITH AND ASSOCIATES



Gerard L. Drake
Vice President

GLD:tft
#183650

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EXECUTIVE SUMMARY

The Sacramento Light Rail Project Cost Analysis included five separate elements as follows:

- (1) A detailed review of projected capital costs for the project as currently defined by the Sacramento Transit Development Agency (STDA), and development of an independent cost projection;
- (2) Identification of project elements which were included in the project as approved by the Commission in September, 1983, but not included in the currently planned project, plus major scope additions which warrant consideration for supplemental funding;
- (3) Identification of important contract differences between the UMTA Full Funding Agreement and CTC Resolution MT-84-17 which approved state funding support for the project;
- (4) An analysis of existing federal, state and local funding commitments; and
- (5) An analysis of Regional Transit's plan for funding guideway operating costs.

I. Projected Capital Costs of Current Project

A review of projected capital costs for the Sacramento Light Rail Project as currently defined by the Sacramento Transit Development Agency (as of December 12, 1984) indicates the following:

- (1) The WSA forecast of total cost for the project, as now defined, is \$154.3 million. Thus, even with cost reduction measures recently adopted by STDA, total project costs are most likely to exceed the currently approved budget of \$131.233 million by about \$23 million. This estimate includes normal allowances for design and construction contingencies.

- (2) There remain several key uncertainties relating to the ultimate total cost of the project including (a) a claim by the selected vehicle manufacturer; (b) condemnation proceedings and negotiations relating to right-of-way acquisition; (c) litigation over responsibilities for private utility relocation costs; (d) the project schedule as it affects project management and engineering costs; (e) remaining design decisions; and (f) construction bid prices at the time of contracting in 1985. A worst case forecast indicates that total project costs might be as high as \$162 million, or \$31 million more than the currently available budget if additional delays are encountered, future construction bid prices are higher than expected, and results of negotiations or litigation relating as items a, b, and c above are all adverse to the project.
- (3) The project might be completed for as little as \$145 million, or about 14 million over budget, but only if (a) the outcome of all remaining negotiations and litigation affecting costs are very favorable to the project; (b) additional delays are avoided; (c) contract bid prices are equal to or less than the Engineers' Estimates; and (d) costly change orders are avoided.
- (4) Most of the cost uncertainty and projected budget over-run relates to 9 of 38 Contract Units. The aggregate cost of these 9 contract units is likely to be about \$22 million over budget. Future efforts to contain the cost over-run should focus on these 9 contract units.

II. The Approved Project

1. Five project elements were identified in this cost analysis as covered by the approved project definition but assumed to be deferred or eliminated by STDA based on current cost reduction plans. These include: a) Winter Street access to the Roseville Road station; b) elements of the WATT/80-West Station; c) about 373 parking spaces; d) elements of the K Street Mall improvements; and e) certain O Street improvements. These project elements, if deferred as now planned, are not considered eligible for additional State funding if implemented at some later time. The current value of these items is about \$1.9 million.

2. Six desirable elements of the current project are considered to be scope additions (items not specifically required by the FEIS). These items, totalling about \$5.949 million in value, include a) a WATT/80 bus acceleration lane; b) Sacramento Bee access provisions; c) upgraded grade-crossing protection devices at 13 locations; d) operator rest rooms at 3 stations; e) a median barrier at Watt Avenue; and f) system start-up costs.
3. The approximate total cost of the Approved Project based on this cost analysis is \$150.3 million. This amount excludes the 6 scope additions note above and includes the 5 elements of the original project scope which may be deferred or separately funded by STDA.

III. State/Federal Contract Conflicts

1. There are several significant differences between the federal and state contracts approving funds for the Sacramento project--differences of relevance to planned cost reductions. Most significant is the fact that the project cannot be downscoped without UMTA advance approval which almost certainly would only be given subject to a commensurate reduction in federal funding, whereas the CTC contract with STDA permits downscoping without loss of state funds.
2. Any elements of the approved project, as defined by the project FEIS, which are deferred initially are not eligible for additional state funding if implemented at a later time. The UMTA contract calls for all required project elements to be implemented initially, with additional local resources, if necessary.
3. Desirable additions to the project scope which can be justified on their own merits are eligible for additional federal and/or state funding as appropriate.

IV. Existing Funding Commitments

1. A total of \$131.23 million had been committed to the project as of December 12, 1984.

2. About 75 percent of the total funding commitment (\$98.5 million) consists of federal funds of which over 90 percent is already appropriated by Congress and more than 50 percent is already available for expenditure.
3. The State commitment amounts to \$25.92 million of which \$5.50 million remains to be authorized. The availability of the remaining \$5.5 million is conditioned on availability of funds from federal and local sources.
4. Local capital commitments amount to \$6.8 million, all of which is appropriated.

V. Assessment of Regional Transit's Plan to Fund Guideway Operating Costs

1. Regional Transit's latest plan for funding operating costs following the introduction of light rail service is documented in its Transit Plan, 1985-89, which was adopted by the RT Board on August 27, 1984. This review determined that the August plan is obsolete with respect to funding. Preliminary unpublished revisions generated by Regional Transit in November provided the basis for this assessment.
2. The November forecasts supplied by Regional Transit show an unfunded operating deficit. The cumulative magnitude of the deficit is approximately \$5.1 million over the five-year period between FY 85 and FY 89. The estimated FY 89 deficit, a typical operating year after introduction of light rail service, is estimated by RT at \$1.7 million.
3. All assumptions underlying the current Regional Transit forecasts of operating expenses are reasonable as related to the service levels specified, although the service levels now planned are lower than those specified in the light rail project FEIS.
4. Although Regional Transit forecasts of funds likely to be available through the Transportation Development Act are conservative, both the federal and state (STA) funding levels assumed are uncertain and optimistic. It is also possible that fare revenues may be slightly overstated in view of planned service reductions and fare increases;

future patronage of the rail/bus system is uncertain and will depend in part upon factors beyond the control of Regional Transit.

5. While there is room for discussion about its magnitude, the expected operating deficit is real and may be understated by Regional Transit. The amount depends in large part on future federal and state transit support levels which cannot be predicted with confidence at this time. A conservative WSA forecast of the FY 89 deficit developed in this study is about \$3.0 million and the deficit could be greater if federal and state transit assistance programs are discontinued.
6. The availability of uncommitted "carryover" capital funds from prior years provides Regional Transit with several years to review the situation and take corrective actions if required to avoid funding shortfalls. Regional Transit has identified both cost containment and revenue enhancement options to address deficits in the amounts they have projected. If funding shortfalls do develop as indicated in this report, additional actions would need to be taken by the RT Board, including formal adoption of a specific plan of additional cost reduction and/or revenue generation measures.

Wilbur Smith and Associates

January 11, 1985

I. PROJECTED CAPITAL COST OF PROJECT AS DEFINED BY THE SACRAMENTO TRANSIT DEVELOPMENT AGENCY

A detailed review was made of current plans and cost estimates for the Sacramento Light Rail Project, and an independent projection of total project cost was developed for the project as currently defined by the Sacramento Transit Development Agency (STDA). Numerous changes in project definition have been made as the project development process has proceeded from preliminary engineering to detailed design and construction stages, and additional changes are likely. The cost projections presented in this report relate to the project as it was defined by STDA on December 12, 1984.

Major Project Elements

The Sacramento Light Rail Project had been defined (until December) in terms of the 41 "Contract Units" (CU's) which are listed in Appendix Table A. The project now consists of 38 Contract Units. The total budget for these 38 Contract Units is now set by STDA at \$131.233 million. The most current cost estimate for each of these Contract Units was reviewed to arrive at the cost projections presented in this report.

Methodology

The methodology employed to arrive at the cost projection for a particular Contract Unit was dependent upon completion status. Completion status as of December 12, 1984 is shown in Appendix Table B. Contract Units were classified according to status as follows:

- (1) Construction or Procurement Completed (or almost completed);
- (2) Firm Bid Available or Contract Awarded;
- (3) Design Plans Completed;
- (4) Design Plans Still Incomplete.

The classifications specified as noted above reflect the degree of "firmness" of the cost projections and the degree of confidence which can be placed in them.

In developing the cost projections provided in this report, differences in the reliability of the estimates for Contract Units in various stages of design or construction were accounted for by differences in allowances for contingencies which were calculated in a systematic way as follows:

- o For construction or procurement Contract Units which are reported as completed, the actual cost reported by STDA was taken as the cost estimate. No additional amount was added for contingencies (except in cases where the possibility of additional change orders remains).
- o For procurement contracts which have been awarded, the actual amount of the contract award was taken as the cost estimate (except for cases of disputes which could lead to additional costs, as in the case of the vehicle procurement contract).
- o For construction contracts which have been awarded, or cases where a firm bid has been obtained, a construction contingency amount was added to provide a reserve to cover the possibility of change orders or claims. This contingency amount ranged between 3.5 and 5.0 percent of the bid price, the particular percentage depending on the complexity of the construction involved and the status of completion of the construction.
- o For construction Contract Units for which design plans are complete but contracts have not yet been advertised, the engineers estimates were thoroughly reviewed to assure that all additions and/or deletions currently planned by STDA were reflected in the bid items and that no major cost item was omitted. An allowance for contractor mobilization was added, where not previously included, equal to 10 percent of the base cost estimate. In addition, the base unit cost estimates were reviewed and adjusted to Third Quarter - 1984 cost levels based on construction cost indices published by CalTrans. A contingency factor of 5 percent was added to cover the possibility of subsequent changes during construction.

- o For contract units for which the design is still incomplete but has progressed beyond the preliminary stage, a 10 percent contingency amount was added to the base cost estimate as updated in this study.
- o Where the design has not progressed beyond the preliminary stage (i.e., beyond 30 percent completion), a 20 percent contingency was added to allow for possible design refinements as well as other uncertainties affecting the cost estimates.
- o Each estimate (other than those based on firm bid prices or contract awards) was escalated at an annual rate of 6 percent to the mid-point of the construction period for the Contract Unit involved. This reflects the view that allowances for inflation should not be considered as part of the usual allowances for construction contingencies.

Differences of opinion are likely to exist relative to the amount of contingency funding which is prudent and desirable, or the likelihood that contract bid prices will be greater or less than engineers' estimates. In fact, it is not possible to predict with certainty the ultimate cost of the Sacramento project-- even now-- to an accuracy greater than ± 5 percent. For this reason, project cost projections are presented in ranges of values, with the mid-range figure being the most probable based on current information. The estimate representing the "worst case" is equally significant, however, since a prudent financial plan must allow for the possibility that this higher cost level might actually be reached under adverse conditions. The "lowest forecast" represents the lowest value which can reasonably be expected under current conditions; it is still possible that the project can be completed for this amount.

Cost Projections

Cost projections resulting from the methodology described above are shown in Table I-1. These estimates confirm earlier reports that substantially more than the current \$131.233 million budget will be required to complete the Sacramento Light Rail Project and indicate the following:

Table I-1
PROJECTED CAPITAL COSTS
SACRAMENTO LIGHT RAIL PROJECT
(AS DEFINED BY \$TDA AS OF 12/12/84)

PROJECT ELEMENT		BUDGETS		PROJECTED COST (\$ THOUSANDS)						LOWEST FORECAST \$000	WORST CASE FORECAST \$000	REMARKS
CU#	ITEM	APR. 1984	DEC. 1984	ITEM COMPLETE	FIRM BID ON AWARD	DESIGN COMPLETE	DESIGN INCOMPLETE	POSSIBLE ADD'L. COST	TOTAL			
1	NO. SAC. GRADE SEPARATIONS	6,284	6,956	6,870				42	6,912	6,870	6,956	Subject to Settlement
1A	NO. SAC. SPRN RELOCATION	386	0						-	-	-	
2	AT-GRADE LINE N.E. CORRIDOR	3,924	4,071		3,965			198	4,163	3,965	4,361	Possible Change Orders
2A	WATT/80 MEDIAN	810	3,790			4,947			4,947	4,670	5,194	Excl. Winter St. Option
3	MAINTENANCE BUILDING	2,726	3,963		3,827			136	3,963	3,827	4,106	
4	MALL DEMOLITION	500	360	360					360	360	360	
4A	AT-GRADE LINE-CENTER CITY	6,000	8,237			9,544			9,544	9,067	10,021	
4B/C	TREE PROCUREMENT-K ST.	32	32		32				32	32	34	
4D	CENTER CITY PARKING LOTS	-	-						-	-	-	
5	AT-GRADE LINE-FOLSOM CORRIDOR	7,670	8,054				14,187		14,187	13,979	14,896	
6	AT-GRADE STATION-WATT/80	2,440	870			1,216			1,216	1,193	1,277	
7	AT-GRADE STATIONS-N.E.	3,500	1,870			2,354			2,354	2,236	2,589	
7A	AT-GRADE STATIONS-FOLSOM	3,870	3,791			4,830			4,830	4,739	5,796	
7B	TREE PROCUREMENT-SUBURBS	35	35		35				35	35	38	
7C	ART PROGRAM	0	222				233		233	222	244	
7D	STATION GRAPHICS	0	150				158		158	150	165	
7E	STATION SHELTERS	0	423				470		470	461	494	
8	YARD GRADING	48	71	71					71	71	71	
8A	FENCING-YARD STORAGE	8	8		8			1	9	8	10	
9	ELECTRIFICATION	1,390	2,304			2,304			2,304	2,200	2,400	
10	LRT SIGNALING	5,760	4,147		3,928			219	4,147	3,928	4,354	
11	TRAFFIC SIGNALS	2,390	2,509			2,509			2,509	2,383	2,635	
12	RADIO PROCUREMENT	280	280	280					280	280	280	Incl. Fare Vending Units
14A	RAIL PROCUREMENT	2,731	2,731	2,731					2,731	2,731	2,731	
14B	OTHER TRACK MAT'L. PROC.	1,180	1,180	1,180					1,180	1,180	1,180	
15	TIE PROCUREMENT	1,142	1,148	1,148					1,148	1,148	1,148	
16	SPL. TRACKWORK PROC.	643	691		691				691	691	726	

*Includes Contract Units 95% complete or more.

**Table I-1 (cont'd.)
PROJECTED CAPITAL COSTS
SACRAMENTO LIGHT RAIL PROJECT
(AS DEFINED BY STDA AS OF 12/12/84)**

PROJECT ELEMENT		BUDGETS		PROJECTED COST (\$ THOUSANDS)						LOWEST FORECAST \$000	WORST CASE FORECAST \$000	REMARKS
CUP	ITEM	APR. 1984	DEC. 1984	ITEM COMPLETE	FIRM BID OR AWARD	DESIGN COMPLETE	DESIGN INCOMPLETE	POSSIBLE ADD'L. COST	TOTAL			
17	LIGHT RAIL VEHICLES	24,352	25,570		24,352			1,218	25,570	24,352	29,000	Litigation
18A	FARE VENDING EQUIP. PROC.	520	520		520				520	520	546	
18B	MAJOR SHOP EQUIP. PROC.	880	880			880			880	836	924	
18C	LINE MAINT. EQUIP. PROC.	240	240			240			240	228	252	
19	SUBSTATION PROCUREMENT	3,473	3,473		3,473			100	3,593	3,493	3,647	Pot'l Change Orders
20	CATENARY SYSTEM/POLES	1,880	1,481		1,481				1,481	1,481	1,481	
21	CABLE/WIRE PROCUREMENT	1,370	1,142		1,135			7	1,142	1,142	1,200	Pending Changer Order
40	MANAGEMENT & ENGINEERING	10,174	17,156				23,610		23,610	23,610	24,800	
48	DRYD START-UP	3,123	2,949				2,949		2,949	2,360	3,240	
60	RISK MANAGEMENT	1,550	1,550				1,550		1,550	1,550	1,550	
60	ROW ACQUISITION	12,885	12,885						16,682	15,857	17,329	
70	UTILITY RELOCATION	5,257	5,257						7,600	3,700	8,700	
88	CONSTRUCTION CONTIGENCIES	3,587	0						-	-	-	
88	GENERAL CONTIGENCIES	0	237						-	-	-	
	TOTAL	131,040	131,233						154,291	145,555	162,363	

- (1) Even with various cost cutting measures adopted recently by STDA, the WSA projection of total project costs is \$154.3 million, or about \$23 million more than the current approved budget. This estimate includes typical allowances for design and construction contingencies, but is exclusive of a desirable general contingency fund (CU99).
- (2) The real possibility exists that total project costs could exceed \$160 million. Assuming adverse results of negotiations relating to a) vehicle procurement; b) right-of-way acquisition; and c) utility relocation costs, and with more conservative allowances to cover other uncertainties, the Worst Case forecast amounts to \$162.4 million or about 31 million more than the approved budget.
- (3) It is possible that the project can be completed for about \$145 million. For this to be the case, however, remaining construction bids would need to be within Engineer's Estimates and the outcome of negotiations or litigation to settle a current vehicle procurement claim, right-of-way acquisition conflicts and utility relocation cost responsibilities would all need to be favorable to the project. Also, further delays or complications affecting rapid completion of all remaining engineering work would need to be avoided.

The indicated level of cost uncertainty and cost over-run relates primarily to 9 Contract Units, including the following:

- CU2A - Watt/80 Median Construction
- CU4A - Center City Line Construction
- CU5 - Folsom Corridor Line Construction
- CU7A - Folsom Corridor Stations
- CU17 - Vehicle Procurement
- CU40 - Management & Engineering
- CU45 - SRTD Start-Up
- CU60 - Right-of-Way Acquisition
- CU70 - Utility Relocation

As shown by Table I-2, the most probable cost of all 29 Contract Units other than the 9 listed above is \$44.4 million, or only \$0.8 million (1.9 percent) over the current budget for these Contract Units. The Worst Case forecast for the 29 non-critical Contract Units is only \$2.2 million (5.1 percent) over the respective budget amounts. On the other hand, the most probable total cost of the 9 critical Contract Units listed above is \$22.2 million (25.3 percent) over the budget now available for these 9 project elements, and the Worst Case forecast is \$28.9 million (33.0 percent) over budget. Thus, much depends on the outcome of negotiations and design decisions relating to the 9 critical areas of uncertainty, each of which is discussed below.

Contract Unit 2A - WATT/80 Median - This work includes the erection of barriers to separate the project work area from the I-80 Freeway; cutting and removing existing concrete; grading, drainage, lighting and landscaping; and related civil work. Design work is complete. The most recent Caltrans Engineers' Estimate for this Contract Unit is \$3.626 (excluding a Winter Street access option); the WSA base forecast is \$4.947 million, or \$1.157 million over budget. The difference is related primarily to differences in unit cost assumptions for reinforced concrete pipe. (Some of the STDA cost reductions which are reflected in these estimates relate to items included in the original definition of the project as documented in the FEIS, the implications of which will be discussed separately).

Contract Unit 4A - Central City Line Construction - This Contract Unit consists of line construction between Arden/Del Paso and 18th/R Streets in the Center City, including reconstruction of the K Street Mall; 12th Street improvements; O Street improvements; modifications to existing structures; conventional grading, drainage and trackwork; and related civil construction items. Art Program and Station Graphics elements of the original definition of this Contract Unit have been transferred to CU7C and CU7E. Design work is about 95 percent complete. Allowing for \$1.231 million in planned cost reductions, the latest available Caltrans Engineer's Estimate for this Contract Unit is \$8.184 million. The WSA base forecast is \$9.544 million or \$1.3 million over the STDA December budget for this item (and \$3.5 million over the April budget allocation for CU4A). (Part of the \$1.231 in planned cost reductions relates to items included in the original definition of the

Table I-2
SUMMARY OF WSA COST FORECASTS
(\$ Millions)

<u>ITEM</u>	<u>DECEMBER STDA BUDGET</u>	<u>WSA(Most Probable) FORECAST</u>
9 Critical CU's ⁽¹⁾	\$ 87.689	\$109.919 (+25.3%)
29 Other CU's	<u>43.544</u>	<u>44.372 (+1.9%)</u>
TOTAL	\$131.233	\$154.291 (+17.6%)

<u>ITEM</u>	<u>LOWEST POSSIBLE COST</u>	<u>WORST CASE FORECAST</u>
9 Critical CU's ⁽¹⁾	\$102.334 (+16.7%)	\$116.604 (+33.0%)
29 Other CU's	<u>43,221 (--)</u>	<u>45.759 (+5.1%)</u>
TOTAL	\$145.555 (+10.9%)	\$162.363 (+23.7%)

(1) CU2A, CU4A, CU5, CU7A, CU17, CU45, CU60, CU70

project as documented in the FEIS, the implications of which will be discussed separately). The difference between the CalTrans and WSA estimates is primarily the result of up-dating obsolete unit price assumptions and allowing for escalation to the mid-point of the scheduled construction period for this Contract Unit.

Contract Unit 5 - Folsom Corridor Line Construction - This Contract Unit covers line construction between 18th and R Streets in the Central City to the Folsom Corridor terminus at Butterfield Way. It includes grading and drainage; structures over the UPRR and SPRR (including a scope expansion to facilitate access to the Sacramento Bee plant at 22nd Street); trackwork; and other civil work. The most recent Caltrans Engineers' Estimate, prepared in late November 1984, is \$12.062 million which compares with the current \$8.054 million budget. The WSA base forecast is \$14.187 million or \$6.1 million more than the STDA December budget. The indicated difference between the CalTrans and WSA estimates relates primarily to differences in unit price assumptions for structures; the addition of a 10 percent allowance for contractor mobilization; and inclusion of an allowance for cost escalation to account for the effects of schedule delays. (The bid opening is now scheduled for May 6, 1985). Design work is reported by Caltrans to be 55 percent complete although this may be an optimistic estimate; no detailed structural plans were available for review. Accordingly, a 10 percent allowance was included in the WSA base forecast for contingencies. The WSA forecast also assumes that the Sacramento Bee share of project changes to facilitate access to their plant will be \$350,000, although this amount is still subject to negotiations.

Contract Unit 7A - Folsom Corridor Stations - This includes construction of 10 stations along the Folsom Corridor line including grading, drainage, lighting and landscaping; park-&-ride lots; street signals; and other station-related items (other than the station items included in other Contract Units such as graphics and shelters). The design work on these stations is reported by Caltrans to be 33 percent complete; considerable uncertainty remains concerning design details and the 33 percent estimate appears optimistic. The current Caltrans cost estimate of \$4.143 million is based on conceptual plans only and extrapolation of estimates for Northeast Corridor

Stations. The WSA estimate is \$4.830 million and includes a relatively high 20 percent contingency factor and an allowance for cost escalation. This assumes lowest-cost design concepts; it is possible that Contract Unit 7A costs could approach the \$6.0 million level, and this possibility is recognized in the WSA Worst Case forecast. Thus, costs for Contract Unit 7A are expected to be \$1.0 to \$2.0 million higher than the current budget of \$3.791 million.

Contract Unit 17 - Light Rail Vehicles - A contract for the provision of 26 light rail vehicles plus spare parts and related contractor services has been awarded to Siemens-Allis (a German company) for \$24.352 million. Siemens has filed a claim relating to Buy America waiver issues. In December, STDA increased the budget for this item from \$24.352 to \$25.570 million. There is no way to predict the outcome of the Siemens claim with certainty. The WSA base forecast utilizes the current STDA budget figure which includes an additional 5 percent of the base car order for contingencies; an adverse settlement of the claim could increase this item by as much as \$3.6 million.

Contract Unit 40 - Management and Engineering - The current budget for these project costs is \$17.156 million. Of this total, \$10.073 million was allocated for Caltrans. STDA reported actual expenditures against this account totalling \$9.054 million as of November 2, 1984, of which \$8.540 million represented Caltrans billings. The WSA base forecast of \$23.6 million (see Table I-3) assumes a \$3.2 million CalTrans cost over-run (CalTrans costs are estimated to increase from \$10.073 million to about \$13.2 million) and total engineering costs including consultants are expected to approach \$19.0 million. The remainder of the \$23.6 million projection relates to Executive Office, legal and appraisal costs, all of which will exceed budget allocations. Thus, it is estimated that CU40 will have a 30 percent over-run of budget. A Worst Case forecast of \$24.8 million is indicated.

Contract Unit 45 - SRTD Support Costs - This Contract Unit covers the costs of project coordination, planning, grant administration and system start-up support services supplied by Regional Transit personnel and consultants. The existing budget is \$2.949 million. The extended project schedule will have some effect on project coordination costs. On the other hand, it appears that plans for system start-up can be adjusted to the new project schedule without increasing labor costs. The amount budgeted for

Table I-3
PROJECTED COSTS
CU40 - MANAGEMENT AND ENGINEERING
(\$000)

<u>ITEM</u>	<u>APPROVED BUDGET</u>	<u>WSA PROJECTION</u>	<u>WORST CASE</u>
Executive Office	\$ 1,359	\$ 2,280	\$ 2,400
Legal/Other	603	1,067	1,200
Engineering			
CalTrans	10,073	13,200	14,000
Consultants	4,825	5,700	5,700
City/County/RT	<u>296</u>	<u>1,363</u>	<u>1,500</u>
TOTAL	\$17,156	\$23,610	\$24,800

Regional Transit support should be adequate, and this figure is retained as the WSA base forecast. However, it could be exceeded if not constrained or if additional delays are encountered as reflected in the Worst Case forecast of \$3.2 million.

Contract Unit 60 - Right-of-Way Acquisition - The Approved Baseline Budget for right-of-way acquisition is \$12.885 million. As of the end of November, STDA reported right-of-way acquisition as 31 percent complete with 24 parcels acquired and 53 remaining to be acquired. Actual costs of parcels already acquired as of December 12, 1984 amounted to about \$5.444 million. The costs of eight of the remaining properties to be acquired are subject to condemnation proceedings, which are likely to result in settlements greater than the appraised values—at least in some cases. In addition, a counter-offer has been received from the Southern Pacific Transportation Company which suggests that the settlement for required railroad right-of-way in the Folsom Corridor will exceed estimates substantially. The WSA base forecast for right-of-way acquisition is \$16.682 million, or \$3.797 million over budget, and the Worst Case forecast is set at \$17.329 million or \$4.444 million over budget. These projections compare with a \$17.015 million Worst Case forecast projected by Regional Transit consultants in June, 1984.

Contract Unit 70 - Utility Relocation - The Approved Baseline Budget for this work is \$5.257 million. This includes \$4.408 million for relocations of private utility lines and \$0.849 million for relocation of a Southern Pacific gas pipeline, City water and sewer line relocations and other minor items. The largest item relates to SMUD for which \$2.972 million is budgeted.

Utility relocation costs cannot be predicted with reliability, since there are always unknowns remaining even during the construction stage. The issue is also complicated by prospective litigation to determine responsibilities for the costs relating to private utility relocations. A court decision in another state indicates that private utility relocation work required by the appropriate public agency (City or County) may be the responsibility of the private utilities, although a complex institutional question exists as to whether the Sacramento Light Rail project utility relocation work is due to

requirements of the City or County as distinct from STDA. A low forecast for this item (\$3.7 million) was based on a possible court decision that the project is responsible only for the Southern Pacific pipeline and City/County water/sewer/fire alarm relocation work. The Worst Case forecast of \$8.7 million assumes that the project must reimburse all private utilities and also pay for costs of litigation. WSA base forecast of \$7.6 million is the midpoint of a \$6.5 to \$8.7 million probable range in costs assuming that the project will be responsible for all utility relocation costs.

II. DEFINITION AND CAPITAL COSTS OF PROJECT AS APPROVED BY THE CALIFORNIA TRANSPORTATION COMMISSION

The capital cost projections presented in Section I relate to the Sacramento Light Rail Project as currently defined by the Sacramento Transit Development Agency (as of December 12, 1984). On the other hand, the scope of the Sacramento Northeast Corridor Light Rail Project, for purposes of California Transportation Commission funding commitments, is defined by the Final Environmental Impact Statement (FEIS) on the project of August 1983. Reference is specific in the CTC Resolution of September 8, 1983 to a proposed 18.3-mile project estimated to cost \$131.03 million.

The FEIS on the project was based on the preliminary engineering stage of project development which was reached in June, 1983. Typically, this is the point at which engineering design work is about 30 percent complete. Project development is an evolutionary process, and changes in the details of project definition between preliminary and final design are not uncommon on major and complex rail projects such as this.

Various changes have, in fact, been made in various elements of the Sacramento project which will affect ultimate costs. Some of these are "design refinements" which are changes in the detailed description of approved project elements— not usually considered changes in project scope; others are "scope changes" (i.e., added or deleted project elements). Changes currently under consideration by STDA in the context of cost reduction efforts include (1) items to be eliminated because they have been determined to be unnecessary by value engineering analysis; (2) long-term deferrals, which are items included in the approved project but not needed initially and not to be provided until funding for them can be identified; and (3) deductive options, which are items included in the approved project but not needed for a functional system although they are considered desirable enhancements. Thus, the project approved by the CTC differs in various respects from the project STDA now intends to construct.

In view of the above, the project approved by the Commission in September, 1983 was defined in relation to the project STDA now intends to construct; elements of the Approved Project which are not included in the current project (scope reductions) and items added to the project subsequent to issuance of the FEIS (scope additions) were identified as presented below.

Major Project Elements

Major elements of the project as described for the Preliminary Engineering Estimate (PE Estimate) of June 1983, the FEIS of August 1983 and the Approved STDA Budget of April 1984 are summarized in Table II-1. CTC Resolution MT-84-17 of September 1983 refers to the \$131.030 million PE Estimate. A summary description of project commitments relating to the PE Estimate and the FEIS is provided in Table II-2. Additional detail concerning the composition of the PE Estimate and the cost summary used for the FEIS is provided in Appendix Tables E and F.

Referring to Table II-1, it is important to note that the FEIS cost projection (\$123.30 million) was exclusive of three North Sacramento railroad grade separations which were considered elements of the overall project from the start and were included in the June 1983 definition of the project used in developing the \$131.030 million preliminary engineering (PE) estimates referred to in CTC Resolution MT-84-17 of September 8, 1983.

Deferred Cost Items

The cost projections presented in Section I of this report are exclusive of various project elements which have been identified by STDA as "deductive options", long term deferrals or items to be permanently eliminated. Cost estimates for these items provided by CalTrans on December 14, 1984 are summarized in Table II-3. (These estimates differ slightly from figures shown in STDA's report of December 12, 1984 on the CURRENT BASELINE BUDGET, and are exclusive of cost items transferred to other Contract Units and retained as part of the current project.)

Table II-1
SUMMARY OF PROJECT ELEMENTS
 Sacramento Light Rail Project
 June 1983/August 1983/April 1984

<u>MAC CODE</u>	<u>PROJECT ELEMENT</u>	<u>PE</u> <u>ESTIMATE</u> <u>6/83</u>	<u>FEIS</u> <u>EXHIBIT 2-24</u> <u>8/83</u> (Millions)	<u>APPROVED</u> <u>BUDGET</u> <u>4/11/84</u>
20.01.00	Vehicle Procurement	\$ 26.370	\$ 26.37	\$ 24.352 ⁽¹⁾
20.02.00	Support Equipment	} 15.530	} 15.53	6.560 ⁽¹⁾
20.03.00	Service/Maint. Equipment			1.120 ⁽¹⁾
20.14.00	Long Lead Items			12.419 ⁽¹⁾
	Subtotal Procurements	<u>\$ 41.900</u>	<u>\$ 41.90</u>	<u>\$ 44.451</u>
20.10.00	Mall Demolition	} 39.780	} 39.78	0.500
20.11.00	Construction - Facilities			13.437
20.13.00	Row Construction			21.406
	No Sac. Grade Separations	6.670	-	6.670
	Subtotal Construction	<u>\$ 46.450</u>	<u>\$ 39.78</u>	<u>\$ 42.013</u>
20.06.00	Land Acquisition	12.360	12.36	12.885
20.13.12	Utility Relocation	5.120	5.12	5.257
	Subtotal	<u>\$ 17.480</u>	<u>\$ 17.48</u>	<u>\$ 18.142</u>
20.08.00	Project Management & Engineering	13.400	14.23	18,174
20.15.00	RT Support	---	---	1.123
20.16.00	Force Acct	---	---	2.000
20.11.01	Risk Management	1.550	(2)	1.550
	Subtotal	<u>\$ 14.950</u>	<u>\$ 14.23</u>	<u>\$ 22.847</u>
32.00.00	Contingencies	<u>\$ 10.250</u>	<u>\$ 9.91</u>	<u>\$ 3.587</u>
	TOTAL	\$131.030	\$123.30	\$131.040

- (1) Includes equipment installation.
 (2) Insurance costs included in construction cost estimates.

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 12/6/84

Table II-2
DETAILED PROJECT COMMITMENTS
SPECIFIED BY FEIS
SACRAMENTO LIGHT RAIL PROJECT

20.01.00 PURCHASE OF VEHICLES

26 Double-Ended, Articulated Vehicles, each with a minimum of 64 seats and capable of multiple unit operation in trains of up to four vehicles and capable of specified performance requirements plus spare parts and special tools required for these vehicles. This typically also includes manufacturer's training of operating, servicing and maintenance staff, warranties and technical field support.

20.02.00 PURCHASE & INSTALLATION OF SUPPORT EQUIPMENT

Ticket issuing machines for 27 stations.

Two-way radio communications system including equipment on vehicles and for central dispatch, yard control and road supervision.

LRT signaling equipment for automatic block signaling, automatic interlocking, single track occupancy detection, grade crossing protection and track switching for the LRT in accordance with specified signal plans.

20.03.00 PURCHASE & INSTALLATION OF SERVICE & MAINTENANCE EQUIPMENT

Ancillary vehicles and equipment for inspection and repair work as specified in final design and a wheel turning device to be installed in the maintenance shop.

20.06.00 REAL ESTATE ACQUISITION

All costs to acquire easements and/or acquisitions of all right-of-way required for the 18.3 mile project (including sufficient land for ultimate double track throughout) between Watt/I-880, downtown Sacramento and Folsom/Butterfield Way. Specific parcels are not identified in the FEIS but are identified in the UMTA Full Funding Agreement based on the preliminary engineering layouts available at the time of the FEIS.

Includes land for station parking facilities sufficient for projected needs as shown in the FEIS at Watt/I-880; Watt-West; Roseville Road; Marconi/Arcade; Swanston; Howe/Power Inn; Watt/Manlove; and Butterfield Way.

Also includes land for an off-street bus transfer station at 65th Street.

20.08.00 PROFESSIONAL SERVICES

The FEIS identifies "Project Management and Engineering" as a major cost element. The UMTA Full Funding Agreement defines (1) engineering and design services by specific reference to Caltrans, IECO, Comstock Engineering, LT Klauder and Associates, and Foster Engineering, and also identifies other types of professional services including (2) legal services; (3) appraisal services; and (4) relocation expenses. Construction management services are covered in both cases, either explicitly or implicitly. Although the FEIS does not specifically refer to Risk Management, the PE estimate of June, 1983, on which the FEIS presentation is based, does include insurance costs.

As previously noted, project sponsor force account work and Regional Transit support services are not called out in the FEIS, but represent expansions of the professional and project management services originally contemplated.

20.10.00 DEMOLITION

Covers the demolition of structures and trees, and rough restoration to safe conditions, along the K Street Mall prior to light rail construction.

20.11.00 CONSTRUCTION OF FACILITIES

Covers the construction of 27 stations of simple design for sidewalk level boarding; passenger shelters at "most stations"; and lighting, landscaping, telephones, information signs, benches and miscellaneous items as specified in "final design." The Watt/380 station must include elevators as well as stairways.

Covers the Art in Public Places program.

Covers a vehicle maintenance facility for 26 cars initially plus capability for expansion to handle up to 50 cars. (This building was specified by UMTA to contain about 54,000 square feet of floor space). Three tracks are included to access six service/repair bays.

Storage yards are to include the primary 17-acre yard adjacent to the main line of the SPTC between El Camino and Marconi/Arcade (within I-30 By-pass right-of-way) plus a small midday storage yard in the vicinity of 12th and R Streets.

Parking facilities for automobile parking at designated stations - for "about 4,500 spaces initially, with land reserved for expansion to 7,000). A minor conflict exists in the FEIS since Exhibit 2-2 of that document (Table E) shows the number of parking spaces to be provided as 5,000. (UMTA calls for 3,500 to 4,500).

Landscaping for parking areas at stations and along the right-of-way is covered; illustrative sketches contained in the FEIS provide a general indication of intent at the time of FEIS.

20.13.00 RIGHT-OF-WAY CONSTRUCTION

Includes utility relocations for trackway and other construction as required including a) power lines of SMUD; b) power lines of P,G & E; c) telephone lines of Pacific Telephone Company; d) water and sewer lines of the City of Sacramento and the County; and e) such others as required by final design.

Light rail trackage and special trackwork including supporting roadbed and structures for 18.3 mile line.

Construction of the light rail electrification system including both catenary and simple trolley overhead lines, feeders and substations for either 600 or 750 volt service.

Installation of a light rail signal system.

Procurement and installation of train detection and pre-emption equipment for street traffic control.

Provision of traffic control signals or crossing gates at certain locations to be determined during final engineering.

Temporary traffic control installations required during construction.

Various mitigating measures promised in the FEIS and summarized as shown in Table E.

20.10.400 PURCHASE OF LONG LEAD ITEMS

Rail - 115 lb. RE section control-cooled steel rail per AREA specifications, sufficient for 18.3-mile line and specified track layout (about 40 percent double track).

Ties - About 69,000 6" X 8" X 3'-0" timber cross ties conforming to AREA specifications plus about 2800 switch timbers of varying length.

Special Trackwork Items - Rail seats and fastenings as required plus about 44 turnouts and crossovers or as required by specified track layout.

Unit Substations - 15 mainline substations of 1 megawatt capacity plus 1 for support facility yard (plus accessories).

Cable and Wire - All cable and wire required for traction power plus truck cable for wayside signal system for specified 18.3 mile system and operating plan.

Catenary System - Steel or concrete support poles, hardware and fittings for 18.3 mile system and specified operating requirements.

20.15.00 PROJECT SPONSOR FORCE ACCOUNT WORK

Not specified in FEIS but a customary project element which is eligible for federal capital aid. Includes acceptance testing, training with new vehicles and other start-up activities.

20.16.00 SUPPORTING SERVICES - COST ALLOCATION PLAN

Not specified as such by FEIS but involves typical requirements for administrative and overhead costs by STDA and SRTD associated with the management, direction and supervision of the design, procurement, construction and installation of the project.

32.00.00 CONTINGENCIES

A customary allowance for final design refinements and uncertainties.

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12-7-84

The estimates shown on Table II-3 indicate that almost \$2.0 million in deductive options - items which are considered by STDA to be "not needed for a functional system but which are deemed necessary by many groups as required for public acceptance of the system" - are not included in the WSA cost projections. Most of this amount relates to K Street Mall improvements, O Street improvements and elements of the WATT/80 terminus station. Budget planning should recognize the desirability of these items. Another \$2.3 million in planned STDA cost reductions relate to long-term deferrals and eliminated items.

Some of the project elements which have been assumed to be deferred or permanently eliminated by STDA were included in the "Approved Project" as it was defined in the Final Environmental Impact Statement, whereas others are considered design refinements which retain the essential characteristics for the approved project. CTC Resolution MT-84-17, which approved State funding for the project subject to certain conditions, allows STDA to reduce the scope of the project if necessary, but with the condition that no additional state funding will be available to complete the project as it was proposed in the project's FEIS. In other words, the availability of the State funds committed in September 1983 is not affected by proposed STDA cost reductions, but no items eliminated or deferred at this time which were included in the original FEIS project definition can qualify for additional funds at some subsequent time. This factor also should be a consideration in STDA's longer term strategy for project completion.

Items which were identified in this cost review as covered by the approved project definition but assumed to be deferred or permanently eliminated by STDA based on current cost reduction plans, include the following:

(1) CU2A - Winter Street Access - Winter Street is shown in Exhibit 3-2 of the FEIS as one of several access routes to the Roseville Road Station parking lot. This is identified by STDA as a deductive option, including pavement, lighting, signals and roadway construction. The CalTran cost estimate is \$292,000; the WSA estimate is \$340,000 in Third-Quarter 1984 dollars. This item is not included in the WSA cost forecast. STDA is currently seeking additional (non-state) funding to complete this project element.

Table II-3
COST REDUCTIONS PLANNED BY STDA⁽¹⁾
(NOT INCLUDED IN WSA COST PROJECTIONS)
(\$000)

<u>CONTRACT UNIT</u>	<u>DEDUCTIVE OPTIONS</u>	<u>DEFERRED ITEMS</u>	<u>ELIMINATED ITEMS</u>	<u>TOTAL COST REDUCTIONS⁽²⁾</u>
2A WATT/80 Median	\$ 292	---	\$1,327	\$1,619
4A At-Grade Line Center City	1,231	---	39	1,270
6 At-Grade Station WATT/80	443	---	83	526
7 At-Grade Stations Northeast Line	---	\$ 325	151	476
7A At-Grade Stations Folsom Line	---	300	100	400
TOTAL	\$1,966	\$ 625	\$1,700	\$4,291

(1) Based on estimates furnished by CalTrans on 12-14-84. These estimates differ slightly from estimates shown in STDA report of 12-12-84, CURRENT BASELINE BUDGET.

(2) Excludes items transferred to other Contract Units.

(2) CU2A - Watt/80 Watt-West Station - The FEIS calls for a Watt/80 West station with 600 parking spaces (FEIS Exhibit 2-2). Although the trains will be able to stop at this location, standard station elements will not be provided. When and if these station components are provided in the future, they would not be eligible for additional state funds. The standard requirements required by the FEIS include passenger shelters and station amenities including "passenger waiting benches, trash receptacles, information Kiosks, public telephones and fare vending machines." Access road construction and lighting are other items which will eventually be required. The CalTrans estimate for the eliminated items is \$0.708 million, excluding landscaping. This estimate represents the upper limit of the commitment (in 1984 dollars) since the eliminated items could probably be reduced in scale and still fulfill FEIS requirements. If and when these items are provided in future years, they would not qualify for additional state funding.

(3) CU 7 & 7A - Deferred Parking - The FEIS calls for "about 4500 spaces initially with land reserved for expansion to 7000" (page 2-17 of FEIS); Exhibit 2.2 of the FEIS (Appendix Table H) lists parking space provisions adding to 5000 spaces with 2200 spaces at the terminus (WATT/80, WATT/80-West and Roseville Road). Projections of parking space needs for 1985, shown in the FEIS on page 2-33, total 4070 spaces with 2240 at the key northeast corridor terminus stations at Watt Avenue and Roseville Road. Thus, initial parking provisions specified in various parts of the FEIS are conflicting, and range between 4070 and 5000 as summarized in Table II-4. Assuming a commitment of 4500 spaces initially, and allowing for 3727 permanent and 400 "temporary spaces" to be provided according to current CalTrans estimates, there is a deferred commitment in the form of parking spaces amounting to about 373 spaces. The Caltrans estimate of cost reductions relating to parking is \$0.625 million. It is important to note that parking will be especially important at the Watt terminus where only 1465 spaces (plus 400 temporary spaces) will be provided vs. the 2240 specified in the FEIS as required for 1985 needs. Inadequate parking at this location would adversely affect patronage.

Table II-4

PARKING SPACE PROVISIONS

STATION	NUMBER OF SPACES BY SOURCE			CURRENT PLANS(1)
	PE Plans (6/83)	FEIS		
		Exhibit 2-2(2)	1985 Needs(3)	
Watt/80 Watt/80-West Roseville Road	} 2414	} 2200	} 2240	} 1465 + 400 Temp Spaces
Marconi/Arcade	547	500	200	405
Swanston/29th St.	500	500	240	320
Power Inn	436	500	240	280
Watt/Manlove	411	500	220	411
Butterfield	846	800	250	846
TOTAL	5254	5000	4070	3727 + 400 Temp Spaces

- (1) CalTrans estimate of 12/20/84.
- (2) Following page 2-17 of FEIS.
- (3) Page 2-33 of FEIS.

(4) CU 4A - K Street Mall Deduct Options - K Street Mall deduct options, which are not included in the WSA forecast, are estimated by Caltrans to cost \$0.765 million. The FEIS requires that four station stops be provided on K Street along with "amenities including vending machines, additional lighting, benches, and E&H ramps and platforms," and the mall must be "enhanced with many trees and plantings, new pavement patterns, additional lighting for pedestrians as well as the light rail system, and many art works as noted in the art program." Trash receptacles, information kiosks and telephones were also described as part of the Mall plan. Items of this same description are included in the list of deductive items shown in Table II-5. It appears that about 25 percent of the total cost (about \$150,000) relates to items which are called for by the FEIS. This assumes that the track area will have a different texture and appearance from the remainder of the mall even though special paver stones will not be used (assuming the deduct option is selected). STDA is seeking alternative local funds for these items.

(5) CU 4A - O Street Improvements - The FEIS requires only "minimal improvements to existing landscaping, pavement and lighting along O Street with major improvements being limited to station areas. The O Street deductive options, listed in Table II-6, total \$0.465 million. Part of this total, representing about \$75,000 of the cost, relates to items required by the FEIS, again assuming that the asphaltic concrete which will be used in lieu of pavers will present a distinctly different appearance from the remainder of the street as required by the FEIS. STDA is seeking alternative funds for these items.

In terms of 1984 dollars, the value of the items listed above totals about \$1.9 million. It must be recognized, however, that actual costs will depend on when the improvements are made. Deferred items are likely to cost more in future years. STDA is seeking alternative funds for these items in order to retain them in the initial project.

Other cost reductions made by STDA appear to eliminate embellishments which were not specifically required by the FEIS. Examples of these are (1) provision of double track in all station areas; (2) windscreens for stairwells,

Table II-5

K Street Mall
Deduct Items

<u>ITEMS</u>	<u>ESTIMATED COST⁽¹⁾</u>
Track Area	\$ 152,250
Remove Pavers	117,230
Remove New Concrete	62,070
<u>Planters</u>	
Large	22,000
Small	19,000
<u>Benches</u>	
Type A	37,500
Type B	137,500
Trees	21,600
Grates	4,375
Leaning Rail	31,500
Light Pole With Banner	56,000
Planting (Other than Trees)	21,210
Irrigation	38,130
<u>Miscellaneous</u>	
Telephone Kiosk	22,000
Drinking Fountain	5,400
Trash Receptacle	13,300
Bike Rack	1,250
News Rack Rail	<u>2,250</u>
TOTAL	\$ 765,365

⁽¹⁾ Not included in WSA forecast presented in Section I of this report.

Table II-6

O Street Mall
Deduct Items

<u>ITEMS</u>	<u>ESTIMATED COST</u> ⁽¹⁾
Track Area	\$ 157,040
Remove Papers	138,800
Remove New Concrete	42,870
<u>Planters</u>	
Large	6,000
Small	5,400
Benches (Type A)	30,000
Trees	2,100
Light Pole With Banner	26,000
Planting (Other than trees)	9,200
Irrigation	29,680
<u>Miscellaneous</u>	
Telephone Kiosk	8,800
Drinking Fountain	1,800
Trash Receptacle	6,650
Bike Rack	500
News Rack Rail	375
TOTAL	<u>\$ 465,215</u>

⁽¹⁾ Not included in WSA forecast presented in Section I of this report.

elevator enclosures, and planter boxes at the WATT/80 Station; (3) a concrete bus apron at Swanston Station; (4) a raised curb to separate auto and LRT traffic on 7th and 8th Streets; and (5) numerous elements of the landscaping plan. Most of these are relatively small items which have only a minor impact on financial needs. Landscaping commitments, on the other hand, represent a major item and a "grey area." It appears that landscaping has been reduced by at least 25 percent from original concepts but that the amount remaining is sufficient to fulfill the intent of the FEIS project description (assuming that the value of landscaping remaining amounts to at least the \$1.475 million budget included in the FEIS cost estimate). So long as local funds will be used (as planned) to replace deferred landscaping items in future years, the issue of funding will not arise.

In addition to the above items, a "grey area" relating to power station provisions was identified in this study. The FEIS allows for selection of either 750VDC or 600 VDC power subject to final design. Final design determined that 750 VDC should be selected and 14 substations were found adequate to provide it. However, the FEIS specifically calls for "15 traction substations for the mainline and one for the LRV maintenance shop and yard" (page 2-20 of FEIS), or 16 in total -- 2 more than the current project will provide. It was determined that the number of stations necessary to supply the power initially required should be considered fulfillment of the intention of the FEIS. It is important to note, however, that the electrification system is specifically designed for 4-car trains operating at 15-minute headways. If light rail patronage were to increase to the point where additional peak trains would be needed, operating on shorter headways, more power might be needed.

Scope Additions

The scope reductions discussed above will be deleted from the project (or funded separately). However, it should also be pointed out that various project elements have been expanded since the FEIS project definition. Examples include minor American River Bridge reconstruction to prepare the bridge surface for rails; additional double-tracking along 12th street for operational reasons; changes in landscaping; and numerous other design refinements which do not modify the basic scope of the project. There also have been several scope additions which could be considered eligible for additional state funding assistance including the following:

- o An additional lane at the WATT/80 Station to allow buses to enter the freeway at speed--required by the Federal Highway Administration subsequent to the FEIS.
- o Additional bridge and spur track construction plus some right-of-way acquisition to gain Sacramento Bee acceptance of access provisions relating to their plant at 22nd & R Streets.
- o Upgraded grade crossing protection at 13 locations required for PUC acceptance of planned operations;
- o Operator restrooms at three stations not previously specified--for use during layovers.
- o A median barrier on Watt Avenue.

The estimated cost of the five items cited above is about \$3.0 million. In addition, system start-up costs represent a \$2.9 million item which was not recognized as a capital item in developing the June, 1983 Preliminary Engineering cost estimate and is not referred to in the FEIS. It is a normal system development cost and is eligible for federal capital funding under the UMTA Full Funding Agreement. Since start-up costs were not identified as a capital cost item in the FEIS, they could be considered a scope addition with eligibility for future consideration by the Commission for additional state funding support. Including this item, the value of the six major scope additions identified totals \$5.949 million.

Cost of Approved Project

The projected cost of the project currently planned by STDA (as of December 12, 1984) is \$154.3 million (WSA projection) including the items identified above as scope additions but not including certain other items which were called for by the FEIS but are not included in the current project description relating to the \$154.3 million estimate. Since the value of the scope additions is about \$5.9 million and the approximate value of the deferred items is about \$1.9 million, the estimated cost of the Approved Project can be assumed to be \$150.3 million (\$154.3 - \$5.9 + \$1.9 million).

Table II-7
 MAJOR SCOPE ADDITIONS
 SACRAMENTO LIGHT RAIL PROJECTS

<u>ITEM</u>	<u>EST. COST</u> <u>(1984 \$ millions)</u>
1. Watt/30 Bus Acceleration Lane	\$ 0.650
2. Sacramento Bee Access Provisions	0.950(1)
3. Upgraded Grade Crossing Protection	1.190(2)
4. Operator Rest Rooms (3)	0.060
5. Median Barrier at Watt	0.150
6. System Start-Up Costs	<u>2.949</u>
TOTAL	\$ 5.949

(1) Excludes Sacramento Bee cost share of \$350,000.

(2) Incremental cost of Type 9 grade crossing protection devices at 13 locations.

III. POTENTIAL FEDERAL/STATE CONTRACT CONFLICTS

A comparative review was made of the UMTA Full Funding Agreement with Sacramento Regional Transit and the provisions of CTC Resolution MT-84-17 which defines agreements between STDA and CTC relative to funding for the Sacramento Northeast Corridor Light Rail Project. The purpose of this review was to identify points of conflict which are significant to current attempts by STDA to reduce project development costs to the level of available funding.

CTC Resolution MT-84-17, which approved State matching funds for the project subject to certain conditions, was passed on September 8, 1983; the UMTA Interstate Transfer grant which identifies responsibilities of Regional Transit to UMTA was executed subsequent to CTC Resolution MT-84-17. This review focused specifically upon those commitments which relate to project scope and potential cost overruns.

1. Both the UMTA Agreement and CTC Resolution MT-84-17 were based on the project as defined by the Final Environmental Impact Statement (FEIS) of August 1983. The FEIS reflects a project definition based on preliminary engineering. Capital funding needs of the project were shown in the FEIS as \$123.30 million (see Exhibit 2-24 of FEIS), and represented preliminary engineering estimates. The CTC Resolution approving State funding support specifically refers to a 131.03 million project. For the Sacramento Interstate Transfer grant to Sacramento Regional Transit, the contract was a full funding contract for an "entire \$123 million light rail project." Thus, although the CTC commitment relates to a \$131.40 million project, the Federal Full Funding Agreement relates to a \$123.30 million project exclusive of North Sacramento railroad grade separations which were to be funded separately.
2. The CTC Resolution requires that STDA "reduce the scope of facilities included in the 18.3-mile system" if "costs for the proposed project exceed the \$131.03 million now budgeted." On the other hand, the

federal contract is a "Full Funding Agreement" which specifically defines funding responsibilities for the entire project as defined in the federal agreement, and any substantial reductions in scope would be subject to UMTA advance approval which almost certainly would only be given subject to a commensurate reduction in federal funding. UMTA requires that if the authorized levels of federal participation prove to be insufficient to complete the project as described in the Agreement, the Grantee (SRT) must "secure and provide whatever additional resources are necessary to expeditiously complete the project without further Federal assistance."

3. The CTC Resolution also specifies that "if further savings are needed" (to complete a functional system at this time)," STDA will reduce the length of the Folsom Corridor" with the provision that any deferred mileage (or equivalent improvements deferred) will not be eligible for additional State funds allocated by the CTC. On the other hand, the federal agreement clearly contrains STDA from reducing the length of the Folsom line; UMTA could agree to a reduced project length but this would clearly lead to renegotiation of the UMTA Agreement and the prospect of reduced federal aid.
4. The CTC/STDA contract makes explicit the intention that no additional "state funding" will be available to complete the basic light rail project as it was proposed in the project's FEIS. The UMTA contract requires that the entire project be completed within a specified period of time and as proposed at the time of the Agreement; the UMTA contract also limits funding responsibility and offers less flexibility to STDA for making cost reductions through scope reductions.
5. The UMTA contract does permit the allocation of additional federal funds for certain types of "Extraordinary Costs", whereas the State contract does not. Extraordinary Costs, which are determined on a case-by-case basis and are at the discretion of the government, can include:

- o Costs due to inflation beyond rates specified in the full funding agreement covering the project;
- o Costs due to Acts of God;
- o Excessive settlements relating to eminent domain cases approved by UMTA (i.e., excessive costs of acquisition of land);
- o Unanticipated costs caused directly by federal legislation or regulations issued subsequent to the date of the Agreement (September 26, 1983);
- o Costs due to unforeseen delay in the availability of funds from Congress.

There is little prospect for additional federal funds for the Sacramento project due to the "Extraordinary Costs" provision of the Full Funding Agreement.

**IV. EXISTING CAPITAL FUNDING COMMITMENTS
SACRAMENTO LIGHT RAIL PROJECT**

Existing federal, state and local funding commitments for implementation of the Sacramento Light Rail Project were reviewed and related to projected project costs. A total of \$131.23 million had been committed as of December 12, 1984, distributed as shown in Table IV-1 below.

Table IV-1
SUMMARY OF TOTAL PROJECT BUDGET BY FUNDING SOURCE
SACRAMENTO LIGHT RAIL PROJECT

<u>SOURCE</u>	<u>AMOUNT (MILLIONS)</u>
Federal	\$ 98.51
State	25.92
Local	<u>6.80</u>
Total	\$131.23

Federal Funding Commitments

The Approved Project budget of April 1984 requires the commitment of \$98,513,660 in federal funds based on a Full Funding Agreement. This represents 75 percent of the \$131.23 million budget. Five separate grants are involved as listed in Table IV-2.

Table IV-2
SUMMARY OF FEDERAL GRANTS TO THE
SACRAMENTO LIGHT RAIL PROJECT

<u>NUMBER</u>	<u>MAXIMUM AMOUNT</u>	<u>AMOUNT APPROPRIATE</u>	<u>AMOUNT OBLIGATED</u>	<u>AMOUNT AVAILABLE</u>
CA-29-9002	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
CA-29-9004	1,960,000	1,960,000	1,960,000	1,960,000
CA-29-9005	5,500,000	5,500,000	5,500,000	----
CA-90-0010	2,409,000	2,409,000	2,409,000	2,409,000
CA-23-9001	<u>88,144,660</u>	<u>79,145,268</u>	<u>47,621,318</u>	<u>47,621,318</u>
Total	\$98,513,660	\$89,514,268	\$57,990,318	\$52,490,318
Percent	100.00	90.86	58.86	53.28

All of the first four of the federal grants have been appropriated and obligated to the project. Release of funds under CA-29-9005 has been withheld by UMTA pending submittal of required documentation relating to the work plan for final engineering.

The major grant (CA-23-9001) represents Interstate Transfer Funding. An initial authorization of such funds was for \$24,399,998, and an amendment was recently approved by UMTA for \$23,221,320 bringing the total obligated and available to \$47,621,318. In addition, \$21,000,015 has been appropriated and earmarked for the Sacramento project but is not yet obligated and an additional amount (approximately \$7.3 million) is potentially available although the exact amount is based on a formula relating to the Interstate Cost Estimate (which has not been approved) and these funds cannot be released until the Interstate Cost Estimate is approved.

Thus, it appears that over 90 percent of the total federal commitment has been appropriated with about 59 percent obligated specifically to the Sacramento project. About \$40.5 million of the Federal commitment remains to be obligated.

The federal funding commitment to this project is governed by an UMTA "Full Funding Agreement." This is a firm commitment to supply the \$88,144,660 in Interstate Transfer Funds - "subject to the availability of funds from Congress and the priorities set by Congress." Only about \$9.0 million of the total commitment has not yet been appropriated by Congress although, as indicated above, \$40.5 million (41.1 percent of the total federal commitment) is not yet obligated.

There are several remaining issues of eligibility for federal funds which relate to particular project cost elements. In STDA's Preliminary Assessment Report of November 7, 1984, it was stated that "The issues (associated with eligibility) have been quantified and submitted to UMTA for their final review and concurrence. Approval would reduce the potential for federal cost disallowances from \$5.1 million to \$170,000." Actually, it is unlikely that federal disallowances will be reduced to that extent; for example, UMTA officials indicate that a \$558,000 item relating to an early right-of-way settlement in excess of the approved appraised value has been disallowed and a \$190,000 sole source contract

for professional services is still in question. Along with other items in question, total disallowances in the \$1.2 to \$1.5 million range are more likely. Nevertheless, disallowances of this magnitude would not affect total federal funding availability since the disallowed items could be funded with local/state funds and other eligible cost items could be charged against federal accounts.

The UMTA Full Funding Agreement sets a limit on the total amount of federal funds to be made available for the project as defined at the time of agreement, and requires that "if the authorized levels of federal participation prove to be insufficient to complete this project as defined in the Agreement, the grantee (SRTD) must secure and provide whatever additional resources are necessary to expeditiously complete the project "without further Federal assistance." However, additional federal funds could be made available for project elements which can be shown to be beyond the defined scope of the project and are justified on their own merits to the satisfaction of UMTA. Additional federal funds can also be made available for certain extraordinary costs specifically identified in the Full Funding Agreement.

A change in project design consisting of a Watt Avenue Station acceleration ramp is an example of an added project element for which additional federal (FAI) funds could be sought by STDA as a scope change required by a federal agency (FHWA). Any delays in the authorization or obligation of federal funds in accordance with the general schedule defined in the Full Funding Agreement would represent another condition which could warrant eligibility for additional federal aid. (The Agreement indicates the amount of federal funds which will be made available in each program year but does not specify any particular date.)

State Funding Commitments

State grants to the Sacramento project are summarized on the following page in Table IV-3.

The intended appropriation from the State of California of \$25.92 million is specifically conditioned on availability of funds from the other (federal and local) financial participants. Accordingly, the firmness of the State commitment depends on the conclusions from the present analysis.

Table IV-3
SUMMARY OF STATE OF CALIFORNIA GRANTS AS OF OCTOBER 18, 1984
SACRAMENTO LIGHT RAIL PROJECT

<u>FISCAL YEAR</u>	<u>STATE ARTICLE XXX (GAS TAX)</u>	<u>STATE TP&D ACCOUNT (SALES TAX)</u>	<u>STATE PUC CROSSING FUND (GAS TAX)</u>	<u>TOTAL</u>
81-82	\$2.12(a)(b)(c)	\$0.40(a)(b)(c)	\$	\$ 2.52
82-83	4.30(a)(b)(c)	--	4.20	8.50
83-84	4.20(a)(b)	2.80(a)(b)(c)	2.40	9.40
84-85	5.50(a)	--	--	5.50
TOTAL	\$16.12	\$3.20	\$6.60	\$25.92

- (a) Legislative Appropriation.
(b) CTC Approval and Contract Executed.
(c) SB 580 Review Complete.

Apart from the eventuality that the State commitment is modified or eliminated because other sources of financing are not firm, there is no reason to question the reliability of State funding.

Local Funding Commitments

Local financing sources have been identified as the source of funding for \$6.8 million. All of the local funds in the financing plan have been appropriated. ("Appropriation" is defined as "a legal authorization granted by a legislative body to make expenditures and incur obligations for a specific purpose.") The City of Sacramento -- the financing agency for Sacramento Transit Development Agency (STDA) -- is currently in the process of documenting and auditing which local appropriation has been actually encumbered or expended, and for which purpose. Accordingly, it is not possible at this point to document the extent to which each appropriation has actually been expended.

As noted in Table IV-4, certain of the local appropriations were appropriated as "undesignated" (for any capital expenditures that was part of the LRT system) or for the broad category "design and construction." As a practical matter, such appropriations would be subject to audit and dispute only if they were clearly misappropriated. Other appropriations were for specific purposes (e.g., 12th Street capital improvements) or were uncertain as to final amount (e.g., 5 percent of cost).

Each local appropriation has been classified according to an assessment of its reliability status. This classification is shown in Table IV-4. In most circumstances, the \$1.68 million that is subject to audit as to the use of the funds can be considered secure.

Table IV-4
SOURCES OF LOCAL SHARE — SACRAMENTO LIGHT RAIL PROJECT

STDA #	Fiscal Year of Appropriation	Local Agency Source	Restriction on Use of Funds	Amount (\$ million)	RELIABILITY STATUS ^(a)		NOTES
					Firm	Subject to Final Audit	
LF 1	1980/81	Regional Transit	Design and construction	\$ 0.12	\$ 0.12		
LF 2	1981/82	Regional Transit	Design and construction	0.35	0.35		
LF 3	1981/82	Sacramento Housing & Redevelopment Agency	12th Street capital improvements	0.02		\$ 0.02	
LF 4	1981/82	City of Sacramento	Grade Separation at El Camino	0.70		0.70	(b)
LF 5	1981/82	Southern Pacific RR	5 percent of cost of three overcrossings ^(a)	0.60		0.60	
LF 6	1981/82	Lumberjack	Property sale	0.27	0.27		
LF 7	1981/82	Culligan	Retaining Wall construction cost	0.09		0.09	
LF 8	1982/83	Regional Transit	Design and construction	1.00	1.00		
LF 9	1982/83	City of Sacramento	Undesignated	0.38	0.38		(c)
LF10	1982/83	Sacramento County	Undesignated	0.58	0.58		
LF11	1982/83	Sacramento Housing & Redevelopment Agency	12th Street capital improvements	0.27		0.27	
LF12	1983/84	Regional Transit	Design and construction	1.06	1.06		
LF13	1983/84	City of Sacramento	Undesignated	0.78	0.78		(c)
LF14	1983/84	Sacramento County	Undesignated	0.58	0.58		
----- Sub Total -- Firm Appropriations				6.80	5.12	1.68	

LF15	1983/84	Sacramento Bee	Right of Way protection	see notes			(d)
LF16	1983/84	Tom Harris Properties	In-lieu of required parking spaces	see notes			(e)

<u>Summary</u>				<u>Amount (\$ million)</u>	<u>Percent</u>		
Regional Transit				\$ 2.53	37.2 %		
City of Sacramento				1.86	27.4 %		
Sacramento County				1.16	17.1 %		
Sacramento Housing & Redevelopment Agency				0.29	4.3 %		
Private Firms				0.96	14.0 %		
-----				\$ 6.80	100.0 %		

Source: City of Sacramento Finance Department and McDonald & Associates

Note: Footnotes on following page

Table IV-4 (continued)

SOURCES OF LOCAL SHARE -- SACRAMENTO LIGHT RAIL PROJECT

Notes:

- a) Classification as to the status is by McDonald & Associates.
- b) Source is City's Major Street Construction Fund.
- c) Original appropriation was from the Traffic Safety Fund, but the City has concluded that LRT is not an eligible expenditure from the Traffic Safety Fund. The City intends to adjust the appropriations and appropriate the expenditures from another City fund.
- d) Final amount of payment remains to be negotiated.
- e) Contribution is contingent. STDA must complete certain improvements by a date certain or required contributions is waived.

Source: City of Sacramento Finance Department and McDonald & Associates

V. ASSESSMENT OF REGIONAL TRANSIT'S PLANS FOR FUNDING GUIDEWAY OPERATING COSTS

Current information on Regional Transit's plans for funding the operating costs of the light rail system was reviewed and assessed. Since Regional Transit's operating program for the next five years provides for a transition from all-bus to an integrated LRT/bus system, this assessment focussed on funding needs for guideway operations in the context of a total multi-modal transit system.

INFORMATION SOURCES

Sacramento Regional Transit District's Transit Plan, 1985-89, adopted on August 27, 1984, represents the latest available official pronouncement of Regional Transit's operating program for the next five years. It defines the proposed integrated bus/light rail network and service strategy and provides forecasts of patronage, operating costs, and funding available from existing sources. These projections are shown in Appendix Tables I and J, taken directly from Regional Transit's August report.

Even as the August report was released, Regional Transit's Board of Directors was considering alternatives to overcome the projected deficit. In addition, projected schedule for start-up of service had invalidated some key elements of the August operating plan. Revisions which were developed by Regional Transit in November provide the basis for this evaluation. These November forecasts are documented in Appendix Tables K and L and are summarized in Table V-1.

The "bottom line" of these new forecasts is the indication that unfunded operating deficits will exist between FY 87 and FY 89 (and possibly in later years) unless additional actions are taken by Regional Transit. The overall magnitude of the funding shortfall indicated by the November forecasts (\$5.1 million) is slightly less than that projected in August, due primarily to compression of the gap between the start-up dates for Northeast and Folsom line service and the resulting decrease in duplicative bus service in the Folsom corridor.

Table V-1
SUMMARY OF REGIONAL TRANSIT'S
NOVEMBER OPERATING FORECASTS

	<u>FY85</u>	<u>FY86</u>	<u>FY87</u>	<u>FY88</u>	<u>FY89</u>
A. <u>Annual Ridership (Millions)</u>					
Bus					
LRT					
Total	14.900	15.124	16.694	17.595	17.859
B. <u>Annual Vehicle Hours of Service</u>					
Bus	495,000	495,000	462,612	431,397	429,950
LRT	-	-	21,524	31,816	31,708
C. <u>Annual Service Operating and Maintenance Cost (Millions)</u>					
Bus	\$25.475	\$27.302	\$26.817	\$26.284	\$27.536
LRT	-	-	4.087	5.204	5.464
Total	\$25.975	\$27.302	\$30.904	\$31.488	\$33.000
D. <u>Annual Fare Revenues (Millions)</u>					
Total	\$ 7.300	\$ 5.727	\$ 8.543	\$ 9.893	\$10.056
Avg. Fare (Cents)	48	50	50	55	55
Farebox Recovery %	28.1	28.3	27.6	31.4	30.5
E. <u>Total Revenues (Millions)</u>					
All Sources	\$33.094	\$30.674	\$30.841	\$28.108	\$31.321
F. <u>Surplus/Deficit (Millions)</u>					
	+\$7.119	+\$3.372	-\$0.063	-\$3.380	-\$1.679

At this time, Regional Transit is still in the process of considering both short-term and long-term "revenue generation" and "cost containment" options including such actions as fare restructuring, various new local taxes, service reductions and staff reductions.

ASSESSMENT OF OPERATING EXPENSE FORECASTS

The operating projections developed by Regional Transit are based on many assumptions about key factors such as guideway service levels and the schedule for introduction of guideway services; changes in existing bus services; staffing for guideway operations; unit costs for labor and materials; labor work rules; inflation rates; patronage and operating revenues (i.e., public response to the new guideway system and the associated bus service changes); and future state and federal funding support levels. Each of these factors was addressed in this assessment. The adjusted cost forecasts, when reviewed as discussed below, are considered to be reasonable and appropriate although they do assume a program of aggressive cost controls.

Bus Service Policy - Data supplied by Regional Transit indicates that about 495,000 platform hours of bus service are provided with existing services. Services are provided between 5:20 AM and 10:41 PM on typical weekdays and between 6:30 AM and 10:13 PM on Saturdays and Sundays. With introduction of LRT, the bus system will be restructured (to include feeder services) and redundant line-haul bus services in the rail corridors will be eliminated. The Regional Transit forecasts allow for 461,000 annual bus platform hours of service-- a 7 percent reduction from existing levels. Some of this reduction in bus service relates to reductions in the span of daily service; some services are now planned to begin later and end sooner.

RT's latest cost projections for bus services are derived by applying a factor of \$52.47/bus hour to assumed bus service levels for FY 85. The resulting value was then escalated by 5% per year (compounded) to allow for inflation, the outcome of future labor negotiations and cost reduction programs. The \$52.47/bus

hour factor is the aggregate value for budgeted FY 85 services. This method of calculation does not take explicit account of potential differences in the rate of increase of labor, fuel and administrative costs. Nevertheless, since costs are driven mainly by labor costs and other factors relating to the bus hours of service provided, the approach taken in these calculations is acceptable for the intended purposes.

The unit cost assumption of \$52.47 presumes that FY 85 staffing levels for administrative functions relating to bus services will be cut in proportion to the proposed cuts in bus services by eliminating non-essential positions, replacement of higher paid personnel with persons available at lower rates and similar cost reduction measures.

A key determinant of the validity of the 5 percent growth factor will be the skill and determination of RT management to constrain wage increases in future labor negotiations. However, this allowance for wage rate increases does seem reasonable at this time; existing labor agreements, which extend for several years more, limit annual wage increases to a maximum of 5 percent.

Wage rates for LRT operators were assumed by RT to be equivalent to those of senior bus drivers, with 34 percent added for fringe benefits based on RT experience. This is consistent with normal practice.

Guideway Service Plan and Assumptions - The Regional Transit guideway service plan calls for 8 trains to provide peak service at 15 minute headways over the entire 18.3 mile line. Four 4-car trains would serve the Northeast Corridor (except for one hour when a fifth train would be available) and four 2-car trains would serve the Folsom Corridor. All 26 cars would be used for peak service (with no spares held in reserve). The capability to make, break and store trains in the vicinity of the downtown area is an essential element of the operating plan.

Details of the service plan for guideway operations are dictated by (1) system alignment (both horizontal and vertical); (2) the number and location of station stops; (3) the single track configuration with passing tracks for running meets; and (4) vehicle performance characteristics. The operating cost projections which are

shown in Table V-1 are based essentially on computerized train performance simulations performed in April, 1983 as reflected in the FEIS of August, 1983. At that time, earlier operating plans were revised to (1) increase the number of trains from seven to eight; (2) change the locations and extent of double track segments for passing; and (3) change vehicle specifications to reflect a higher performance vehicle for operations with the selected 750-Volt power system.

This assessment determined that the integrity of the operating assumptions made in 1983 has been maintained during the on-going design process although refinements have been made. The LRT signal system is designed to pre-empt street traffic controls and provide priority to the guideway system as necessary to attain the assumed operating characteristics. Exclusive lanes will be provided for the light rail line where located within street right-of-way, and the rail line will be separated from general street traffic by concrete barriers (to permit safe operations at specified speeds). The vehicles to be procured will have performance capabilities which are superior to those originally planned. And the engineering plans do provide for the passing track requirements as indicated in 1983. Representatives of the State PUC do appear to be satisfied with existing plans for at-grade crossing protection (which was upgraded at their request subsequent to the FEIS), and plans for train making and breaking which will occur off-street within station limits between 12th and 13th Streets in the Central City Area do appear to be acceptable.

An additional train performance simulation is now being made for STDA to reflect final design decisions relative to alignment, station locations, passing track provisions, vehicle performance and speed limitations. Although minor design refinements are likely, this is not expected to result in changes which would significantly affect operating performance to such a degree as to influence the operating cost forecasts. Of potentially greater significance are the operating plan assumptions made for the November forecasts.

The policy outlined in the FEIS was to provide guideway service between about 5:40 AM and midnight on weekdays, with 15 minute service in peaks and midday, 30 minute service in the AM pre-peak and evening periods, and 60 minute service at night. Weekday service was to operate with single car units during many

hours of the day, and then with two or four car trains for each two-hour commute period. Saturday service was to be similar to weekday service but with later morning starts, earlier evening terminations and single-car trains. Sunday service was to be no more frequent than 30 minutes with single car trains.

The service plan for LRT operations proposed by RT in November is scaled down from FEIS levels and would include 17 hours of service on weekdays, with no service after 10:42 PM; 11.75 hours of 30-minute service on Saturdays (8:06 AM to 7:48 PM) and 11 hours of 30-minute service on Sundays (8:25 AM to 7:24 PM). About 31,700 LRT platform hours of service/year would be provided with the current RT plan compared to 34,700 at the time of the FEIS. Thus, Regional Transit service plans for LRT are for 3,000 platform hours less than specified in the FEIS and current operating cost projections reflect this reduction.

Staffing for LRT Operations and Maintenance - Present plans by RT for staffing the light rail system provide for 70 employees - about the same size as the San Diego Trolley staff. Although this level of staffing might need to be increased slightly, it does appear to be adequate initially considering the support to be provided by other RT Departments (for purchasing, accounting and radio repair) and the outside contract services assumed (for station and landscape maintenance). A key assumption underlying RT's LRT operating cost projections is that operation of the multi-car trains will be by one person, with avoidance of fare collection personnel at stations. This presumes a self-service, proof-of-payment fare collection system with equipment and inspection procedures similar to those now in use (successfully) in San Diego. The Sacramento system is being designed to include the fare collection equipment required for this type of operation. The success of the San Diego system indicates that the Sacramento approach to fare collection is reasonable and appropriate.

A 20 percent train operator extra-board (spare operators to cover absentees, etc.) was assumed, which is consistent with RT policy and absentee experience. Proposed staffing levels also conform to currently applicable work rules governing the maximum percentage of split shifts.

Data obtained from RT in November includes costs for 25 train operators plus 10 inspectors, which is a reasonable allowance for 3 trains operating on 2 shifts on weekdays plus the limited weekend service noted above. Should passenger security or fare avoidance problems develop in Sacramento to such a degree that additional emphasis on these issues would be required, then the staffing levels planned might be low. However, this is not an area of concern at this time.

The proposed maintenance staff of 30, which includes a liberal allowance of 11 electro-mechanics for vehicle repair, might need to be expanded slightly for other functional areas or additional contract services might need to be obtained. Any increase which might be needed would probably not exceed 3 or 4 persons, or about 5 percent of the level now assumed.

Power Costs - Estimates of power costs for LRT operations in Sacramento were calculated at 8 KWH/car mile - substantially higher than the rate experienced by the San Diego system. This includes an allowance for air conditioning on the Sacramento vehicles (about 1 KWH per car mile) plus a substantial allowance for auxiliary power needs and the numerous stops on the Sacramento system. The 8 KWH/car mile assumption compares to 4.2 in San Diego and appears to be reasonable. A unit cost of \$0.08 per KWH was assumed, which appears reasonable.

ASSESSMENT OF FARE REVENUES AND PATRONAGE

Fare Revenues - As shown in Table V-1, revenues from fares are projected by Regional Transit to increase from \$7.300 million in FY85 to \$10.056 million in FY89, and to cover 28 to 30 percent of the total costs of system operations and maintenance. While the patronage forecasts upon which these estimates of fare revenues were based are within the range of reasonable expectations, several factors suggest that financial planning by Regional Transit should recognize that their estimates for FY87 to FY89 might be high.

Patronage - Table V-2 shows the history of Regional Transit patronage in recent years and their unpublished forecasts prepared in November, 1984. Whereas energy shortages and relatively high gasoline prices in the late 1970's resulted in annual patronage levels in the 18 to 21 million range between FY 80 and FY 82,

Table V-2
ANNUAL RIDERSHIP
SACRAMENTO REGIONAL TRANSIT

<u>YEAR</u>	<u>ANNUAL BOARDINGS</u>
<u>A. ACTUAL</u>	
FY 78-79	16,477,000
FY 79-80	18,791,000
FY 80-81	21,122,000
FY 81-82	18,043,000
FY 82-83	15,811,000
FY 83-84	14,930,000
FY 84-85	15,830,000*
<u>B. ESTIMATED BY RT IN NOVEMBER 1984</u>	
FY 85	14,900,000
FY 86	15,124,000
FY 87	16,694,000
FY 88	17,595,000
FY 89	17,859,000

* Estimated based on data for 5 months.

patronage dipped to less than 15 million in FY 84. This historical data provides a useful context for assessing the recent forecasts for the next five years. The fare revenue forecasts developed by Regional Transit in November are based on patronage increases from the 15 million/year level to almost 18 million/year.

It appears from the data supplied by Regional Transit that their patronage projections were based on a FY 84 estimate of 14.630 million riders and the assumption that basic growth in ridership (without service improvements) averaging about 1.5 percent per year could be expected from general population increases, more effective marketing, and improved productivity, capacity and service frequency. These assumptions are very conservative, especially in the light of the apparent patronage growth in the last half of FY84 and the first half of FY85. The Regional Transit forecasts of patronage for FY85 and 86 are likely to be exceeded.

On the other hand, it is not clear that adequate recognition has been given to the adverse effects on patronage of service changes, service reductions and fare increases. FY86 and FY87 will see a major restructuring of the transit system which will require changes in existing patterns of transit utilization; previous experience indicates that the adjustments required may take time for patron acceptance. . As already noted, the current service plan reflects some general service reductions, as well as route restructuring, which will certainly result in some adverse effects on patronage, and the fare revenue estimates assume a fare increase in July of 1987.

Several general points of relevance to patronage expectations can be made,

- (1) Ridership increases which can be directly attributed to light rail transit as compared to equivalent bus services are likely to be modest. Experience in other areas indicates that a relatively high percentage of the riders on a light rail system are likely to be existing bus users, with only a modest 15 to 20 percent consisting of new riders following the initial period of public curiosity.
- (2) A 10 percent increase in fares can usually be expected to result in a 2 to 3 percent loss in patronage, with fare sensitivity in any particular

area depending on the proportion of "choice" vs. "captive" riders, central area parking charges, highway congestion levels, and socio-economic variables. Regional Transit is required to maintain a 28 percent farebox recovery ratio and, thus, is required to increase fares that, along with productivity and efficiency improvements, will maintain that ratio. A fare increase from 75 cents to 85 cents (13 percent) is assumed to occur in FY 88.

- (3) Changes (reductions) in the daily span of service can adversely impact transit ridership even in the hours during which service is retained.
- (4) Added transit system capacity and shorter headways will tend to mitigate the adverse affects of a fare increase.
- (5) Increased gasoline prices and increased Central City parking charges can offset the effects of fare increases and lead to increased transit patronage.

While the Regional Transit fare revenue forecasts are reasonable , it would be prudent for Regional Transit to base financial strategies on more conservative levels of patronage than those shown for the FY87 to FY89 period pending more detailed analyses of patronage potentials under currently planned conditions.

Assessment of Other Funding Sources

Whereas 28 to 30 percent of the funds required by Regional Transit for operations is expected to come from fares, most of the rest must consist of subsidies in the form of (1) funds available through the Transportation Development Act (LTF funds); (2) State Transit Assistance funds from the Transportation Planning and Development Account; and (3) Federal Aid. The following comments may be made relative to the November Regional Transit forecasts of funding available from these sources:

- o The Regional Transit analysis assumed no real-dollar increase in funds available through the Transportation Development Act. This assumption is conservative, given the strong prospects for real growth in the Sacramento economy.
- o The California Department of Transportation (CalTrans) has concluded that the immediate prospect for State Transit Assistance from the Transportation Planning and Development Account is more pessimistic than the assumption made by Regional Transit.
- o Federal policy relative to transit assistance is currently under review in the context of federal budget-cutting efforts, and it is impossible at this time to predict with certainty the amount of federal funding to be available for operating subsidies.

Thus, the funding levels projected by Regional Transit for two of the three key operating support programs noted above are uncertain, probably optimistic and certainly vulnerable at this time; Regional Transit projections for the third funding source are conservative, which is partially offsetting. It is also important to note that Regional Transit does have capital carryover funds in both the LTF and STA accounts, representing unspent and uncommitted funding for deferred capital items which can be used to offset operating deficits in the FY85 to FY87 period.

Sensitivity Analysis of Revenues Available for Operations

Regional Transit forecasts were compared to three alternative scenarios representing more optimistic and pessimistic forecasts of future revenues from existing sources. These are shown in Table V-3. The optimistic set of assumptions assumes constant levels of federal and state (STA) funding based on (1) the levels specified by Regional Transit for FY85; (2) the patronage forecasts specified by Regional Transit; and (3) more optimistic forecasts of LTF resources reflecting real-dollar growth. The pessimistic set assumes (1) no federal assistance; (2) reduced STA funding; (3) TDA funding as projected by Regional Transit; and (4) a more conservative ridership projection. A WSA forecast representing a likely outcome between these two extremes is also provided.

The forecasts shown in Table V-3 indicate that under the most favorable circumstances anticipated (including no loss or decline in either federal or state assistance), Regional Transit could operate its multi-modal light rail/bus system in FY89 without a deficit. On the other hand, with no federal aid and greatly diminished (or total elimination of) state assistance, there would be a deficit in excess of \$6.0 million per year. The conclusion of the analysis is that the FY 89 deficit is most likely to be greater than the \$1.679 million projected by Regional Transit, or probably about \$3.0 million per year.

Major Conclusions

The foregoing assessment can be summarized as follows:

- (1) Regional Transit itself projects a cumulative \$5.122 million unfunded shortfall for the FY87 to FY89 period (with additional shortfalls implied for later years) unless corrective actions can be taken.
- (2) All assumptions underlying the current Regional Transit forecasts of operating expenses are reasonable and acceptable for the reduced levels of service which they now specify. Any additional reductions in service levels which would be implemented to reduce operating costs would also lead to loss of patronage and farebox revenues, even though a net gain in system efficiency might result.
- (3) Although Regional Transit forecasts of LTF funds likely to be available are conservative, both federal and state (STA) funding support levels assumed are optimistic considering information available at this time. The farebox revenue forecasts, which always are uncertain, also could be slightly high in the critical FY 88 and FY 89 years.
- (4) There is room for discussion about the magnitudes and origins of the expected annual operating deficit. Nonetheless, the expected deficit is real. The magnitude depends largely on federal and state actions which cannot be predicted with confidence at this time.

Table V-3
COMPARISON OF ALTERNATIVE SCENARIOS
DESCRIBING POSSIBLE REVENUE FROM EXISTING
FUNDING SOURCES

<u>Revenue Source</u>	<u>FY 89 REVENUES/EXPENSES</u>			
	<u>Optimistic Forecast</u>	<u>RT Forecast</u>	<u>WSA Forecast</u>	<u>Pessimistic Forecast</u>
<u>Federal Aid</u>				
Section 9-RT	\$ 4,066 ⁽¹⁾	\$ 2,668	-	-
Section 9-Pass Thru	- 144	- 144	-	-
Other	185	185	-	-
Total Federal	\$ 4,107	\$ 2,739	-	-
<u>State and Local</u>				
LTF (Capital or O&M)	\$19,289 ⁽³⁾	\$17,678	\$19,289	\$17,678
STA Capital	2,175	2,175	2,175	840 ⁽²⁾
Local Capital Match Needs	-1,684	-1,684	-1,684	-1,684
Total State & Local	\$19,780	\$18,169	\$19,780	\$16,834
<u>Farebox & Miscellaneous</u>				
Fares	\$10,056	\$10,056	\$ 9,892	\$ 9,701 ⁽⁴⁾
Miscellaneous	357	357	357	300
Total Fares & Misc.	\$10,413	\$10,413	\$10,719	\$10,001
TOTAL REVENUES	\$34,300	\$31,321	\$30,029	\$26,835
TOTAL EXPENSES	\$33,000	\$33,000	\$33,000	\$33,000
SURPLUS/DEFICIT	+\$1,300	-\$1,679	-\$ 2,971	-\$ 6,165

(1) Assumes continuation of Federal Aid at level estimated for FY 85 by RT.

(2) Assumes RT share of TP&D Account based on CalTrans 1985 Fund Estimate.

(3) Based on California Department of Finance projection of 2.35 percent growth (compounded) for the period 1985-90.

(4) FY 89 patronage x 97% x 56¢/rider.

Regional Transit has identified a number of options to address the funding shortfalls they have identified:

- (1) Potential capital project deferrals which could reduce local funding needs by \$5.700 million (see Appendix Table O).
- (2) Potential additional service reductions (see Appendix Table P) which Regional Transit estimates could realize savings amounting to as much as \$3.163 million if implemented. (These service reductions would, however, adversely affect light rail system access and utilization).

Regional Transit is also considering additional potential "revenue generation" and "cost containment" options (see Appendix Table Q), although these have not yet been explored in detail.

The availability of uncommitted capital funds to meet operating needs of the immediate future provides Regional Transit with time to review the situation and take corrective actions as required to avoid funding shortfalls. If funding shortfalls do develop as projected in this report, additional actions would need to be taken by the Regional Transit Board including formal adoption of a specific plan of additional cost reduction and/or revenue generation measures.

**VI. ASSESSMENT OF SACRAMENTO TRANSIT DEVELOPMENT AGENCY'S PLAN
FOR FUNDING PROJECTED CAPITAL COST OVERRUN**

This analysis cannot be undertaken until the STDA plan is made known.

APPENDIX

Table A

PROJECT CONTRACT UNITS AND
BUDGET/EXPENDITURE SUMMARY OF 12-02-84
(\$'s in 000's)

CU	DESCRIPTION	6/83 Eng. Est	6/84 Adopted	10/84 Staff Est	12/84 Proposed	10/84 Act Exp	% Expend. of Prop
1	No. Sac Grade Separation	6,284	6,284	6,284	6,956	6,117	87.94
1A	No. Sac SPRR Relocation	386	386	386	0	0	.00
2	At Grade Line-NE Corridor	2,980	3,924	3,964	4,071	28	.69
2A	Watt/80 Median	800	810	3,629	3,790	0	.00
3	Maintenance Building	2,618	2,726	3,827	3,963	103	2.60
4	Hall Demolition	8,748	500	343	360	277	76.94
4A	At Grade Line-Cent City	0	6,000	7,733	9,237	0	.00
4B/C	Tree Procurement-K St	0	32	32	32	23	71.88
4D	Central City Parking Lots	0	0	150	0	0	.00
5	At Grade Line-Folsom	5,190	7,670	7,670	9,054	0	.00
6	At Grade Station-Watt/80	2,447	2,440	838	870	0	.00
7	At Grade Station-NE	3,503	3,500	1,857	1,870	0	.00
7A	At Grade Stations-Folsom	3,872	3,870	3,607	3,791	0	.00
7B	Tree Procurement-Suburbs	80	35	35	35	7	20.00
7C	Art Program	0	0	222	222	33	14.86
7D	Station Graphics	0	0	0	150	0	.00
7E	Station Shelters	0	0	403	423	0	.00
8	Yard Grading	46	48	71	71	71	100.00
8A	Temp Fencing-Yard Storage	0	8	8	8	5	62.50
9	Electrification	1,390	1,390	2,194	2,304	0	.00
10	LRT Signaling	5,760	5,760	3,927	4,147	0	.00
11	Traffic Signals	2,385	2,390	2,390	2,509	0	.00
12	Radio Procurement	280	280	280	280	0	.00
14A	Rail Procurement	2,740	2,731	2,731	2,731	2,731	100.00
14B	Otr Track Mat'l Procurement	1,180	1,180	1,180	1,180	1,074	91.02
15	Tie Procurement	1,140	1,142	1,148	1,148	1,147	99.91
16	Spec Trackwork Procurement	650	643	691	691	0	.00
17	Light Rail Vehicles	26,370	24,352	24,352	25,570	2,726	10.66
18A	Fare Vending Equip Proc.	520	520	520	520	0	.00
18B	Major Shop Equip Proc.	1,336	880	880	880	0	.00
18C	Line Maint Equip Proc.	240	240	240	240	37	15.42
19	Substation Procurement	4,150	3,473	3,473	3,473	482	13.88
20	Catenary System/Pole Proc	1,880	1,880	1,481	1,481	0	.00
21	Cable/Wire Procurement	1,370	1,370	1,142	1,142	84	7.36
40	Management and Engineering	14,950	18,174	17,156	17,156	9,054	52.77
45	SRTD Mgmt/System Start up	0	3,123	2,949	2,949	0	.00
50	Risk Management	0	1,550	1,550	1,550	333	21.48
60	R-O-W Acquisition	12,360	12,885	12,885	12,885	5,578	43.29
70	Utility Relocation	5,120	5,257	5,257	5,257	585	11.13
98	Construction Contingency	0	3,587	3,511	0	--	.00
99	General Contingency	10,250	0	237	237	--	.00
TOTALS		\$131,025	\$131,040	\$131,233	\$131,233	\$30,495	23.24

Table B-1
 CONTRACTS WHICH HAVE BEEN ADVERTISED
 Sacramento Light Rail Project

CUB	DESCRIPTION	PLANS, SPECS AND ESTIMATE	DESIGN REVIEW TECH CONSULT-FINAL	ADVERTISE	BIDS OPEN	NOTICE TO PROCEED	STATUS OF CONTRACT
1	GRADE SEPARATIONS - MAYLUMI, EL CAMINO, ARDEN	NOV 1982	DEC 1982 DEC 1982	12-27-82	02-24-83	03-23-83	99% COMPLETE
2	AT GRADE CONSTRUCTION - NE CORRIDOR	MAR 1984	MAR 1984 APR 1984	04-23-84	06-06-84	08-10-84	10% COMPLETE
3	MAINTENANCE BUILDING AND STORAGE YARD	FEB 1984	MAR 1984 APR 1984	05-14-84	06-20-84	08-09-84	10% COMPLETE
4	"K" STREET MALL DEMOLITION	DEC 1983	JAN 1984 FEB 1984	03-12-84	04-04-84	04-16-84	100% COMPLETE
4B,C	TREES FOR "K" STREET MALL	NOV 1983	DEC 1983	SOLE SOURCE		01-18-84	TREES GROWING
4D	OFF STREET PARKING CENTRAL CITY	SEP 1984	SEP 1984 SEP 1984	10-15-84	10-30-84		
7B	TREES FOR SUBURBAN STATIONS	SEP 1983		10-20-83	11-02-83	11-07-83	TREES GROWING
8	GRADING FOR STORAGE YARD AND MAINTENANCE BUILDING	AUG 1983	SEP 1983	10-01-83	11-01-83	11-15-83	100% COMPLETE
10	RAIL SIGNALING	MAY 1984	JUN 1984 JUN 1984	06-27-84	08-08-84	10-01-84	CONTRACTOR 1% DESIGNING UNKNOWN
12	COMMUNICATIONS RADIO PROCUREMENT	APR 1984	APR 1984 APR 1984	04-24-84	06-22-84	09-28-84	EQUIPMENT BEING NEGOT
14A	RAIL PROCUREMENT SYSTEMWIDE	AUG 1983	AUG 1983 AUG 1983	09-01-83	10-04-83	11-04-83	100% DELIVERED
14B	OTHER TRACK MATERIAL SYSTEMWIDE	AUG 1983	AUG 1983 AUG 1983	09-01-83	10-04-83	11-04-83	100% DELIVERED
15	TIE PROCUREMENT	JUN 1983	JUL 1983 JUL 1983	07-27-83	08-29-83	10-12-83	100% DELIVERED
16	SPECIAL TRACKWORK PROCUREMENT - SYSTEMWIDE	SEP 1983	SEP 1983 OCT 1983	10-23-83	11-28-83	01-17-84	50% DELIVERED
17	LIGHT RAIL VEHICLE PROCUREMENT	JAN 1983 NOV 1983	JAN 1983 NOV 1983 NOV 1983	12-03-83	01-17-84	02-03-84	27% COMPLETE
19	SUBSTATION PROCUREMENT SYSTEMWIDE	SEP 1983	SEP 1983 OCT 1983	10-20-83	12-08-83	01-16-84	50% COMPLETE
20	CATENARY HARDWARE & POLES SYSTEMWIDE	FEB 1984	FEB 1984 JUN 1984 JUN 1984	07-02-84	07-30-84	10-01-84	5% COMPLETE
21	CHALE/WIRE PROCUREMENT SYSTEMWIDE	MAR 1984	MAR 1984 MAR 1984	03-22-84	05-01-84	06-17-84	8% COMPLETE

Table B-2
 CONTRACTS WHICH HAVE NOT BEEN ADVERTISED
 Sacramento Light Rail Project

JOB	DESCRIPTION	PLANS, SPECS AND ESTIMATE	DESIGN REVIEW TECH CONSULT	FINAL	ADVERTISE	BIDS OPEN	NOTICE TO PROCEED	STATUS OF CONTRACT
2A	MIDTOWN CONSTRUCTION WATT/10	10-31-84	NOV 1984	11-09-84	12-15-84	02-15-85	03-05-85	COMPLETED TRAIN PATTERNS PLANS.
4A	CENTRAL CITY AT GRADE CONSTRUCTION	12-05-84	DEC 1984	12-20-84	01-21-85	02-20-85	03-20-85	PLANS COMPLETE DOWNSCOPING IN PROGRESS
5	FOLSOM CORRIDOR AT GRADE CONSTRUCTION	12-07-84	DEC 1984	01-09-85	03-04-85	04-15-85	05-13-85	PLANS 85% COMPLETE
6	WATT AVE/1-80 STATION	12-05-84	DEC 1984	02-26-85	04-01-85	05-01-85	05-29-85	PLANS COMPLETE DOWNSCOPING IN PROGRESS
7	STATIONS - NE CORRIDOR	11-02-84	NOV 1984	12-06-84	02-04-85	03-13-85	04-12-85	PLANS COMPLETE DOWNSCOPING IN PROGRESS
7A	STATIONS - FOLSOM CORRIDOR	2-17-85	FEB 1985					
9	ELECTRIFICATION - INSTALL	10-24-84	NOV 1984	11-08-84	12-03-84	01-09-85	02-04-85	
11	TRAFFIC SIGNALS	10-20-84	OCT 1984	11-01-84	12-19-84	01-19-85	02-09-85	
13	EQUIPMENT INSTALLATION	HOLD - MAY NOT REQUIRE						
18A	FIVE VENDING EQUIPMENT PROCUREMENT	09-04-84	SEP 1984		10-01-84	TECHNICAL 10-26-84		PRICE PROPOSALS ADVERTISE 11-19-84 BIDS OPEN 12-03-84
18B	WHEEL TRIPPING MACHINE PROCUREMENT	NOV 1984	NOV 1984					OUT FOR INDUSTRY REVIEW IN NOVEMBER MID EARLY 1985
18C	LINE MAINTENANCE EQUIPMENT PROCUREMENT	OCT 1984						HOLD FOR QUESTION ON HOW WOULD PROCURE

A-3

Table C
 APPROVED BASELINE BUDGET
 CU 60 - REAL ESTATE ACQUISITION

<u>ITEM</u>	<u>BUDGET AMOUNT</u>
<u>CU#2, Northeast Corridor</u>	
I-80 Bypass R-O-W	\$ 0
Marconi Station	1,620
Ben Ali Spur Easement	46,700
Lumberjack Bypass	350,000
Sacramento Northern R-O-W	250
Royal Oaks Station	94,100
Subtotal	<u>\$ 492,670</u>
 <u>CU#4A, Central City</u>	
Del Paso & Acoma R-O-W	6,890
Baxter Avenue Parking	58,500
12th and North B R-O-W	67,000
SP 12th Street UP R-O-W	12,800
Alkali Flat Station	537,000
Alkali Flat Parking	265,000
12th and 'O' Curve	9,800
Q/R Alley and 12th R-O-W	650
Q/R Alley Track	1,120,000
Subtotal	<u>\$ 2,077,640</u>
 <u>CU#5, Folsom Corridor</u>	
Placerville Branch R-O-W	
Alhambra-65th	1,750,100
65th Street-Butterfield	2,379,738
65th Street Station	580,000
Howe/Power Inn Station	1,500,000
Power Inn Road	1,000
Watt/Manlove Station	1,628,400
Watt/Manlove Station	296,000
Butterfield Way Station	1,900,161
County Easement	250,000
CSUS Underpass	29,000
Subtotal	<u>\$10,314,399</u>
 TOTAL: R-O-W Acquisition	 \$12,884,709
TOTAL: REAL ESTATE ACQUISITION BUDGET	\$12,885,000

Table D
 APPROVED BASELINE BUDGET
 CU 70 - UTILITY RELOCATION

<u>ITEM</u>	<u>BUDGET AMOUNT</u>
PG&E	
Northeast Corridor	\$ 130,000
Central City	235,000
Folsom Corridor	100,000
PT&T	
Northeast Corridor	300,000
Central City	571,000
Folsom Corridor	100,000
SMUD	
Northeast Corridor	55,000
Central City	2,717,000
Folsom Corridor	200,000
Southern Pacific Railroad	
Folsom Corridor	2,000
Southern Pacific Pipeline	
Gas Pipeline Relocation	792,000
Union Pacific Railroad	
Folsom Corridor	5,000
City (Engineering)	<u>50,000</u>
TOTAL: UTILITY RELOCATION BUDGET	\$5,257,000

Table E
GENERAL DEFINITION OF PROJECT ELEMENTS
SACRAMENTO LIGHT RAIL PROJECT
JUNE 30, 1983 (PE ESTIMATE FOR FEIS)

SACRAMENTO TRANSIT DEVELOPMENT AGENCY

STARTER LINE PROJECT
SUMMARY OF TRANSIT COST



WORK ITEM (MACS CODE)	Grade Improvements	RT Corridor Grading & Yards	Maintenance Building	Central City Grading, Stg. & Track Polishing Corridor	North Terminal	RT Corridor Stations	Track Work	Electrification	Signals	Vehicles	Track Materials	Electric Materials	Signal Materials	Communication & Rail Yard Buildings	TOTALS 7% Escalation
PURCHASE OF TRANSIT VEHICLES															
200100.1 VEHICLES (27 + 4 spare)										29,979					29,979
200100.2 SPARE PARTS										2,327					2,327
PURCHASE OF SUPPORT EQUIPMENT															
200201 FARE VENDING													.520		.520
200202 COMMUNICATION												.280			.280
200203 RAIL										2,470					2,470
200204 TIES										1,120					1,120
200205 SPECIAL TRACKWORK										.680					.680
200206 SWITCH MACHINE												.150			.150
200207 SUBSTATIONS											4,530				4,530
200208 CATERWAY SYSTEM											.920				.920
200209 CABLE											1,370				1,370
200210 POLES											.960				.960
PURCHASE OF SERVICE & MAINT. EQUIP.															
200301 VEHICLES														.240	.240
200302 SHOP TOOLS & EQUIPMENT														1,236	1,236
200303 CAR WASHER/CLEANING EQ.														.134	.134
REAL ESTATE ACQUISITION															
200610 RIGHT-OF-WAY		.460		2,101	6,160										7,721
200640 PARKING FACILITIES				.425	4,214										4,639
PROFESSIONAL SERVICE CONTRACTS															
200401 ENGINEERING & DESIGN	.630	1,500	.850	2,250	1,950	.470	.980	.960	.500	.500	1,000	.500	.250	.100	.500
CONSTRUCTION OF FACILITIES															
201101 PROJECT INSURANCE	.099	.220	.125	.830	.287	.069	.185	.141	.075	.075					1,650
201110 STATIONS				2,000		.612	1,920								4,512
201120 MAINTENANCE SHOPS			2,180												2,180
201140 PARKING FACILITIES						1,930	3,850								4,600
201190 LANDSCAPING						.475	1,000								1,475
RIGHT-OF-WAY CONSTRUCTION															
201312 UTILITY RELOCATION		.510		2,950	1,660										5,120
201340.00 TRACK UPGRADING (RT 3.P)	.386							.822							1,218
201340.01 TRACK ON BALLAST				3,200				1,141							4,341
201340.02 TRACK IN YARD								.415							.415
201340.03 TRACK ON BRIDGE				.150				.284							.434
201340.04 TRACK SPECIALS				.880				.270							.490
201340.05 STREETWORK				2,250				.850							3,100
201340.06 GRADING & DRAINAGE	5,358	1,610	.410		1,150	.81									7,938
201340.07 STRUCTURES	2,926	.480		2,040	1,224										6,670
201340.08 TRAFFIC SIGNALS								.375							2,945
201340.09 TRANSIT SIGNALS															4,670
201340.10 ELECTRIFICATION			.550							.240					1,870
201340.11 TEMP. TRAFFIC CONTROL				.938	.236					.240					1,374
SUBTOTAL CONT. CONTRACTS-UTIL. RELOC. + REAL ESTATE ACQUISITION	6,670	5,060	3,080	18,674	18,444	3,247	7,455	2,690	1,840	7,620	26,970	5,840	7,780	.150	1,710
CONTINGENCIES															
320000 ALL	.034	.306	.308	1,567	1,344	.331	.745	.269	.084	.762	2,637	.524	.773	.015	.080
TOTALS	7,727	5,086	4,363	18,821	17,025	4,117	9,255	4,060	1,499	8,757	30,007	6,364	9,058	.415	1,000

(INCLUDES 7% ESCALATION
AND 10% CONTINGENCIES)



SACRAMENTO LIGHT RAIL TRANSIT PROJECT
PROJECT CAPITAL COSTS BY STATE FISCAL YEAR

SACRAMENTO TRANSIT DEVELOPMENT AGENCY

928 J Street, Suite 811 • Sacramento, California 95814 • (916) 442-3188
 Project Office: 1201 "I" Street • Sacramento (916) 446-6610

Item	1981-82 (\$ Mil)	1982-83 (\$ Mil)	1983-84 (\$ Mil)	1984-85 (\$ Mil)	Total (\$ Mil)
Project Mngmt & Engrng	\$ 1.91	\$ 4.81	\$ 5.61	\$ 1.90	\$ 14.23
Right-of-Way & Utilities	--	2.87	14.61	--	17.48
Light Rail Vehicles	--	--	13.83	12.54	26.37
Track	--	--	8.81	2.69	11.50
Civil & Structural	--	--	9.14	7.76	16.90
Traction Power	--	--	7.78	1.39	9.17
Signals	--	--	0.15	8.37	8.52
Communication/Fare Vending	--	--	0.50	0.30	0.80
Stations	--	--	0.61	3.98	4.59
Shop & Yard	--	--	2.12	1.47	3.59
Other	--	--	--	0.24	0.24
Contingency	--	--	6.29	3.62	9.91
Total	\$ 1.91	\$ 7.68	\$ 69.45	\$ 44.26	\$123.30

Note: All figures are in expenditure year dollars. Costs scheduled for 1984 and 1985 include an escalation allowance of 7% per annum.

JS:7/31/83

Table F
 Exhibit 2-24 from Project FEIS
 SACRAMENTO LIGHT RAIL PROJECT
 August, 1983

Table G
FEIS COMMITMENTS
MITIGATING MEASURES
SACRAMENTO LIGHT RAIL PROJECT

WATT AVENUE/I-80

- Narrowing Watt Avenue Median (but not "median barrier")
- Elevator & stairs on both sides of Watt Avenue; New Jersey type barrier between LRT parking area and freeway.

WATT AVENUE TO ARDEN WAY

- Left turn pockets and signals to improve access to parking lots without blocking traffic lanes.

EVERGREEN ST. AREA

- Replacing parking spaces at other locations in the area.
- Appropriate crossing protection per PUC GO 143.

WEST OF EVERGREEN ST. AREA

- PUC grade crossing protection.
- Continued use of Frontage Road to provide access for local homeowners.

SOUTH OF DEL PASO BLVD. TO K STREET MALL

- Lanes from LRT line at American River crossing and through the SPRR underpass.
- Physical separation of auto traffic from LRT line with six-inch curbing, flexible delineators, or thermoplastic striping on N. 12 Street from near American River to N. B Street; and, on 12 Street from South of C Street to K Street.
- Possible separate phase or other provisions in traffic signals at all signalized cross street intersections to preclude left turns in front of the train.

SEVENTH & EIGHTH ST. FROM K ST. TO O ST.

- Six-inch curb separating auto traffic from the LRT line.
- Separate phase in traffic signals at all cross street intersections to preclude left turns in front of the train.

EAST OF ALHAMBRA TO BUTTERFIELD WAY

- Use of existing signalized intersections and increases in the capacity of left turn pockets.

- Butterfield way will be extended south of Folsom Blvd. across the SPTC RR and LRT Line. A portion of the Butterfield Way extension will be laterally shifted westerly and reconstructed.
- The intersection of Folsom Blvd. and Butterfield Way will be signalized as appropriate. Left turn pockets will be provided on Folsom Blvd.

LRT PARKING LOT AREAS

- New railroad separations to provide direct, unrestricted vehicle access to Marconi and Swanston stations.
- Additional left-turn channelization lanes for access at stations where needed or required by the City or County.
- Additional signalized intersections and modifications of existing systems to provide separate phasing for parking lot access at Marconi, Swanston, 65 Street and Butterfield Stations.
- Improvements to City Streets where required by increased traffic at Marconi, Roseville Road, and Swanston.
- Improvements to City streets where required by increased traffic at Marconi, Roseville Road, and Swanston.
- Improvements to the local drainage systems at Marconi and Swanston.
- Additional lighting for streets, intersections, and access roads where required by the City or County.
- Widening and restriping for an added through lane (at Bradshaw and Folsom Blvd.)
- Improving the intersection at U.S. 50 E.B. Ramp/Bradshaw by providing double left-turn lanes, widening the on-ramp entrance and widening and lengthening the on-ramp.
- At Bradshaw/US 50 interchange, to construct a southbound-to-westbound on-ramp at Bradshaw interchange as part of a freeway ramp meter project.

HYDROLOGY, WATER QUALITY AND FLOODPLAINS

- Slopes of 4 to 1 or steeper will be revegetated as recommended by the STDA landscape architect.
- LRT traffic will be (accommodated) in the existing left traffic lane (of the American River Bridge) and a "New Jersey" barrier will be built to separate LRT and automobile traffic.

POTENTIAL IMPACT SOURCES

- If it becomes apparent during final design that a significant noise problem will occur (along K Street Mall)...floating slab tracks, neoprene pads between rails and ties, speed restrictions.
- Caltrans community noise abatement program along Route 50 between 37 Street & 55 Street. Sound walls would be placed between the receptors and tracks thus providing attenuation for both freeway and light rail noise sources. If Caltrans does not construct the soundwall, STDA will construct a 3-foot high berm between the LRT line and adjacent residences in the vicinity of 37 to 48 Street.

CONSTRUCTION NOISE

- Temporary shielding (plywood wall) will be used for sensitive receptors.

VIBRATION

- All rails will be continuously welded and ground to a smoothness consistent with the State-of-the-Art.
- A systematic program to measure roundness of the wheel and a means to grind and true the wheel will be developed.
- Resilient wheels will be incorporated in the design.
- Train speeds will be kept to 10 MPH in the Downtown area.
- Tie and ballast will be used throughout the system.
- Ultrasonic pavement breakers will be used in the downtown areas to break the pavement for construction of the LRT.
- Additional ballast will be used in sensitive areas.

ELECTROLYSIS

- Rail fasteners will be of proper length to ensure termination (of the fasteners) in wood rather than ballast or ground.
- The pads will be used between the plates and cross ties to prevent abrasion and provide electrical and/or sound isolation where specific corrosion and/or sound isolation where specific corrosion and/or noise problems are anticipated.
- Rails will be insulated throughout the mainline track.
- Rail will be grounded in the maintenance yard.

INTEGRATED ART ELEMENTS

- There will be protective windscreens at most stations.
- Each station will have artworks integrated into the concrete pavement which has a stiff brown finish.
- All trees on platforms and on sidewalks will have tree grates.
- Pennants and banners will be utilized for station.
- Power inn - retaining wall at station entrance will receive artistic treatment.
- K Street Mall between 9 and 10 Street - to be developed as a seating area for pedestrians - to sit, watch, eat, and rest.
- St. Rose of Lima Park - space will be flexible and encourage multiple use of the space.

CONSTRUCTION ACTIVITY

- Access to facilities will be available at all times.
- Two major bridges will be constructed at the mainline railroad intersections to separate LRT tracks from the railroad tracks.

Source: Caltrans

Table H
Exhibit 2-2 from FEIS
SACRAMENTO LIGHT RAIL PROJECT

NORTHEAST SACRAMENTO LIGHT RAIL TRANSIT LINE
LIST OF PROPOSED STATIONS STOPS

<u>Station Name</u>	<u>Location</u>	<u>Park and Ride</u>	<u>Bus Timed Transfer</u>	<u>Parking Spaces</u>
1 Watt/80	I-80 Bypass Median Under Watt Avenue Bridge	X	X	1100
2 Watt/80 West	I-80 Bypass Median West of Longview Drive	X		600
3 Roseville Road	I-80 Bypass Median	X		500
4 Marconi/Arcade	I-80 Bypass North of Arcade	X	X	500
5 Swanston	I-80 Bypass Between El Camino and Arden	X		500
6 Royal Oaks	Arden at Royal Oaks			
7 Del Paso	Arden and Del Paso		X	
8 Globe	Del Paso @ Globe Avenue			
9 Alkali Flat	12th Between D and E			
10 12th and H	12th Between H and I			
11 Cathedral Sq.	K Between 12th and 11th			
12 8th and K	K Between 8th and 7th ¹			
13 Capitol Mall	7th and Capitol ²			
14 8th and O	O Between 7th and 8th ¹			
15 11th and O	O Between 11th and 12th			
16 12th and R	Q/R Alley Between 12th & 13th			
17 16th Street	Q/R Alley Between 15th & 16th			
18 23rd Street	R Between 23rd and 24th			
19 29th Street ³	R Between 28th and 29th	X		
20 59th Street	SP at 59th			
21 65th Street	SP at 65th		X	
22 Power Inn	SP at Power Inn	X		500
23 College Greens	SP at Kiefer Blvd.			
24 Watt/Manlove	SP Between Watt & Manlove	X	X	500
25 Norcade	Norcade			
26 Tiber	SP at Tiber			
27 Butterfield	SP at Butterfield	X	X	800

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- 1 - One platform located between 8th and 9th due northbound track in 8th Street.
 2 - Northbound platform at 8th and Capitol
 3 - To be constructed by CA Department of General Services

Table I
RIDERSHIP/PLATFORM HOUR/SERVICE COST COMPARISONS
 (Figure 13 from SRTD Transit Plan, 1985-89, Adopted August 27, 1984)

RIDERSHIP PROJECTIONS					
	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88¹</u>	<u>FY 89</u>
Existing	14,900,000	15,124,000	15,351,000	15,581,000	15,815,000
Proposed	14,900,000	15,515,000	17,900,000	18,145,000	18,409,000
PLATFORM HOURS					
	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88¹</u>	<u>FY 89</u>
Existing	495,000	495,000	495,000	496,748	495,000
Proposed					
Bus Hours					
Regular Service	495,000	488,303	461,090	462,750	461,090
Interim Bus Hours	0	3,897	8,980	0	0
Replaced by LRT					
Bus Total	<u>495,000</u>	<u>492,200</u>	<u>470,070</u>	<u>462,750</u>	<u>461,090</u>
LRT Hours	0	6,232	31,708	31,816	31,708
SERVICE COST PER FISCAL YEAR					
	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88¹</u>	<u>FY 89</u>
Existing	25,975,000	27,305,000	28,697,000	30,265,944	31,705,000
Proposed					
Bus Costs					
Regular Service	25,975,000	26,933,081	26,724,806	28,194,507	29,530,454
Interim Service	0	214,931	520,556	0	0
Bus Subtotal	<u>25,975,000</u>	<u>27,148,012</u>	<u>27,245,362</u>	<u>28,194,507</u>	<u>29,530,454</u>
LRT Cost	0	817,819	4,373,611	4,613,002	4,829,636
Total Cost	<u>25,975,000</u>	<u>27,965,831</u>	<u>31,618,973</u>	<u>32,807,509</u>	<u>34,360,090</u>
(Capitalization ²	(Included in	(1,647,000)	(53,000)	0	0
Adjustment)	above figure)				
Adjusted Total Cost	<u>25,975,000</u>	<u>26,318,831</u>	<u>31,565,973</u>	<u>32,807,509</u>	<u>34,360,090</u>

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¹ 1988 is a leap year; therefore, estimates include an additional weekday.

8/9/84

² Capitalization adjustment provides for inclusion of LRT Project Coordination Office costs into LRT project budget.

Table J
OPERATING REVENUES AND EXPENDITURES
 (Figure 16 from SRTD Transit Plan, 1985-89, Adopted August 27, 1984)

REVENUE	FUNDS AVAILABLE				
	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989
FEDERAL					
Section 9 ¹	3,952,500	3,560,900	3,208,460	3,048,764	2,747,538
Other ²	<u>1,569,050</u>	<u>160,000</u>	<u>185,000</u>	<u>185,000</u>	<u>185,000</u>
Total Federal	5,521,550	3,720,900	3,393,460	3,233,764	2,932,538
STATE AND LOCAL					
LTF	13,679,000	14,773,000	15,585,515	12,666,373	15,993,480
LTF Carryover	3,207,843	1,233,993	1,462,550	667,552	
STA	<u>2,175,000</u>	<u>2,175,000</u>	<u>2,175,000</u>	<u>2,175,000</u>	<u>2,175,000</u>
Total State and Local	19,061,843	18,181,993	19,223,065	15,508,925	18,168,480
FARES	7,300,000	7,925,088	9,130,000	10,203,298	10,363,859
OTHER³	<u>450,000</u>	<u>471,000</u>	<u>487,000</u>	<u>507,000</u>	<u>528,000</u>
Total	<u>32,333,393</u>	<u>30,298,981</u>	<u>32,233,525</u>	<u>29,452,987</u>	<u>31,992,877</u>
EXPENDITURES⁴	25,975,000	26,318,831	31,565,973	32,807,509	34,360,096
Surplus-Carryover/(Deficit)	6,358,393	3,980,150	667,552	(3,354,522)	(2,367,219)

¹ Excludes Section 9 amounts distributed to other transit providers.

8/9/84

² Includes Section 5 carryover (FY 1985 only), Section 8 and Section 10 funds.

³ Includes special service contracts, advertising revenue and investment income.

⁴ Includes adjustment for RT's LRT Project Coordination Office capitalization.

Table K
REVISED RIDERSHIP/PLATFORM HOUR/SERVICE COST PROJECTIONS
ESTIMATED BY SRTD - NOVEMBER 19, 1984

R I D E R S H I P					
	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>	<u>FY 89</u>
PROPOSED SERVICES	14,900,000	15,124,000	16,694,000	17,595,000	17,859,000

P L A T F O R M H O U R S					
	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>	<u>FY 89</u>
LRT HOURS	0	0	21,524	31,816	31,708
BUS HOURS	495,000	495,000	458,915	431,397	429,950
LRT REPLACEMENT BUS HOURS	0	0	3,697 ⁽¹⁾	0	0

S E R V I C E C O S T S					
LRT COST	\$ 152,000	\$ 1,552,000	\$ 4,274,000	\$ 5,203,820	\$ 5,464,011
LRT PROJECT SUPPORT (PCO)	406,000	236,000	53,000	0	0
BUS COST	25,975,000	27,302,450	26,602,774	26,284,228	27,536,096
LRT REPLACEMENT	0	0	214,315 ⁽¹⁾	0	0
CAPITAL ADJ	(558,000) ⁽²⁾	(1,788,000) ⁽²⁾	(240,000) ⁽²⁾	0	0
TOTAL COST	\$25,975,000	\$27,302,450	\$30,904,089	\$31,488,048	\$33,001,107

(1) To provide Folsom Corridor bus services pending completion of Folsom LRT line.

(2) LRT Start-Up Costs and LRT Support Services which are eligible for capital funding.

Table L

REVISED REVENUE/EXPENSE PROJECTIONS
PREPARED BY REGIONAL TRANSIT - NOVEMBER 19, 1984

E X P E N S E S (Thousands)					
	FY 85	FY 86	FY 87	FY 88	FY 89
Bus	\$ 25,975	\$27,302	\$26,817	\$26,284	\$ 27,536
LRT	0	0	4,087	5,204	5,464
Total Costs	\$ 25,975	\$27,302	\$30,904	\$31,488	\$ 33,000
R E V E N U E S					
	FY 85	FY 86	FY 87	FY 88	FY 89
FEDERAL					
Section 9 - RT	4,066	3,659	3,294	2,965	2,668
Section 9 - Pass Thru	- 114	- 114	- 114	- 114	- 114
Other	85	160	185	185	185
Sec 5 - Carryover	1,572	0	0	0	0
Total Federal	5,609	3,705	3,365	3,036	2,739
STATE/LOCAL					
LTF Op/Cap	13,679 ⁽¹⁾	14,773	15,586	16,599	17,678
LTF - Carryover	8,380	- 6,825	3,372	0	0
STA Cp/Cap	2,175 ⁽²⁾	2,175	2,175	2,175	2,175
STA - Carryover	4,196	293	0	0	0
Local Match	- 8,695 ⁽³⁾	- 5,125	- 2,518	- 3,932	- 1,684
Total State/Local	19,735	18,941	18,615	14,842	18,169
FAREBOX	7,300	7,727	8,543	9,893	10,056
OTHER	450	300	318	337	357
TOTAL REVENUE	\$33,094	\$30,674	\$30,841	\$28,108	\$31,321
S U R P L U S / D E F I C I T					
	\$ 7,119	\$ 3,372	- \$ 63	- \$3,380	- \$1,679

(1) Was \$12.213 million in FY 84.

(2) Was \$2.470 million in FY 84, including interest (vs. \$2.038 million estimate).

(3) Includes \$6.595 million for carryover capital projects.

Table M
COMPARISON OF REGIONAL TRANSIT'S
AUGUST AND NOVEMBER OPERATING COST FORECASTS

<u>FISCAL YEAR</u>	<u>ESTIMATED O & M COSTS</u>	
	<u>August Plan</u>	<u>November Plan⁽¹⁾</u>
FY 85	\$25,975,000	\$25,975,000
FY 86	26,318,831	27,302,450
FY 87	31,565,973	30,904,089
FY 88	32,807,509	31,488,048
FY 89	34,390,090	33,001,107

(1) Reflects slippage in Light Rail project schedule and service reductions.

Table N

COMPARISON OF REGIONAL TRANSIT'S
AUGUST AND NOVEMBER PATRONAGE FORECASTS

<u>FISCAL</u> <u>YEAR</u>	<u>ANNUAL RIDERSHIP (Millions)</u>		
	<u>Existing</u> <u>Services</u>	<u>August</u> <u>Plan</u>	<u>November</u> <u>Plan</u>
FY 85	14.900	14.900	14.900
FY 86	15.124	15.515	15.124
FY 87	15.351	17.900	16.694
FY 88	15.581	18.145	17.595
FY 89	15.815	18.409	17.859

Table O

POTENTIAL CAPITAL PROJECTS FOR DEFERMENT(1)
 Identified by Regional Transit

Fiscal Year Programmed	Project	Project Description	Total	Local
			Cost	Dollars
			(000's)	
1986	Fixed Guideway Development- South and/or NE Corridors	Development of LRT in new corridor or extension or upgrading of initial lines. Would provide for future LRT development.	11,300	1,610
1987	Fixed Guideway Development- South and/or NE Corridors	Development of LRT in new corridor or extension or upgrading of initial lines. Would provide for future LRT development.	10,000	1,350
1988	Fixed Guideway Development- South and/or NE Corridors	Development of LRT in new corridor or extension or upgrading of initial lines. Would provide for future LRT development.	16,200	2,740
Total			37,500	5,700

8/9/84

¹There are other projects in RT's capital program that could also be considered for deferral should the Board so choose.

Table P

CONTINGENT SERVICE REDUCTIONS IDENTIFIED BY REGIONAL TRANSIT

(Listed in order of potential implementation; #1 being first to be cut and #4 being last)

SERVICE REDUCTION	AFFECTED ROUTE	CUMULATIVE SAVINGS		IMPACTS
		TOTAL ANNUAL HOURS	COST SAVINGS 4/26/86-6/30/89	
1. Delete peak hour College Greens service.	16	1,275	\$ 284,100	College Greens consists of a medium density neighborhood within 1/2 mile of LRT stations. Proposed system would have provided peak hour only service to LRT. With this cut, all service to area is eliminated.
2. Decrease headway from :15 to :30 on Greenback Lane; eliminate Woodmore Oaks service and shuttle service from Watt/80 to ARC.	90	4,335	\$ 842,500	Greenback Lane is designed as an extension of the I-80 LRT line to Sunrise Mall, operating on the same headway as the train. This service would have provided a major connection between routes serving Auburn and Greenback and LRT, as well as non-stop peak express routes originating at the Mall.
3. Decrease headway from :15 to :30 on Watt Avenue; delete proposed Rosemont service.	81	9,690	\$1,716,000	Watt Avenue is designed to be the major crosstown connector for the Northeast area, connecting with all east-west routes and the major LRT stations on both corridors. Without this high frequency service, buses will only connect with alternate trains and passengers will be more dependent upon bus/bus "timed" transfers. Also, relief of possible overcrowding by providing frequent optional service between both corridors is less likely to occur with 30 minute headways.
4. Eliminate weekday night service (5 routes 6:00p to 10:00p); minor network refinements.	All North Area	10,200	\$1,253,500 ¹	Night service would only be provided in the south area with north area service terminating at approximately 6:00p. This additional service would have maintained the existing level of north area night service, which would provide support for LRT night ridership and other local service.
Subtotal		25,500	\$4,096,100	8/9/84
Less Estimated Fare Revenue			(932,800)	
Total Savings			\$3,163,300	

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¹Hours do not reflect service productivity adjustments.

Table Q

REGIONAL TRANSIT'S FIVE-YEAR TRANSITION PLAN POTENTIAL FUNDING OPTIONS
(Figure 17 from Transit Plan, 1985-89)

REVENUE GENERATION OPTIONS

COST CONTAINMENT OPTIONS

Short Term w/2 years

- Fare Restructuring
 - Peak Surcharge
 - Cost Based Fares
- Safe Harbor Leasing
- Lease Purchase Equipment
- Certificates of Participation
- Interest Arbitrage
- RANS
- Employer Sponsored Pass Programs
- Schools Pay For Special Service
- Merchant Discounts on Daily Passes
- Interest on Capital Applied to Operations
- Expanded Advertising Programs

- Expanded Contracting of Services
- Adjust Staff Fringe Benefit Package
- Reduce Marketing Expenditures
- Reevaluate All Non-Revenue Generating Activities
- Aggressive Work Comp Program
- Increased Absentee Control
- Early Retirement Incentive
- Utilize New Special Grants Programs

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Mid-Term 2-5 years

- Donations for Capital Improvement
- Rail Siding Rehab (DOT)
- Park-and-Ride Parking Fees
- Advertising in Stations
- Joint Development of Air Rights
- Joint Development of Retail Facilities at LRT Stations
- Grants of State Energy Commission
- Jitney Service Franchises to Private Enterprises

- Review Route Standards
- Reduction in Senior Staff Positions

Long Term and/or
Difficult to
Implement

- Special Benefit Assessments
- Tax Increment Financing
- Transit Impact Fees
- Sales Tax
- Property Tax
- Parking Fee Tax

- Review Capital Expenditures from Cost/Benefit Perspective
- Limit Staff Growth (Hiring Freeze)
- Broker Services