

HARD CHOICES

**A Report on the Increasing Gap Between America's
Infrastructure Needs and Our Ability To Pay
for Them**

Appendix 2. CALIFORNIA

A CASE STUDY

PREPARED FOR THE USE OF THE
**SUBCOMMITTEE ON ECONOMIC GOALS AND
INTERGOVERNMENTAL POLICY**
OF THE
**JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES**



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Preface

Infrastructure problems are widespread. They do not respect regional or state boundaries. To secure a better data base concerning national and state infrastructure conditions and to develop threshold estimates of national and state infrastructure conditions, the Joint Economic Committee of the Congress requested that the University of Colorado's Graduate School of Public Affairs direct a twenty-three state infrastructure study. Simultaneously, the JEC appointed a National Infrastructure Advisory Committee to monitor study progress, review study findings and help develop policy recommendations to the Congress.

In almost all cases, the studies were prepared by principal analysts from a university or college within the state, following a design developed by the University of Colorado. Close collaboration was required and was received from the Governor's staff and relevant state agencies.

Because of fiscal constraints each participating university or college agreed to forego normal overhead and each researcher agreed to contribute considerable time to the analysis. Both are to be commended for their commitment to a unique and important national effort for the Congress of the United States.

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CALIFORNIA'S INFRASTRUCTURE STUDY

A Review of Needs and Resources for the Congressional
Joint Economic Committee Infrastructure Project

December 7, 1983

California Debt Advisory Commission
Office of the State Treasurer
with the assistance of
University of California, Berkeley
Department of City and Regional Planning

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CALIFORNIA'S INFRASTRUCTURE STUDY

A Review of Needs and Resources for the Congressional
Joint Economic Committee Infrastructure Project

December 7, 1983

I. INTRODUCTION

The condition of infrastructure has emerged as a major public policy issue. Decision-makers in both the public and the private sector are increasingly concerned about the condition of existing capital stock, the need for future investment, and the capability of Federal, State, and local governments to finance needed investment.

In response to this concern, the Joint Economic Committee (JEC) of the U.S. Congress initiated a national infrastructure project. The principal purposes of the JEC study are:

(1) to assess the existing condition of the nation's infrastructure; (2) to identify needed improvements (including rehabilitation and maintenance as well as new construction) through the year 2000; and (3) to estimate the costs of needed improvements as well as potential funding shortfalls. Twenty-three states are participating in the JEC study, which is being coordinated by University of Colorado, Denver.

This report, California's Infrastructure Study: A Review of Needs and Resources for the Congressional Joint Economic Committee Infrastructure Project, constitutes the State's participation in the national study. Six elements of California's infrastructure -- the State highway system, city streets and county roads, public

transit systems, railroads and airports, sewerage systems, and water systems -- are examined in this report.^{1/}

Section II of the report provides an overview for the remainder of the study by describing historical infrastructure investments, discussing revenue availability, and outlining the study methodology. Section III summarizes the report's findings. Sections IV through IX examine the six infrastructure elements -- describing current conditions, needed improvements, and potential funding shortfalls. Section X contains footnotes, references, and explanatory material.

This study was coordinated by the California Debt Advisory Commission and the Office of the State Treasurer with the assistance of the University of California, Berkeley, Department of City and Regional Planning.

II. CALIFORNIA OVERVIEW

A. INFRASTRUCTURE INVESTMENTS

Although complete information on infrastructure investments in California State and local governments does not exist, a comparison of yearly expenditures for various infrastructure elements can be drawn.

1. Actual Expenditures

Table II-1 shows actual expenditures for city streets, county roads, State highways, public transit, wastewater treatment, and water systems for 1970-71 and 1976-77 through 1982-83. During this period, total actual expenditures on these six infrastructure elements increased from \$2.6 billion to almost \$7.0 billion, an increase of 168+ percent. (These figures are from a Statewide study of infrastructure, which drew data from annual reports prepared by the State Controller concerning the financial transactions of counties, cities, and special districts as well as budget analyses prepared by the Legislative Analyst.^{2/})

Actual annual expenditures for public transit grew the most rapidly over this period from \$141 million to \$1.5 billion, an increase of 955+ percent. State highways experienced the smallest increase -- 55 percent. Over half of the total expenditures in 1982-83 for these six infrastructure elements is associated with public transit, State highways, and water systems.

TABLE II-1
 ACTUAL CALIFORNIA INFRASTRUCTURE EXPENDITURES
 (\$ millions)

	<u>1970-71</u>	<u>1976-77</u>	<u>1977-78</u>	<u>1978-79</u>	<u>1979-80</u>	<u>1980-81</u>	<u>1981-82</u>	<u>1982-83</u>	<u>% Change</u>
City Streets	\$ 433.0	\$ 609.5	\$ 698.4	\$ 731.3	\$ 820.9	\$ 952.3	\$ 946.4	\$ 950.0	+119.4
County Roads	250.8	318.1	354.2	367.6	452.8	446.4	433.7	440.0	+ 75.4
Public Transit	140.9	605.7	673.4	777.1	927.2	1,139.1	1,305.2	1,487.4	+955.6
State Highways	901.4	805.6	826.4	922.8	1,007.1	1,105.7	1,053.2	1,394.3	+ 54.7
Wastewater Treatment	228.6	426.5	479.2	544.9	636.2	749.1	833.7	926.3	+305.2
Water Distribution	646.2	954.2	1,051.9	1,153.2	1,308.9	1,506.8	1,643.9	1,790.2	+177.0
Total Expenditures	\$2,600.9	\$3,719.6	\$4,083.5	\$4,496.9	\$5,153.1	\$5,899.4	\$6,216.1	\$6,988.2	+168.7

Sources: California Assembly Office of Research and data from Financial Transactions of Counties, Cities, Special Districts, and School Districts, State Controller, California, various years; and Budget Analysis, Report of Legislative Analyst, State of California, various years.

2. "Constant" Expenditures

Table II-2 summarizes investments (in 1982 dollars) in California infrastructure for 1970-71 and 1976-77 through 1982-83.

During this period, total expenditures remained level (about \$6.9 billion) -- increasing less than one percent from 1970-71 to 1982-83. (These figures are from Table II-1 on page 4 of this report -- with U.S. Bureau of Economic Analysis deflators for highways, sewerage systems, water systems, and general government applied.^{3/})

Public transit investments registered the highest gain -- from \$363 million to \$1,487 million, an increase of nearly 310 percent. Investments in city streets, county roads, and State highways decreased from 1970-71 to 1982-83 -- falling 14.8 percent, 31.9 percent, and 41.2 percent, respectively.

Wastewater treatment expenditures increased nearly 40 percent. Investments in water systems remained constant.

In 1982-83, the largest share of total expenditures is for water systems, with public transit and State highways ranking second and third. For 1970-71, the top-ranked element (in terms of expenditures) is State highways, with water systems and city streets at second and third, respectively.

3. Expenditure Trends

Another way to look at these expenditures is

Table II-2
 CONSTANT CALIFORNIA INFRASTRUCTURE EXPENDITURES
 (Millions of 1982 \$)

	<u>1970-71</u>	<u>1976-77</u>	<u>1977-78</u>	<u>1978-79</u>	<u>1979-80</u>	<u>1980-81</u>	<u>1981-82</u>	<u>1982-83</u>	<u>% Change</u>
City Streets	\$1,115.4	\$ 974.3	\$1,055.1	\$ 987.6	\$ 975.4	\$1,015.4	\$ 961.8	\$ 950.0	- 14.8
County Roads	646.1	508.5	535.1	496.4	538.0	476.0	440.7	440.0	- 31.9
Public Transit	363.0	968.3	1,017.3	1,049.5	1,101.7	1,214.6	1,326.4	1,487.4	+309.8
State Highways	2,370.3	1,282.1	1,266.4	1,190.3	1,089.5	1,046.0	1,004.5	1,394.3	- 41.2
Wastewater Treatment	664.6	678.7	717.0	743.0	772.7	839.7	877.7	926.3	+ 39.4
Water Distribution	1,783.8	1,471.9	1,551.1	1,538.9	1,593.5	1,677.8	1,700.5	1,790.2	+ 0.4
Total Expenditures	\$6,943.2	\$5,883.8	\$6,142.0	\$6,005.7	\$6,070.8	\$6,269.4	\$6,311.7	\$6,988.2	+ 0.6

Sources: California Assembly Office of Research and data from Financial Transactions of Counties, Cities, Special Districts, and School Districts, State Controller, California, various years; and Budget Analysis, Report of Legislative Analyst, State of California, various years.

U. S. Department of Commerce, Bureau of Economic Analysis for deflators. 3/

in comparison to other expenditures. Two possibilities to consider include describing infrastructure as a percent of total State and local expenditures and as a percent of Gross State Product. While these figures are not prima facie evidence that the State's infrastructure investments have been neglected, they do compare the variation in funding over time. In Table II-3, these relative presentations of infrastructure expenditures are made.

As can be seen in Table II-3, infrastructure expenditures as a percent of total State/local expenditures fell from 12.8 percent in 1970-71 to a low point of 9.4 percent in 1976-77 and have slightly increased since that time. (Total State/local expenditures increased over 227 percent from 1970-71 to 1982-83.)

Moreover, infrastructure investments as a percent of Gross State Product fell from 2.2 percent in 1970-71 and have remained at 1.6, 1.7, 1.8 percent since 1976-77. The high point in this indicator probably occurred in 1967-68 when these expenditures accounted for 2.5+ percent of Gross State Product.

B. REVENUE AVAILABILITY

1. Recent Economic Performance

California's economy, it is often pointed out, would rank eighth in the world, if the State were a nation.

Table II-3
PUBLIC EXPENDITURES TRENDS IN CALIFORNIA

	<u>1970-71</u>	<u>1976-77</u>	<u>1977-78</u>	<u>1978-79</u>	<u>1979-80</u>	<u>1980-81</u>	<u>1981-82</u>	<u>1982-83</u>
Local Expenditures*	\$14,376	\$27,186	\$31,039	\$31,892	\$35,624	\$40,066	\$42,739	\$46,186
State Expenditures*	5,970	12,188	12,058	13,369	15,257	18,593	19,276	20,434
State and Local Expenditures* <u>a/</u>	20,346	39,374	43,097	45,261	50,881	58,659	62,015	66,620
Gross State Product**	115.8	216.5	248.3	277.9	307.0	345.9	367.6	392.1
State/Local Expenditures as a Share of GSP	17.6%	18.2%	17.4%	16.3%	16.6%	17.0%	16.9%	17.0%
CA Infrastructure Expenditure* <u>b/</u>	2,601	3,720	4,084	4,497	5,153	5,899	6,216	6,988
CA Infrastructure Expenditure as a Share of Total State/Local Exp.	12.8%	9.4%	9.5%	9.9%	10.1%	10.1%	10.0%	10.5%
CA Infrastructure Exp. as a Share of GSP	2.2%	1.7%	1.6%	1.6%	1.7%	1.7%	1.7%	1.8%

*Dollars in millions.

**Dollars in billions.

a/ includes federal funds expended by State/local governments, but excludes state nongovernmental cost funds.

b/ includes city streets, county roads, State highways, public transit, wastewater treatment, and local water systems.

Sources: The California Assembly Office of Research and data from Governor's Budget, State of California, various years; Annual Reports: Financial Transactions of Counties, Cities, Special Districts, and School Districts, State Controller, California, various years; and Budget Analysis, Reports of Legislative Analyst, State of California, various years.

The State economic performance is generally stronger than that of the nation's -- in both good and bad times.

Highlights from the 1983 Economic Report of the Governor underscore the State's relative strength:

- Although total nonagricultural employment in California fell by 1.3 percent in 1982, this decline was smaller than the drop registered for the nation.
- Net in-migration into California in 1982 grew to 275,000 people. This increase accounts for much of the additional labor force growth and helps to explain the increase in the State's unemployment rate -- especially in the face of an increase in total civilian employment.
- Personal income, the broadest dollar volume measure available on economic activity in the State, increased to \$310.6 billion in 1982. The 7.7 percent increase was down from previous growth rates, but was still better than the 6.4 percent increase for the country. Over the past ten years, California income as a share of the U.S. total has increased from 11 percent to 12 percent.
- The California consumer price index rose by 6.5 percent last year, an improvement from the 10.6 percent increase in 1981 and close to the U.S. rise of 6.3 percent.

-- California's population reached almost 24 million in the 1980 census. The decade increase of over 3.6 million represents an increase of 18.5 percent, considerably higher than the 11.4 percent increase for the total United States.

Notwithstanding California's economic strength, slow-downs in the national economy do have an effect on both State and local government finances. Any reduction in revenues, of course, influences the ability to invest in needed infrastructure.

2. Long-Term Revenue Forecast

The California Commission on State Finance forecasts an increase in General Fund revenues of almost \$70 billion from 1982-83 to 1999-2000. At an average annual growth rate of 9.0 percent, 1982-83 General Fund revenues are projected to total \$91 billion by 1999-2000.^{4/}

This growth rate is due to a combination of the following factors:

- Increases in personal income tax receipts averaging approximately 9.5 percent between 1982-83 and 1999-2000;
- Increases in sales tax receipts averaging 9.6 percent over this 17 year period;
- Growth in collections from the bank and corporation tax averaging 10.3 percent during the period; and
- Growth from California's General Fund revenue

sources of 4.7 percent per year through 1999-2000.

The relatively strong growth rates projected for the sales and corporation taxes are due to the cyclical rebound expected during the next several years in consumer and business spending, while the stronger than average growth for the income tax is due to the progressive nature of California's personal income tax rate schedules, which tax higher incomes at increasingly higher marginal tax rates.

This forecast also assumes the following:

- Real Gross National Product is projected to increase at a 2.7 percent average annual rate between 1982 and 2000, down slightly from the 3.1 average rate for the past 25 years.

- California consumer price index is expected to increase at a 5.9 percent average rate during the 17 year period between 1982 and 2000.

- Personal income in California is expected to increase at an 8.8 percent average annual rate over the 17 year period beginning in 1982.

Economic indicators for the U.S. and California for the period 1982-83 through 1999-2000 appear in Table II-4.

3. Initiatives

Direct electorate involvement in law-making through California's initiative process has profoundly affected local government finance. California's "pioneering" Proposition 13 is discussed in this section.

Table II-4
 ECONOMIC INDICATORS FOR THE U.S. AND CALIFORNIA
 (Percent Change)

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
<u>United States</u>										
Real GNP	2.8%	4.8%	3.6%	3.1%	3.3%	3.1%	3.0%	3.1%	3.0%	2.7%
Personal Income	6.4	9.3	9.0	8.4	8.0	7.9	8.2	8.5	8.6	8.5
Wage & Salary Employment	0.5	3.6	3.0	2.3	1.9	2.0	1.7	1.4	1.1	1.1
Consumer Price Index	3.3	4.8	5.1	5.2	5.3	6.0	6.0	6.1	6.3	6.3
Prime Interest Rate	10.7	11.2	11.3	11.6	10.8	10.5	10.3	9.7	9.4	9.1
U.S. Corporate Profits	13.7	22.0	16.7	4.5	11.6	10.9	8.8	8.3	10.5	7.8
<u>California</u>										
Personal Income	6.8%	9.6%	9.2%	8.6%	8.4%	8.7%	8.8%	9.0%	9.2%	9.0%
Consumer Price Index	0.9	4.6	5.4	5.2	5.3	6.0	6.0	6.2	6.5	6.5
Wage & Salary Employment	0.8	3.8	3.1	2.8	2.4	2.6	2.0	1.7	1.4	1.5

Source: Commission on State Finance, June 1983

Table II-4 (con't.)
 ECONOMIC INDICATORS FOR THE U.S. AND CALIFORNIA
 (Percent Change)

	1993	1994	1995	1996	1997	1998	1999	2000	Annual Average Percentage Change 1982-83 through 1999-2000
<u>United States</u>									
Real GNP	2.5%	2.5%	2.6%	2.9%	2.2%	2.2%	2.3%	2.3%	2.7%
Personal Income	8.5	8.4	8.5	8.4	8.2	8.1	8.0	8.0	8.3
Wage & Salary									
Employment	1.0	1.0	1.0	1.1	0.9	0.9	0.9	0.9	1.5
Consumer Price Index	6.4	6.3	6.3	6.4	6.5	6.4	6.3	6.2	5.8
Prime Interest Rate	9.0	8.9	9.2	9.2	9.2	9.2	9.1	9.9	9.9
U.S. Corporate Profits	8.4	5.1	4.5	6.6	7.9	7.5	8.3	7.2	9.5
<u>California</u>									
Personal Income	9.1%	8.9%	9.0%	9.0%	8.8%	8.8%	8.8%	8.8%	8.8%
Consumer Price Index	6.5	6.4	6.5	6.7	6.7	6.6	6.5	6.4	5.9
Wage & Salary									
Employment	1.3	1.3	1.3	1.5	1.3	1.2	1.3	1.4	1.8

Source: Commission on State Finance, June 1983

a. Proposition 13 -- In 1978 the voters of California approved Proposition 13 which added Article XIII A to the State Constitution and reduced ad valorem local property taxes by more than 50 percent. Article XIII A restricts the revenue-raising power of California public agencies by limiting the maximum ad valorem tax on real property to one percent of "full cash value." This constitutional amendment also rolled back taxes and limited future tax increases.

Proposition 13 affected the ability of local governments to issue long-term general obligation debt. Local governments cannot draw on the property tax and property valuation as a source of revenue to finance goods and services. As a result, the use of general obligation bonds has declined markedly -- from 50 percent of the total of long-term government debt in 1975 to 28 percent of the total in 1978 and, most recently, to 1.2 percent of the record \$5 billion 1982 total.

The decrease in property tax revenues as a share of total local government funding is presented in Table II-5. The relative increase in State aid for California local governments is also indicated.^{5/}

Table II-5
 COMPARISON OF REVENUE SOURCES AS A PERCENT OF
 TOTAL LOCAL GOVERNMENT FUNDING*

	1978		1981	
	<u>U.S.</u>	<u>Calif.</u>	<u>U.S.</u>	<u>Calif.</u>
Federal Aid	9.3%	7.3%	8.0%	6.6%
State Aid	30.0	31.6	29.2	41.3
Property Taxes	29.2	33.6	26.5	15.9
Other Taxes	7.9	6.0	8.0	6.9
Charges	14.5	12.2	17.8	17.4
Liquor/Utilities	7.8	7.1	8.7	9.0

*Includes cities, counties, and school districts.

Source: Moody's Investors Services

c. Other Initiatives -- Two other constitutional amendments have affected the ability of State government to raise revenues. Through these actions, the State's progressive income tax was indexed and the State tax on estates and inheritances was abolished.

D. METHODOLOGY OF STUDY

Sections IV through IX of this report discuss California's State highway system, city streets and county roads, public transit, railroads and airports, sewerage systems, and water systems, respectively.

1. Introduction

To the extent that information is available, the following is discussed for each infrastructure element:

a. Background -- What comprises this infrastructure element? Which level(s) of government has/have principal responsibility?

b. Funding -- What are current funding sources? How much has been invested historically? Are funding changes imminent?

c. Condition of Facilities -- What is the perceived condition of the infrastructure facilities?

d. Anticipated Needs -- What investments are needed through the year 2000? What amount is "backlog"? How much is for "growth"?

e. Estimated Funding Shortfalls -- Based on how much revenue is likely to be available, how much of a funding deficit is anticipated for each infrastructure element?

2. Sources of Information

A variety of information sources was used and cited throughout this report. ^{6/} Two principal sources are a report by the California Assembly Office of Research scheduled to be published in November or December 1983 and material prepared for the Governor's Infrastructure Review Task Force.

These materials, together with others, were critical to the writing of this report.

However, only one estimate of "needs" extends through the year 2000, as required by the JEC study methodology. Similarly, estimates of available revenues and potential funding shortfalls fell short of the year 2000 requirement.

Because estimates of needs through the year 2000 are not generally available, this study presents extrapolations of funding needs, future revenues, and potential shortfalls of other estimates.

a. Highways -- Estimates of needs, revenues, and shortfalls for the State highway system are based on two principal sources.

The California Department of Transportation estimates (1983 dollars) are presented in an analysis it

submitted to the Governor's Infrastructure Review Task Force on September 16, 1983. This analysis covers the period 1983-84 through 1992-93. For this study, these estimates were changed to 1982 dollars. ^{7/}

The Statewide study of infrastructure (being prepared by the Assembly Office of Research) projects needs based on interviews with State highway officials. This study covers the period 1983-84 through 1992-93. All estimates are in 1982 dollars.

As will be seen later, the estimates from these two studies differ significantly. It should be noted that the estimates from the California Department of Transportation are more current than the others and that the Statewide study estimates are based on interviews with the previous administration. It is difficult to say which estimate is "right", however, it is unlikely that the needs are as low as the State study indicates.

b. City Streets and County Roads -- This report's estimates are based on the Statewide study of infrastructure. This study draws its information from a survey of local officials and costing analysis, which is then cross-checked with recent studies by local and regional governments. This study covers the period 1983-84 through 1992-93. All estimates are in 1982 dollars.

c. Public Transit -- Two sources are used -- the California Department of Transportation and the Statewide study of infrastructure.

d. Railroads and Airports -- No estimates are

presented for rail freight (which is privately funded) or passenger rail (which is predominantly Federally funded). Estimates for rail transit are included in public transit.

Information on airports was drawn from the California Department of Transportation's analysis submitted to the Governor's Infrastructure Review Task Force and from the National Airport System Plan: Revised Statistics, 1980-1989 by the Federal Aviation Administration of the U.S. Department of Transportation.

e. Sewerage Systems -- Three sources of information are available for this element of infrastructure.

The first source is the 1982 Needs Survey by the U.S. Environmental Protection Agency which covers the period 1982 through 2000. The second source is the State Clean Water Grant Priority List which was reported to the Governor's Infrastructure Review Task Force in October 1983. This list was adopted by the State Water Resources Control Board on September 6, 1983 and covers a five-year period. Third, estimates from the Statewide study of infrastructure are used. These estimates are based on a survey of local officials which covers the period 1983-84 through 1992-93.

f. Water Systems -- The Statewide study of infrastructure and material prepared by the California Department of Water Resources and the Department of Health Services for the Governor's Infrastructure Review Task Force are used in this report.

The Statewide study covers 1983-84 through

1992-93. The State Water Project estimates cover 1983-84 through 1989-1990.

Extrapolations are used to estimate needs, revenues, and shortfalls through the year 1999-2000. These extrapolations assume no change in the level of need as projected by the original data sources. For example, if the data source projects "new" needs (not backlog) of \$500 million annually during the period 1983-84 through 1992-93, then this study forecasts that needs for the period of 1993-94 through 1999-2000 are also \$500 million per year.

This approach may result in an overstatement of needs (e.g., if population grows slower than projected, if the original needs estimate is over-inflated, etc.) or an understatement of needs (e.g., if population increases exceed projections, if the original needs estimate is too low, etc.). However, because the intent of this study is to develop gross estimates for policy consideration, the potential impreciseness of these figures should not be cause for overwhelming concern.

In this variety of information sources, there is undoubtedly some inconsistency among the assumptions concerning population growth, economic vitality, and Federal funding levels. No attempt was made as part of this study to introduce consistency among the sources of information. Rather, to the extent that inconsistencies were apparent, they are acknowledged as such. Data which may not be mutually exclusive and thus may overstate the needs if summed together are also noted.

Similarly, estimates of needs and revenues cited throughout this report do not assume major changes in public policy which could potentially affect the level of expenditures in very fundamental ways. Three of these policy variables include environmental, public health and engineering standards; pricing of services; and population growth accommodation.

III. SUMMARY

The following summarizes the principal points of this report.

1. Investments in the State highway system, county roads and city streets, public transit, railroads and airports, sewerage systems, and water systems are critical to public health and safety, environmental quality, and balanced economic development.

2. Total annual expenditures for six elements of infrastructure (in 1982 dollars) have remained fairly level during the period of 1970-71 to 1982-83. ^{8/}

Between 1970-71 and 1982-83, annual expenditures for infrastructure (as defined) rose less than one percent -- from \$6.9 billion in 1970-71 to about \$7.0 billion in 1982-83. Two of the six elements -- public transit and sewerage systems -- experienced an increase in investments. The State highway system, city streets, and county roads registered declines. Investments in water systems remained nearly unchanged.

3. As a share of Gross State Product, infrastructure expenditures decreased from 2.2 percent in 1970-71 to 1.8 percent in 1982-83. It is estimated that infrastructure expenditures accounted for 2.5+ percent of Gross State Product in the late 1960s.

4. As a share of total State and local expenditures (including Federal funds expended by these governments), investments in infrastructure declined from 12.8 percent in

1970-71 to 10.5 percent in 1982-83.

5. Sources of revenues for public infrastructure financing vary. User fees and assessments, local property taxes, proceeds of bond sales, State and Federal grants, and State and Federal taxes are among the principal revenue sources. 9/

6. Public agencies in California have not invested sufficient amounts of money in infrastructure over the past two decades.

In the recent past, local agencies have been unable to finance public works investments through the sale of general obligation bonds, due to the passage of Proposition 13 (a tax limitation initiative) in June 1978.

Additionally, cutbacks in Federal aid (e.g., wastewater treatment) and the slowdown in the national economy have hampered the ability of State and local governments to make adequate investments in California infrastructure. Proposed additional Federal cutbacks will exacerbate funding difficulties.

7. California's infrastructure "problem" is one of maintenance and rehabilitation as well as new construction to meet the needs of new development. The older, more urbanized areas of the State -- Oakland, San Francisco, and Los Angeles -- have problems more similar to the Eastern

states. Infrastructure to accommodate new growth is associated with the developing regions of the Central Valley and counties adjacent to the Greater Los Angeles area -- San Diego, San Bernardino, and Riverside.

8. Responsibility for infrastructure planning, budgeting, and management is fragmented. Responsibility is shared among State and local governments, special districts, and private firms. Even at the State level, there is no formal coordination of policy among the six principal elements of infrastructure.

Federal standards often set minimum levels for infrastructure services.

9. There is no reliable, complete, and consistent data base on the age, condition, and value of the State's infrastructure.

Similarly, there is no single entity responsible for projecting current and future needs of infrastructure.

10. Financing needs are expected to outpace available revenues for the six elements of California infrastructure. All estimates of needs, available resources, and potential funding shortfalls for the period 1983-84 through 1999-2000, which are discussed in subsequent sections of this report, are summarized in Table III-1.

The largest shortfalls are projected for highways, and sewerage and water systems. Airports appear to have the smallest anticipated funding deficit, although one estimate of the State highway system's needs foresees no funding shortfall for this infrastructure element.

Table III-1

ESTIMATES OF INFRASTRUCTURE NEEDS, AVAILABLE REVENUES,
AND POTENTIAL FUNDING SHORTFALLS
1983-84 through 1999-2000
(Millions of 1982 \$)

	<u>Total Needs</u>	<u>Total Revenues</u>	<u>Potential Shortfall</u>
<u>STATE HIGHWAY</u>			
CALTRANS	\$32,925	\$17,962	\$14,962
State Study	5,539	5,539	-0-
<u>CITY STREETS AND COUNTY ROADS</u>			
	11,817	4,726	7,091
City Streets	5,709	2,283	3,426
County Roads	6,108	2,443	3,665
<u>PUBLIC TRANSIT</u>			
CALTRANS	2,205	1,785	420
State Study (a)	15,152	9,532	5,620
<u>AIRPORTS</u> (b)	73	26	47
<u>SEWERAGE</u>			
EPA/State Water Resources Con- trol Board	5,700	300	5,400
State Study	16,982	10,647	6,335
<u>WATER SYSTEMS</u>			
State Agencies	1,773	411	1,362
State Study	14,035	5,281	8,754

(a) Estimates of needs, revenues, and the potential shortfall for rail transit are included in this public transit figure.

(b) This estimate is for State-funded airport costs only.

Table III-1 (cont'd.)

ESTIMATES OF INFRASTRUCTURE NEEDS, AVAILABLE REVENUES,
AND POTENTIAL FUNDING SHORTFALLS
1983-84 through 1999-2000
(Millions of 1982 \$)

Sources of Information for Table III-1:

California Assembly Office of Research, Rusty Hinges on a Golden Gate (unpublished study to be released in November or December 1983).

California Department of Health Services, "Safe Drinking Water Bond Law of 1976: A Presentation made to the Governor's Infrastructure Review Task Force on October 20, 1983," July 21, 1983.

California Department of Transportation, "A Report of California's Transportation Infrastructure: A Presentation Made to the Governor's Infrastructure Review Task Force on September 22, 1983," September 1983.

California Department of Water Resources, "Infrastructure Review: A Presentation Made to the Governor's Infrastructure Review Task Force on October 20, 1983," not dated.

State Water Resources Control Board, "Infrastructure Review of Wastewater Treatment Works: A Presentation Made to the Governor's Infrastructure Review Task Force on October 20, 1983," not dated.

U.S. Environmental Protection Agency, 1982 Needs Survey, December 31, 1982.

The estimates in Table III-1 vary considerably -- which results in a total shortfall figure of between \$14.4 billion and \$42.8 billion. A potential shortfall of about \$42.8 billion is determined to be "most likely." This determination was made by selecting the estimates which appeared to be more characteristic of the total needs -- both State and local. Table III-2 presents these estimates.

Table III-2

"MOST LIKELY"
 ESTIMATES OF NEEDS, REVENUES, AND FUNDING SHORTFALLS
 1983-84 through 1999-2000
 (Millions of 1982 \$)

	<u>Total Needs</u>	<u>Total Revenue</u>	<u>Potential Shortfall</u>
State Highway	\$32,925	\$17,962	\$14,962
City Streets	5,709	2,283	3,426
County Roads	6,108	2,443	3,665
Public Transit	15,152	9,532	5,620
Airports	73	26	47
Sewerage Systems	16,982	10,647	6,335
Water Systems	14,035	5,281	8,754
TOTAL	<u>\$90,984</u>	<u>\$48,174</u>	<u>\$42,809</u>

SOURCES: (See Table III-1 on pages 25 and 26.)

IV. HIGHWAYS AND BRIDGES

A. CURRENT SITUATION

1. Background

The California Department of Transportation (CALTRANS) is charged with the planning, construction, maintenance, and operation of the State highway system. According to CALTRANS, the State highway system has a replacement value of \$130 billion. Although the 15,105 mile system comprises only 8.5 percent of the roadways in the State, it carries 57.1 percent of all traffic.

Over 12,300 structures are associated with the State highway system. These structures include bridges, overheads, highway separations, overcrossings, undercrossings, and tunnels.

2. Funding

Nearly 40 percent of all street, road, and highway dollars spent in California are invested in the State highway system.

Under current law, Federal funding underwrites 74 percent of the cost of capital improvements to the system (through the Federal Highway Trust Fund). The remaining 26 percent is provided through State funding and user fees (24 percent through the State Highway account and two percent from toll revenues). According to CALTRANS, no Federal funding is available for highway maintenance.

The State Transportation Improvement Program (STIP) is a five-year program for the funding of all highway projects, Proposition 5 (public transit guideways) projects, and grants

for public-use airports. CALTRANS prepares the STIP for consideration by the California Transportation Commission. Regional planning agencies, the Legislature, and the public provide input to the STIP throughout the process.

Funding estimates for STIP projects are based on limits established by the Legislature for the budget year and estimates of funds to be available for the remaining four years.

The STIP is adopted by the California Transportation Commission after public review and comment. Statewide priority lists for Interstate, Primary, and State-cash funded projects are prepared as part of the STIP process.

Historical expenditures (1970-71 and 1976-77 through 1982-83) for the State highways system are presented (in 1982 dollars) in Table IV-1. Annual expenditures have decreased over 40 percent from \$2,370.3 million to \$1,394.3 million during this period. As a relative share of total expenditures for six infrastructure elements (i.e., city streets, county roads, public transit, State highways, sewerage, and water systems), investments in the State highway system decreased from about 34 percent to 20 percent of the total during this period.

Table IV-1
ANNUAL EXPENDITURES FOR STATE HIGHWAY SYSTEM
(Millions of 1982 \$)

1970-71	\$2,370.3	1979-80	\$1,089.5
1976-77	1,282.1	1980-81	1,046.0
1977-78	1,266.4	1981-82	1,004.6
1978-79	1,190.3	1982-83	1,394.3

B. ESTIMATED NEEDS AND SHORTFALLS

1. Needs

Two estimates of potential investment needs for

the State highway system are available.

a. CALTRANS -- CALTRANS' best estimate of the current needs of the State highway system is about \$13.7 billion. ^{10/} About 56 percent of this total -- or \$7.7 billion -- is for new facilities, including upgrading, adding lanes, and totally new facilities. Thirty-five percent -- or \$4.8 billion -- is for operational improvements. ^{11/} Nine percent -- or \$1.2 billion -- is needed for maintenance of existing facilities. This total figure includes \$446 million for maintenance and rehabilitation of the 12,300+ structures associated with the highway system. (Approximately \$512 million per year has been invested in the system over the past seven years. This total includes rehabilitation, operational improvements, and new facilities.)

CALTRANS also has estimated future funding needs for the State highway system. On an annual basis, CALTRANS estimates that over \$1.1 billion should be expended on the State highway system. Of this total, about \$660 million (58.3 percent) is required for anticipated "new facilities." One-third of the needs total -- about \$377 million -- is associated with operational improvements. The remainder -- \$94 million or 8.3 percent -- is for rehabilitation of the existing system.

For the period 1983-84 through 1999-2000, CALTRANS projects total needs (both backlog and future needs) to be approximately \$32.9 billion. Of this total, backlog accounts for 41.5 percent (\$13.9 billion)--with future needs equalling 58.5 percent (\$19.2 billion).

b. State Study -- Annual average investment needs

of \$325.8 million for the period 1983-84 through 1991-92 are estimated in a Statewide study of infrastructure needs. If it is assumed that this annual needs figure remains constant through the year 1999-2000 (as the Statewide study assumes through the year 1992-93), a total need figure of about \$5.54 billion is forecast through the end of the century.

2. Estimated Funding Shortfalls

Again, two estimates of revenues and funding shortfalls are available.

a. CALTRANS -- Funds from the Federal government, the State Highway Account (including revenues from State fuel tax, vehicle registration and weight fees, drivers license fees, and sales tax) and toll revenues are estimated to be \$1.06 billion per year for the period 1983-84 through 1992-93. This estimate includes revenues from new Federal and State fuel taxes. Based on this revenue estimate, CALTRANS projects a deficit of \$14.4 billion over the next ten years.

If this annual revenue figure of \$1.06 billion is assumed to remain constant for the period 1993-94 through 1999-2000, an overall shortfall of about \$14.96 billion is projected for the State highway system for 1983-84 through 1999-2000. (This amount is based on a total needs figure of \$32.92 billion -- as discussed on page 30 -- and a total revenue figure of \$17.96 billion.)

b. State Study -- The study discussed above estimates that no net funding shortfall is expected for the

period 1983-84 through 1992-93. If needs and revenues figures are held constant, no net shortfall would be projected through the year 1999-2000.

(The estimate presented in the State study is dated November 1982 -- less current than the estimate under "CALTRANS.")

3. Summary

Table VI-2 summarizes the two estimates of needs, available resources, and funding shortfalls.

As can be seen in Table IV-2, there is a significant difference between the two estimates of potential funding shortfalls. Two points may explain this difference. First, the State study estimates were derived from an investigation conducted in November 1982, while the CALTRANS estimate is drawn from material prepared September 1983 and updated in December 1983. Second, the State study estimates may be based on a definition of "needs" which recognizes resource constraints and defines needs in terms of available monies.

Regardless of possible explanations, it seems unlikely that needs and revenues would be identical (unless one's estimate of needs is specifically based on resources) or that future annual needs would be less than one-quarter of the actual 1982-83 investment in the State highway system.

For the purpose of this study's summary (on page 27) the CALTRANS estimate of funding shortfall is assumed to be more likely.

Table IV-2
 STATE HIGHWAY SYSTEM
 SUMMARY OF ESTIMATES OF NEEDS, REVENUES
 AND FUNDING SHORTFALLS (a)
 (Millions of 1982 \$)

	<u>Total Needs</u>	<u>Total Revenues</u>	<u>Potential Shortfall</u>
CALTRANS	\$32,925	\$17,962	\$14,962
State Study (b)	5,539	5,539	0

(a) For the period 1983-84 through 1999-2000.

(b) This State study projects no deficit for the period 1983-84 through 1992-93--with needs and revenues both equaling \$325.8 million annually.

V. CITY STREETS AND COUNTY ROADSA. CURRENT SITUATION1. Background

County roads and city streets comprise 165,000 miles -- more than ten times the mileage of the State highway system. Inadequate maintenance and repair of streets and roads is perhaps the most visible sign of infrastructure deterioration to the public.

Efficient and well-maintained local traffic arterials are critical to public safety and commerce. Because streets and roads are primarily a local responsibility, the condition of these trafficways varies among jurisdictions -- reflecting variance in local street and road maintenance funding.^{12/}

2. Funding

Funding for local streets and roads is from six principal revenue sources, according to the State survey of local officials which is part of the Statewide Study of infrastructure.

Table V-1
CITY STREETS AND COUNTY ROADS
COMPARISON OF REVENUE SOURCES, AS A SHARE OF TOTAL
(1976-77 to 1981-82)

	City Streets		County Roads	
	1976-77	1981-82	1976-77	1981-82
Beginning Fund Balance	25.1%	27.2%	27.8%	26.2%
Highway Users Tax	29.1	24.1	41.9	37.2
Transportation Development Tax	7.5	11.0	6.7	10.3
Highway Fines and Forfeitures	5.1	4.6	9.3	8.9
Interest	3.7	4.1	1.8	4.7
Local	29.1	28.9	12.5	12.2

Annual expenditures (in 1982 dollars) for city streets and county roads decreased over the period 1970-71 to 1982-83. Between 1970-71 and 1982-83, investments in city streets decreased almost 15 percent; county roads decreased nearly 32 percent.

As a share of infrastructure expenditures (i.e., city streets, county roads, public transit, State highways, sewerage systems, and water systems), investments in city streets declined from 16 percent to just under 14 percent. Similarly, the share attributable to county roads dropped from about nine percent to just over six percent.

Historical expenditures are listed below in Table V-2.

Table V-2
ACTUAL ANNUAL EXPENDITURES FOR
CITY STREETS AND COUNTY ROADS
(Millions of 1982 \$)

	<u>City Streets</u>	<u>County Roads</u>
1970-71	\$1,115.4	\$646.1
1976-77	974.3	508.5
1977-78	1,055.1	535.1
1979-79	987.6	496.4
1979-80	975.4	538.0
1980-81	1,015.4	476.0
1981-82	961.7	440.7
1982-83	950.0	440.0

3. Condition of Facilities

Local officials indicate that both streets and roads are overall in "good" or "fair" condition. However, a number of officials state that their local trafficways are in worse than "fair" condition.

Table V-3
CITY STREETS AND COUNTY ROADS
CONDITION OF FACILITIES (% RESPONSE)

	<u>Very Good</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Very Poor</u>
City Streets	0.0	28.9	53.6	14.4	3.1
County Roads	0.0	14.5	58.2	27.3	0.0

Another indicator of the condition of local streets and roads is the schedule for maintenance of this infrastructure. The desired frequency of asphalt resurfacing for both streets and roads is approximately 16 years. However, on the average, it appears that city streets are resurfaced every 35 years, while county roads are resurfaced only every 175 years. The average city has a backlog of about 121 miles to be resurfaced. Counties face 333 mile backlog.

(This information on condition is from the Statewide survey of local officials and thus may be skewed toward the perceived condition of roads and streets of the survey respondents.)

B. ESTIMATED NEEDS AND SHORTFALLS

1. Needs

An approximate \$11.8 billion investment in city streets and county roads is anticipated to be needed through the year 1999-2000. Streets are expected to require \$5.7 billion, while roads appear to need \$6.1 billion.

These totals are based on annual average needs of about \$335.3 million for city streets and \$359.3 million for county roads. These averages are from a Statewide survey of local officials. This survey includes estimates through 1992-93. To arrive at the 1999-2000 figure, it was assumed that the annual average need would not change.

2. Estimated Funding Shortfall

a. Projected Mix of Revenues

By 1986-87, over one-third of total revenues for city streets and county roads will be from the highway users tax. A summary of all revenue sources is shown in Table V-4 below.

Table V-4
CITY STREETS AND COUNTY ROADS
1986-87 REVENUE SOURCES, AS A SHARE OF THE TOTAL

	<u>City Streets</u>	<u>County Roads</u>
Beginning Fund Balance	13.9%	15.5%
Highway Users Tax	34.8	45.5
Transportation Development Act	12.5	13.7
Highway Fines and Forfeitures	6.7	10.4
Interest	4.3	3.8
Local	27.6	11.0

b. Estimated Funding Shortfall -- A funding shortfall of about \$7.1 billion is anticipated for city streets and county roads through 1999-2000 -- \$3.4 billion for city streets and \$3.7 billion for county roads.

This shortfall is based on the needs figures noted above and average annual revenue estimates of \$134.3 million for city streets and \$143.7 million for county roads.

As in the needs figures above, the revenue estimate averages are from a Statewide survey of local officials. Revenue estimates through 1992-93 were projected in this survey. Revenues for 1993-94 through 1999-2000 were assumed to remain unchanged from the 1992-93 estimates.

This funding shortfall would be reduced by any unanticipated increase in revenues. One potential source of additional revenues is an increase in local gas taxes, which was authorized by the California Legislature in 1981.

A summary of needs, revenues, and funding shortfalls is presented in Table V-5.

Table V-5
CITY STREETS AND COUNTY ROADS
SUMMARY OF ESTIMATES OF NEEDS, REVENUES
AND FUNDING SHORTFALLS^(a)
(Millions of 1982 \$)

	<u>Total Needs</u>	<u>Total Revenues</u>	<u>Potential Shortfall</u>
City Streets ^(b)	\$5,709	\$2,283	\$3,426
County Roads ^(c)	6,108	2,443	3,665
TOTAL ^(d) Local Traffic- ways	\$11,817	\$4,726	\$7,091

(a) 1983-84 through 1999-2000.

(b) The unpublished State study projects needs of just under \$3.4 billion, revenues of about \$1.3 billion and shortfall of \$2.0 billion for the period 1983-84 through 1992-93.

(c) The State study estimates needs of about \$3.6 billion, revenues of \$1.4 billion, and a shortfall of just under \$2.2 billion for 1983-84 through 1992-93.

(d) The State study forecasts needs of almost \$7.0 billion, revenues of about \$2.8 billion, and a shortfall of about \$4.2 billion for 1983-84 through 1992-93.

VI. PUBLIC TRANSIT

A. CURRENT SITUATION

1. Background

The public transit system in California is primarily operated through Federal and local governments as well as private operators. The State's direct role is limited, although its activity in other areas -- such as maintaining the highway network -- does impact the public transit infrastructure system.

Bus systems owned and operated by cities, counties, and special districts provide the majority of public transit services in California. In 1980, over 766 million passenger trips were provided by over 200 transit systems. ^{13/}

2. Funding

Funding for public transit has been provided through farebox revenues and local, State, and Federal government support.

CALTRANS' direct financial support is limited to the urban guideways program. A portion of the State Highway Account is used to construct guideways for the exclusive use of mass transit vehicles in nine urbanized counties. Since July 1975, \$220 million has been allocated for this purpose. The Transit Capital Improvement program also provides funding for urban guideway development in these same counties. To date, \$144.9 million has been provided. ^{14/} Transit bus rehabilitation, intermodal transfer facilities, and other projects are funded through this program.

The majority of non-State funding for urban guideways is from the Federal Urban Mass Transportation Administration. Local funding comes from several sources -- a variety of transportation funds, local transactions and use taxes for transit, and (in the San Francisco Bay Area) bridge toll revenues. In 1981-82, public transit systems received about \$76 million in Federal Transportation Development Act-State Transit Assistance funds, which were administered by local transit planning agencies. ^{15/}

Historical annual expenditures (1970-71 and 1976-77 through 1982-83) for public transit systems have increased over 300 percent from \$363.0 million to \$1,487.4 million. (These expenditures are presented in Table VI-1 below.) Public transit grew from 5.2 percent of total expenditures in 1970-71 for six infrastructure elements (i.e., city streets, county roads, public transit, State highways, sewerage, and water systems) to 21.3 percent of the total, outranking State highways, in 1982-83.

Table VI-1
ANNUAL EXPENDITURES FOR PUBLIC TRANSIT SYSTEMS
(Millions of 1982 \$)

1970-71	\$ 363.0	1979-80	\$ 1,101.7
1976-77	968.3	1980-81	1,214.6
1977-78	1,017.3	1981-82	1,326.4
1978-79	1,049.5	1982-83	1,487.4

Table VI-2 on the next page summarizes four revenue sources for public transit systems.

Table VI-2
PUBLIC TRANSIT
COMPARISON OF REVENUE SOURCES
AS A SHARE OF TOTAL
(1978-79 to 1982-83)

	<u>1978-79</u>	<u>1982-83</u>
Farebox	25.3%	26.7%
Local Support	45.0	50.3
State Support	5.1	5.5
Federal Assistance	24.5	17.0

This information was derived from a Statewide survey of local transit officials.

3. Conditions of Facilities

Over 65 percent of the managers of public transit systems indicate that the condition of their vehicles and guideways are in "good" or "very good" condition. Further, neither of these two components of the public transit system were judged to be in "very poor" condition. These responses are from a Statewide survey of public transit system managers.

Table VI-3
PUBLIC TRANSIT
CONDITION OF FACILITIES (% RESPONSE)

	<u>Very Good</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Very Poor</u>
Vehicles	20.8	50.0	29.2	0.0	0.0
Guideways	66.7	0.0	0.0	33.3	0.0

B. ESTIMATED NEEDS AND SHORTFALLS

1. Needs ^{16/}

a. State Study -- Approximately \$8.9 billion additional investment is foreseen to be needed by managers of local public transit systems (including urban rail) through 1992-93. ^{17/}

This estimate is based on the Statewide study

of infrastructure.

An estimate of the total needs (through 1999-2000) can be made, based on an assumption which holds needed annual investments for the period of 1993-94 through 1999-2000 to the same level estimated for the period 1983-84 to 1992-93. The result indicates needs of approximately \$15.2 billion.

Local officials state that their greatest investment is for new vehicles. ^{18/}

Table VI-4
PUBLIC TRANSIT
CAPITAL FUNDING NEEDS (% OF TOTAL)
(1982-83 through 1986-87)

Vehicles	68.7
Equipment	16.1
Buildings	5.0
Other	10.3

Relatedly, these same local officials indicate that, if additional State funding were available, their highest priority for this funding would be vehicle replacement. Land acquisition was also mentioned as a high priority. The improvement of existing facilities was only a moderate priority.

b. STIP -- As was discussed earlier, some State funding of urban guideways and bus transit is available through the Transit Capital Improvement program in the STIP, the five-year program for State transportation expenditures.

In the 1983-84 STIP, CALTRANS estimates that \$649.5 million (in 1982 dollars) will be needed for the Transit Capital Improvement program for the next five years. If the needs figure

remains fairly level, approximately \$2.2 billion will be needed for State STIP investment in public transit through 1999-2000. (This is based on an annual average needs figure of \$24.7 million.)

2. Estimated Funding Shortfall

a. Projected Mix of Revenues -- According to a survey of local public transit officials, farebox and local support taken together will account for over 90 percent of the total revenue available for public transit systems by 1985-86. Both Federal and State support are expected to decrease from the 1982-83 level presented in Table VI-2 on page 41.

Table VI-5
PUBLIC TRANSIT
COMPARISON OF 1985-86 REVENUE SOURCES
(AS A SHARE OF TOTAL) TO 1982-83

	<u>1985-86</u>	<u>% Change from 1982-83</u>
Farebox	34.4%	+28.8
Local Support	56.4	+12.1
State Support	3.9	-29.1
Federal Assistance	5.3	-68.8

b. Estimated Funding Shortfall -- Two estimates of funding shortfalls are available. The first is derived from a survey of local public officials; the second is from the 5-year estimate in the STIP. These estimates may not be mutually exclusive, since the local survey respondents considered the impact of potential State funding on their transit systems. Both estimates are summarized in Table VI-5.

Table VI-6
PUBLIC TRANSIT SYSTEMS
SUMMARY OF ESTIMATES OF NEEDS, REVENUES
AND FUNDING SHORTFALLS^(a)
(Millions of 1982 \$)

	<u>Total Needs</u>	<u>Total Revenues</u>	<u>Potential Shortfall</u>
State Study ^(b)	\$15,152	\$9,532	\$5,620
CALTRANS ^(c)	2,205	1,785	420

- (a) For the period 1983-84 through 1999-2000.
- (b) This State study projects needs of \$8.9 billion, revenues of \$5.6 billion, and shortfall of \$3.4 billion for the period 1983-84 through 1992-93.
- (c) CALTRANS estimates needs of \$648 million, revenues of about \$525 million, and a shortfall of \$123 million for five years -- 1983-84 through 1987-88.

- State Study -- A shortfall of about \$5.6 billion for public transit investments is estimated through the year 1999-2000, based on a survey of local officials.

This estimate is based upon an annual Statewide needs figure of approximately \$891 million and a revenue figure of about \$561 million -- both of which remain constant.

- STIP (CALTRANS) -- A deficit of about \$420 million in State-funded transit improvements can be expected if needs and available resources remain at average 1983-84 through 1987-88 levels through the year 1999-2000. By holding these two figures stable, approximately \$2.2 billion is estimated to be needed and \$1.8 billion available.

For the purpose of this study's summary (on page 27 the estimate projected by the Statewide study of infrastructure is considered more appropriate -- since it includes more than just State-funded costs (which is all that is included in the STIP estimate).

VII. RAILROADS AND AIRPORTS

A. RAILROADS

Railroads transport both goods and passengers. Although this transportation system is critical to the economic health and vitality of the State, railroads are discussed only briefly in this report because they are generally funded from private sources.

The California rail system includes passenger rail, rail transit, and rail freight.

1. Passenger Rail

Five interstate Amtrak (National Railroad Passenger Corporation) passenger routes serve California. Over 1 million passengers board this system annually. In addition, two intrastate routes are provided. CALTRANS has financially supported a portion of these two routes.

Entirely Federally Supported

- Coast Starlight (Los Angeles/Seattle)
- San Francisco Zephyr (San Francisco/Chicago)
- Southwest Limited (Los Angeles/Chicago)
- Desert Wind (Los Angeles/Ogden, Utah)
- Sunset Limited (Los Angeles/New Orleans)
- San Diegans (Los Angeles/San Diego) - Four of the seven trains are Federally-funded.

CALTRANS Supported

- San Joaquins (Oakland/Bakersfield with bus connections to Sacramento and Los Angeles)
- San Diegans (Los Angeles/San Diego) - Three of the seven trains are State-funded.

In addition, one commuter rail service operates in California -- between San Francisco and San Jose.

2. Rail Transit ^{19/}

Rail transit operates during more than just commuter hours and may interface with city streets or use less conventional rail routes.

In California, three transit rail systems operate.

- San Francisco Municipal Railway (San Francisco intracity; streetcars, trolley buses, and motor buses; 255 million passengers in 1980-81.)
- Bay Area Rapid Transit (19 communities in the greater Bay Area, rail, 34.5 million passenger trips in 1979-80.)
- San Diego Trolley (Downtown San Diego to San Ysidro at U.S.-Mexico border, light rail, five two-car trains operate daily.)

A variety of other systems are in the planning stages. Two include:

- Sacramento Light Rail (Sacramento City and County, light rail, estimated 21 million riders annually.)
- Bullet Train (Los Angeles International Airport, downtown Los Angeles, to downtown San Diego; electric rail; estimated 100,000 passengers per day.)

3. Rail Freight

The State rail freight network includes 8,312 miles of main line and branch line. Approximately 150 million tons of freight are moved annually on the State network.

About 91 percent of the total route miles are operated by five major railroads and their subsidiaries -- Burlington Northern Railroad, Southern Pacific Transportation Company, The Atchison, Topeka and Santa Fe Railway Company, Union Pacific Railroad Company, and the Western Pacific Railroad Company (now part of the Union Pacific Company).

B. AIRPORTS

1. Current Situation

a. Background -- California leads the nation in aeronautical activity. The State has the busiest scheduled air passenger corridor in the U.S. (i.e., Los Angeles/San Francisco). Ten of California's airports each accommodate more than one million passengers each year. Five of the nation's ten busiest airports are located in the State. Over 80 million passengers enplane annually.

The aviation system in California consists of 295 public-use airports -- 214 are publicly owned and 81 are privately owned. Within the next ten years, 30 percent of the State's public-use airports will reach or exceed their original design life. Nearly 60 percent (170 airports) are expected to deteriorate to unacceptable levels in the absence of adequate funding, according to CALTRANS.

Cities and counties are responsible for most of the public-use airports. A State permit (from CALTRANS) is required for temporary and long-term operation of airports and heliports.

b. Funding -- State funding of publicly-owned, public-use airport improvement and maintenance is available through the STIP. The STIP, which is prepared by CALTRANS and adopted by the California Transportation Commission, is a five-year plan for the State funding of transportation projects.

Other revenues are obtained from Federal funds and user fees.

2. Estimated Needs and Shortfalls

a. Needs -- The STIP provides an estimate of needed State funding for California's airports.

Requests by regions for State funding from the current year STIP total about \$10 million. CALTRANS further estimates that between 1983-84 and 1987-88, general aviation needs may reach \$21.3 million.

If this level of need remains constant through 1999-2000, approximately \$51.2 million additional could be required for the period 1988-89 through 1999-2000. For the period 1983-84 through 1999-2000, approximately \$7.5 million would be needed.

The Federal Aviation Administration (FAA) of the U.S. Department of Transportation estimates "potential development" needs for California airports without regard to funding source or likelihood of funding. For the 1980s, the FAA projects the following:

Table VII-1
AIRPORTS
FAA ESTIMATE OF "POTENTIAL DEVELOPMENT" COSTS
(Millions of 1982 \$)

	<u>1980-89</u>
Air Carrier	\$648.13
Commuter	23.69
Reliever	141.43
General Aviation	102.33
TOTAL	\$915.58

As can be seen, the FAA estimate is much larger than the STIP estimate, which only contains State-funded

needs. Moreover, the FAA estimate is made without regard to potential funding resources or changes in pricing policy. ^{20/}

b. Estimated Funding Shortfall -- A shortfall of \$46.8 million in unmet State-funded aviation investment is estimated through the year 2000, based on CALTRANS estimates of funding needs and available funding sources.

This figure is based on annual needs of \$4.3 million and annual resources of \$1.5 million.

(A shortfall of \$8.2 million has been estimated by CALTRANS for the next five years. This report's \$46.8 million estimate was calculated based on a continuation of the same level of needs and funding through 1999-2000.)

According to CALTRANS, large commercial airports are generally well financed. Small general aviation airports, however, are not.

A summary of these figures appears in Table VII-2.

Table VII-2
AIRPORTS
ESTIMATE OF STATE-FUNDED NEEDS, (a)
REVENUES, AND FUNDING SHORTFALLS (a)
(Millions of 1982 \$)

	<u>Total Needs</u>	<u>Total Revenues</u>	<u>Potential Shortfall</u>
CALTRANS (b)	\$72.5	\$25.7	\$46.8

(a) For the period 1983-84 through 1999-2000.

(b) The STIP covers a five-year period -- from 1983-84 through 1987-88. In the STIP, needs of \$21.3 million, revenues of \$7.55 million, and a shortfall of \$13.8 million are projected for the period 1983-84 through 1987-88.

VIII. SEWERAGE SYSTEMS

A. CURRENT SITUATION

1. Background

Sewage treatment facilities are critical to the protection of public health and safety, to the accommodation of growth, and to the provision of a basic level of environmental quality.

In California, the construction, operation, and maintenance of sewerage systems -- including treatment facilities and collection systems -- is largely a local responsibility. These local agencies include cities, counties, and special districts. Special districts predominate.

The State Water Resources Control Board and nine Regional Water Quality Control Boards are the State agencies with primary responsibility for the control of water quality.

2. Funding

Funding for sewage treatment facilities has been shared among Federal, State, and local governments through the Clean Water Grant Program. Through this program, the Federal government provides 75 percent of the eligible project cost, while the State and the local jurisdiction each pay 12.5 percent. Approximately \$4.5 billion in treatment works have been funded in California since 1973.

a. Federal -- The Federal government shoulders 75 percent of the financial burden for wastewater treatment facilities. Beginning in the early 1970s through the enactment of the Federal Water Pollution Control Act Amendments

of 1972 (Public Law 92-500), Congress stated its intent "to restore and maintain the chemical, physical, and biological integrity of the nation's water."

California has benefitted from \$5 billion in Federal funding through the Clean Water Program during the period 1973 through 1983.

Table VIII-1
FEDERAL FUNDING OF CALIFORNIA
WASTEWATER TREATMENT FACILITIES
(Millions of 1982 \$)

	<u>Expenditures</u>	<u>% of Total</u>
1973	\$ 430.3	8.6
1974	559.3	11.1
1975	773.3	15.4
1976	1,505.0	30.0
1977	123.3	2.5
1978	487.9	9.7
1979	400.0	8.0
1980	262.2	5.2
1981	210.5	4.2
1982	188.0	3.2
1983	88.7	1.8
TOTAL, 11 years	\$5,028.5	100.0

The national act was amended in 1981 to provide \$2.4 billion annually through Federal fiscal year 1985. The 1981 amendments significantly reduce Federal funding to meet the nation's clean water goals. After October 1, 1984, three categories of previously eligible projects (i.e., sewer system rehabilitation, new collection systems, and combined sewer overflow correction) will not be eligible for Federal assistance. Moreover, the Federal share for most eligible projects will drop to 55 percent from 75 percent after October 1, 1984.

b. State -- The State's current 12.5 percent share is funded through the sale of long-term general obligation bonds.

To date, the sale of \$875 million in debt for the financing of sewage treatment facilities has been approved by the California Legislature and the voters of the State through three separate bond issues. Approximately \$145 million of the total authorization has not been issued. According to the State Water Resources Control Board, funds for the State share of the Clean Water Program are expected to be exhausted by June 1986 unless additional general obligation bond authority is approved.

However, an additional authorization is being considered by the State Legislature. Assembly Bill 1732 (Costa) would authorize the issuance of \$430 million in tax-exempt general obligation bonds for wastewater treatment financing.

This proposed debt issue, known as the Clean Water Bond Law of 1984, would provide for \$300 million for grants and loans for pollution control, \$30 million in supplemental grant assistance for small, needy communities, and \$100 million for grants and loans for water reclamation projects.

The proposed Clean Water Bond Law of 1984 would continue the standard State contribution of 12.5 percent for projects eligible for grants. In addition, it would provide low-interest loans for 12.5 percent of eligible project costs for projects receiving only 55 percent assistance from Federal funds. Lastly, if the program of Federal grant assistance is completely eliminated, the State grant assistance program would also be eliminated. In its place, a State revolving loan fund to provide up to 25 percent of project costs is proposed.

Before this bill can become law (assuming eventual passage by the Legislature and enactment by the Governor), it must be approved by the voters. The proposed date AB 1732 would be considered by the electorate is November 1984.

Annual expenditures for wastewater treatment for 1970-71 and 1976-77 through 1982-83 appear in Table VIII-2. These expenditures increased nearly 40 percent between 1970-71 and 1982-83 -- much more than the increase for total expenditures for six infrastructure elements (i.e., city streets, county roads, public transit, State highway, sewerage, and water systems) for this same period. As a share of total expenditures, wastewater treatment investments increased from 9.6 percent to 13.3 percent.

Table VIII-2
ANNUAL EXPENDITURES FOR SEWERAGE SYSTEMS
(Millions of 1982. \$)

1970-71	\$664.6	1979-80	\$772.7
1976-77	678.7	1980-81	839.7
1977-78	717.0	1981-82	877.7
1978-79	743.0	1982-83	926.3

c. Local -- A variety of local revenues have helped fund the construction and operation and maintenance of sewerage systems.

Since the passage of Proposition 13 in June 1976, property taxes have decreased as a relative share of total sewerage system revenues, while fees and charges have increased. These estimates are from a Statewide survey of local sewerage system officials.

Table VIII-3
SEWERAGE SYSTEMS
COMPARISON OF REVENUE SOURCES
AS A SHARE OF THE TOTAL
(1976-77 to 1981-82)

	<u>76-77</u>	<u>81-82</u>
Property Tax	30.0%	11.5%
Fees and Charges	32.4	45.6
Assessment	1.4	1.2
Bonds	2.4	3.1
Grants	22.3	20.4
Other	11.5	18.2

3. Condition of Facilities

The condition of sewerage systems in California is generally "good" or "very good." Responses of local officials to a Statewide survey are presented in Table VIII-4.

Table VIII-4
SEWERAGE SYSTEMS
CONDITION OF FACILITIES (% RESPONSE)

	<u>Very Good</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Very Poor</u>
Sewers	17.5	35.0	32.5	7.5	7.5
Treatment Works	27.2	48.5	12.1	6.1	6.1

B. ESTIMATED NEEDS AND POTENTIAL FUNDING SHORTFALLS

1. Needs

Three assessments of needs for the funding of sewerage systems are available. All three are imperfect; however, each provides an indication of funding needs.

a. U.S. Environmental Protection Agency -- The 1982 Needs Survey, conducted by the U.S. Environmental Protection Agency (EPA) indicates that the backlog (in 1982) of wastewater treatment construction funding needs in California amounts to \$3.4 billion.

Additionally, the EPA has estimated the costs

of meeting future needs to the year 2000, allowing for expected growth of California population. This estimate equals \$2.3 billion.

About \$1.0 billion of the 1982 backlog figure and \$1.4 billion of the "growth" needs figure are for secondary treatment needs. (Secondary treatment is the highest priority of the five eligible Federal funding categories.)

The 1982 and 2000 EPA needs figures total \$5.7 billion -- about 42 percent of which is for secondary treatment projects.

b. State Water Resources Control Board -- The State Water Resources Control Board estimates needs from its priority list for funding. Approximately \$1.9 billion in treatment works construction projects are included as part of the State Clean Water Grant Priority List adopted on September 6, 1983 by State Water Resources Control Board.

These projects are only for the construction of treatment works. Operation and maintenance needs are not included in the State Water Resources Control Board's list.

Five projects proposed for metropolitan areas of the State indicate the substantial need. Table VIII-5 on page 56 presents cost information on these projects.

c. State Study -- A third source of needs assessment is derived from the Statewide study of infrastructure.

Almost \$14 billion will be needed to finance sewerage system construction and improvement for the period 1983-84 through 1992-93, according to this Statewide study.

Table VIII-5,
DESCRIPTION OF FIVE MAJOR SEWERAGE PROJECTS
(Million of 1982 \$)

	<u>Total Costs</u>
<u>City of Los Angeles</u>	\$350.8
Ocean Plan Compliance and Solids Handling	
<u>Los Angeles County</u>	
<u>Sanitation District</u>	164.8
Ocean Plan Compliance and Solids Handling	
<u>Orange County Sanitation District</u>	100.9
Ocean Plan Compliance and Solids Handling	
<u>Monterey Regional Water</u>	
<u>Pollution Control Agency</u>	60.5
Regional Plant to Meet Ocean Plan Requirements	
<u>City and County of</u>	
<u>San Francisco</u>	1,692.6
Combined Sewer Overflow Correction	

If the level of funding needed to accommodate growth through 1992-93 is held constant for the period 1993-94 through 1999-2000, a century-end needs estimate of about \$17 billion is projected.

These figures assume an annual backlog of about \$1.9 billion, which is eliminated by 1987-88, and an annual "growth" figure of about \$441 million for the entire period.

2. Estimated Funding Shortfalls

Estimating potential revenues for investment is again a difficult task. The constantly changing world of local government finance (i.e., tax and spending limitations, reduced State subventions, decreasing Federal assistance, etc.) makes these estimates imprecise.

a. Projected Mix of Revenues -- Local sewerage systems managers estimate that fees and charges will continue to grow in importance as a relative share of total funds for sewerage systems. As Table VIII-6 shows, grants will diminish to nearly zero.

Table VIII-6
SEWERAGE SYSTEMS
COMPARISON OF REVENUE SOURCES
AS A SHARE OF THE TOTAL
(1986-87 to 1991-92)

	<u>86-87</u>	<u>91-92</u>
Property Tax	12.3%	12.8%
Fees and Charges	66.3	71.0
Assessments	3.0	1.9
Bonds	2.3	0.0
Grants	2.3	0.0
Other	14.1	14.3

b. Estimated Funding Shortfalls -- Estimates for funding shortfalls are highly dependent on estimates of available revenue.

As was discussed earlier, the 1981 amendments to the Federal Clean Water Grant Program will significantly change funding for wastewater treatment facilities after 1985.

Although Federal funding is scheduled to stop in Federal Fiscal Year 1985, there are indications that the grant program may be continued through 1988. Two bills -- one by Congressman James Howard of New Jersey and one by Senator John Chafee of Rhode Island -- would provide additional funding. Under the Howard bill, California would

receive \$1.4 billion of the proposed \$23.5 billion national authorization. The Chafee proposal would result in California receiving about \$500 million of the total \$2.4 billion U.S. total.

Two estimates of funding shortfalls are available.

- EPA/SWRCB -- If Federal funds are not available after 1985, about \$1.7 billion of the 1984 priority list would have to be funded through other sources, according to the State Water Resources Control Board. Similarly, if only \$300 million of the total \$5.7 billion estimated in the 1982 Needs Survey is able to be funded, a shortfall of \$5.4 billion may be realized.

The State Water Resources Control Board's estimate is probably included within the EPA projection of needs. However, neither of these figures takes into consideration operation and maintenance needs.

- State Study -- For the period 1983-84 through 1999-2000, approximately \$6.3 billion in unmet sewerage treatment investments are anticipated based on the State-wide study. Total needs of \$17 billion and total revenues of \$10.6 billion were estimated.

These estimates build on the figures discussed under "State Study" on page 55. Both needs and revenues are held constant during the period 1993-94 through 1999-2000 to obtain an estimate through the end of the century.

Again, any additional funds -- from a new State bond act or additional user fees -- would reduce these shortfall figures.

● Summary -- A summary of potential needs, revenues, and shortfalls is shown in Table VIII-7. These estimates are not necessarily mutually exclusive.

For the purpose of this study's summary, the estimate from the Assembly Statewide study is considered "more likely," since it includes some operation and maintenance costs.

Table VIII-7
SEWERAGE SYSTEMS
SUMMARY OF ESTIMATES OF NEEDS,
REVENUES, AND FUNDING SHORTFALLS(a)
(Millions of 1982 \$)

	<u>Total Needs</u>	<u>Total Revenues</u>	<u>Potential Shortfall</u>
EPA/ State Water Resources Control(b)	\$5,700	\$300	\$5,400
State Study(c)	16,982	10,647	6,335

- (a) For the period 1983-84 through 1999-2000.
- (b) The EPA figures is drawn from the 1982 Needs Survey. If additional Federal funding becomes available (in the range of the Chafee or Howard bills), the shortfall could be reduced to between \$4,000 million and \$4,900 million. For the purposes of this study, it is assumed that the State Water Resources Control Board's estimate is included in the EPA figures.
- (c) The State study estimates cover the period 1983-84 through 1992-93. This study forecasts needs of \$13.9 billion, revenues of \$8.7 billion, and a shortfall of \$5.2 billion in 1982 dollars.

IX. WATER SYSTEMS

A. CURRENT SITUATION

1. Background

State, Federal and local governments are responsible for the provision of water to California's populace.

The State Water Project, which extends the length of the State, is the most far-reaching of California's water systems. Federal water programs, such as the Central Valley Project, have also been critical to California's development.

Local agencies of varying sizes provide water to residential, industrial, commercial, and agricultural users. California's urban water systems contain over 80,000 miles of water mains which distribute water to six million service connections. With a replacement cost of over \$100,000 per mile, these urban mains have a total replacement value of \$8 billion. As with sewerage systems, special districts are predominant, although there is city responsibility in Los Angeles, San Diego, and San Francisco -- the State's three largest cities.

2. Funding

a. State -- State funding for water supply development and treatment has been provided through tax-exempt general obligation bonds.

Two bond issues -- the California Water Resources Development Bond Act of 1959 (approved by the voters in 1960) and the Safe Drinking Water Bond Law of 1976 -- are the two principal sources of State monies for California's water system. Through the provisions of the 1959 water bond

act, approximately \$1.5 billion has been invested in the State's water transport system. About \$180 million of the original bonding authorization is available for future investments.

The State Water Project consists of 21 reservoirs with a capacity of about 6.8 million acre-feet and 640 miles of aqueducts.

About \$67 million in loans and grants has been invested in local water supply systems through the Safe Drinking Water Bond Act of 1976. Another \$79 million in funding commitments under this bond law have been made by the California Department of Water Resources and the Department of Health Services, the co-administrators of the safe drinking water program.

In passing this law, the California Legislature acknowledged the importance of providing an adequate supply of clean drinking water. In 1975, when the bond law was passed, State health officials estimated that 80 percent of all domestic water suppliers were deficient in primary and/or secondary drinking water standards.

Because only \$29 million remains of the original \$175 million authorization, the California Legislature is considering enacting the Safe Drinking Water Bond Act of 1984 (Assembly Bill 2183, O'Connell) to be considered by the State electorate in June 1984. This act would provide an additional \$250 million for loans to enable water suppliers, especially those without access to conventional financing, to meet minimum public health standards.

Additional State financial assistance is available through the Davis-Grunsky Act (Section 12880 of the Water Code). Through this program, loans are available for feasibility studies, reservoir site acquisition, wildlife enhancements, and initial water supply and sanitary facilities costs.

Over \$105 million of the original \$131 million program allotment has been loaned (75 projects, \$44.7 million) or granted (33 projects, \$60.6 million). Nearly \$31 million additional has been requested, but has not been funded. (This exceeds the original allotment by \$5 million.)

b. Local -- Local funding sources for water systems have remained relatively stable since 1976. These figures are displayed in Table IX-1 below.

Table XI-1

WATER SYSTEMS
COMPARISON OF REVENUE SOURCES, AS A SHARE OF TOTAL
(1976-77 to 1981-82)

	<u>1976-77</u>	<u>1981-82</u>
Property Tax	17.3%	13.4%
Fees and Charges	63.6	59.8
Assessments	5.1	4.9
Bonds	5.6	4.7
Grants	4.5	3.0
Other	3.9	14.2

The figures were drawn from a Statewide survey of local water agencies. Although a good response to the survey was received, the survey sponsor has indicated that the majority of the respondents are special districts, largely dependent on fees and charges. This fact explains the absence of an increase in "fees and charges" in a

post-Proposition 13 environment, since these agencies were less dependent on general obligation bonds than were cities and counties.

c. Historical -- Annual expenditures for water systems (in 1982 dollars) have remained fairly stable during the period 1970-71 to 1982-83. As a share of total expenditures for six infrastructure elements (i.e., city streets, county roads, public transit, State highway, sewerage, and water systems), actual investments in water distribution systems account for one-quarter of the total -- 25.7 percent in 1970-71 and 25.6 percent in 1982-83.

Table IX-2 presents this information.

Table IX-2

ANNUAL EXPENDITURES FOR WATER SYSTEMS
(Millions of 1982 \$)

1970-71	\$1,783.8	1979-80	\$1,593.5
1976-77	1,471.9	1980-81	1,677.8
1977-78	1,551.1	1981-82	1,700.5
1978-79	1,538.9	1982-83	1,790.2

3. Condition of Facilities .

In a Statewide survey, about 60 percent of the managers responding indicated that their water systems are in "very good" or "good" condition. In contrast, no responses were received which stated that the condition of the facility was "very poor."

Table IX-3
 WATER SYSTEMS
 CONDITION OF FACILITIES (% RESPONSE)

	<u>Very Good</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Very Poor</u>
Water Systems	26.3	34.2	28.9	10.5	0.0

B. ESTIMATED NEEDS AND SHORTFALLS

1. Needs

Two assessments of funding needs for the State's water system are available. These assessments assume current pricing policies. Any change in pricing policy would, of course, affect funding needs. 21/

a. State Estimates -- Indications of need are available from the State agencies charged with responsibility for the provision of water.

- State Water Project -- According to the Department of Water Resources, approximately \$593 million will need to be invested in the State Water Project from 1984 through 1990.

- Safe Drinking Water -- When the Legislature passed the Safe Drinking Water Bond Law in 1975, it was estimated that \$1 billion was needed to bring all water systems up to minimum standards. This figure is probably closer to \$2 billion in 1982 dollars.

The safe drinking water priority list currently includes 640 applicants with an estimated project value of \$350 million. According to the program administrators, past experience suggests that the priority list will increase annually by about 100 systems at a cost of \$50 million. At this rate, approximately \$800 million for 1,600 projects

could be needed for the period 1984-85 through 1999-2000. Together, these two estimates indicate potential needs of \$1.15 billion for the period 1983-84 through 1999-2000.

No detailed estimate of needs is available. However, another indicator is the level of depreciation by water utilities. During 1981-82, municipal water utilities depreciated over \$56 million. At this rate, these utilities could depreciate another \$1 billion by the year 2000.

- Davis-Grunsky -- As was mentioned earlier, current funding requests outstrip available funds. Requests total \$30 million. No estimate of future needs is available.

b. State Study -- A second source of "needs" assessment is drawn from the Statewide infrastructure study.

This study's projections, which are based on survey results, indicate that just over \$11.1 billion will be needed to finance local water system construction and improvement through 1992-93. If one assumes that the level of "growth needs" remains stable through the end of the century, an additional \$2.9 billion will be required for investment through 1999-2000 -- for a total of approximately \$14.0 billion.

These figures assume an annual backlog of over \$1.4 billion (to be eliminated by 1987-88) and an annual "growth" figure of about \$409 million through 1999-2000.

2. Estimated Funding Shortfalls.

a. Projected Mix of Local Revenues -- Local water system managers anticipate a slight growth in "fees and charges" as a share of total revenue. This growth is accompanied by a continuing decline in property tax revenues. (Figures for 1976-77 and 1981-82 appear on page 62.)

Table IX-4

WATER SYSTEMS
COMPARISON OF REVENUE SOURCES, AS A SHARE OF TOTAL
(1986-87 to 1991-92)

	<u>1986-87</u>	<u>1991-92</u>
Property Tax	9.7%	9.3%
Fees and Charges	62.8	70.2
Assessments	6.2	3.5
Bonds	4.5	4.6
Grants	0.6	2.8
Other	16.2	9.6

Of course, if the proposed Safe Drinking Water Bond Law of 1984 is enacted and approved, an additional \$250 million would be available to finance local water systems.

b. Estimated Funding Shortfalls -- The following summarizes available revenue figures and presents "funding shortfalls" from all sources.

- State Water Project -- Because the original general obligation bond law for State water development is nearly exhausted, most of the \$593 million estimated needs (discussed on page 54) may be considered "unmet."

Other funding may be necessary, according to the Department of Water Resources, if its water use and water supply projections are realized.

Estimating future funding needs for the State Water Project is complicated due to changing plans. For example, a proposal to construct the "Peripheral Canal," a 43-mile North-South water conveyance system, was rejected by the electorate in June 1982. A proposal to expand the system to provide an additional 200,000 acre-feet to 500,000 acre-feet is now being considered by the Department of Water Resources. The estimated cost of this proposal -- \$500 million -- is proposed to be financed through revenue bonds, secured by user charges.

- Safe Drinking Water -- About \$865 million in investments in safe drinking water projects may be unmet through 1999-2000.

This "minimum" estimate is based on total needs of \$1.15 billion (i.e., projects on current priority list and estimates of annual future needs of \$50 million) and total revenues of \$385 million (i.e., funds remaining in 1975 bond law and \$250 million proposed in 1984 bond law). The "actual" shortfall figure may be greater than the amount estimated from the safe drinking water priority list, since the Department of Health Services now estimates that the original needs have doubled (from \$1 billion to \$2 billion).

- Davis-Grunsky -- This State assistance fund has a funding deficit of \$4 million. About

\$30 million in project funding has been requested, but only \$26 million in funding remains.

- State Study -- A funding shortfall of \$6.9 billion (through 1992-93) was estimated based on survey results. If the "needs" and "revenues" figures remain constant, a total funding shortfall of about \$8.8 billion is estimated for 1983-84 through 1999-2000.

- c. Summary -- A summary of the above estimates is presented in Table IX-5. These estimates may not be mutually exclusive.

The estimate from the Statewide study of infrastructure is the one included in this report's summary on page 27. Although this estimate may overstate needs (because local water agencies may have engaged in "wishful" thinking), it is included in the study's summary, since the State numbers only partially account for local needs.

Table IX-5

WATER SYSTEMS
 SUMMARY OF ESTIMATES OF NEEDS, REVENUES, AND FUNDING SHORTFALLS^(a)
 (Millions of 1982 \$)

	<u>Total Needs</u>	<u>Total Revenues</u>	<u>Potential Shortfalls</u>
State Agencies	\$1,773	\$411	\$1,362
State Water Project ^(b)	593	--	593
Safe Drinking Water ^(c)	1,150	385	865
Davis-Grunsky ^(d)	30	26	4
State Study ^(e)	14,035	5,281	8,754

- (a) For the period 1983-84 through 1999-2000.
- (b) This estimate is from the Department of Water Resources. No mention of available funds was made.
- (c) The needs include \$350 million on the current priority list and \$800 million additional anticipated for the period 1984-85 through 1999-2000. (16 years x \$50 million per year = \$800 million.)
- (d) No additional funds are proposed, according to the Department of Water Resources.
- (e) The State study projects needs of about \$11.2 billion, revenues of \$4.2 billion, and a shortfall of \$7.0 billion for 1983-84 through 1992-93.

X. NOTES

1. These six elements of infrastructure were prescribed by the JEC for its project. This report's investigation is limited to infrastructure under "public" sector management.

2. The Statewide study of infrastructure which is referred to throughout the report is scheduled to be published in November or December 1983. This study, conducted by the Office of Research of the State Assembly, examines the condition of city streets, county roads, public transit, State highways, sewerage systems, water systems, solid waste disposal, and flood control and drainage for the ten-year period 1983-84 through 1992-93 and estimates funding needs and available revenues.

The majority of "needs assessment" was derived from surveys of local officials. Follow-up contact with appropriate State agencies was also conducted.

3. The deflators which were used for Table II-3 are presented below.

Bureau of Economic Analysis Deflators

(1982 \$)

<u>Fiscal Year</u>	<u>Highways</u>	<u>Sewerage</u>	<u>Water</u>	<u>General Govt.</u>
1969	.3457217	.3176221	.3420388	.3589175
1970	.3802939	.3439490	.3622578	.3881988
1971	.4148660	.3821656	.3938500	.4192547
1972	.4321521	.4246285	.4212300	.4436557
1973	.4606742	.4564756	.4486099	.4729370
1974	.5898876	.5265393	.5214827	.5572316
1975	.6339672	.5915074	.6137321	.6078083
1976	.6283492	.6284501	.6482730	.6255546
1977	.6525497	.6683652	.6781803	.6619343

<u>Fiscal Year</u>	<u>Highways</u>	<u>Sewerage</u>	<u>Water</u>	<u>General Govt.</u>
1978	.7752809	.7333333	.7493682	.7404614
1979	.9243734	.8233546	.8213985	.8416149
1980	1.057044	.8921444	.8980623	.9378882
1981	1.048401	.9498938	.9667228	.9840284

4. While this forecast is quite optimistic, it is based on expectations of a cyclical rebound in consumer and business spending as well as stronger than average growth in revenues from the State income tax.

5. The accumulated State budget "surplus" was used initially to help alleviate the revenue impact of Proposition 13 at the local level. In 1979, Assembly Bill 8 was enacted to provide a long-term program for the distribution of property tax to avoid an annual bailout of local governments. As part of this program, the Legislature created a mechanism known as the "deflator" which automatically reduces State subventions to local governments if funds are not available or sufficient.

With the onset of State fiscal problems in 1981-82, concern about the triggering of the deflator grew. Although the deflator was suspended in 1981-82, the Legislature allowed it to be implemented in 1983-84 -- more than \$900 million less in State funds were available to cities, counties, and special districts during this year. To arrive at a permanent long-term solution to the problem of local government finance, Governor George Deukmejian convened the "New Partnership Task Force on State and Local Government" and the Legislature is holding hearings on the interim report of the task force through the end of 1983.

One of the proposed recommendations of the task force is that a constitutional amendment to reinstate voter-approved general obligation bonds be placed on the ballot for consideration by the State electorate.

6. The quality and availability of information is mixed. First, State agencies specializing in the oversight of a particular type of infrastructure have limited information on the condition of infrastructure which is under the management of local governments and special districts. Second, information from local governments concerning the condition of local infrastructure is frequently based on informal perceptions of officials -- such as the public works director. Third, information is generally better in special enterprise districts where the revenues generated cover costs. Fourth, State agencies' information about the conditions of State-operated infrastructure tends to be good. However, these estimates do change in response to political priorities.

7. Additional information was provided by CALTRANS.

8. These historical figures do not include railroads and airports. City streets and county roads are reported separately.

9. "Privatization" of California's infrastructure is also on the increase. This shift in responsibility from the public sector to the private sector is perhaps most visible in the cost of new housing where the developer (and later the home buyer) is required to pay for needed infrastructure, such as streets, sewer line extensions, etc.

10. CALTRANS information was in 1983 dollars. These estimates have been reduced by six percent which is equal to the percentage change in the personal consumption deflator for government purchases of goods and services.

11. Operational improvements are investments in the existing State highway which make it safer or more efficient without the addition of new facilities. These improvements could include traffic signals and inter-crossings, as examples.

12. An example of this local variance was documented in the Metropolitan Transportation Commission's inventory of the 17,000 miles of local streets and roads in the San Francisco Bay area. One city with 100,000 population estimated its "backlog" to be \$20 million, while another city of 700,000 had a backlog of only \$12 million. Yet another city of 350,000 population had a backlog of \$38 million.

13. Although urban rail is described in the "Railroads and Airports" section, its needs assessment is included here with public transit since it was part of the State-wide survey of local officials.

14. The two figures in this paragraph are "actual" expenditures.

15. Reductions in Federal aid would impact public transit funding and investment decisions in California. Four "reduced Federal funding" alternatives recently discussed by the Congressional Budget Office in Public Works Infrastructure: Policy Considerations for the 1980s (Washington, D.C.: U.S. Government Printing Office, April 1983) are reducing the Federal match for transit capital grants, redesigning grant allocation formulas to improve targeting, providing alternative financial mechanisms (i.e., block grants), and encouraging innovative cost-effective operational modes.

16. Differing definitions of needs explain the difference between the two estimates presented in this study. The estimate from the Statewide infrastructure study is an unrestrained assessment of needs which some might call a "wish list." The estimate from CALTRANS covers only those needs which could be funded through the STIP by the State.

17. This estimate reflects the needs assessment of local public transit officials. As such, this estimate may include projects which have not yet received all necessary governmental approvals or which may be only partially funded during 1983-84 through 1999-2000.

18. This information is from the Statewide survey of local transit officials.

19. Funding needs for rail transit are discussed in "Public Transit."

20. The Congressional Budget Office postulates that Federal funding of airports could be reduced significantly by greater application of user fees. Moreover, user fees would likely reduce demand -- which in turn would postpone needed maintenance or expansion.

21. As was specified earlier, no changes in current pricing policy were considered as part of this report. Moreover, other policy impacts may influence future water needs. For example, a recent State constitutional decision determined that the impacts of water projects on contributory source waters must be considered in the environmental impact assessment process.

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