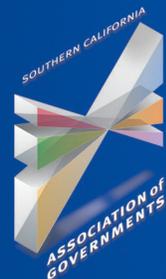




*Mapping
Southern
California's
Transportation
Future*

2004 Regional Transportation Plan
Adopted April 2004



Mission Statement

Leadership

Vision

Progress

Leadership, vision and **progress** which promote economic growth, personal well-being, and livable communities for all Southern Californians.

The Association will accomplish this Mission by:

- ◆ Developing long-range regional plans and strategies that provide for efficient movement of people, goods and information; enhance economic growth and international trade; and improve the environment and quality of life.
- ◆ Providing quality information services and analysis for the region.
- ◆ Using an inclusive decision-making process that resolves conflicts and encourages trust.
- ◆ Creating an educational and work environment that cultivates creativity, initiative, and opportunity.

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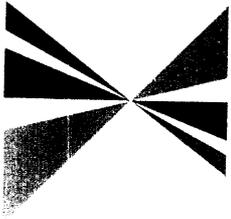
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SOUTHERN CALIFORNIA



**ASSOCIATION of
GOVERNMENTS**

Main Office

818 West Seventh Street

12th Floor

Los Angeles, California

90017-3435

t (213) 236-1800

f (213) 236-1825

www.scag.ca.gov

Officers: President: Councilmember Bev Perry, Brea • First Vice President: Councilmember Ron Roberts, Temecula • Second Vice President: Supervisor Hank Kuiper, Imperial County • Past President: Councilmember Ronald Bates, Los Alamitos

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Orange County Transportation Authority: Charles Smith, Orange County

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To the Region:

The Regional Council of the Southern California Association of Governments (SCAG) proudly presents *Destination 2030*, the 2004 Regional Transportation Plan (RTP) adopted on April 1, 2004. It is a plan that tackles the challenges and unprecedented demands of a rapidly growing region, one that is projected to have six million new residents and three million new jobs over the next 25 years, one in which the movement of goods is expected to triple.

What's truly unique about *Destination 2030* is the way in which it was developed. For the last two years, SCAG has undertaken an ambitious Growth Visioning effort, involving extensive policy debate, public input and technical analysis. The intent with this effort was to help Southern California develop a vision for how it thinks it should grow and develop in the coming years. Never before have we undertaken such an effort to examine how land use and transportation planning efforts are inter-related to one another.

As a result, *Destination 2030* is specifically designed to help us achieve our most desirable and livable vision for our region, one that makes the most of our land use and that will help get the most "bang" out of our transportation dollars. It is a long-term strategy for integrating the planning of commercial, residential and recreational land uses with the transportation system, as well as increasing land use intensities in areas with frequent transit services and good access.

In light of significant funding issues within the region over the duration of the Plan, *Destination 2030* is also unique in its innovative funding concepts and strategies. These strategies will result in additional funding over the baseline funds identified, enabling the region to invest in the programs and projects that can execute the vision over the next 26 years.

Destination 2030 helps strengthen the land use - transportation connection, supporting smarter, more sustainable land use and well-targeted investment strategies. *Destination 2030* is one of the best performing plans that SCAG has ever developed.

Sincerely,

Bev Perry
President, SCAG
Councilmember, City of Brea

2004 Regional Transportation Plan

Adopted April 2004



Southern California
Association of Governments

Table of Contents

EXECUTIVE SUMMARY	Page 1
CHAPTER 1 A NEW DESTINATION	13
Why Update the Plan?	13
Purpose and Need	14
Our Successes	14
What Adjustments Do We Need to Make?	19
Our Planning Approach.....	27
CHAPTER 2 TRANSPORTATION PLANNING CHALLENGES AND TRENDS	35
The Shape and Pattern of Future Growth	35
Meeting our TDM Goals.....	53
Unprecedented Demand on Our System.....	54
Transportation Finance Challenges.....	66
Meeting our Air Quality Commitments.....	77
CHAPTER 3 OUR VISION	79
Regional Goals	79
Guiding Policies.....	80
Performance Expectations	80
CHAPTER 4 POTENTIAL SOLUTIONS	83
System Management: Getting the Most Out of the System.....	85
Transportation Demand Management	90
Thinking Out of the Box: Land-Use –Transportation Connection.....	94
Strategic System Expansion/Capital Investments.....	96
Transportation Finance: Meeting Our Needs.....	140
Recommended Funding Strategies to Implement SCAG's RTP.....	142
CHAPTER 5 PLAN PERFORMANCE: HOW WILL THE PLAN PERFORM?	149
System/Investment Performance.....	149
Mobility Benefits Attributable to the Use of Land-Use Strategies.....	166
Economic Impact Analysis.....	166
Transportation Conformity Analysis.....	169
Environmental Justice.....	170
CHAPTER 6 IMPLEMENTING OUR PLANS AND MONITORING OUR PROGRESS	181
Securing the Planned Funding.....	181
Embracing System Management and Operation	186
Integrating the Growth Vision Strategy	186
Implementing the RTP.....	189
Monitoring Our Progress	191
CHAPTER 7 BEYOND THE PLAN	195
Corridor Preservation	195
Unconstrained Projects – Our Unmet Needs.....	199
GLOSSARY	201

LIST OF EXHIBITS

	Page
CHAPTER 1	
Exhibit 1.1: SCAG Region and Surrounding Areas	15
Exhibit 1.2: Tribal Governments.....	31
CHAPTER 2	
Exhibit 2.1: 2000 Population	41
Exhibit 2.2: 2030 Population	43
Exhibit 2.3: Population Increase 2000 to 2030.....	45
Exhibit 2.4: 2000 Employment	47
Exhibit 2.5: 2030 Employment	49
Exhibit 2.6: Employment Increase 2000 to 2030	51
Exhibit 2.7: Commercial Service Airports.....	67
CHAPTER 4	
Exhibit 4.1: 2030 High Occupancy Vehicle (HOV) Lane System.....	101
Exhibit 4.2: 2030 Mixed Flow Improvements	103
Exhibit 4.3: 2000 Activity Centers.....	111
Exhibit 4.4: 2030 Activity Centers.....	113
Exhibit 4.5: 2030 Transit Corridor System.....	115
Exhibit 4.6: 2030 User Fee-Backed Capacity Improvements.....	119
Exhibit 4.7: 2030 Mainline Freight Rail System Improvements.....	123
Exhibit 4.8: 2030 Grade Separations.....	127
Exhibit 4.9: Maglev System.....	133
CHAPTER 5	
Exhibit 5.1: 2000 Base Year Freeway Speed PM Peak	153
Exhibit 5.2: 2030 Baseline Freeway Speed PM Peak	155
Exhibit 5.3: 2030 Plan Freeway Speed PM Peak	157
CHAPTER 7	
Exhibit 7.1: Post 2030 Long Range Corridors	197

LIST OF FIGURES

CHAPTER 1		Page
Figure 1.1:	PILUT Process	29
CHAPTER 2		
Figure 2.1:	Travel Supply, Demand, and Population Trends.....	54
Figure 2.2:	Productivity Results Aggregated by Time Period	55
Figure 2.3:	Regional Transit Usage Trends.....	56
Figure 2.4:	Regional Per Capita Transit Ridership	57
Figure 2.5:	SCAG Region Truck Travel Trends.....	60
Figure 2.6:	Historical Air Passenger Volume, 1960-2002	65
Figure 2.7:	SCAG Regional Baseline Revenues.....	70
Figure 2.8:	SCAG Regional Revenues, County Shares.....	70
Figure 2.9:	Percentage Change in VMT, Personal Income, Population & Transportation Revenue Since 1970, Statewide Totals	73
Figure 2.10:	SCAG Regional Revenues, Local Sources	74
CHAPTER 4		
Figure 4.1:	RTP Projects and Strategies Structure	83
Figure 4.2:	System Management Philosophy.....	84
Figure 4.3:	California/Mexico Distribution of Trucks	126
Figure 4.4:	Historical Increase in State Gas Tax	144
CHAPTER 5		
Figure 5.1:	SCAG Regional Performance Analysis – Average Daily Speed.....	151
Figure 5.2:	SCAG Regional Performance Analysis – Average Daily Delay.....	151
Figure 5.3:	SCAG Regional Performance Analysis – Average Daily Delay per Capita.....	152
Figure 5.4:	SCAG Regional Performance Analysis – Average Daily Heavy Duty Truck Delays..	152
Figure 5.5:	SCAG Regional Performance Analysis – Auto and Transit Accessibility.....	159
Figure 5.6:	SCAG Regional Performance Analysis – Improvements in Highway System Productivity.....	162
Figure 5.7:	SCAG Regional Performance Analysis – Preservation Expenditures thru 2030.....	162
Figure 5.8:	SCAG Regional Performance Analysis – Annual Costs Per Capita for System Preservation	163
Figure 5.9:	SCAG Regional Performance Analysis – Accident Rates.....	164
Figure 5.10:	SCAG Regional Performance Analysis – RTP Total Mobility Benefits and Portions Attributable to the Growth Visioning Strategy	166
Figure 5.11:	SCAG Region Historical and Projected Annual Compound Employment Growth Rates.....	167
Figure 5.12:	2004 RTP Expenditure by Income Category	171
Figure 5.13:	Share of 2004 RTP Expenditures by Ethnic/Racial Category.....	172
Figure 5.14:	Share of System Usage, Tax Paid & Auto Travel Time Savings.....	173
Figure 5.15:	Share of System Usage, Tax Paid & Transit Travel Time Savings.....	173
Figure 5.16:	Share of System Usage, Tax Paid & Auto Travel Distance Savings	174
Figure 5.17:	Comparison of Accessibility Improvements by Travel Mode for Income Quintiles..	174
Figure 5.18:	Regional Ethnic Composition Compared with Ethnic Composition in Aviation Noise Areas (2030)	175
Figure 5.19:	Income Distribution Between SCAG Region & Aviation Noise Areas (2030).....	176
Figure 5.20:	Ethnic Composition SCAG Region vs. Highway Noise Areas (2030)	177
Figure 5.21:	Income Distribution: SCAG Region vs. Highway Noise Areas (2030)	177
Figure 5.22:	Percentage Improvement in 2030 Air Pollutant Emissions for Income Groups (Plan vs. Baseline)	178
Figure 5.23:	Percentage Improvements in 2030 Air Pollutant Emissions for Ethnic Groups (Plan vs. Baseline (No Project)	179
Figure 5.24:	Percentage Increases in 2030 Pollutant Emissions for Income Groups	180
Figure 5.25:	Percentage Increases in 2030 Pollutant Emissions for Racial/Ethnic Groups	180

LIST OF TABLES

	Page
EXECUTIVE SUMMARY	
Table 1: Highway & Arterial Improvements.....	6
CHAPTER 1	
Table 1.1: Regional Plan Task Forces and Key Transportation Subcommittees.....	28
Table 1.2: Stakeholders in the Development of the 2004 RTP.....	30
CHAPTER 2	
Table 2.1: 2030 Population, Households, Employment	40
Table 2.2: Transit Service Utilization in the SCAG Region	58
Table 2.3: Transit Subsidy in the SCAG Region	59
Table 2.4: East-West Rail Demand Forecast	61
Table 2.5: Historical Air Cargo Tonnage	62
Table 2.6: Baseline Revenue Sources.....	69
Table 2.7: Committed Regional Expenses by County.....	71
Table 2.8: Committed Regional Expenses	71
Table 2.9: 2004 RTP Baseline Regional Balance by County.....	72
CHAPTER 3	
Table 3.1: Performance Indicator, Measures and Outcome	82
CHAPTER 4	
Table 4.1: ITS Capital Investments.....	85
Table 4.2: Investment in System Preservation	86
Table 4.3: CMPs in the SCAG Region	89
Table 4.4: TDM Investments.....	90
Table 4.5: HOV Projects.....	98
Table 4.6: HOV Connector Projects.....	98
Table 4.7: Mixed Flow Projects.....	100
Table 4.8: Planned / Potential Toll Corridor Projects.....	105
Table 4.9: Investments in Arterials	106
Table 4.10: Transit Corridor Projects	108
Table 4.11: Planned / Potential Additional Toll Corridors	117
Table 4.12: Truck Climbing Lane Projects.....	118
Table 4.13: 2004 RTP Regional Maglev Milestones.....	131
Table 4.14: Existing Conditions and the Regional Aviation Plan	135
Table 4.15: Aviation-Related Economic Benefits.....	136
Table 4.16: Air Cargo Demand – 2030 Regional Aviation Plan	138
Table 4.17: 2004 RTP Revenue Sources.....	147
Table 4.18: 2004 RTP Regional Checkbook by County.....	147
CHAPTER 5	
Table 5.1: RTP Goals and Related Performance Outcomes	149
Table 5.2: Variability of Travel Time: Hypothetical Illustration.....	160
Table 5.3: SCAG Regional Performance Analysis – Improvements in Travel Time Reliability...	161
Table 5.4: SCAG Regional Performance Analysis – Benefit Cost Results.....	165
CHAPTER 7	
Table 7.1: Post-2030 Long-Range Corridors	196

Executive Summary



EXECUTIVE SUMMARY

DESTINATION 2030 is the Draft 2004 Regional Transportation Plan (RTP) for the six county Region in Southern California including Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial — home to 17 million people. The Regional Transportation Plan (RTP) is the culmination of a three-year effort with a focus on improving the balance between land use and the current as well as future transportation systems. The Southern California Association of Governments (SCAG) is required to develop, maintain and update the RTP on a three year cycle.

DESTINATION 2030 is a multi-modal Plan representing our vision for a better transportation system, integrated with the best possible growth pattern for the Region over the Plan horizon of 2030. The Plan provides the basic policy and program framework for long term investment in our vast regional transportation system in a coordinated, cooperative and continuous manner. Transportation investments in the SCAG Region that receive State or federal transportation funds must be consistent with the RTP and must be included in the Regional Transportation Improvement Program (RTIP) when ready for funding.

A New Destination

Since the adoption of the 2001 RTP in April of 2001, there have been several new developments in the Region that must be reflected in the updated RTP; some are positive and some are not. On the positive side, several new initiatives proposed in the 2001 RTP have come to fruition, including passage of Proposition 42 (which dedicates revenues generated from the gasoline sales tax for transportation purposes) and the extension of the half-cent sales tax measure in Riverside County. A 20-mile segment of the 28.2-mile State Route 210 extension, a major addition to our freeway system, became operational. The new Metro Gold Line began light rail service between downtown Los Angeles and Pasadena. Because rapid bus corridors proved to be highly effective, the implementation of several new corridors was expedited in Los Angeles County.

On the negative side, the State budget crisis, which became evident after the 2001 RTP, has directly threatened funds designated for the Traffic Congestion Relief Program (TCRP). This has not only jeopardized the timely implementation of critical transportation projects, but also has required SCAG to take a fresh look at its regional priorities and take a more proactive role in securing future funding needs. Also, the events of September 11, 2001 (9/11), have severely impacted transportation planning, especially in the arena of aviation.

In the process of updating the 2001 RTP, SCAG found that by changing the distribution of growth within the Region for future years, there were dramatic effects on the performance of the transportation system. In fact, by reducing population and employment estimates by 1 million, along with a reallocation of jobs to Los Angeles County from elsewhere in the Region, analysis showed dramatic improvements in air quality as well as mobility. As a result, SCAG



initiated a comprehensive growth visioning process called Southern California *COMPASS*, an innovative effort to develop broad consensus on growth and land-use issues affecting the future of the Region. This led to the development of a growth vision for the Region that best fits the existing and proposed regional transportation infrastructure, while respecting natural as well as policy constraints that are inherent in the Region. A notable feature of the growth visioning effort has been to engage the public in transportation planning in an interactive process to arrive at a shared conception of the Region's future.

In order to develop this vision and meet all the challenges the Region faces in a comprehensive and coordinated manner, SCAG developed an integrated planning process called Planning for Integrated Land-Use and Transportation (PILUT) to update the 2004 RTP. The idea was to integrate the transportation planning, growth visioning, and State-required Environmental Impact Report (EIR) analysis into a single, unified process. This integration helped eliminate redundancy, ensure close coordination, and optimize the use of SCAG's limited planning resources.

Based on extensive public input, in May 2003, SCAG's Community, Economic and Human Development Committee directed staff to evaluate five growth scenarios. Three of the five scenarios involve technical adjustments to projections based on local input and other considerations. The other two scenarios, called PILUT I and PILUT II, represent major policy shifts that would include much closer integration of land-use plans with transportation investments, while remaining consistent with the general plans of the many jurisdictions within the SCAG Region.

PILUT I proposes intensification of land-use in urbanized parts of the Region to accommodate future growth so that more of our scarce undeveloped land is preserved at the same time the existing transportation system is utilized more effectively, particularly our public transit system.

PILUT II proposes accommodating future growth by encouraging the movement of people and jobs to outlying areas such as north Los Angeles and San Bernardino Counties, and eastern Riverside County (Coachella Valley) so that we can achieve better balance between jobs and housing and minimize the need for long commute trips.

The result of this visioning process is a hybrid growth scenario that incorporates elements of PILUT I and II based on a set of principles developed by the Growth Visioning subcommittee. Accordingly, the proposed growth vision has been developed as follows: utilizing infill where appropriate to revitalize underutilized development sites; focusing growth along transit corridors and nodes; providing housing opportunities near major job centers; providing housing opportunities to match changing demographics; preserving natural open space; incorporating the decentralized aviation strategy proposed in the Plan; densifying new transportation corridors proposed in the Plan; and respecting the local input and feedback process in the development of the growth distribution.

■ Goals, Policies and Performance Measures

DESTINATION 2030 is a performance-based transportation plan, as were the 2001 RTP and the 1998 RTP. The goals of the Plan, as summarized in Chapter 3, are to maximize mobility and accessibility, ensure safety and reliability, preserve our transportation system, maximize productivity of our system, protect the environment and encourage land-use and growth patterns that complement our transportation system. The associated policies were developed to guide the development of the 2004 RTP further and reflect the transportation priorities of the Region. Performance measures described in Chapter 3 were developed to ensure that the adopted goals are achieved through the implementation of the 2004 RTP.

Our Challenges

Our challenges relative to developing a sound transportation plan can be broadly divided into three categories: 1) addressing growth in population, employment and households; 2) preserving, expanding and wisely utilizing our infrastructure; and 3) funding our Plan.

If recent population, household, and employment trends continue in the future, by 2030 the Region will be home to 22.9 million residents and 10.2 million jobs. This represents a population increase of 38 percent, or 6.3 million people, between 2000 and 2030 and an increase in employment of 36 percent, or 2.7 million jobs. This forecast is slightly different from the regional growth presented in the 2001 Regional Transportation Plan in that both household and population growth are expected to be less than previously forecast.

■ Unprecedented Demand on Our System

Each major mode in our transportation system faces challenges meeting the growth that is coming our way. While population more than doubled from 1960 to 2000, our freeway capacity increased by less than 30 percent. Consequently, our Region's congestion has increased dramatically, affecting both person travel and goods movement. For year 2000, total daily delay due to congestion is estimated to be 2.2 million person hours. If current trends persist, this delay is expected to more than double to 5.2 million person hours of daily delay by 2030. Moreover, our infrastructure is aging and requires more investment in maintenance and preservation.

Both industry and residents are served by a vast transportation network that includes over 9,000 lane miles of freeway, more than 42,000 lane miles of arterials, several large public transit systems, four major airports (including the world's fifth largest), as well as by the two largest cargo-handling ports in the United States, which combined constitute the third-largest port complex in the world. Yet the Region's transportation system has not kept up with population and transportation demand.

The Region has invested heavily in transit in the past thirty years and yet the transit ridership has not increased proportionately. It is evident that transit service utilization in the Region is not optimal compared to similar regions in the nation as described in Chapter 2.

■ Crisis in Transporting Goods

The Southern California region is facing a crisis in transporting goods, characterized by a dramatic growth in rail and truck traffic, scarce financial resources, and the high costs of infrastructure improvements. Forecasts of greater regional population and employment, and projections of increasing international and domestic trade volumes, all lead to worsening congestion and the potential of gridlock occurring within the Region's surface transportation system. Almost all of the short-haul and significant share of medium- and long-haul movement of goods occurs by truck. Severe congestion due to truck traffic is expected to worsen in the Region's major transportation corridors.

Airports play an important role in goods movement, as air cargo is transported in either passenger aircraft belly-holds or in dedicated freight aircraft used primarily for high-value, time-sensitive shipments. In 2002, the Region's airports handled 2.6 million tons of air cargo. Regional air cargo has grown at an average annual rate of 6.6 percent since 1965. Los Angeles International and Ontario International are the major cargo-handling airports, transporting about 96 percent of all regional air cargo, with LAX alone accounting for 75 percent of the traffic. Ontario air cargo traffic has increased seven-fold since 1979, while LAX has doubled the amount of air cargo handled in the same period. Burbank, John Wayne and Long Beach handle substantially less cargo.

■ Passenger Aviation

The SCAG Region has 57 public use airports, including six commercial service airports, 45 general aviation, two recently closed military air bases (one certified as a commercial service airport), two commuter airports and two joint-use facilities.

In all, some 78 million annual passengers (MAP) were served in the Region in 2002, almost double the number served in 1980. The level of air passenger demand is forecast to double again before 2030. While none of the individual airports is the largest in the U.S., the Region's airports taken together make Southern California the busiest of all regions in the country.

The need to accommodate future growth is clear and the economic costs of doing nothing are substantial. For every one million regional air passengers, it is estimated that there is a positive regional economic impact of \$620 million (in 1998 dollars) and 4,475 jobs. In addition, the number of jobs created by air cargo and freight movement in the region is enormous and vital to the overall health of the regional economy.

■ Running Out of Financial Options

The baseline revenue estimate for the six-county SCAG Region is \$120 billion over the 29-year time horizon of the 2004 RTP. Local sources comprise 75 percent of the overall revenue forecast, with State sources totaling 15 percent and federal sources making up 10 percent. On the other hand, the Region's total committed costs to maintain and operate the system as well as complete projects already committed, add up to \$115 billion. The remaining balance provides a very small cushion with which to pursue transportation improvements critical to maintaining the Region's mobility and accommodating future growth.

OUR PLAN

Given the challenges we face, the SCAG RTP relies on a number of strategies to address the Region's transportation needs. These include an increased focus on operational, management and preservation strategies; land-use integration with transportation investments; strategic system expansion investments; and innovative financing mechanisms. This comprehensive approach is referred to as System Management.

■ Preservation – Protecting Our Infrastructure

A key aspect of System Management is protecting our investment in the current transportation infrastructure. The Region has invested billions of dollars in developing its multi-modal transportation system and must protect these investments for current and future generations. The Plan proposes setting aside \$6.5 billion in additional funding for infrastructure preservation.

■ Operational Strategies – Getting the Most Out of Our Existing System

In addition to preserving the system, the Region has a responsibility to get the most out of the current system. This is especially true for the State Highway System, which loses a significant part of its productivity during extreme congestion due to weaving, merging, accidents, and other factors. Small physical improvements (e.g., auxiliary lanes that extend the merging range) and technology deployments (e.g., advanced ramp metering) offer us affordable solutions to restore some of this lost productivity. These technology deployments are often referred to as Intelligent Transportation Systems, or ITS. The combination of operations-related investments reduces delays and the duration of congestion, and improves safety and the predictability of travel time. The Plan proposes an increase of \$2.3 billion for operational strategies that improve the productivity of the multimodal transportation system through 2030. This level of funding represents less than one percent of the overall RTP expenditures, but is expected to produce benefits that are almost an order of magnitude higher.

■ Transportation Demand Management

Transportation Demand Management (TDM) is the all-inclusive term given to a variety of measures used to improve the efficiency of the existing transportation system by managing travel demand. An Individual's travel behavior may be influenced by mode, reliability, frequency, route, time and costs, support programs/facilities, perceived personal security and safety, and education.

TDM strategies that encourage the use of alternative modes of transportation to the single occupant vehicle include rideshare (carpools and vanpools), transit (bus and rail), and non-motorized modes (bicycles and walking). The Plan includes \$1.25 billion in TDM investments through 2030.

■ Strategic System Expansion / Capital Investments

DESTINATION 2030 is a multi-modal Plan which proposes a balanced investment in all of the Region's modes so that the system performs at the highest level possible.

■ Highways and Arterials

The 2004 RTP contains approximately \$13 billion in highway and arterial improvement projects in addition to already-committed or programmed projects. A summary of expenditure by each category is provided in the following table.

Table 1

Highway & Arterial Improvements (in addition to Baseline & Tier 2)

Improvement Category	Investment (in billions)
HOV	\$2.3
Mixed Flow	\$4.0
Arterial	\$5.9
Corridors	\$0.9
Total	\$13.1

The Plan also proposes a number of high occupancy toll (HOT) lane facilities, including a capacity enhancement parallel to SR-91 to address east-west congestion in the Riverside County area. While additional work is in progress through the Community and Environmental Transportation Acceptability Process (CETAP) to identify and study the feasibility of specific alignments in this corridor, this Plan acknowledges the need for additional capacity in this corridor. Specific mode and project definition will also build on the Major Investment Study (MIS) recently initiated by the Orange County Transportation Authority (OCTA). Any corridor

improvements are primarily anticipated to be implemented with user-fee-backed funding mechanisms.

Arterial roads account for over 90 percent of the total road network and already carry over 50 percent of total traffic. As it becomes more difficult to add lanes to existing freeways or build new freeways, maximizing the potential capacity of arterials becomes an attractive option to increasing overall system capacity in already-developed areas. The Strategic Arterial Improvement concept could involve a combination of widening, signal prioritization and other Intelligent Transportation Systems (ITS) deployment and grade separation at critical high-volume intersections to enhance the flow speed and capacity of the arterial. In addition to the specific arterial improvements identified under the Smart Street Improvement Program, this Plan proposes a significant increase in funding for arterial improvements and capacity enhancements.

■ Public Transportation System

The goals of public transportation services are to ensure mobility for people without access for automobiles and to provide attractive alternatives for drive-alone motorists or discretionary riders. Strategies include a significant increase in service availability, major expansion in the use of bus rapid transit (BRT) and some restructuring of services to ensure efficient utilization of available capacity. The Plan invests an additional \$5.5 billion in local bus service, including service for the elderly and disabled, as well as bus stops and transit centers. The Plan also includes an additional \$3 billion in new transit corridors, including new light and heavy rail lines.

Bus Rapid Transit

Bus rapid transit is designed to provide fast, high-quality bus service, operating in mixed traffic or in dedicated guide-ways, utilizing low-floor buses, taking advantage of signal priority at intersections, boarding and alighting passengers through streamlined processes, and improving bus stop spacing at planned stations. BRT combines the flexibility of bus systems with some of the features of rail transit. It uses specially identified buses stopping only at major intersections/destinations.

Metrolink Commuter Rail

Metrolink is the regional commuter rail service that operates in six Southern California counties. Southern California Regional Rail Authority (SCRRA) provides and maintains Metrolink services and facilities. The Metrolink system consists of 53 stations, with one in San Diego County. It carries over 36,000 passenger trips and operates 143 train trips per weekday. The Plan invests an additional \$1.8 billion towards long-range capital improvements that will, when fully implemented, effectively double the Metrolink System's passenger-carrying capacity. The long-range capital plan includes selective double tracking on critical route segments, switching and signal improvements, communication system improvements, new rolling stock, rolling stock storage/maintenance facilities, new stations and enhancements to existing stations. Plans also include future service expansion on the Redlands and San Jacinto branch lines.



Land-Use – Transit Coordination

The regional transit program calls for increased and better coordination between transit and land-use planning. The Region must develop and adopt a long-term strategy for integrating the planning of commercial, residential and recreational land-uses with the transportation system as well as increasing land-use intensities in areas with frequent transit services and good access. This integration would complement and maximize the use of the Region's transit system resulting in increased ridership, reduced congestion, and improved air quality.

Transit-Oriented Development

The regional transit program calls for the local and regional transit and planning agencies to promote transit-oriented developments (TOD) cooperatively along the major transit corridors. Transit-oriented development is a land-use planning tool that promotes pedestrian-friendly environments and supports transit use. It improves transit accessibility, promotes compact land patterns, walkable environments, and reduced auto use.

Transit Centers

A network of transit-based centers and corridors, supported by infill development, maximizes the use of existing infrastructure, supports transit ridership, reduces air pollution and preserves green space and undeveloped areas.

To encourage the use of transit and ridesharing further, new transit centers and park-and-ride facilities will be constructed in areas that provide access to the freeway HOV network, transit corridors and express buses. Existing transit centers can be upgraded for multi-modal uses that support restructured transit services.

■ Goods Movement Strategies

The SCAG model projects an increase of over 110 percent in truck vehicle miles traveled (VMT) by 2030. Other sources estimate the growth to be more than 200 percent by that time. Regional strategies to address these capacity needs are discussed below.

Roadway Improvements to Address Truck Demand

One strategy focuses on the concept of adding capacity to a corridor that has a high share of truck traffic. SCAG envisions working with local and subregional representatives to expand corridors along alignments extending from the San Pedro Bay ports, through the East-West Corridor and out to strategic distribution points northeast or southwest of urbanized areas. The Plan allocates a total of \$16.5 billion in funding for these improvements. Given the financial constraints in the Region, the development of this strategy is proceeding with the assumption that all capital construction and yearly operating costs associated with this system must be supported through the collection of user fees.



Regional Rail Capacity Improvement Program

The regional rail capacity improvement program recommended by SCAG would be financed with a revenue stream raised on corridor traffic hauled by the Union Pacific and Burlington Northern Santa Fe Railroads. It is also recommended that discussions take place with other West Coast ports regarding a similar revenue approach to minimize any potential for cargo diversion.

In order to collect and distribute funds throughout the corridor for eligible capital improvement projects, it is envisioned in concept that SCAG create a subsidiary agency. The role of this agency, here referred to as the Southern California Railroad Infrastructure Financing Authority (SCRIFA), would be limited to issuing and servicing debt, administering the revenue collection process, and distributing money for approved projects to the railroads and other implementing agencies. Similar agencies should be created for administering funds for rail projects in other regions along the West Coast.

The proposed capacity improvements would include a total investment of \$3.4 billion in Southern California: \$1.2 billion for railroad infrastructure projects and approximately \$2.2 billion in grade separation projects.

■ Maglev System

The Intra-Regional High Speed Rail System, using magnetic levitation (Maglev) technology, would ultimately facilitate the development of a regional airport system, and connect to major activity and multi-modal transportation centers in Los Angeles, Riverside, San Bernardino, and Orange Counties. Without a regional airport in El Toro, the Region needs to further decentralize its future growth in air passenger traffic and air cargo to regional airports in the northern, eastern and southern portions of the Region. Therefore, the Maglev system becomes more important and critical to the success of SCAG's decentralized regional aviation system.

The proposed system will be deployed through a public-private partnership. Its costs, estimated at \$29.4 billion, will be funded through bonds and loans to be repaid through the project-generated revenues. It is anticipated that no operating subsidies will be required.

■ Aviation

DESTINATION 2030 proposes a new decentralized aviation plan called the 'Regional Aviation Plan.' This Plan would accommodate a total regional passenger aviation demand of 170 million annual passengers (MAP). Under the Regional Aviation Plan, rather than relying on expanding existing urban airports, the future demand for air travel will be largely served by using available capacity at airfields located in the Inland Empire and north Los Angeles County, where projected population growth will be best served. This plan calls for constraining the LAX at 78 MAP, increasing the Ontario International Airport to 30 MAP, and a new passenger airport at Palmdale that will accommodate 12.8 MAP.

Cooperation between airport authorities is necessary to ensure efficient usage of capacity. Cooperation between airports would be accomplished through the integration of airport master plans, and the development of memoranda of understanding and contractual agreements between airports. These agreements would also identify complementary roles and market niches between airports to increase synergy in the system and maximize utilization of available airport capacities throughout the Region. For example, Los Angeles World Airports (LAWA) would play a key role in integrating master plans for the three airports it operates, namely LAX, Ontario and Palmdale.

Ground Access

The recommended aviation strategy will have localized ground access impacts at a number of airports. Particularly, the Regional Aviation Plan will result in dramatic increases in airport activities (people as well as cargo) at Ontario, Palmdale and a number of other airports. A number of freeway and arterial improvements and transit strategies are proposed in the Plan to address the ground access issues as part of the overall transportation investment in the Region. Specific ground access improvements proposed in the Plan are identified in the Technical Appendix to the RTP.

■ Transportation Finance: Meeting Our Needs

Critical and integral to this Plan is the development of a funding strategy that will result in additional funding over and beyond the baseline funds identified earlier. The development of the funding strategy is based on a set of guiding principles adopted by the Highway and Finance Task Force. These principles are:

- ❖ Maximize available resources
- ❖ Ensure revenue is adequate to maintain air quality conformity
- ❖ Enhance regional and local choice in the selection of projects for funding
- ❖ Identify revenue sources that are reasonable and consistent with current funding practices and long-term trends in transportation finance

Within the framework of these principles, the Highway and Transportation Finance Task Force, along with various other SCAG committees, engaged in extensive debates concerning the adequacy and feasibility of various revenue options available to respond to the SCAG Region's funding shortfall. On the basis of the Task Force's actions and policy direction, the following funding strategies for the 2004 RTP were developed:

Funding Strategies

- ❖ Protect and strengthen existing transportation revenues, specifically Proposition 42
- ❖ Continue or impose local transportation sales taxes where necessary and support the amendment of the State Constitution to allow 55 percent voter approval for local transportation sales taxes
- ❖ Maximize motor vehicle fuel user-fee revenue through pay-as-you-go and debt financing (assuming an adjustment to the motor vehicle fuel excise tax rate to maintain historical purchasing power)
- ❖ Review methods for collecting revenues from alternative fuel vehicles

In addition to these strategies, currently, the San Bernardino Associated Governments (SANBAG) is considering the feasibility of a development mitigation fee program in addition to the County's Measure I renewal program (sales tax extension program). Initial revenue estimates for some approaches identified for further analyses indicate that about \$1.5 billion could be generated for arterials and interchanges in San Bernardino County.

The Plan also proposes public-private partnership arrangements incorporating user fees to support a number of region-wide initiatives including the Maglev system and major corridor enhancements.

In total, the baseline revenue along with the new public and private funding strategies generates \$213 billion for the 2004 RTP. Approximately \$151 billion is generated from public sources (existing, renewal, and increase initiatives) and about \$62 billion is derived from private/other funding sources.

■ System Performance

DESTINATION 2030 is one of the best performing plans that SCAG has ever developed. The preferred strategy of the Plan demonstrates superior performance over the Baseline, or No-Project option, for every single performance criterion, including mobility, accessibility, reliability, safety and the environment. The performance is the result of the proposed growth vision and well-targeted investment strategy that complement growth. The Plan, if fully implemented, will result in maintaining average freeway speed and delay per capita at almost current levels (Base Year 2000) in 2030 despite the population growth. In terms of cost-effectiveness, every dollar invested in the Plan will yield \$3.25 in benefit. The preliminary regional emissions analysis has produced a positive conformity finding for the Region.



Conclusion

DESTINATION 2030 provides a comprehensive and multi-modal regional transportation Plan that is responsive to public input, local government input, and county transportation commission input. The Plan meets the State and federal requirements and it reflects a vision for the Region that balances land-use with transportation investments in a way that is complementary to existing investments. In addition, the RTP addresses the goals and objectives established by SCAG and is assessed based upon a number of key performance measures. In light of significant funding issues within the Region over the duration of the Plan, innovative funding concepts have been developed that would enable the Region to invest in programs and projects that will meet the Region's transportation needs over the next 27 years. The collaboration needed to develop a consensus on DESTINATION 2030 was unprecedented and reflects the growing realization that we must better integrate transportation and land-use planning in ways that reflect public desires for maintaining the high quality of life that Southern Californians expect and deserve.



Chapter 1



A New Destination

CHAPTER 1 A NEW DESTINATION

The Southern California Association of Governments (SCAG), the federally designated Metropolitan Planning Organization (MPO) for six counties in Southern California, presents Destination 2030, the update of the Regional Transportation Plan (RTP). Destination 2030 establishes a transportation vision for an area that includes Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial Counties, and is home to 17 million people. The Plan is the culmination of a three-year effort focusing on improving the balance between regionwide land-uses, and the current and future transportation system. Exhibit 1.1 shows the major transportation infrastructure in the SCAG Region as well as the neighboring jurisdictions of San Diego, Santa Barbara and Kern Counties.

Why Update the Plan?

Both the State¹ and the federal² governments require through their Metropolitan Planning Regulations that metropolitan areas update their Plans on a three-year cycle if the U.S. Environmental Protection Agency (EPA) designates them as non-attainment or maintenance areas for air quality. The SCAG Region has non-attainment designations for multiple air pollutants.

Meeting EPA requirements is not the only reason the transportation plan requires updating on a regular basis. Plans must be dynamic and reflect current local conditions. As the economy, demographics, finances, and other factors change, SCAG has a responsibility to modify its transportation plan for the region.

Just consider some factors that have changed since the adoption of the RTP in 2001:

- ❖ Population statistics from the 2000 Census became available after the 2001 RTP was adopted. The growth forecast must be adjusted to reflect this new information.
- ❖ The transportation funding structure has changed with the passage of Proposition 42 and extension of the ½-cent sales tax Measure A in Riverside County. Transportation revenue forecasts must be updated to reflect population growth and the new funding realities.
- ❖ The State's budget crisis, which became evident after adoption of the 2001 RTP, has further impacted funding through the indefinite suspension of the Transportation Congestion Relief Program (TCRP). The funding for projects must be changed to reflect budget actions to date.

¹ California Government Code Section 65080 et seq.

² 23 U.S. Code, Sections 134 and 135 et seq.

- ❖ The South Coast Air Quality Management District (SCAQMD) recently adopted its 2003 Air Quality Management Plan (AQMP). The RTP must be updated to reflect new motor vehicle emission budgets and emission factors from the California Air Resources Board (CARB). Also, the current ozone AQMP for Ventura County and the Southeast Desert Modified area have been replaced with the 2003 ozone AQMPs.
- ❖ The events of September 11, 2001 (9/11), have severely impacted passenger and cargo aviation. In addition, voters in Orange County have decided to forgo the construction of a commercial aviation airport at El Toro. The Regional Aviation Strategy must be updated to reflect these changes.
- ❖ The Plan must also be changed to reflect other shifts in regional priorities determined by SCAG and the County Transportation Commissions (CTCs), such as greater emphasis on Bus Rapid Transit corridors and a scaling down of the CenterLine light rail project in Orange County.

Purpose and Need

The purpose of the 2004 RTP is to present a Plan built on regional consensus that is flexible and recognizes the unique nature of the Region, yet also meets federal and State requirements. The RTP must meet a number of requirements, one of which is that it cover a period of at least 20 years into the future. The 2004 RTP addresses the transportation needs from 2004 to 2030.

Transportation investments in the SCAG Region that receive federal transportation funds must be consistent with the RTP and must be included in the Regional Transportation Improvement Program (RTIP) when ready for funding. As the programming document for funds, the RTIP complements the corresponding years of the RTP and must be updated every two years. SCAG's RTIP is a six-year program and is coordinated with the State Transportation Improvement Program (STIP) every two years.

Our Successes

Since the adoption of the 2001 RTP in April 2001, we have made progress in a number of areas. The following sections briefly describe our successes in implementing the Plan.

■ Transportation Funding Initiatives

When the SCAG Regional Council adopted the 2001 RTP, a commitment was made to fund a \$144 billion program of transportation improvements in the six-county Southern California Region. A funding strategy was included with the Plan to ensure that the necessary revenue would honor the Regional Council's commitment.

INSERT EXHIBIT 1.1 - MAP OF REGION GOES HERE.

Two elements of the 2001 RTP funding strategy have already been implemented:

- ❖ The dedication of revenues derived from the State sales tax on gasoline for transportation purposes (Proposition 42)
- ❖ Riverside County's reauthorization of its local sales tax (Measure A)

The Passage of Proposition 42

In June 2000, the Transportation Congestion Relief Program (TCRP) was enacted in California (AB 2928). This program commits gasoline sales tax revenues for specified State and local transportation purposes through fiscal year (FY) 2008. Prior to enacting the TCRP, revenues from the sales tax on gasoline were deposited into the State's General Fund.

SCAG's 2001 RTP funding strategy proposed to permanently dedicate the State portion of gasoline sales tax revenues to transportation. Accordingly, SCAG sponsored two pieces of legislation to implement the proposal: AB 227 (Longville) and ACA 9 (Dutra).

As part of the 2002 State budget negotiations, the key provisions of AB 227 and ACA 9 were amended into a budget trailer vehicle, ACA 4 (Dutra). ACA 4 was a constitutional amendment placed on the March 2002 statewide primary ballot as Proposition 42. The measure was approved by an overwhelming margin –69 percent of voters–“ensuring” to a certain degree that the State gasoline sales tax revenues will continue to be used for transportation purposes in the future (beginning in FY2009 – beyond the TCRP funding period). SCAG estimates that Proposition 42 revenues will total about \$3.3 billion (constant 2002 dollars) for the Region during the time frame of the 2004 RTP (2004–2030). This estimate is somewhat conservative given the relative uncertainties of this funding source as evidenced recently by the diversion provisions exercised by the governor and the State Legislature to address the State budget deficit.

The Extension of Riverside County's Measure A

In November 2002, Riverside County secured approval by county voters to reauthorize their local sales tax measure. Riverside County obtained nearly 70 percent voter approval to continue the half-cent sales tax for an additional 30 years (2009–2039). The extended measure will provide an additional \$3 billion to the county (in constant 2002 dollars). The revenues generated from the tax will fund projects included in the county's approved transportation expenditure plan and incorporated into the 2004 RTP.

■ Plan Implementation

Since the adoption of the 2001 RTP, several regionally significant projects have been completed and put into operation, including the following notable examples:

- ❖ By November 2002, 20 miles of the new 28.2-mile State Route 210 were completed, providing three mixed-flow and one HOV lane in each direction between La Verne in Los Angeles County and Fontana in San Bernardino County.
- ❖ In July 2003, the new Metro Gold Line began light rail service between downtown Los Angeles and Pasadena.
- ❖ In 2002, four new Metrolink commuter rail stations opened in Laguna Niguel/Mission Viejo, Tustin, North Main Corona, and Montalvo (City of Ventura), bringing the total to 53 stations.
- ❖ In May 2001, 3.3 miles of High Occupancy Vehicle (HOV) lanes were opened on Interstate 605 between South St. and the Los Angeles/Orange County line.
- ❖ In February 2002, a 7.8-mile southbound HOV lane was opened on Interstate 405 between U.S. 101 and Waterford Street in Westwood.
- ❖ In December 2002, Bus Rapid Transit service in Los Angeles County was initiated on South Broadway and Vermont Avenue, joining the existing service on Whittier/Wilshire and Ventura Boulevard.
- ❖ In June 2003, two additional Bus Rapid Transit lines were initiated on Florence Avenue and Van Nuys Boulevard in Los Angeles.
- ❖ Since 2001, incremental implementation of transit restructuring has occurred regionwide.

In addition, SCAG, in cooperation and collaboration with our transportation partners, initiated and completed a number of regionally significant special studies that have provided input to the 2004 RTP. Some of these initiatives are:

1. Major corridor studies, including US-101, I-710, I-15, SR-60 and I-5
2. Completed Feasibility Study of Initial Operating Segment (IOS) of Maglev System
3. Decentralized Aviation Strategy
4. Regional Truck Count Study
5. Railroad and truck improvement strategies
6. COMPASS: SCAG's Growth Visioning Initiative

What Adjustments Do We Need to Make?

The following section briefly highlights the adjustments made to the 2001 RTP in developing the 2004 RTP.

■ Adjustments to the Growth Forecast

SCAG updates the growth forecasts used for every RTP. The 2004 RTP growth forecast updates the 2001 RTP growth forecast for the Region and 14 subregions, and is developed in five-year increments from 2000 to 2030. A major distinction between the 2001 growth forecast (adopted in April 2001) and the 2004 growth forecast is a change in the forecast horizon year from 2025 to 2030.

The 2004 RTP growth forecast depicts more accurately the long-term demographic and economic picture of the SCAG Region, by incorporating recently available information from international, federal and State statistical agencies, along with subregions and local jurisdictions.

The 2000 Census confirmed that the SCAG Region continues to grow at a moderate level and has become more ethnically diverse. During the 1990s, natural growth declined due to a lower fertility rate. While international migration to the Region has leveled in recent years, domestic migration has fluctuated with employment growth. In the early 1990s, during an economic recession, more people migrated to other parts of the nation than to the SCAG Region. Since the mid-1990s, the economic recovery is visible and more people are migrating to the Region. In 2000, the regional unemployment rate was 4.9 percent, the lowest recorded rate in the Region's history.

Since 2000, population and economic growth have shown unprecedented patterns. Even though the unemployment rate has increased from 4.9 percent to 6.1 percent, domestic migration to the SCAG Region continues. However, much of this is reflected in statistically larger households rather than in the formation of new households. The ratio of new residents to new households is roughly 7 to 1. The average persons-per-household ratio in the SCAG Region has increased from 3.07 in 2000 to 3.16 in 2003.

The recent demographic and employment growth patterns provide a basis for updating the 2001 RTP growth forecast. The assumptions about the Region's share of the State's employment growth, labor force participation rate, worker-to-job ratio, natural unemployment rate, components of population growth (natural increases and net migration), and household formation levels are updated to develop reasonable and accurate growth rates and regional distributions and an internally consistent growth forecast.

The forecast for the 2004 RTP growth forecast plays an important role in projecting future travel demand and air quality in the SCAG Region. The forecast at the small area levels are updated based on the local input process. After reviewing local input using parameters such as historical/future trend of household size and jobs-to-household ratio, SCAG produces a

Baseline (No-Project) forecast, achieving a smooth, reasonable, and consistent pattern of future growth rates and distribution and the relationship between households and employment for input to the forecast database.

A number of factors have warranted adjustment to the growth forecast, including newly available Census 2000 data, the need to better reflect an aging population trend, and new economic realities that are closely tied to population growth and the State's overall fiscal condition.

■ Incorporating a Growth Vision

During the assembly of the 2001 RTP, SCAG adjusted the socioeconomic projections based on newly available data and recent trends observed at that time. The results of those adjustments, when analyzed through the transportation model, were surprising. SCAG found that by changing the distribution of growth within the Region, there were noticeable effects on the performance of the transportation system. In fact, a reduction in employment and population of 1 million, and a reallocation of jobs to housing-rich areas from elsewhere in the Region, reduced reactive organic gases (ROG) by 8 tons, vehicle miles traveled (VMT) by 4.4 percent, and hours of delay by 21 percent.

Out of this, SCAG embarked on a Growth Visioning effort that included the formation of a standing subcommittee and the creation of a work plan aimed at building regional consensus on growth. This section describes SCAG's Growth Visioning Program that has played a vital role in the 2004 RTP.

The Importance of Growth and Development Patterns

The growing challenge of meeting future transportation needs, combined with limited new infrastructure resources, means that SCAG must find more creative solutions to ensure mobility in the future. As described above, SCAG learned through the completion of the 2001 RTP that growth and development patterns have a dramatic effect on the performance of the transportation system. In particular, the distributions of people, housing units, and jobs have an effect on transportation in the following ways:

1. **Mode split** – The more people (housing units) there are within $\frac{1}{2}$ mile of rail or $\frac{1}{4}$ mile of bus service, the more people are likely to take transit. In addition, the more there is mixed-use development, the more non-motorized (bicycle and pedestrian) trips are generated.
2. **Trip length** – The more people are located near employment, amenities, or services, the shorter their trips will be.

Therefore, SCAG and its stakeholders determined that the Region must take advantage of these potential benefits related to urban form and development patterns.

Potential Growth Patterns

The SCAG Region is defined by natural and artificial constraints that, in large part, determine the shape of development. Oceans, mountains, national forests and various protected open space and wilderness areas skirt the Region. The potential for variation in the Region's future growth and development patterns and the subsequent impacts on existing and emerging urban form are enormous. The region's future is not predestined either by status quo development templates or by present-day plans.

In the beginning of the Growth Visioning process, SCAG sketched various potential futures using a "what if" scenario-building approach. The results identified seven major variations in future growth including:

1. Compaction
2. Dispersion
3. Jobs / Housing Balance
4. Spokes and Rings
5. Centers
6. Commute Sheds
7. Watersheds / Natural Systems

The examination of these "sketch" scenarios helped SCAG to conceptualize the ways in which the Region might develop, and the systems around which future growth might be organized. Ultimately, SCAG identified compaction, a pattern whereby future growth is concentrated in existing developed areas with substantial infill and redevelopment, and dispersion, whereby future growth is mostly on greenfield on the periphery of the Region, as the basic dichotomy facing the Region. All other potential growth patterns were, essentially, variations at subregional levels on one or the other of these themes.

In order to integrate a growth vision with the transportation investment decisions, SCAG initiated an integrated planning process called PILUT (Planning for Integrated Land-Use and Transportation). In so doing, two "book-end" scenarios were created which were, in fact, detailed articulations of the compaction and dispersion themes. The first scenario, called PILUT I, or InFill, is an attempt to maximize urban infill, intensification, and redevelopment. The second scenario, PILUT II, or "Fifth Ring," allocates growth to newly developed areas on the periphery of the Region. Each scenario was built as fully as possible, including complete sets of socioeconomic data with the same control totals at the regional level. Further, each scenario includes new transportation investments to fit the types of development. In simple terms, PILUT I/InFill focuses on transit improvements, while PILUT II/Fifth Ring focuses on new roads.

Having created two distinct scenarios, with growth distributions and infrastructure, each scenario was tested via the SCAG transportation model. SCAG concluded that both PILUT I and PILUT II performed very well in terms of emissions, trips, and delay, but represented quite a shift away from status quo development.

Working with its committees and task forces, SCAG was able to identify portions of each scenario that performed well in the transportation model, considered the constraints of local General Plans at the county and regional level, and were consistent with SCAG's Growth Visioning Principles. In mixing and matching these features, SCAG created the Growth Vision Alternative, which is the basis of this Plan.

Predominant Development Patterns Threaten Our Region's Future

On January 9, 2003, while scenarios for the Plan were being created and analyzed, SCAG released the annual *State of the Region* report. The report found that the Region's position is slipping in nearly every performance category related to socioeconomic well-being, including income and educational attainment. Among 17 major metropolitan areas nationwide, the Region ranks 16th or worse in many of the categories examined, including attainment of high school degrees, per-capita income, persons in poverty, and children in poverty. With further investigation, SCAG concluded that the Region has been failing to fully exploit its various economic advantages, notably its positions as a major international shipping and logistics center and as a center for entertainment and media.

At the same time, the predominant development pattern, which encourages auto-dependency and segregated land-uses, has continued to erode the Region's quality of life. By relegating the bulk of the Region's new housing to outlying bedroom communities, the ratio of subregional jobs to housing has worsened, lengthening commutes, taking commuters' time away from communities and families, and degrading mobility and air quality. SCAG's *New Economy and Jobs/Housing Balance Report* concluded that the ability to maintain pleasant and livable communities is a major factor in fueling investment, particularly in the new economy and entertainment fields.

In short, the Region's current and historic development pattern is a double-edged sword. The existing transportation system cannot perform well given predicted levels of growth, and the Region loses its ability to compete for old economy jobs in trade and shipping as well as new economy jobs.

Measuring Public Opinion – Emerging Regional Consensus

What emerged from the analysis was an obvious, yet daunting challenge. It was clear to SCAG that the Region must improve its transportation performance and reverse its economic decline. To do that, the Region has to evolve in some dramatic ways that include creating a more urban template for future growth.

SCAG designed the *COMPASS* project (the public name for the Growth Visioning effort) with a special emphasis on public involvement. *COMPASS* was not intended to give residents the opportunity to react positively or negatively to solutions proposed by SCAG. Rather, *COMPASS* was designed to give residents the ability to create the solutions themselves. SCAG held 11 *COMPASS* workshops around the Region, involving over 900 participants. The workshops were based around a mapping exercise that allowed participants to design the Region's future by placing chips representing future development on a map.

Through the outreach, it became evident that residents accept this Region's challenges and are prepared to embrace a future Southern California that looks different from the present. Of particular note, *COMPASS* participants showed a preference for higher-density mixed-use development and for transit, and de-emphasized the building of new single-family suburbs. In short, Southern Californians proposed the very solutions that are expected to work.

The workshop results are the principal barometer of public input to the *COMPASS* program. SCAG has corroborated those results through various other formats including random polling and a website survey. With the input of literally thousands of residents, SCAG is prepared to conclude that many Southern Californians will accept future development that features higher densities, infill development, mixed-use land, and increased transit use. The emerging vision for the future offers varied choices for different types of places and developments.

Creating a Feasible Land-Use/Transportation Plan

The analysis of *PILUT* scenarios I and II, along with the emerging public "vision" created by the workshops, provides a working conceptualization of a growth pattern that could perform well and be acceptable. However, in order to create an RTP, a realistic vision must be presented.

In developing the Growth Vision Alternative for this RTP, the *COMPASS*/Growth Visioning team relied on various measures that ensure feasibility. Foremost among these measures was maintaining consistency with local General Plans through 2010. This measure ensures a vision that conforms to the aggregate of planning in the Region. Additionally, the assumption of increased urbanization and intensification, bound to be the most controversial aspect of the land-use measures, is tempered in the Growth Vision Alternative in various ways. For example, existing single-family neighborhoods are left intact while the majority of new, denser development is centered on major arterials and other transportation corridors. Further, the Growth Vision Alternative assumes a conservative level of transportation finance availability. This is discussed in detail in Chapter 4.

The Growth Vision Alternative represents a programmatic best fit of visionary and realistic planning for the Region. SCAG found that it has significant performance benefits over both the preliminary schematic scenarios, and over a traditional transportation approach without land-use measures. Beyond the system performance, though, this approach will create high-quality, livable communities that will improve the Region's position within the national and international marketplace.

Nevertheless, the Region will face significant challenges in assuring that its actual growth and development fit the pattern laid out in this RTP. SCAG intends to pursue various measures and programmatic approaches to promote consistency. Specific approaches will be discussed further in Chapter 4.

■ Adjustments to the Aviation Strategy

The 2001 RTP was adopted just months before the September 2001 terrorist attacks. The unprecedented upheaval in the aviation industry caused by the attacks was exacerbated by the recent economic downturn that placed added pressures on airlines and airports struggling to cope with an entirely new operating environment. In addition, new security requirements and traveler concerns have changed air traveler behavior in choosing airports and airlines.

Besides these changes, aviation planning for the 2004 RTP has responded to a number of significant events at the Region's airports that have implications for overall regional airport capacity, including:

- ❖ In the spring of 2002, the voters of Orange County rejected the development of a commercial airport at Marine Corps Air Station El Toro.
- ❖ John Wayne Airport amended its Settlement Agreement, which raised its legally enforceable maximum capacity from 8.4 million air passengers (MAP) to 10.8 MAP through the year 2015.
- ❖ Los Angeles World Airports (LAWA) recently unveiled its LAX Master Plan Alternative D, putting a theoretical capacity limit on LAX at 78 MAP, which is consistent with the 2001 RTP, but has ground access improvements and remote terminal development that need to be evaluated.
- ❖ Ontario International Airport's master plan is underway, but there is significant opposition to the airport serving more than the theoretical runway capacity of 30 MAP.
- ❖ LAWA has initiated a new Master Plan for the Palmdale Airport.
- ❖ Regional airports in the Inland Empire have successfully marketed their facilities and are developing aggressive multi-modal infrastructure programs.
- ❖ Although not prohibiting future air passenger service, March Inland Port is focusing on increased military activity and promotion of air cargo services.
- ❖ Regional growth forecasts indicate a continued trend towards heavy regional aviation demand with a doubling of passenger traffic by 2030.
- ❖ The Southern California Regional Airport Authority disbanded in June of 2003.

■ Adjustment to the Revenue Forecast

Under the guidance of the Highway and Transportation Finance Task Force, the financial model has been updated. Several adjustments have been made to the previous forecast.

- ❖ Changing the new base year from 1997 to 2002. FY2002 is the starting point for the updated forecast, with an ending year of 2030. This is in contrast to the previous financial forecast in which the time horizon was from 1997 to 2025.
- ❖ Expressing revenues in constant 2002 dollars. This allows future revenues to be matched with costs, which are typically expressed in constant dollars.
- ❖ Including a beginning balance of prior year revenues in the forecast. This adds to the consistency between local county transportation commission forecasts and the Plan, and improves the matching of revenues with RTP projects.
- ❖ Adjusting sales tax revenues to better reflect current economic conditions in the shortterm and modifying longer-term forecasts further. Modifications were made in consultation with the local county transportation commissions.
- ❖ Including a portion of gas tax subvention revenues to support some regionally significant arterial improvement activities. Gas tax subventions refer to the share of State gas tax revenues that are apportioned directly to cities and counties for use on the street and road system.
- ❖ Adding Proposition 42 revenues to the baseline revenue scenario due to the March 2002 ballot results. This measure dedicates the State gasoline sales tax revenues for transportation purposes in the future (beginning in FY2009—beyond the TCRP funding period).
- ❖ Incorporating Riverside County's new sales tax extension funds— Measure A, as renewed by the voters in November 2002.
- ❖ Including Riverside County's Transportation Uniform Mitigation Fee (TUMF) initiative in the baseline revenue forecast—projected to generate nearly \$3 billion in revenues during the time frame of the 2004 RTP. Western Riverside County cities and the County of Riverside approved a developer fee on new construction (TUMF) to help pay for arterial improvements and new transportation corridors.

■ Adjustments to Plans and Programs

A number of events have occurred since the adoption of the 2001 RTP that require revisions to some of the transportation investments included in the 2004 RTP. These adjustments ensure that the RTP accurately reflects current conditions and stays current with local transportation planning decisions, including those of the county transportation commissions.

Recent Voter Actions

In November 2002, Riverside County voters approved the extension of their Measure A transportation sales tax, which dedicates funding towards a specific list of projects and

programs. These projects and programs have been incorporated into the 2004 RTP. In June 2003, voters in the City of Irvine rejected the CenterLine light-rail route to the Irvine Transportation Center. This prompted the Orange County Transportation Authority (OCTA) to shorten the planned light rail line and select a new southern terminus at John Wayne Airport.

State Budget Crisis

Reductions in funding for transportation projects resulting from the State budget crisis have prompted delays in project construction. Further, there is considerable uncertainty as to when the State fiscal situation will improve and how future State budgets will influence transportation funding.

State Route 91 Express Lanes Purchased

In January 2003, OCTA purchased the SR-91 Express Lanes for \$207.5 million. This eliminated the non-compete provision that prevented OCTA, RCTC and Caltrans from adding capacity to the freeway corridor, either by adding or extending carpool lanes or mixed flow lanes.

Metro Bus Rapid Transit Expansion Program

The success of the Los Angeles County Metropolitan Transportation Authority's (LACMTA) Bus Rapid Transit demonstration program has prompted the agency to accelerate implementation of its proposed additional corridors. Since the adoption of the 2001 RTP, four new bus rapid transit lines have been initiated ahead of schedule, namely the South Broadway, Vermont, Florence, and Van Nuys corridors in Los Angeles County. These four join the existing Bus Rapid Transit service on Wilshire/Whittier and Ventura Boulevard. The entire expansion program is now expected to be completed by 2009.

San Fernando Valley North-South Corridor

A recent study completed by LACMTA has identified improvements for the San Fernando Valley North-South Corridor, including a series of Bus Rapid Transit service improvements and potential peak period lanes and off-street transitways.

Community and Environmental Transportation Acceptability Process (CETAP) Corridors

An innovative effort was launched in Riverside County in 2000 to integrate transportation, community, environmental and land-use initiatives into the future transportation plans for Riverside County. The CETAP project has resulted in a number of consensus decisions that require updates to the 2001 RTP. In February 2003, the Riverside County Transportation Commission (RCTC) selected the preferred alternative for the Winchester/Temecula Corridor. This alternative consists of the widening of the existing I-215 and I-15 freeways. In June 2003, the RCTC Board approved the preferred alternative for the Hemet/Lake Elsinore Corridor. This alternative consists of improvements to the Ramona Expressway/Cajalco Road corridor south of Lake Matthews.

Our Planning Approach

This section provides an overview of the planning requirements and planning approach in development of the 2004 RTP.

■ Overview of Federal Requirements

Under TEA-21, the U.S. Department of Transportation (USDOT) requires that MPOs prepare long-range transportation plans. In federally designated non-attainment and maintenance areas for air quality, these plans must be updated every three years. SCAG adopted the 2001 RTP in April 2001. The 2004 RTP is an update to the 2001 RTP, and it replaces the 2001 RTP in its entirety.

The federal requirements for metropolitan transportation plans include the following key provisions:

- ❖ Plans must be developed through an open and inclusive process that ensures public input and seeks out and considers the needs of those traditionally underserved by existing transportation systems.
- ❖ Plans must be for a period of not less than 20 years into the future.
- ❖ Plans must reflect the most recent assumptions for population, travel, land-use, congestion, vehicle fleet mix, speeds, employment and economic activity.
- ❖ Plans must be financially constrained and revenue assumptions must be reasonable in that they can be expected to be available during the time frame of the Plan.
- ❖ Plans must conform to the applicable State Implementation Plans (SIPs) for air quality.
- ❖ Plans must consider seven planning factors and strategies, in the local context, as follows:
 1. Support the economic vitality of the United States, the individual states and metropolitan areas, especially by enabling global competitiveness, productivity and efficiency
 2. Increase the safety and security of the transportation system for motorized and non-motorized users
 3. Increase the accessibility and mobility options available to people and for freight
 4. Protect and enhance the environment, promote energy conservation and improve quality of life
 5. Enhance the integration and connectivity of the transportation system, across and between modes throughout the state, for people and freight
 6. Promote efficient system management and operation
 7. Emphasize the preservation of the existing transportation system

■ Overview of State Requirements

The State, whose requirements largely mirror the federal requirements, has adopted extensive RTP guidelines. Key additional State requirements are briefly discussed below. Transportation plans must comply with the California Environmental Quality Act (CEQA) and the Draft 2004 RTP will meet those requirements. In addition, the first five years of Plans must be consistent with the five-year STIP as incorporated into the SCAG RTIP. Further, the State guidelines call for program-level performance measures that include objective criteria that reflect the goals and objectives of the RTP. The State guidelines also require regional Plans to cover three specific areas: a policy element, an action element and a financial element. The policy element of this RTP is presented in Chapter 3 of this document (Our Vision). The action and financial elements are described in Chapter 4 (Potential Solutions) and Chapter 6 (Implementing Our Plans).

■ SCAG's 2004 RTP Update Process

This RTP focuses on linkages between land-use and transportation investment decisions. Severe funding constraints, coupled with difficulty in demonstrating transportation conformity as the Region moves closer to the attainment year for the federal air quality standards, require SCAG to develop creative solutions to the Region's transportation challenges.

To address the challenges faced by the Region as well as update the RTP on the schedule required by the USDOT, SCAG initiated a bottom-up collaborative planning process that included over 10 task forces and numerous subcommittees. Task force members included hundreds of local and regional officials, representatives of federal and State agencies and representatives of community groups and environmental organizations. A list of the task forces and key committees that had a specific role in developing recommendations in the 2004 RTP is presented in Table 1.1. A complete list of the task forces and subcommittees is provided in the Technical Appendix.

Table 1.1

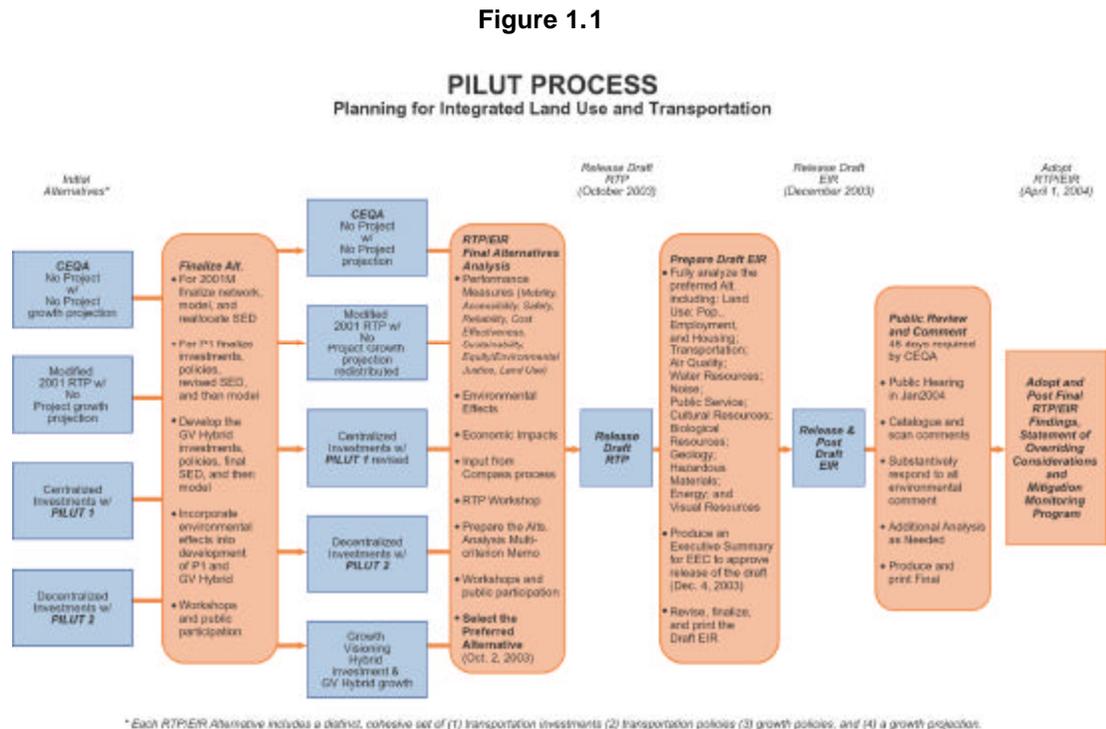
Regional Plan Task Forces and Key Transportation Subcommittees

- *Aviation*
- *Goods Movement*
- *Highway and Transportation Finance*
- *Maglev*
- *Regional Transportation Demand Management*
- *Regional Transit*
- *Plans & Programs Technical Advisory Committee (TAC)*
- *Forecast*
- *Growth Visioning Subcommittee*

Using this input structure, SCAG developed an integrated planning process called Planning for Integrated Land-Use and Transportation (PILUT) to update the 2004 RTP. PILUT integrates the transportation planning, growth visioning, and the State-required Environmental Impact Report (EIR) analysis into a single, unified process. The objective is to eliminate redundancy, ensure close coordination, and optimize the use of available resources. The PILUT process requires that a single set of alternatives be developed and evaluated that meet the EIR

requirements and at the same time are meaningful and informative alternatives for transportation implementation.

Figure 1.1 depicts the PILUT process used in evaluating and narrowing the alternatives leading to the preferred strategy described in the 2004 RTP.



■ Transportation Planning in the SCAG Region

SCAG, as the designated MPO, is responsible for developing, coordinating, monitoring and updating the RTP for the six-county Region in Southern California. SCAG develops the RTP in coordination and consultation with the county transportation commissions, subregional councils of governments (COGs), transit operators and other transportation stakeholders. This section summarizes the planning environment and discusses how SCAG integrates the planning activities of each of the counties in the Region to ensure a balanced, multi-modal Plan that meets regional as well as county-specific goals.

Each of the six counties in the SCAG Region has a transportation commission or authority with the exception of Imperial County, where the Imperial Valley Association of Governments (IVAG) serves as the countywide transportation agency. These agencies are charged with implementing countywide transportation planning activities, allocating locally generated transportation revenues and, in some cases, operating of transit services.

In addition, there are 14 subregions within the SCAG Region. The subregions are groups of neighboring cities and communities (sometimes comprising an entire county) that work together to identify, prioritize and seek transportation funding for needed investments in their respective areas.

Table 1. 2

The SCAG Region also comprises all or part of seven air quality non-attainment or maintenance areas in five air basins. Federal law requires that transportation and air quality planning are coordinated in these non-attainment and maintenance areas.

In addition, the SCAG Region includes all of Caltrans Districts 7, 8 and 12, and the Imperial County portion of District 11.

Table 1.2 lists key stakeholders in the development of the 2004 RTP.

■ Public Outreach

As the MPO, SCAG is required to implement a public involvement process to provide complete information, timely public notice and full public access to key decisions and to support early and continuing public involvement in developing its regional plans³. SCAG formally adopted a Public Participation Program in September 1993. Further, Title VI of the Civil Rights Act of 1964 and associated regulations and policies, including President Clinton's 1994 Executive Order 12898 on Environmental Justice, seek to assure that minority and low-income populations are involved in the planning process.

Stakeholders in the Development of the 2004 RTP

Southern California Association of Governments

County Transportation Commissions / Agencies

Los Angeles

Orange

San Bernardino

Riverside

Ventura

Imperial

Subregional Councils of Governments (COGs)

Arroyo Verdugo Cities

Coachella Valley Association of Governments

Gateway Cities COG

Imperial Valley Association of Governments

Las Virgenes-Malibu-Conejo COG

City of Los Angeles

North Los Angeles County

Orange County COG

San Bernardino Associated Governments

San Gabriel Valley COG

South Bay Cities COG

Ventura County COG

Western Riverside County COG

Westside Cities COG

Local and County Governments

Other Operators and Implementing Agencies

Caltrans

Airport Authorities

Port Authorities

Transit / Rail Operators

Transportation Corridor Agencies

Resource / Regulating Agencies

USDOT (FHWA, FTA, FAA, FRA)

US EPA

Caltrans

CA Air Resources Board

CA EPA

Air Districts

Other private, non-profit organizations, interest groups, and Tribal Governments (**See Exhibit 1.2**)

³ 23 CFR of the federal metropolitan planning regulations

Insert Exhibit 1.2 Map of Tribal Governments

To fulfill these expectations, SCAG has used a combination of methods to stimulate public involvement. For the development of the 2004 RTP, the following public outreach methods have been used:

- ❖ Presentations on the RTP to established organizations on the RTP throughout the Region
- ❖ Specific public workshops on the RTP throughout the Region
- ❖ Posting of all public outreach events via an Outreach calendar on the SCAG website
- ❖ Direct outreach to minority and low-income populations
- ❖ Developing written and visual material to communicate the status and content of the RTP, including fact sheets and presentations. A public comment form used throughout the outreach program (in person at public meetings and online)
- ❖ SCAG's website, featuring a section dedicated to the 2004 RTP, including public meeting notices and the latest written information on the RTP
- ❖ Outreach to media including newspaper editorial boards, local television and radio stations, and ethnic media
- ❖ Selected radio and television appearances by senior SCAG staff

In addition to these targeted outreach efforts, all regular and special meetings of the RTP task forces, the Transportation and Communications Committee and the SCAG Regional Council are publicly noticed and opportunities for public comment are provided. Specific public comments on the RTP are being recorded and considered by SCAG in the development of the 2004 RTP.

Chapter 2



Transportation Planning
Challenges and Trends

CHAPTER 2 TRANSPORTATION PLANNING CHALLENGES AND TRENDS

This chapter describes factors that pose significant transportation challenges in the SCAG Region.

The Shape and Pattern of Future Growth

■ The Centrifugal Force of Growth in the Region

The population in the SCAG Region is more than 17 million in 2003 and represents 6 percent of the national population. About 1 in 17 persons in the United States lives in the six-county SCAG Region. The nation's second-largest metropolitan area, the Region grew by 1.9 million persons, or 13 percent, during the 1990s. The ring of counties around Los Angeles posted hefty population growth rates during the last decade. Riverside grew 32 percent to 1.6 million, San Bernardino 20.5 percent to 1.7 million, and Orange 18.1 percent to 2.8 million. All outstripped growth rates in Los Angeles County—up 7.4 percent to 9.5 million. Even a modest growth rate in Los Angeles County accounted for slightly over one-third of the Region's population growth over the last decade.

The California Department of Finance estimated that the population in the SCAG Region increased at a compounded annual rate of 2.1 percent between April 2000 and January 2002, slightly higher than the rate for the State as a whole. In 2002, while gaining about 330,000 people, the Region lost 22,000 jobs and had a slight decline in per capita income. The unemployment rate in the Region (6.1 percent) was higher than the national average (5.8 percent) but lower than the State average (6.7 percent).

Over the next 25 years, the regional Baseline (No-Project) projections of growth foresee another 6 million people added to this large and diversifying area. Children of existing residents fuel this population growth and are mostly of Hispanic and Asian ethnicity. Immigrants are attracted here because of jobs and the hope for a better life. Nearly one in three persons living in the Region is foreign born. At the same time, a huge "Baby Boom" population group will retire and set the stage for an unprecedented transfer of wealth, market-buying power, and demand preferences. As racial minorities and immigrants move to the suburbs, and as older majority households retire, more diverse lifestyle needs may emerge, and this may shift historical development patterns.

The Los Angeles Basin, north Orange County and coastal areas of the Region are job-rich and densely populated where a large segment of the middle class households is priced out of the housing market. As a result, many are forced to seek affordable homes in the outlying areas. This trend, if left unabated, would lead to urbanization of outlying deserts and mountain

areas, aggravating transportation congestion, and at the same time, affecting the Region's air quality and ecological balance. Steady development over the years has pushed average density levels in this widespread Region above those found in any other metropolitan area in the nation. This is challenging assumptions about how to accommodate expected future growth, where it will occur and whether it can be reoriented to achieve a higher quality of life.

Demographics

Although Whites make up a two-thirds majority in the nation as a whole, there is no racial or ethnic majority in California or in the Region. In 2000, Hispanics comprised 41 percent of the Region's population, followed by Whites at 39 percent, Asians at 14 percent and Blacks at 7 percent.

Population growth resulted from large net increases in three population groups: aging "Baby Boomers," their young children—the echo-boomers—and immigrants, mostly from Mexico, Central America and Southeast Asia. The national increase through births accounted for most of the population gain in the Region, as births over deaths accounted for two-thirds of population gain.

Housing and Households

At the same time, nearly 400,000 housing units were added between 1990 and 2000. This brought the housing stock in the Region up to 5.7 million units, but it was not enough. Only one unit was built for every five persons added to the Region. Population growth exceeded household growth and the average persons per unit rose from 2.94 in 1990 to 3.07 in 2000. This was in sharp contrast to a decade-to-decade drop in household size experienced by the nation overall.

Nevertheless, housing construction gains were in line with the net job increase in the Region. Southern California added a half million jobs over the last decade. Consequently, 1.3 jobs were added for every housing unit. The job-to-housing unit ratio was also 1.04 jobs for every housing unit in the year 2000. Population growth outpaced household, housing, and job growth.

The decline of median household income and the larger household size of the immigrant population, combined with the undersupply of new housing units, shaped the housing performance outcome of the last decade. When comparing homeownership in the nine largest metropolitan regions in the nation, the Region's homeownership rate of 55 percent in 2000 ranked eighth, above only the New York region. Among the largest metropolitan regions, Southern California had the highest percentage of owner and renter households with housing costs greater than 30 percent of the household income. Contrary to the decreasing trend at the national level, the percentage of housing considered crowded increased in every county in the Region from 1990 to 2000. Almost 20 percent of the households in the Region lived in crowded housing in 2000, compared to only 6 percent for the nation.

Per capita income and average payroll levels per job have declined in Southern California as measured against other major metropolitan areas in the country during the last decade. The

Region lost ground to other major metro areas in terms of both relative economic performance and competitiveness as measured by per capita, median and poverty income levels. For instance, median income dropped over the decade, falling from \$47,760 in 1990 (after adjusting for year 2000 dollars) to \$45,903, or a drop of 4 percent. Poverty levels have increased steadily over the past 30 years in the Region, rising from about 10 percent in 1970 to nearly 16 percent in 2000. During the last decade, median home values in California and the most populous areas of the Region have risen due to construction activity lagging population growth, low inventory and historically low interest rates. Median home values in California now exceed the \$350,000 mark, which is more than double the national median.

Among the nine largest metropolitan areas, the SCAG Region also has the lowest average payroll per job. When comparing per capita income among the 17 largest metropolitan regions in the nation, the Region dropped from the fourth highest in 1970, to 7th in 1990 and 16th in 2002. Median household income declined during the last decade, contrary to the improving trends in the State and the nation.

Based on the 2000 Census, close to one in six persons of all ages and one in five children under 18 in Southern California are in poverty. During the 1990s, poverty rates for both measures increased significantly in the Region while decreasing at the national level. Among the nine largest metropolitan regions in the nation, the SCAG Region had the highest poverty rate among persons of all ages, and among children under 18. Unlike Southern California, many of the largest metropolitan regions reduced poverty rates during the 1990s, particularly for children under 18.

The SCAG Region At-A-Glance

- 38,000 square miles connected by 9,000 lane miles of freeway
- More than 17 million people living in 6 counties and 188 cities – 2002
- More than 5.7 million housing units
- No ethnic majority
- More than 7 million jobs
- Ninth largest economy in the world
- LAX , fifth largest airport in the world
- Los Angeles and Long Beach Ports — largest maritime port system in the U.S.
- Regional Median Home Price— \$328,000 in August 2003
- 2003 Median Family Income of nearly \$50,300/yr (HUD)

Mobility and Air Quality

Since 1990, the Region has consistently ranked as the most congested metropolitan region in the nation. However, there were some positive signs. During the 1990s, the growth rate of vehicle miles traveled (VMT) dropped sharply from the 1980s. Transit use increased by 20 percent, higher than the population growth of 13 percent during the 1990s. However, prior to this gain, transit usage declined by more than 10 percent during the latter part of the 1980s. The overall pattern of mode of transportation to work choice remained essentially unchanged. In 2000, Southern California had the highest carpooling share to work among the nine largest metropolitan regions in the nation.

During the 1990s, the Region achieved consistent improvements in the number of days exceeding federal or State standards for ozone and carbon monoxide. The Region exceeded the federal one-hour standard for ozone during 40 days in 2000 compared to 130 days in 1990. However, in 2002, the number of days exceeding the federal one-hour standard for ozone increased to 49 days from 36 days in 2001. The number of days for health advisory also increased from 15 to 18 days between 2001 and 2002. Available data for 2003 indicated that it would be even worse than in 2002.

■ The Regional Baseline (No Project) Growth Projection for 2030

Baseline (No-Project) growth represents a trend projection that assumes continuation of existing land-use policies, and completion of regional transportation projects that are already committed for funding. This projection excludes consideration of growth proposed in this RTP, and projects that are proposed in the Plan over and beyond the committed projects, including Maglev and other corridor improvement projects. By 2030, the Region will have 22.9 million persons by adding 6.3 million persons and will reach 10.2 million jobs by adding 2.7 million jobs. This level of population growth is expected to yield 2.1 million additional households in the Region at an average of 3 persons per household.

In contrast to the 2001 RTP, baseline growth forecast, employment and household growth are expected to drop while population growth is increased. These adjustments are based on recent trends and the local input and review process.

The components of population growth are net migration (people who move here versus those who move away) and natural increase (births minus deaths). Net migration is comprised of both domestic and international migration. The Region is expected to experience a net loss in domestic migration, but this will be more than offset by international immigration. As the Region grows, it will become older and less diverse. Hispanics will assume the role of the majority ethnic group, with a representation of 51 percent of the Region's population. The aging population and lower birth rates, especially among Hispanic women, will moderate the number of persons per household.

The population in the Region will become older because of aging "baby boomers." The population aged 65 and older will grow four-and-a-half times faster than the working age groups (15–64) between 2000 and 2030. The older age group percentage of the total population will nearly double, rising from 10 percent in 2000 to 17 percent in 2030. The median age will rise from 32.3 years in 2000 to 36.1 in 2030.

The number of persons per household will remain high in 2030 as upward pressures from increasing Asian and Hispanic populations with relatively large households (especially recent immigrants) overwhelm the downward pressures exerted by aging "baby boomers" and lower birth rates.

The demographic changes will affect the size and makeup of the labor force. Due to the retirement of "baby boomers," the Region may experience severe shortages of skilled labor.

If this is not made up by domestic migration, then more foreign immigration will be needed. A large portion of new residents will be recent immigrants or children of recent immigrants. The skills of the new labor force will probably not match the requirements of the new jobs. Long-term strategies should be considered, including appropriate and enhanced educational opportunities and a phased retirement system.

Shifting demographic patterns will also influence travel behavior. Recent immigrants tend to use transit much more than other population groups. Urban density levels may also increase since foreign-born residents urbanize less land. Many SCAG Region foreign-born, Hispanic, and Asian residents have modest incomes, larger household sizes, and tend to double up in existing areas, thereby increasing population density. The socioeconomic characteristics and lifestyle choices associated with immigration are consistent with a more compact urban form.

Jobs will be created across all employment sectors. The largest gains will be in low-wage, low-skill service sector jobs as the shift in the Region from manufacturing jobs to service sector jobs continues. Between 2000 and 2030, service sector jobs will lead in total growth and comprise the largest share of total jobs. The makeup of service sector jobs will also change, with employment opportunities ranging from the fast food sector to investment banking.

Workforce housing affordability and availability issues have affected quality of life in the Region. Not enough housing has been built to accommodate population growth. There is also an imbalance in the location of jobs and houses. The insufficient housing in job-rich urban areas supported existing trends in urban sprawl, longer commute patterns, congested freeways and worsening air quality. Homeownership rates in the Region are lower than in the rest of the country and lower in coastal areas than in the inland valley and desert areas.

During the 1970s and 1980s, many achieved the dream of suburban homeownership. However, there were also some negative consequences of suburban development. In particular, racial and social disparities and environmental problems became more visible. Chief among these were air quality problems and worsening congestion.

Table 2.1 summarizes Baseline (No-Project) growth versus the Plan Forecast for the Draft 2004 RTP for each subregion in terms of population, households, and employment. For a description of the Plan Forecast, please refer to Chapter 4.

Table 2. 1

2030 Population, Households and Employment (in thousands)

<i>Subregion</i>	<i>No Project Forecast</i>			<i>Plan Forecast</i>		
	Pop	HH	Emp	Pop	HH	Emp
Imperial Association of Governments	270	84	110	270	84	111
North LA County	1,205	368	263	1,179	362	286
City of Los Angeles	4,425	1,649	2,213	4,413	1,663	2,265
Arroyo Verdugo Cities	399	149	264	398	151	271
San Gabriel Valley COG	2,434	731	941	2,431	738	951
Westside Cities COG	245	121	290	249	125	295
South Bay Cities COG	1,000	341	525	1,011	349	525
Gateway Cities COG	2,392	674	996	2,415	686	1,009
Las Virgenes-Malibu-Congejo COG	128	46	58	126	46	58
Orange County COG	3,553	1,098	1,922	3,553	1,098	1,922
Western Riverside County COG	2,413	795	805	2,413	860	919
Coachella Valley COG	730	253	248	730	268	270
SANBAG	2,713	842	1,071	2,713	898	1,179
Ventura County COG	984	325	454	990	332	465
SCAG Region	22,891	7,476	10,158	22,891	7,660	10,527

EXHIBIT 2.1 2000 POPULATION

EXHIBIT 2.2: 2030 POPULATION



EXHIBIT 2.3: POPULATION CHANGE 2000 TO 2030



EXHIBIT 2.4: 2000 EMPLOYMENT



EXHIBIT 2.5 2030 EMPLOYMENT



EXHIBIT 2.6 EMPLOYMENT CHANGE 2000 TO 2030

Meeting Our TDM Goals

The 2001 RTP envisioned coupling transit and non-motorized travel with ridesharing (carpooling and vanpooling) and encouraging people to work at home (e-commuting, telecommuting, teleworking, and building home-based businesses) to stem the tide of solo driving and the overall growth in vehicle miles of travel (VMT).

The 2002 *State of the Region* report indicates that the Region's performance is mixed. VMT almost doubled between 1980 and 2000. Total transit boardings increased 7 percent over 1999 (up continuously since 1995), while annual bus miles decreased by one million in Los Angeles County. The average journey to work travel time increased in every SCAG county with a regional average increase from 26 to 29 minutes. Finally, the transportation to work mode of choice in the Region remained essentially unchanged during the 1990s with 72 percent of workers driving to work alone.

Within the Region, Los Angeles County has the lowest rate of workers who drive alone to work, while Orange and Ventura Counties have the highest rates. San Bernardino, Riverside and Imperial Counties showed noticeable improvements in reducing the Single Occupancy Vehicle (SOV) commute. In fact, the three inland counties had a higher rate of workers who carpooled to work than the three coastal counties.

Biking and walking primarily constitute non-motorized transportation. Bikeways and pedestrian paths can play a significant role in meeting the transportation needs of our Region at the local level. Particularly, non-motorized transportation plays a bigger role in the densely populated mixed land-use area and corridors.

Non-motorized transportation, by its very nature, would be more effective at a local level in communities that are densely populated and have a good mix of land-uses, including commercial, residential and institutional. Non-motorized transportation mainly serves as a recreational mode at the regional level. Unless substantial investments in non-motorized transportation are coordinated with other modes and facilities, it would be very difficult to gain a significant increase in mode share of the work trips for non-motorized transportation in 2030.

The Region's bikeways encourage non-motorized commutes, serve as recreational facilities and provide inexpensive, environmentally friendly transportation opportunities. More than 2,000 miles of Class I and II bikeways exist just between Los Angeles and Orange Counties. In addition, the Region is served by an extensive network of mountain bike trails, which are also designated for hiking and horseback riding. A Class I bikeway has a right-of-way completely separated from any street or highway for bicycle travel. A Class II bikeway has a striped lane for one-way bicycle travel on a street or highway.

According to the 1990 Census, biking and walking accounted for approximately 0.7 and 3.0 percent of total work trips, respectively. SCAG's *State of the Commute* report indicates that biking and walking have hovered around 0.5 and 1.5 percent, respectively, in the 1990s.

Bicycling and walking are important elements of an integrated, intermodal transportation system. Constructing sidewalks; installing bicycle parking at transit centers; teaching children to ride and walk safely; installing curb cuts and ramps for wheelchairs; constructing exclusive bike lanes and striping bike lanes; and building trails contribute to national and regional transportation goals of safety, mobility, economic growth and trade and enhancement of communities and the natural environment. The following strategies are recommended to improve bicycle and pedestrian movement.

- ❖ Collect and monitor bicyclist- and pedestrian-related accident data
- ❖ Utilize GIS and mapping tools to prioritize high-accident locations
- ❖ Develop appropriate streetscape and arterial boulevard improvements
- ❖ Promote effective public parking plans
- ❖ Adopt bicyclist-/pedestrian-friendly local zoning, land-use and development permit conditions
- ❖ Fund and build infrastructure improvements to provide improved bicyclist/pedestrian accessibility, mobility and personal safety and security

It appears that progress is being made in the rideshare area. Among the nine largest metropolitan regions in the nation, the SCAG Region had the highest share of workers who carpooled to work in 2000. However, the rate of growth for teleworkers has slowed during the 1990s. Also, more has to be learned about how the current economic downturn affects home-based business viability and the resulting impact of additional commute trips.

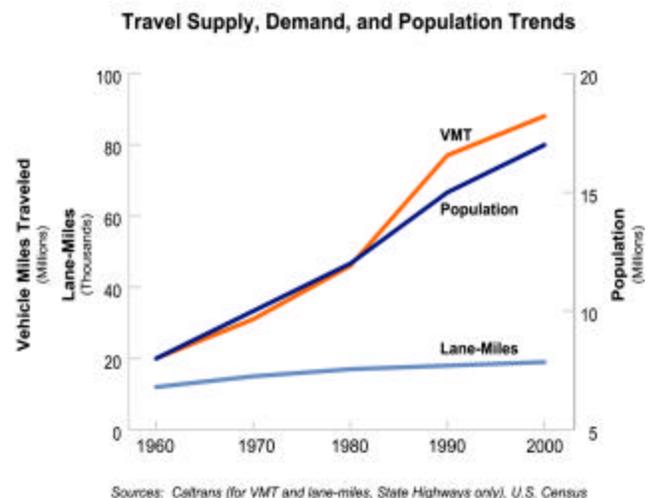
Unprecedented Demand on Our System

The growth described in the following section is likely to place unprecedented demand on our system, which is already overburdened by the current level of demand. This section describes the challenges that our transportation system will face in accommodating that future growth.

■ Highways and Arterials

Both industry and residents are served by a vast transportation network that includes over 9,000 lane miles of freeway, more than 42,000 lane miles of arterials, several large public transit systems, four major airports (including the world's fifth largest), as well as the largest maritime ports system in the United States. Yet the Region's

Figure 2.1

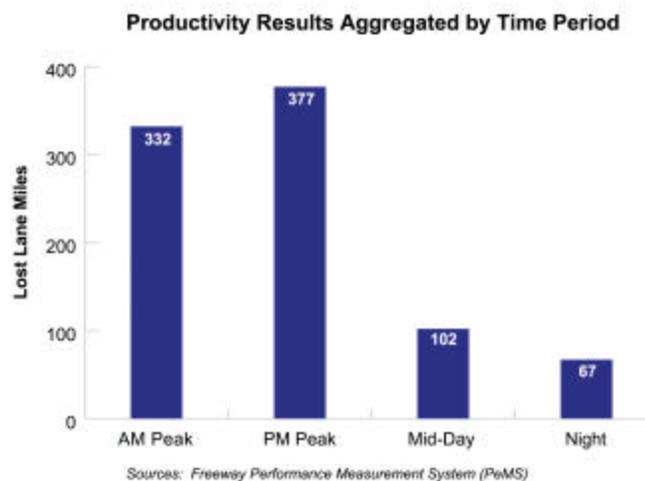


transportation system has not kept pace with population and transportation demand. Figure 2.1 illustrates this point. While population more than doubled from year 1960 to year 2000, our State highway miles increased by less than 30 percent.

Consequently, our Region's congestion has increased dramatically, affecting both person travel and goods movement. The vast majority of trips (99 percent) rely on the highway and arterial network regardless of whether they are made using automobiles, buses, vanpools, trucks or bikes. The regional and local highway system faces mounting congestion that affects personal mobility, freight movement and air quality. The preservation, management and selective expansion of this system are crucial to maintaining the Region's economic vitality and quality of life.

For year 2000, total daily delay from congestion was estimated to be 2.2 million person-hours. If current trends persist, this delay is expected to more than double to 5.4 million person-hours. Reasons for delay and congestion vary and include merging, weaving, accidents, weather, special events, and lane closures, among others. However, these reasons are all intricately linked to overall highway productivity. The roadway system loses its productivity when it is unable to serve the number of vehicles that it is designed to serve. This occurs at major interchanges (or accident locations) that are often referred to as bottlenecks. The resulting productivity loss of the system occurs only during peak demand periods. So in effect, when demand is highest, system capacity actually decreases. Figure 2.2 presents the results of an analysis based on real traffic counts around the Region's freeway system to estimate the lost productivity in the SCAG Region for the morning and afternoon peak demand periods as well as mid-day and night periods. The "Lost Lane Miles" shows the equivalent lost capacity due to the lost productivity the system experiences. The PM Peak productivity loss of almost 380 lane miles represents an investment of almost \$8 billion if the Region were to replace them with expansion projects. Fortunately, there are less expensive strategies to recapture this lost productivity in an efficient manner. These are discussed in Chapter 4.

Figure 2.2



■ Public Transportation

Starting in the early 1980s, the Region, and Los Angeles County in particular, embarked on an aggressive path of transit system development. Many of these projects (e.g., Metro Blue Line, Red Line, and Metrolink) have been completed and now provide meaningful choices to the residents of this Region.

Yet even these critical projects did not reduce demand on our arterial and freeway systems. Figure 2.3 demonstrates this point. It shows the trend of transit usage in the Region from year 1985 to year 2000. Note that transit ridership has been increasing significantly since 1995, in large part due to the completion of the aforementioned transit systems. Yet the total transit ridership in the Region is only slightly above the ridership in 1985. Transit ridership increases since 1995, once normalized with overall population growth, are somewhat less impressive. Figure 2.4 shows transit trips per capita over the same period. Note that the overall increase in transit trips per capita per year is less than the total transit trips in the previous figure. In fact, on a per capita basis, the Region's transit ridership is still lower than 1985 levels.

Figure 2.3

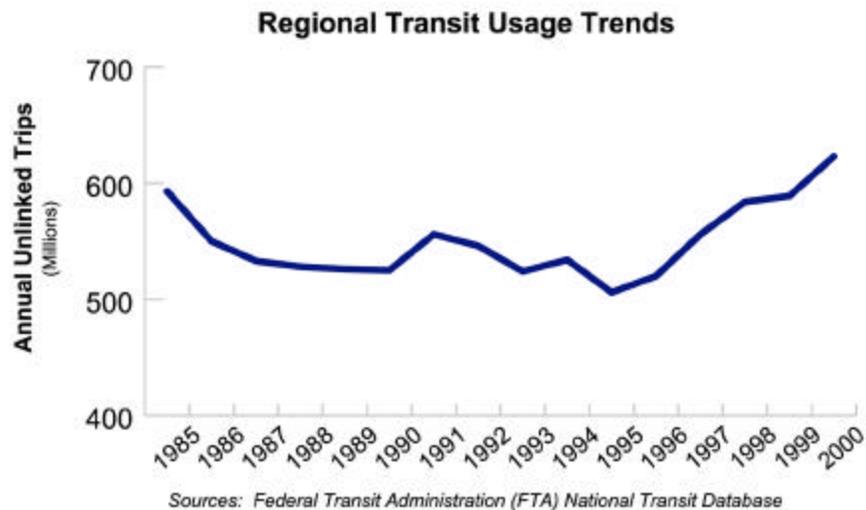
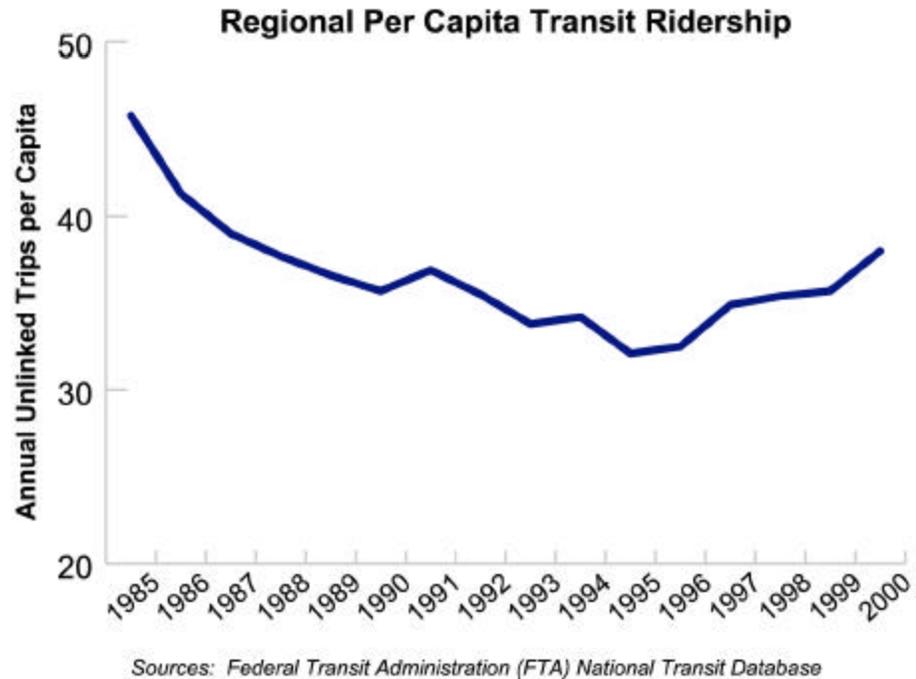


Figure 2.4



Recent strategies are showing promise. This is especially true for Bus Rapid Transit projects in Los Angeles County. During July 2000, because of new Bus Rapid Transit routes, Metro Bus ridership reached its highest point in more than six years, averaging over 1.25 million boarding patrons, compared to 1 million carried a year earlier.

Similar to highways and arterials, the productivity of transit services is not optimal. Table 2.2 shows the average utilization of the different transit services in the Region. As the table shows, transit utilization as measured by available seat miles is generally less than 50 percent (except for light rail in Los Angeles). It is clear that transit around the world never approaches 100 percent utilization. In fact, the table would look different if only peak utilization were presented. However, such data are not available. Table 2.2 demonstrates the potential for improvements through strategies that increase ridership for current and/or restructured transit services.

Table 2.2

Transit Service Utilization in the SCAG Region (Percent utilization of available seat miles)

County	Commuter Rail	Demand Response	Heavy Rail	Light Rail	Bus
Los Angeles	34%	11%	35%	59%	34%
Orange		13%	N/A		27%
Riverside		9%			26%
San Bernardino		12%			33%
Ventura		16%			22%

Sources: Federal Transit Administration (FTA) National Transit Database

Another challenge facing transit service in the SCAG Region is the need to coordinate more than 40 transit agencies. Many residents use more than one service and the coordination among these services is critical. Coordination includes schedule and fare payment methods. Moreover, residents that want to use transit to travel between counties find few choices, with Metrolink commuter rail being the most well-known service. Promising initiatives such as the “GOVENTURA Smartcard” and the Universal Fare Card in Los Angeles allow transit users to use the same payment method regardless of which transit service they use.

The cost of transit is also placing a large burden on the Region’s finances. Subsidizing transit is common across the nation and around the world. There are no significant transit operators that are self-sufficient and do not require some level of subsidy. However, the SCAG Region’s subsidy levels can be reduced, especially given the fiscal environment facing the Region. Table 2.3 summarizes the subsidy levels for transit in the Region, which ranged between 22 percent and 47 percent in year 2000 for the five counties that provide significant transit services. To pay for these subsidies, every person in the Region pays between \$12 and \$77 annually now. Strategies to reduce transit subsidies include increasing ridership, increasing revenues, or a combination of both. The Region, to the extent possible, must be mindful not to reduce overall transit ridership in an effort to improve subsidy levels.

Table 2.3

2000 Transit Subsidy in the SCAG Region

County	Population 2000	Total Person Trips 2000 (Transit & Non-Transit)	Public Subsidy	Total Funding	Farebox Recovery	Annual Public Subsidy per Capita
Los Angeles	9,576,497	31,588,516	\$736,551,358	\$1,099,911,627	33%	\$76.91
Orange	2,864,196	10,499,600	\$66,530,050	\$124,940,750	42%	\$23.23
Riverside	1,525,325	4,896,121	\$30,651,966	\$38,892,369	21%	\$20.10
San Bernardino	1,696,904	5,475,741	\$27,783,603	\$39,845,344	30%	\$16.37
Ventura	758,096	2,721,417	\$9,289,979	\$11,900,218	22%	\$12.25

Sources: Federal Transit Administration (FTA) National Transit Database

■ Goods Movement

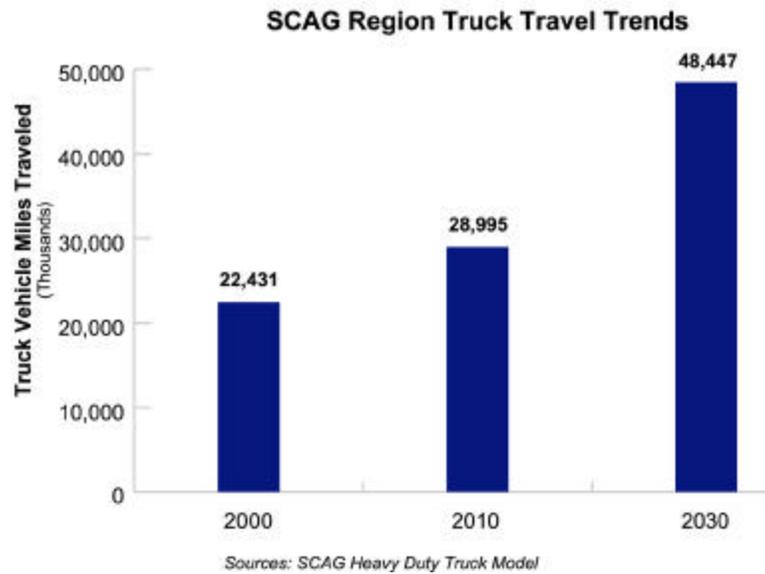
The Southern California Region is facing a crisis in goods movement transportation, characterized by dramatic growth in rail and truck traffic, limited transportation funding, and high infrastructure improvement costs. Forecasts of greater regional population and employment, and projections of increasing international and domestic trade volumes, all lead to worsening congestion and the potential of gridlock on the Region's surface transportation system.

Truck Travel

Almost all of the short-haul and a significant share of medium- and long-haul movement of goods occurs by truck. Most trucks share our roadway network with other vehicular traffic. SCAG's Heavy Duty Truck Model (HDT) estimates that this network carried 795,000 average daily trips in 2002. This equates with 25,500,000 of vehicle miles traveled (VMT). Projected regional truck VMT is shown in Figure 2.5. Examples of freeways with heavy truck volume include the I-710, SR-60 and I-15:

- ❖ At SR-60 east of Azusa Avenue in Los Angeles County, average daily truck volume exceeded 31,000 trips, which is almost 14 percent of total daily traffic.
- ❖ At SR-60 east of Euclid in San Bernardino County, truck volume totaled 36,000 trips, almost 18 percent of total traffic.
- ❖ Through Cajon Pass, I-15 north of SR-138 carries over 14,200 trucks per day (13 percent of total traffic), with the majority being 5-axle trucks (indicative of large-load, long-haul trucking).
- ❖ Along I-15 just south of the I-10 interchange, average daily truck volume totaled over 25,000 trips, which is almost 17 percent of total daily traffic.

Figure 2.5



Freight Railway System

The freight railway system is critical to the SCAG Region. Rail transportation services for goods movement are provided in the SCAG Region along five principal rail alignments. These alignments are owned by the two Class 1 railroads operating in the Region: the Union Pacific Railroad (UP) and the Burlington Northern Santa Fe (BNSF). The majority of freight rail operations moves along the mainlines of each railroad—the San Bernardino Subdivision between Barstow and downtown Los Angeles for BNSF, and the Los Angeles Subdivision and Alhambra Subdivision for UP. The BNSF San Bernardino Subdivision includes 46.4 miles of double track; 16.6 miles have triple tracks; and 1.5 miles are covered by four main tracks. The UP Los Angeles subdivision includes 12.4 miles of single track with sidings (additional track that allows a train to move to one side so other trains may pass), 42.3 miles of double track (3.1 miles shared with BNSF), and 4.2 miles of triple track (on a portion of route shared with BNSF). The UP Alhambra line has 38.6 miles of single track with siding, and 21.9 miles of double track (*Los Angeles-Inland Empire Railroad Mainline Advanced Planning Study*, October 2002).

To facilitate freight railway services, improve safety, and reduce travel time for person movement, the Region invested in an ambitious large-scale grade separation project over the past decade. The Alameda Corridor, which opened in April 2002, provides grade separation along an existing at-grade railway that connects the Ports of Long Beach and Los Angeles to rail yards in downtown Los Angeles. The corridor provides grade separations at 200 street-rail intersections, reducing vehicle-train delay an estimated 90 percent. Other benefits include a 90 percent reduction in noise and vibration, a 28 percent reduction in railroad emissions, and a 54 percent reduction in emissions from automobiles and trucks idling at railroad crossings. Cargo transport has been expedited as train speed has doubled and travel time to downtown Los Angeles reduced.

Table 2.4 shows that the east-west freight and passenger rail demand between Los Angeles and the Inland Empire is projected to more than double. This calls for additional railway improvements to accommodate this future demand.

Table 2.4

East-West Rail Demand Forecast (Average Daily Trains)

County	2000	2010	2030
Freight	112	165	283
BNSF	57	80	136
UP	55	85	147
Passenger	58	100	158
BNSF	46	75	113
UP	12	25	45
Total – All Trains	170	265	441

Sources: SCAG, LA – Inland Empire Railroad Mainline Advanced Planning Study, 2002

Maritime Ports and Waterways

International trade through the Los Angeles Customs District is expected to nearly triple on an annual basis from \$230 billion to \$661 billion between the years 2000 and 2020. The deepwater ports of Los Angeles and Long Beach constitute a significant portion of the trade activities in this district, and, together with the third regional port of Hueneme, handle 80 percent of California's and 35 percent of the nation's waterborne international trade. These ports are planning to invest \$6 billion over the next 25 years on an ambitious infrastructure development program that will include widening arterial streets, upgrading freeway ramps, separating railroad grades from roadways, expanding rail yards, and adding intelligent transportation systems (ITS) to improve ground access management.

The competitive position of the Region's ports is very strong. As of 2002, these ports accounted for about 62 percent of total West Coast container traffic, rising from 51 percent nine years earlier. The San Pedro Bay (SPB) Ports possess between one-third and one-half of the West Coast container terminal capacity. These ports are served by almost half of the rail intermodal terminal capacity devoted to handling international container traffic to and from West Coast ports.

Approximately 44 percent of the total 1996 Asia-to-U.S. container cargo routed through West Coast ports terminated in California or Nevada, yet only about 17 percent was expected to do so based on these states' share of total continental U.S. population (and based on the assumed East Coast share of Asian trade). That is, traffic to/from California and Nevada was two-and-one-half times the amount expected based on population. A smaller value assumed

for the East Coast ports' share would drive the value of this multiplier even higher. It is simply not plausible that all of this cargo was consumed or produced in these two states.

One explanation for this seeming anomaly is that much of the import traffic “terminating” in California actually underwent “value-added” transformation ranging from insertion of hangers in garments to use as assembly components in larger manufactured goods. These transformed goods, along with cargo that is loaded into trucks or domestic containers for re-shipment to other regions after processing in a distribution center, are subsequently shipped elsewhere in the U.S. as domestic freight and contribute to this traffic shift. Such re-shipments put pressure on the Region’s transportation system. The Region is, therefore, subsidizing other states by enduring incremental congestion and pavement deterioration from truck movements that are “passing through” at ever-increasing rates.

Airports

Airports play an important role in goods movement, as air cargo is transported either in passenger aircraft belly-holds or in dedicated freight aircraft used primarily for high-value, time sensitive shipments. In 2002, 2.6 million tons of air cargo were handled by the Region’s airports.

Air Cargo Terminals

Regional air cargo has grown at an average annual rate of 6.6 percent since 1965. Los Angeles International (LAX) and Ontario International (ONT) are the major cargo-handling airports, transporting about 96 percent of all regional air cargo, with LAX alone accounting for 75 percent of the traffic. ONT air cargo traffic has increased by seven times since 1979, while LAX has doubled in the same period. Bob Hope, John Wayne, Long Beach and Palm Springs handle substantially less cargo. The air cargo trend since 1975 is shown in Table 2.5.

Table 2.5
Historical Air Cargo Tonnage
(x 000)

	1975	1980	1985	1990	1995	2000	2002
Bob Hope	0	0	7	20	36	37	43
John Wayne	0	0	0	0	16	18	15
Long Beach	0	1	4	19	27	52	59
Los Angeles	715	882	929	1,284	1,761	2,249	1,959
Ontario	3	5	176	246	387	511	547
Palm Springs	0	0	0	0.4	0.2	0.1	0.1
Total	718	888	1,116	1,570	2,227	2,867	2,623

Sources: Compiled by SCAG from individual airports

LAX is the primary cargo airport. Cargo facilities operated by airlines and cargo shippers occupy two million square feet of building space on about 200 acres of land. The total land area of LAX (including parking) is 3,500 acres. A significant number of off-airport freight-forwarding facilities are also located in proximity to the airport. The majority of air cargo passes through LAX primarily because shippers are able to rely on commercial passenger air carriers for spot or contracted cargo transport. Approximately 38 percent of LAX air cargo is carried in the bellies of passenger aircraft, part of a gradual decline as more cargo is moved to dedicated air freighters, which now account for 62 percent of LAX air freight.

More than 70 percent of all air cargo in the Region is now shipped on dedicated freighter aircraft, as compared to 59 percent in 1994. The continuing shift of cargo from the belly-holds of passenger planes to dedicated all-cargo freighters has enhanced the ability of these airports to serve cargo.

However, because of the large number of cities served by passenger airlines out of LAX, cargo shippers are able to offer worldwide service without having to operate dedicated freighters.

ONT handled 21 percent of regional air cargo in 2002. Owned by the City of Los Angeles and operated by Los Angeles World Airports (LAWA), ONT occupies 1,463 acres and is well situated within the regional ground transportation system. United Parcel Service (UPS) operates an express package service hub out of ONT. Ninety-eight percent of air cargo is handled through dedicated air freighters.

The air cargo industry was significantly impacted by the September 2001 terrorist attacks. The Transportation Security Administration (TSA) mandated that U.S. mail over 16 ounces could no longer be carried in the belly compartments of passenger aircraft. This restriction, as well as a recent tightening of the “known shipper” requirement, has limited the amount of air cargo carried on passenger aircraft.

Another key issue is surface congestion. With the majority of regional air cargo served by only two airports, the ability of the already crowded surface transportation infrastructure to accommodate the air cargo demand is limited. To complicate matters, the San Diego Region sends two-thirds of its air cargo to SCAG regional airports for shipping. Orange County, which generates 30 percent of regional air cargo, serves less than three percent of this amount.

The impact on ground transportation of freight movement to and from the airports is significant. The focus of new commercial airports such as March, Southern California Logistics and San Bernardino International on initially serving freight helps to relieve the pressure on LAX and ONT and serves the goal of decentralizing regional air services.

■ Aviation

The SCAG Region has 57 public use airports, including six commercial service airports, 45 general aviation, two recently closed military air bases (one certified as a commercial service airport, the other focusing on cargo), two commuter airports and two joint-use facilities.

In all, some 78 million annual passengers (MAP) were served in the Region in 2002, almost double the number served in 1980, as shown in Figure 2.6. The level of air passenger demand is forecast to double again before 2030.

The Region's aviation operational activity, including general aviation and military, makes Southern California the busiest of all regions in the country. There are eight airport governing bodies responsible for planning their individual airports in the proposed ten-airport system. These airports are:

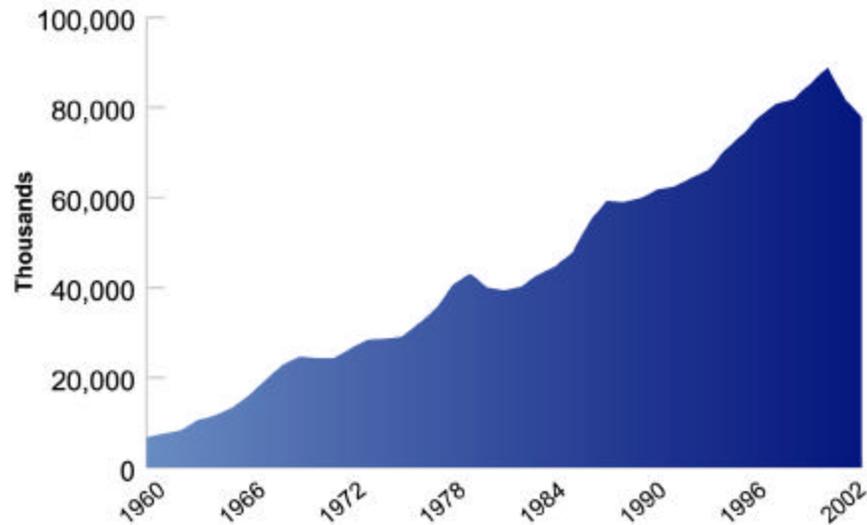
- Bob Hope (BUR)
- John Wayne (SNA)
- Los Angeles International (LAX)*
- Long Beach (LGB)
- March Inland Port (MAR)
- Ontario International (ONT)*
- Palm Springs (PSP)
- Palmdale Regional (PMD)*
- San Bernardino International (SBD)
- Southern California Logistics (SCL)

* Operated by Los Angeles World Airports

Currently, six commercial service airports handle the majority of passenger air traffic: Bob Hope, John Wayne/Orange County, Long Beach, Los Angeles International, Ontario International and Palm Springs. Limited commercial service exists at Oxnard and Imperial County airports. Passengers are currently concentrated at the urban airports with LAX serving almost 72 percent of the regional total. This air service concentration at LAX creates severe airport ground access problems. With worsening highway congestion in the future, LAX will become increasingly difficult to access for international passengers and air cargo.

Both the recent recession and the impacts of September 11, 2001, are still being felt in the aviation industry. The terrorist acts fundamentally changed the way airports think about security and safety, while the recession changed the way business travelers purchased air travel. After this time, the number of regional air travelers dropped dramatically. Starting in 2002, airports in the Region started to show signs of recovery. Smaller regional airports like Bob Hope, Ontario and John Wayne are almost at, or have exceeded, pre-September 11 passenger numbers. LAX has not completely recovered. International travel suffered the most from September 11 and, more recently, from the outbreak of the SARS disease in Asia. These events have slowed passenger activity at LAX.

Figure 2 6

Historical Air Passenger Volume 1960-2002

Sources: Compiled by SCAG from individual airports

The urban airports will reach their physical or legal capacity within the forecast period. The airports are all encroached by neighboring land-uses and have little room to expand without generating significant environmental impacts and community opposition. While the urban airports are all constrained, the suburban airports all have capacity, which is available to serve projected regional growth in demand.

The economic costs of doing nothing are substantial. For every one million regional air passengers, it is estimated that there is a positive regional economic impact of \$620 million (in 1998 dollars) and 4,475 jobs. SCAG estimates that under a fully constrained aviation system, only 141 million passengers would be served in 2030.

Transportation Finance Challenges

■ Baseline Revenue versus Committed Expenses

Baseline Revenues

The development of the financial plan for the 2004 RTP has been under the direction of the SCAG Highway and Transportation Finance Task Force, composed of local elected officials and local agency staff. After reviewing the economic and growth assumptions governing the various transportation revenue sources, the Task Force approved several existing revenue sources, comprising local, State and federal funds for roadways and transit, as the baseline forecast for the 2004 RTP. The baseline forecast extends existing transportation funding sources to the year 2030 and does not include assumptions about future increases in tax rates nor does it include extensions of tax measures beyond their expiration date unless approved through recent ballot initiatives.

As Table 2.6 summarizes, an evaluation of these existing sources for the six-county SCAG Region yielded a baseline revenue estimate of \$120 billion over the 29-year (2002 through 2030) time horizon of the 2004 RTP. The forecast is presented by revenue source for the full RTP period in constant 2002 dollars.

This baseline estimate reflects SCAG's "low" revenue scenario in light of the current economic environment coupled with the continuing decline in transportation funds. The financial forecast was devised in the format of a revenue range (low, medium, and high) to serve as a basis for further modifications. The Transportation and Communications Committee, as well as the Highway and Transportation Finance Task Force, approved the "low" revenue scenario to use for analytical and planning purposes in the 2004 RTP.

INSERT EXHIBIT 2.7 REGIONAL AVIATION SYSTEM

Table 2.6

Baseline Revenue Sources

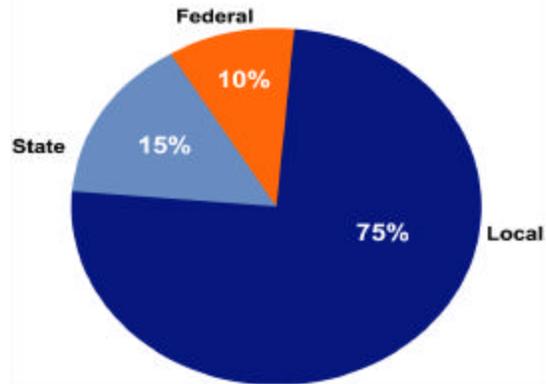
(Constant 2002 dollars)

Revenue Sources	Revenue Forecast FY2002–FY2030 (in Billions)
Local Sources	
Transportation Development Act (TDA)	\$17.38
Local Sales Tax	42.31
Farebox	14.16
Gas Tax Subventions	3.07
Local Agency Funds	8.74
Miscellaneous Funds	3.00
Miscellaneous Carryover	1.97
Subtotal	\$90.63
State Sources	
STIP, Regional	\$5.04
STIP, Interregional	1.49
(TCRP)/Proposition 42	5.86
State Transit Assistance (STA)	0.76
TP&D (TCI)/Prop 116	0.11
SHOPP/O&M	4.21
Miscellaneous Carryover	0.09
Subtotal	\$17.56
Federal Sources	
RSTP	\$2.15
CMAQ	2.11
Other/Demonstration	2.16
Sec. 5309	1.47
Sec. 5307	3.86
Miscellaneous Carryover	0.42
Subtotal	\$12.16
Total	\$120.35

Note: For explanations of terms, please see Glossary
Numbers may not add up due to rounding

Figure 2.7

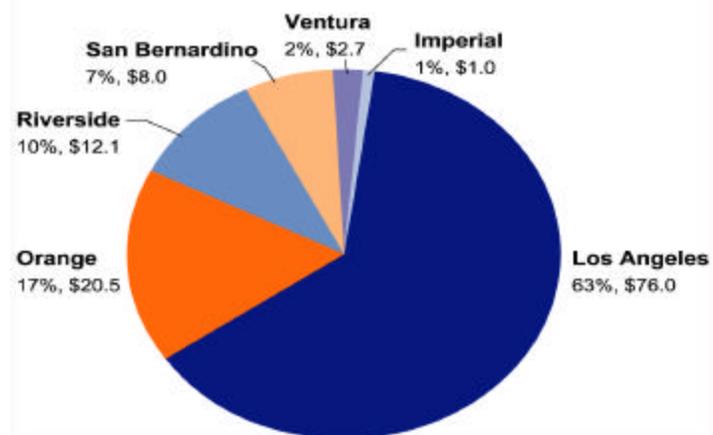
**SCAG Regional Baseline Revenues
\$120 Billion, FY2002-FY2030**
(In Billions, Constant 2002 dollars)



Local sources comprise 75 percent of the overall baseline revenue forecast, with State sources totaling 15 percent and federal sources making up 10 percent (Figure 2.7). While the forecast falls well short of funding all needed transportation projects in the Region, it provides a benchmark from which additional funding needs can be identified for the improvements recommended in the RTP. On a county-by-county basis, Los Angeles County's share of the overall revenues is about 63 percent, or \$76.0 billion, followed by Orange County at 17 percent, or \$20.5 billion (Figure 2.8). Riverside County's share is 10 percent, or \$12.1 billion. San Bernardino County's share is 7 percent at \$8.0 billion, Ventura County is 2 percent, or \$2.7 billion, and Imperial County is 1 percent of the regional revenues at \$1.0 billion.

Figure 2.8

**SCAG Regional Revenues, County Shares
\$120 Billion, FY2002-FY2030**
(In Billions, Constant 2002 dollars)



Committed Expenses

The major categories of committed expenses include short-term capital projects currently programmed in the 2002 RTIP; operation and maintenance estimates for highways, the arterial system, and transit; as well as current debt service payments and debt issues anticipated by the local CTCs during the 2004 RTP time frame.

Table 2.7

Committed Regional Expenses by County

(FY 2002–FY 2030)

(in constant 2002 dollars, billions)

	<i>Imperial</i>	<i>Los Angeles</i>	<i>Orange</i>	<i>Riverside</i>	<i>San Bernardino</i>	<i>Ventura</i>	<i>Total</i>
TIP (Baseline & Tier 2)	\$0.40	\$13.65	\$3.68	\$1.57	\$3.62	\$0.64	\$23.56
Highway O&M	\$0.21	\$3.39	\$0.78	\$0.58	\$1.85	\$0.31	\$7.12
Arterial O&M	\$0.08	\$4.87	\$2.30	\$1.32	\$2.07	\$0.57	\$11.22
Transit O&M	\$0.10	\$37.31	\$4.69	\$2.08	\$2.77	\$0.77	\$47.72
Transit Rehab/Replacement	\$0.00	\$8.24	\$1.00	\$0.24	\$0.30	\$0.19	\$9.96
Debt Service	\$0.00	\$11.93	\$3.35	\$0.24	\$0.32	\$0.00	\$15.84
Total	\$0.80	\$79.39	\$15.80	\$6.03	\$10.92	\$2.48	\$115.42

Note: Numbers may not add up due to rounding.

Tables 2.7 and 2.8 summarize the Region's committed expenses during the time frame covered by the 2004 RTP. All committed expenses and revenue forecasts from 2002 through 2030 are adjusted to constant 2002 dollars using a percent factor.

Table 2.8

Committed Regional Expenses

(FY 2002–FY 2030)

(in constant 2002 dollars, billions)

<i>Committed Cost Category</i>	<i>Costs</i>	<i>Percentage</i>
TIP (Baseline & Tier 2)	\$23.56	20%
O&M / Rehab & Replace	\$76.02	66%
Debt Service	\$15.84	14%
Total	\$115.42	100%

Note: Numbers may not add up due to rounding.

As the SCAG Region's transportation system ages, the ongoing costs to maintain the existing infrastructure require an increasing share of future transportation resources. As noted in Table 2.8, about 66 percent, or \$76 billion, of total expenditures are committed to operating, maintaining and rehabilitating the Region's highway, transit, and arterial network. This estimate, however, is based upon historical and current levels of expenditures rather than

needs. Operations and maintenance (O&M) costs are estimated to be substantially greater when considering the full needs of the Region's transportation system. This issue is addressed in Chapter 4.

Funding Shortfall

Table 2.9 illustrates the scope of the potential financial situation utilizing the "low" revenue scenario. SCAG's policy committees and task forces approved the "low" baseline revenue scenario to be utilized for analytical and planning purposes, recognizing the need to acknowledge more conservative revenue estimates than what may be currently reflected in the financial plans of the county transportation commissions. In light of recent declines in transportation funding and the uncertainty of future funding, SCAG's use of the "low" revenue scenario for long-range planning is fiscally responsible and indicative of regional concerns. Some of these concerns are discussed further as ongoing fiscal challenges, highlighting some major assumptions incorporated into the "low" baseline revenue scenario. Further, it should be noted that the "net balance" available in some counties does not represent a "surplus." Rather, this "net balance" is what is available to cover recommended RTP projects.

Table 2.9

2004 RTP (Baseline & Tier 2) Regional Balance by County (in constant 2002 dollars, billions)

County	Baseline Revenues	Committed Expenses	Net Balance Available for Additional RTP Projects ²
Imperial	\$1.05	\$0.80	\$0.26
Los Angeles ³	\$76.01	\$79.39	\$(3.38)
Orange	\$20.50	\$15.80	\$4.69
Riverside	\$12.09	\$6.03	\$6.06
San Bernardino	\$8.00	\$10.92	\$(2.92)
Ventura	\$2.70	\$2.48	\$0.22
Regional Total	\$120.35	\$115.42	\$4.93

Note:

- ¹ Includes Riverside County local sales tax extension revenues, Transportation Uniform Mitigation Fee (TUMF) revenues, Proposition 42 revenues, and gas tax subvention revenues.
- ² The "net balance" available in some counties does not represent a "surplus". Rather, the "net balance" is what is available to cover recommended RTP projects.
- ³ The 2004 RTP incorporates the "low" revenue scenario, which includes more conservative assumptions about the availability of revenues than what is reflected in MTA's financial plan

The SCAG Region will require additional revenues to properly operate and maintain the existing transportation system and to fund proposed long-term RTP investments. SCAG anticipates that additional funds would be derived from maintaining the Region's traditional transportation revenue sources, which might otherwise be lost or diminished in the years to come (e.g., gas tax revenues and local sales tax revenues). Additionally, SCAG anticipates that innovative financing strategies, such as public-private partnerships, will be needed to

implement the improvements recommended in the 2004 RTP. Further discussion of SCAG's public and private funding strategies can be found in Chapter 4.

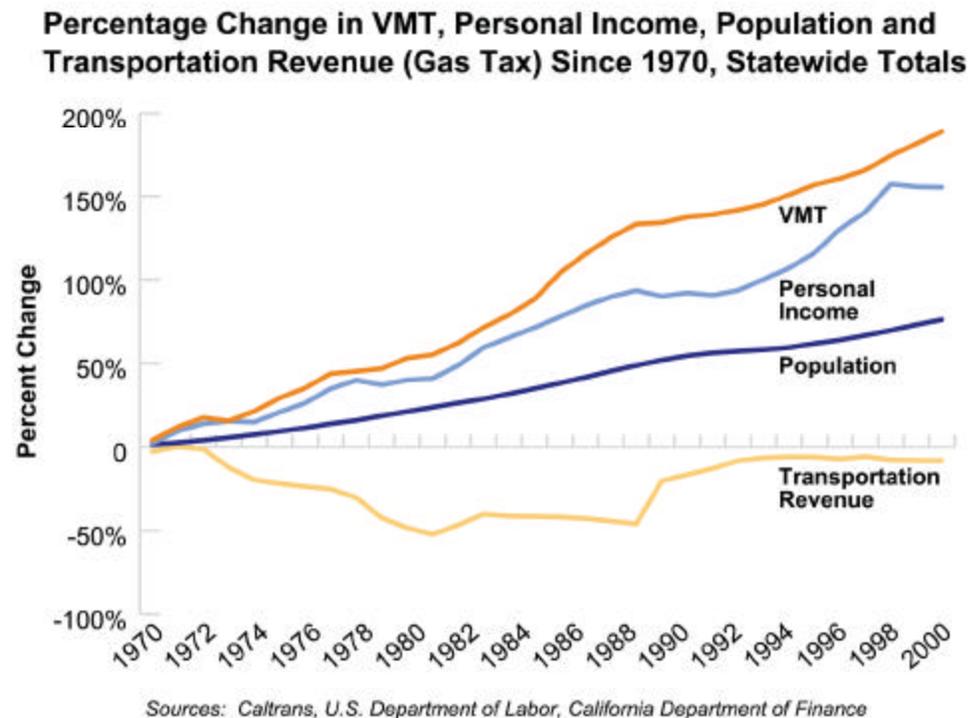
Ongoing Fiscal Challenges Reflected in the Baseline Revenue Forecast

The development of the 2004 RTP continues to involve the identification and analyses of potential fiscal challenges impacting the flow of transportation revenues to the SCAG Region, particularly given current economic uncertainties. The following briefly describes both existing issues as well as near- and long-term activities assumed to impact transportation revenues substantially for the "low" revenue scenario.

Decline of Gas Tax Revenues Due to Inflation

For the past 30 years, transportation revenue in California has generally not kept pace with the State's evolving demographic characteristics. Indicators such as vehicle miles traveled, population, and personal income growth have all outpaced the rate of transportation revenue growth. Figure 2.9, below, shows how gas tax revenues have fluctuated in real-dollar terms (adjusted for inflation) in relation to the steady growth in the demographic indicators. The passage of local "self-help" transportation sales taxes in the late 1980s and early 1990s have greatly improved funding for transportation. Nevertheless, gas tax revenues continue to decline in value due to inflation.

Figure 2.9



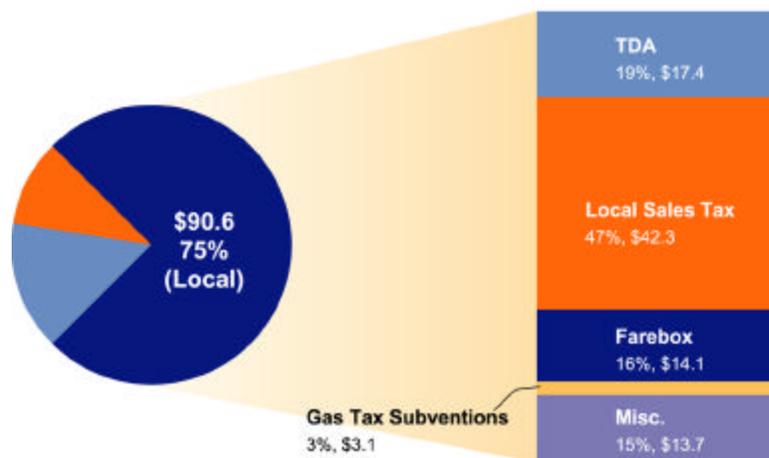
Sunset of Existing Local Transportation Sales Taxes

Local sales taxes have provided nearly half of the local share of transportation funding in the Region. While Los Angeles County has two permanent sales taxes for transportation and Riverside County more recently managed to gain voter approval for a 30-year extension, the measures in Imperial, Orange, and San Bernardino Counties expire in the next seven to nine years. If the voters do not renew these sales taxes, the expiration of these taxes will have a profoundly negative impact on the ability of these counties to fund ongoing maintenance and operations, let alone transportation improvements.

Despite the success of Riverside County, similar measures in other California counties have failed to receive the two-thirds voter approval required for extension. Subject to Proposition 218 and in accordance with a California State Supreme Court decision, a two-thirds approval by county voters is required to reauthorize, increase, and/or impose new local sales taxes for transportation. These (half-cent) sales taxes are in addition to the sales and use tax levied statewide, and are generally imposed upon the same transactions and items subject to the statewide sales and use tax.

Figure 2.10

SCAG Regional Revenues, Local Sources Billions, 2002-2030, In Constant \$2002



Loss of Revenues from Reduced Gasoline Consumption to Meet Air Quality Mandates

During the period of the 2004 RTP, technological advancements, along with State and federal air quality mandates placed on the SCAG Region, may result in a motor vehicle fleet that consumes considerably less gasoline or relies on alternative energy sources. This would erode the revenues generated by gasoline sales and diminish the gas tax as a reliable source of revenue for transportation. Other factors, such as scarcity or dependency on foreign sources, may also affect the availability of petroleum-based fuel. In recognition of difficulties in developing cost-competitive alternative fuel vehicles, a sizeable alternative fuel vehicle market will not likely appear in the immediate future. Nevertheless, the long-term implications require further research and analysis.

An Aging Society That Could Consume Fewer Taxable Items

Modest changes in the rate of economic growth can have substantial implications for transportation revenues under the existing tax structure. Additionally, growth projections are critical in identifying funding possibilities and making infrastructure investment decisions. SCAG continues to research and monitor the regional planning implications of long-term economic and demographic trends.

SCAG's recent research effort has highlighted the potential impacts from the aging "baby boom" generation. Explosive growth in the elderly population is projected to occur between 2010 and 2030. This could have significant impacts on labor force growth and the overall economy. Historical and current trends indicate that as consumers age, both their level of spending and the way they allocate their spending changes. Seniors generally spend less, especially on taxable items. Because of loss of sales tax revenues from the aging population, there is a potential for further declines in transportation revenues. Significant shifts in demographics will also influence future demand for transportation infrastructure and appropriate levels of investment.

Escalation of Operations and Maintenance Needs

The demand for travel is expected to grow at least as fast as the population. Operations and maintenance expenditures must keep pace with these needs. At the same time, costs associated with operating and maintaining the existing transportation system continue to rise due to an aging system. If ongoing operations and maintenance needs are not met in a timely manner, the costs of these activities will continue to increase as the system deteriorates further. Balancing revenues and costs is further complicated by the need to repair highway and transit systems concurrent with the need for additional and significant new capital investments.

As noted above, the consequences of deferred maintenance have led to significantly higher life-cycle costs. Inevitably, continued deferral of required maintenance and rehabilitation leads to an eroding infrastructure. Should the Region's transportation system be allowed to deteriorate further, an intolerable decline in mobility and safety would result—meaning more congestion, delays, and accidents.

State Budget Crisis and the State Highway Account Shortfall

California's budget crisis may continue to have significant impacts on transportation funding for the SCAG Region. Many transportation projects will be affected, including Transportation Congestion Relief Program (TCRP) project commitments, the STIP, State Transit Assistance (STA) for transit operators, and associated formula funding allocations for local streets and roads. Additionally, the State Highway Account (SHA) cash balance is projected to fall below planned levels primarily from lower-than-expected truck weight fee revenues and gas tax receipts.

Released in November of 2003, the 2004 STIP Fund Estimate, covering the five-year period from FY2005 through FY2009, indicates that there will be no new programming capacity through FY2009 above those projects already programmed in the 2002 STIP. A number of

factors, including the delay in the reauthorization of the federal transportation bill and the projected impact of ethanol on federal revenues to the State, contribute to the uncertain funding situation.

At around the same time in November, the governor proposed mid-year reductions to transportation programs statewide, exacerbating the funding situation. More recently, the governor released his FY2005 Budget proposal. In addition to the mid-year reductions, the proposal includes further adjustments, namely by retaining Proposition 42 funds in the General Fund. The mid-year and budget year proposals would reduce transportation funding by about \$2 billion statewide through FY2005 in order to aid the General Fund.

SCAG has been working with the Region's partner transportation agencies to analyze the full potential impact of the State budget shortfall on transportation funding. SCAG continues to work diligently to monitor and assess the current budget situation and intends to incorporate any adjustments to the 2004 RTP as may be necessary when the budget is finalized.

Transportation Equity Act for the 21st Century (TEA-21) Reauthorization

Established by Congress in 1991 with the Intermodal Surface Transportation Efficiency Act (ISTEA) and renewed in 1998 through the Transportation Equity Act for the 21st Century (TEA-21), the reauthorization of TEA-21 will be the third iteration of recent federal surface transportation authorizing legislation. TEA-3 will have a significant, yet unknown, impact on the availability of transportation funding in the SCAG Region.

On May 14, 2003, President Bush released his reauthorization proposal known as the Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003, or SAFETEA at a funding level of \$247 billion over six years – later modified to \$256 billion over six years by the President's FY2005 budget. Although the House Transportation and Infrastructure Committee initially called for a \$375 billion measure based on the U.S. Department of Transportation's Conditions and Performance Report, more recently, House leaders have been considering lower funding levels to find a compromise between the Senate-passed level and the president's proposal. On February 12, 2004, the Senate voted (76-21) to approve S1072, which would fund \$318 billion for highways, transit and safety programs over six years.

The earlier, five-month extension of TEA-21, which Congress enacted last year, expired February 29, 2004. The second extension is set to expire April 30, 2004. As the reauthorization debates continue and TEA-3 becomes finalized, appropriate modifications would need to be made to the 2004 RTP financial plan.

Meeting Our Air Quality Commitments

The SCAG Region has experienced cleaner and healthier air quality over the past two decades, from collaborative efforts over the years to reduce emissions from stationary and mobile sources. However, even with these efforts, much of the Region continues to exceed the National Ambient Air Quality Standards (NAAQS) and large portions of Southern California still have the worst air quality in the nation.

Most of the SCAG Region is classified as non-attainment for some criteria pollutants. The South Coast Air Basin (SCAB), being the worst, is classified as an “extreme” non-attainment area for ozone, and is required to meet the federal 1-hour ozone standard by 2010. The SCAB is also classified as a “serious” non-attainment area for particulates (PM₁₀), and is required to meet the PM₁₀ standards by 2006. In addition, the new federal standards for 8-hour ozone and fine particulate matter (PM_{2.5}), currently in the process of being implemented, will require significant emission reductions beyond those required to attain the existing standards.

Previous air quality plans underestimated the air emissions inventory and targets. The magnitude of the required emissions reductions reported in the 2003 South Coast Air Quality Management Plan (SCAQMP) is far greater than that reported in previous air quality plans. This mainly results from improvements in air quality modeling and a better understanding of motor vehicle emissions. The emissions target, also known as the “carrying capacity,” has tightened and the mobile source emissions inventory has increased. This all equates to a need for greater emissions reductions. However, it is important to note that the increase in required emissions reductions does not mean that measured air pollution in the Region has increased.

There are only a few years remaining to identify and achieve the emissions reductions required for attainment. Failure to implement an adequate State Implementation Plan (SIP) could result in federal sanctions, such as a ban on approval of new highway projects and a loss of highway funding, as well as more stringent emissions offsets for stationary sources.

At this time, the responsible agencies have not been able to identify the needed emissions reductions to meet attainment of the federal standards. This emissions reduction shortfall presents quite a challenge to the Region, as most of the substantial and feasible emissions reductions have already been implemented. To put it bluntly, the Region is starving for emissions reduction strategies, and there is an urgent need for new and innovative solutions.

Under Section 182(e)(5) of the federal Clean Air Act, extreme ozone non-attainment areas are allowed to allocate emissions reductions to long-term, unidentified measures such as anticipated future technologies, commonly referred to as “black box” measures. However, reliance on the “black box” measures will cease in the near future, as measures need to be identified by 2007 and emissions reductions achieved by 2010.

Many challenges lie ahead as the Region continues to grow. This is most evident from the severity of the 2003 ozone season. On July 11, 2003, the SCAB experienced its first Stage 1 ozone alert since 1998. This type of alert warns even healthy residents to curtail outdoor activities. The severity of the 2003 ozone season has been attributed to meteorological conditions, regional socioeconomic growth and the recent upsurge in the operation of sport utility vehicles (SUVs).

Given the challenges that lie ahead, increased public awareness and a reinvigorated collaborative effort from all agencies and stakeholders is critical to bring this Region into attainment with the federal air quality standards. SCAG's contribution to this collaborative effort is essential, as emissions reductions from goods movement, marine ports, aviation and land-use will become increasingly important in the next few years.

Chapter 3



Our Vision

CHAPTER 3

OUR VISION

Regional Goals

Building on the substantial efforts that went into the development of the 1998 and 2001 RTPs, the revised goals reflect the Region's focus on a balanced approach to transportation planning and decision-making:

Adopted 2004 RTP Goals

- 1 Maximize **mobility** and **accessibility** for all people and goods in the Region
- 2 Ensure travel **safety** and **reliability** for all people and goods in the Region
- 3 **Preserve** and ensure a **sustainable** regional transportation system
- 4 Maximize the **productivity** of our transportation system
- 5 Protect the **environment**, improve air quality and promote energy efficiency
- 6 Encourage **Land-use and growth patterns** that complement our transportation investments

The goals are in no particular order and demonstrate the need to balance many priorities in the most cost-effective manner. These priorities are identified in the following:

- ❖ The Region's vast investments in multi-modal transportation infrastructure must be protected. This infrastructure is maturing and requires attention and maintenance. The Region cannot afford to replace the existing infrastructure and must protect it for future generations.
- ❖ A maturing system dictates an increased operational focus that leverages technology to maximize the system's productivity. This same investment will also minimize the variations of travel time, and increase reliability, due to incidents, weather, and other factors. The Region cannot expand the transportation system significantly, so the existing system must be utilized to its fullest, maximizing its reliability. The vitality of the Region's economy is inextricably linked to efficient and reliable transportation.
- ❖ Air quality for the Region's residents must be improved and meet federal regulations. Not doing so would undermine the health of our population and risk losing billions of federal funding to the Region.
- ❖ The investments in the RTP must address travel safety and modal balance; recognize the importance of providing safe travel choices; meet the needs of transit dependents and the

goods movement community; and provide connections among the highway system, ports, and airports.

- ❖ For the first time, the RTP also integrates land-use policies as a means to influence transportation performance and the economy. Without such integration, transportation needs in the future will significantly outpace the ability to pay for them.
- ❖ The RTP must address all these priorities and more in the most cost-effective manner so that mobility and accessibility is maximized for people and goods.

Guiding Policies

The following policies were adopted by the SCAG Regional Council to guide the development of the 2004 RTP further and reflect the transportation priorities for the Region:

Adopted 2004 RTP Policies

- 1 *Transportation investments shall be based on SCAG's adopted Regional Performance Indicators.*
- 2 *Ensuring safety, adequate maintenance, and efficiency of operations on the existing multi-modal transportation system will be RTP priorities and will be balanced against the need for system expansion investments.*
- 3 *RTP land use and growth strategies that differ from currently expected trends will require a collaborative implementation program that identifies required actions and policies by all affected agencies and subregions.*
- 4 *HOV gap closures that significantly increase transit and rideshare usage will be supported and encouraged, subject to Policy #1.*
- 5 *Progress monitoring on all aspects of the Plan, including timely implementation of projects, programs, and strategies, will be an important and integral component of the Plan.*

Performance Expectations

As directed by the first policy, performance measures play a critical role in the development of the RTP. Performance measures quantify regional goals and provide a way to evaluate progress over time.

This is SCAG's third performance-based RTP. Starting in 1998, SCAG was the first Metropolitan Planning Organization (MPO) to rely extensively on performance measurement

as a means to identify the most effective investments for the Region. The performance indicators for the 2004 RTP represent an evolution that builds on earlier successes and adds specificity and technical depth to the original indicators.

Assessing the degree to which the impacts of the 2004 RTP investments meet the regional goals requires complex technical analysis. Performance measurement is a critical part of this analysis, and is used for estimating the potential impacts of investments. The same measures will be used to monitor progress in meeting the performance expectations of the RTP. This monitoring allows the Region to correct the course over time as lessons are learned and new trends are established.

For the 2004 RTP, one or more performance indicators for most goals were developed, tested, and evaluated. The resulting indicators shown in Table 3.1 ensure that the RTP addresses and follows all of its goals and policies.

The fact that the 2004 RTP uses many performance indicators reflects the delicate balancing act needed for this diverse Region. However, the overall benefit-cost indicator shown in the table aggregates most of the indicators and communicates the return on the cumulative 2004 RTP investments. Finally, the RTP development effort evaluated the overall distribution of benefits on the different population segments in the Region. This analysis is presented in Chapter 5.

Table 3.1

Performance Indicators, Measures and Outcomes

Performance Indicator	Performance Measure(s)	Definition	Performance Outcome
Mobility	• Average Daily Speed	Speed - experienced by travelers regardless of mode	10% improvement
	• Average Daily Delay	Delay - excess travel time resulting from the difference between a reference speed and actual speed. Total daily delay and daily delay per capita are the indicators used.	40% improvement
Accessibility	• Percent PM peak period work trips within 45 minutes of home		Auto: 90% Transit: 37%
	• Distribution of work trip travel times		Auto: 8% improvement Transit: 8% improvement
Reliability	• Percent variation in travel time	Day-to-day change in travel times experienced by travelers. Variability results from accidents, weather, road closures, system problems and other non-recurrent conditions.	10% improvement
Safety	• Accident Rates	Measured in accidents per million vehicle miles by mode.	0.3% improvement
Cost-Effectiveness	• Benefit-to-Cost (B/C) Ratio	Ratio of benefits of RTP Investments to the associated investment costs.	\$3.08
Productivity	• Percent capacity utilized during peak conditions	Transportation infrastructure capacity and services provided.	20% improvement at known bottlenecks
		<ul style="list-style-type: none"> • Roadway Capacity - vehicles per hour per lane by type of facility. • Transit Capacity - seating capacity utilized by mode. 	N/A
Sustainability	• Total cost per capita to sustain current system performance	Focus is on overall performance, including infrastructure condition. Preservation measure is a subset of sustainability.	\$20 per capita, primarily in preservation costs
Preservation	• Maintenance cost per capita to preserve system at base year conditions	Focus is on infrastructure condition. Subset of sustainability.	Maintain current conditions
Environmental	• Emissions generated by travel	Measured/forecast emissions include CO, NOX, PM ₁₀ , SOX and VOC. CO ₂ as secondary measure to reflect greenhouse emissions.	Meets conformity requirements
Environmental Justice	• Expenditures by quintile and ethnicity	Proportionate share of expenditure in the 2004 RTP by each quintile	No disproportionate impact to any group or quintile
	• Benefit vs. burden by quintiles	Proportionate share of benefits to each quintile ethnicity Proportionate share of additional airport noise by ethnic group	

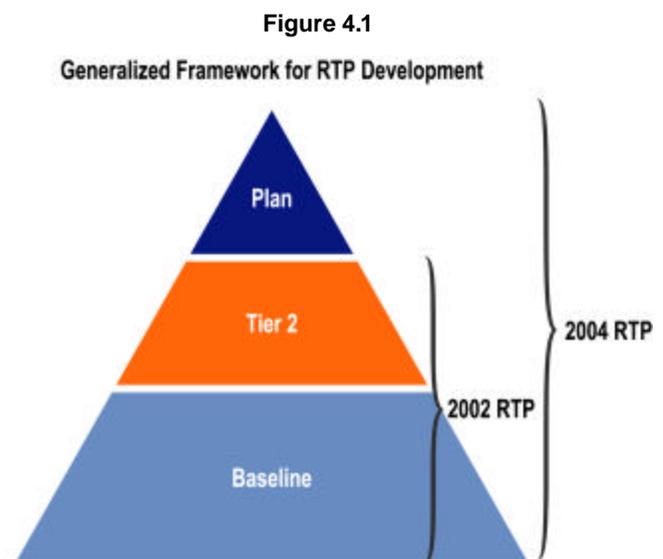
Note: Performance Outcomes are estimated for the Plan as a whole in 2030 and not on a project-by-project basis.

CHAPTER 4 POTENTIAL SOLUTIONS

This chapter describes key plans and programs that address the challenges outlined in Chapter 2 and the recommended funding strategy to meet the Region's needs and implement the 2004 RTP.

The structure of proposed projects and strategies that constitute the 2004 RTP is depicted in Figure 4.1. The Plan can be viewed as multiple layers, or tiers, of transportation projects and strategies, beginning first with the existing transportation system and ending with the proposed Plan improvements. While the RTP includes all of these tiers, it is useful to examine them independently for analysis purposes. These tiers are described as follows:

- ❖ Baseline (No Project) represents a future scenario in which only projects in the 2002 Regional Transportation Improvement Program (RTIP) that have State and federal environmental clearance by December 2002 are assumed to be completed. The Baseline also assumes a future in which there are no changes in land-use from established general plans. The Baseline functions as the “No Project” alternative used in the RTP Program Environmental Impact Report and provides a useful reference point, as it represents a future without the proposed RTP. The full listing of Baseline projects is contained in the Technical Appendix.
- ❖ Tier 2 describes the remaining projects in the 2002 RTIP that are not included in the Baseline scenario. These are recognized as committed projects, and the RTP gives them first-funding priority after the Baseline. The full listing of Tier 2 projects is contained in the Technical Appendix.
- ❖ Plan represents the final layer of transportation improvements, above and beyond Tier 2. These projects and strategies represent the focus of this chapter, and are discussed in detail. The full listing of Plan projects is contained in the Technical Appendix.



From the long-range planning standpoint, Baseline (No Project) and Tier 2 projects are considered as fully committed. These two tiers combined form the bulk of the short-range

portion of the Plan, primarily addressing the first ten years of the Plan. These include hundreds of projects and strategies, including the following highlights:

- ❖ Investments of \$57.7 billion in transit operations and maintenance.
- ❖ Investments of \$18.3 billion in roadway operations and maintenance.
- ❖ Major transit corridors, including the Metro Orange Line in the San Fernando Valley, Eastside Light Rail, Exposition Light Rail to Santa Monica, Wilshire Transitway, Centerline in Orange County, and San Jacinto commuter rail extension in Riverside County.
- ❖ Rapid bus expansion on 26 lines, including South Broadway, Vermont, Florence, Van Nuys, Sepulveda, Santa Monica, Western, San Fernando, and many others.
- ❖ HOV expansion and gap closures on SR-14 near Palmdale, I-5 in the San Fernando Valley, I-405 on the Westside, I-5 and I-605 connecting Los Angeles and Orange Counties, I-10 and SR-60 in the San Gabriel Valley, SR-22 in Orange County, SR-60 and I-215 in Riverside County, and I-215 in San Bernardino.
- ❖ HOV connectors at the I-5/SR-14, SR-57/SR-60, and SR-55/I-405 interchanges.
- ❖ Mixed flow expansion on SR-23, SR-118, and US-101 in Ventura County, I-5 connecting Los Angeles and Orange Counties, I-15 and US-395 in the High Desert area of San Bernardino, and SR-60 and SR-74 in Riverside County.
- ❖ Toll road extension and widenings in Orange County.
- ❖ Brawley Bypass and other expressway improvements in Imperial County on SR-7, SR-98, and SR-111.

Figure 4.2

System Management Philosophy



A complete project listing for these categories is provided as part of the RTP Technical Appendix. The real discretion that the RTP process has is over the projects and strategies beyond Tier 2. These projects are represented by the small triangle on top of the pyramid. Therefore, the focus of this chapter is solely on projects and strategies that are in this category, which are discussed in the remainder of this chapter.

System Management: Getting the Most out of the System

Given the challenges described in Chapter 2, the 2004 RTP relies on a number of strategies that range from an increased focus on operational strategies to land-use integration, and to strategic system expansion investments. This comprehensive approach is referred to as System Management.

The 2004 RTP has embraced this philosophy to maximize returns on expected transportation investments. This philosophy is depicted in Figure 4.2. As this figure shows, system expansion (depicted by the top of the triangle) is no longer the primary transportation investment to provide improved mobility. Use of a synergistic portfolio of strategies is required today and in the future. System management relies on more comprehensive data and advanced tools to help identify the most cost-effective investments in the areas of preservation, demand management, transportation management systems, physical operational improvements, and system expansion. We must preserve our aging infra-structure, get the most out of our current multimodal system, and strategically expand it to maximize the return on our scarce investments. This is a focus of the 2004 RTP. Investments in Intelligent Transportation Systems (ITS) technology and system integration to achieve system management goals are identified in Table 4.1.

Table 4.1
ITS Capital Investments

<i>County</i>	<i>Investment</i>
Imperial	\$0
Los Angeles	\$676,500,000
Orange	\$29,000,000
Riverside	\$25,000,000
San Bernardino	\$48,500,000
Ventura	\$80,000,000
Regional Total	\$859,000,000

Preservation – Protecting Our Infrastructure

A key aspect of System Management is protecting our investment in the current transportation infrastructure. The Region has invested billions of dollars in developing its multi-modal transportation system and must protect these investments for current and future generations.

This RTP sets aside \$6.5 billion of the additional funds identified for infrastructure preservation. Table 4.2 presents the incremental preservation investments over and beyond the Baseline by county. Note that the incremental preservation investments shown in Table 4.2 are directed to arterials and the State Highway System only, which depend on diminishing gasoline tax receipts. Therefore, additional funding is needed to address diminishing tax

receipts and the needs of the Region's aging infrastructure. Transit preservation funding is not projected to decline, and adds up to over \$20 billion of committed expenditures through 2030.

Table 4.2

Investment in System Preservation

County	State Highway	Arterial
Imperial	\$154,000,000	\$3,500,000
Los Angeles	\$2,830,000,000	\$200,000,000
Orange	\$655,000,000	\$105,000,000
Riverside	\$486,000,000	\$66,000,000
San Bernardino	\$1,561,000,000	\$103,500,000
Ventura	\$264,000,000	\$28,500,000
Regional	\$5,950,000,000	\$506,500,000

Operational Strategies – Getting the Most Out of Our Existing System

The Region has the responsibility to get the most out of its available system. The Region must maximize the productivity of its transportation system. This is especially true for the State Highway System.

For example, due to intensive weaving and merging at freeway interchanges, our freeway system performs at significantly less than optimal productivity on many of its segments. These productivity losses are strongly related to the bottlenecks we all experience on a daily basis.

Accidents lead to similar, if not more extensive, productivity losses for similar reasons. Closed lanes also lead to weaving and merging that reduce the system's productivity.

Fortunately, the combination of small physical improvements (e.g., auxiliary lanes that extend the merging range) and technology deployments (e.g., advanced ramp metering) offer us affordable solutions to restore some of this lost productivity. These technology deployments are often referred to as Intelligent Transportation Systems, or ITS.

The combination of operational investments reduces delays and the duration of congestion, and improves the predictability of travel time.

These types of investments are currently being embraced around the State and the country. The associated investments are modest in comparison with almost any other type of investment, and this RTP funds them at higher levels than at any time in the past. Primary categories for operations spending include:

- ❖ Flow-improving infrastructure modifications – also referred to as physical operational improvements that reduce the concentration of weaving and merging. These include auxiliary lanes, freeway interchange modifications, ramp widening, HOV-to-HOV connectors and drop ramps for HOV that help carpoolers avoid weaving across the freeway to get to the carpool lanes.
- ❖ Freeway service patrol to facilitate removal of stalled vehicles.
- ❖ Transportation management systems, including:
 1. Incident management systems that help identify accidents as they occur and clear them faster.
 2. Traveler information systems that are tailored for travelers at home and during their trip to inform them of traffic conditions, bus and train arrival times, alternative routing, and the best time for travel. Reliable and timely traveler information complements efforts for Transportation Demand Management (TDM) strategies.
 3. Ramp metering systems that, depending on traffic conditions, manage the flow of vehicles onto freeways and reduce the impact of merging and weaving.
 4. Arterial signal management systems that manage the timing of signals to maximize throughput and minimize delays and provide priority to transit providers (e.g., bus, light rail).

In the future, ITS technologies will automate transit fare collection and parking payments; use vehicle location systems to track trains and buses to give users “real time” arrival and departure information; as well as use onboard systems to detect and avoid collisions.

Within the SCAG Region and San Diego County is the Southern California ITS Priority Corridor, which is one of the four corridors of national significance identified for early ITS deployment by Congress under the Intermodal Surface Transportation Efficiency Act (ISTEA). The ITS plan for this corridor includes major local elements developed by three public-private committees, including LA-Ventura, Orange County and the Inland Empire. The Plan coordinates architecture, standards and institutional issues and also provides the framework for deploying an integrated ITS.

In all, the RTP assigns an incremental \$2.3 billion through 2030 to operational strategies that improve the productivity of the transportation system. This includes \$0.9 billion for ITS and \$1.4 billion for interchange and auxiliary lane projects. The total amount represents just one percent of the overall RTP expenditures, but is expected to produce benefits that are almost an order of magnitude higher. However, to ensure that these investments are targeted and programmed properly, SCAG will work closely with its subregional partners, other regional agencies and the State to develop a framework that elevates the priority of these investments.

Another important operational issue is safety. Improving safety will not only save lives, but also improve mobility and air quality by reducing incidents on the Region’s transportation system. The Plan emphasizes physical improvements to the system to make it safer by investing in safety improvements such as the extension or addition of auxiliary or merging lanes. This will allow a safer transition in traffic flow.

Congestion Management System (CMS)

In compliance with the Federal requirements—the Metropolitan Planning Regulations CMS is an integral part of the regional transportation planning process, including the Regional Transportation Plan (RTP) and the Regional Transportation Improvement Program (RTIP). There are five Congestion Management Agencies (CMAs)⁴ in the SCAG Region and each develops the respective Congestion Management Plan (CMP) for its county. The degree of urbanization varies from one county to another and so does the magnitude of congestion. All CMPs share the same goal of reducing congestion and applying congestion relief strategies, but with different priorities in selecting the related strategies. Therefore, each CMP differs in form and local procedure. By State statute, all CMPs perform the same functions outlined below and are consistent with the federal CMS requirements.

- ❖ **Highway Performance** - Each CMA monitors the performance of an identified highway system. This allows each county to track how this system and its individual components are performing against established standards, and how performance changes over time.
- ❖ **MultiModal Performance** - In addition to highway performance, each CMP contains an element to evaluate the performance of other transportation modes including transit.
- ❖ **Transportation Demand Management (TDM)** - Each CMP contains a TDM component geared to reducing travel demand and promoting alternative transportation methods.
- ❖ **Land-Use Programs and Analysis**- Each CMP incorporates a program for analyzing the impacts of local land-use decisions on the regional transportation system.
- ❖ **Capital Improvement Program (CIP)** - Using data and performance measures developed through the activities identified above, each CMP develops a CIP. This becomes the first step in developing the county TIP. Under State law, projects funded through the Regional Transportation Improvement Program (RTIP) must first be contained in the county CMP.
- ❖ **Deficiency Plan** – Despite the above-stated efforts, when unacceptable levels of congestion occurs, the respective CMP contains a set of provisions for a “deficiency plan” to address the problems. A deficiency plan can be developed for specific problem areas or on a countywide-system basis. Projects implemented through the deficiency plan must, by statute, have both mobility and air quality benefits. In many cases, the deficiency plan captures the benefits of the transportation projects which occur beyond the SCAG RTIP, such as non-federally funded/non-regionally significant projects.

In compliance with the federal CMS requirements, SCAG works with the county CMAs to develop a CMS process for the Region. Under State law, the Congestion Management Programs (CMPs) are prepared and maintained by the respective CMAs (see Table 4.3). CMP activities and resulting data are updated on a biennial basis by each CMA and supplied to SCAG and the respective air quality management district.

⁴ The county transportation commissions of Los Angeles, Orange, Riverside, San Bernardino and Ventura are also the CMAs for these counties.

Table 4. 3

CMPs in the SCAG Region

County	Congestion Management Agency (CMA)	Congestion Management Program (CMP)
Los Angeles	Los Angeles County Metropolitan Transportation Authority (LACMTA)	2004 CMP for Los Angeles County
Orange	Orange County Transportation Authority (OCTA)	2003 Orange County CMP
Riverside	Riverside County Transportation Commission (RCTC)	2003 Riverside County CMP
San Bernardino	San Bernardino Associated Governments (SANBAG)	2003 CMP for San Bernardino County
Ventura	Ventura County Transportation Commission (VCTC)	2004 Ventura County CMP

Note: VCTC's 2004 CMP is being completed.

All counties contained within the Transportation Management Area (TMA) are designated as ozone non-attainment areas with the exception of small portions of Riverside and San Bernardino Counties. Additionally, the entire South Coast Air Basin (SCAB) is designated as a carbon monoxide non-attainment area. Federal funds may not be programmed in the carbon monoxide and ozone non-attainment areas of the TMAs for any project resulting in a significant increase in single occupant vehicle (SOV) capacity unless that project is based on a CMS.

In the SCAG Region, the CMS process comprises the combined activities of the following congestion management elements:

- ❖ The Regional Transportation Plan (RTP)
- ❖ The counties' Congestion Management Programs (CMPs)
- ❖ The Regional Transportation Improvement Program (RTIP)

SCAG's RTP establishes overall long-term mobility policies for the movement of people and goods. The CMP is a county-based, short term program, and the RTIP implements the congestion relief strategies.

Transportation Demand Management

Transportation Demand Management (TDM) is the all-inclusive term given to a variety of measures used to improve the efficiency of the existing transportation system by managing travel demand. An individual's travel behavior may be influenced by mode, reliability, frequency, route, time and costs, support programs/facilities, perceived personal security and safety, and education. This section and additional information contained in Appendix D-2, comprise the TDM element of the 2004 RTP.

TDM strategies that encourage the use of alternative modes of transportation to the single occupant vehicle include: rideshare (i.e., carpools, vanpools), transit (i.e., bus, rail), and non-motorized modes (i.e., bicycles, walking). Additional TDM strategies include alternative work-schedule programs, such as compressed work-week programs (e.g., 9/80 or 4/40 programs), flextime (e.g., variable work-hour schedules), work-at-home (e.g., home-based businesses/self-employed full time) and parking management (e.g., parking pricing).

The potential effectiveness of TDM in 2030 depends largely on social and institutional commitments that cause individual travelers to choose a mode of travel other than driving alone and funding (e.g., investing in marketing and incentives that change travel behavior). If we were to do nothing beyond our current efforts, the Region would not sustain the current levels of ridesharing, non-motorized and telework/telecommute/work-at-home, let alone expand them over the 2004 RTP period. The Region recognizes the importance of TDM strategies and includes a significant level of funding to meet the TDM goals as summarized in Table 4.4.

Table 4.4

TDM Investments

County	Non-Motorized*	Rideshare**	TDM
			(Park and Ride Lots, Telework/Telecommute/ Work-At-Home, Parking Management, etc.)
Imperial	\$32,000,000	\$0	*
Los Angeles	\$513,300,000	\$114,300,000	\$186,600,000
Orange	\$115,000,000	\$27,000,000	**
Riverside	\$50,000,000	\$66,400,000	**
San Bernardino	\$39,000,000	\$36,000,000	\$6,500,000
Ventura	\$65,000,000	\$0	*
Regional Total	\$814,300,000	\$243,700,000	\$193,100,000

* Imperial and Ventura County costs for TDM are included in the Non-Motorized amount.
 ** Orange and Riverside County costs for TDM are included in the Rideshare amount.

The total investment proposed for non-motorized, rideshare, and TDM is \$1.25 billion; private sector investments (amount unknown) are not included in this table.

■ Increasing Rideshare (Carpool and Vanpool)

Carpool Market Share

In order to sustain the existing rideshare market share and to increase the number of carpools and vanpools, the Region must increase investments in TDM. Just a one percent drop in the carpooling rate translates into more than 40,000 additional vehicles on our freeways and surface streets daily, resulting in an annual increase of 300 million vehicle-miles of travel.

Key RTP recommendations to maintain and increase the existing rideshare market and increase the number of carpools annually include:

- ❖ Program public funds in the RTIP to help maintain the public sector share of the existing rideshare market and to increase the number of carpools by 8,000 annually.
- ❖ Provide “seamless” intra- and intercounty carpool services to the regional traveler.
- ❖ Maintain the existing carpool market share and increase ridesharing rates.
- ❖ Support funding for education and outreach to all employers and to the general public in order to increase awareness and participation in ridesharing.
- ❖ Together with county transportation commissions, SCAG will work to further refine existing rideshare tracking, documentation and reporting methods, so as to improve the Region’s ability to effectively demonstrate timely implementation of TCMs as required by the Federal Transportation Conformity Rule, as well as to improve reporting on annual average TDM investments and to enhance their effectiveness.

The cost of meeting our carpool and vanpool goals (described in the following section) is approximately \$10 million on an annual basis. The proposed funding identified in Table 4.4 is consistent with this need. To meet the Region’s goals, SCAG will work closely with the county transportation commissions to ensure that an adequate level of funding for TDM strategies is programmed, and that appropriate methods of measuring, monitoring and reporting the effectiveness of rideshare programs are developed and deployed.

Vanpooling

Vanpooling is considered one of the most cost-effective rideshare strategies for long-distance commuters. The effectiveness of vanpooling is based on its ability to reduce vehicle trips and vehicle-miles of travel. Within the SCAG Region, there are approximately 1,400 vanpools (a 30 percent reduction from the 2001 RTP) in operation, carrying an average of 10 riders and traveling approximately 35 miles per one-way trip. Vanpool programs are operated primarily by the private sector, utilizing minimal public subsidy.

Vanpools and transit markets may complement one another. Both can serve trips from suburban communities into central areas or other suburban activity centers. However, vanpools also can serve low-density residential communities, where transit service may not be efficient. Additionally, vanpools can service those traveling on reverse commutes, where transit service may not be cost-effective.

There are several situations that favor vanpool applications:

- ❖ The presence of HOV facilities, freeway and/or arterials
- ❖ Limited or high-cost parking around the destination site or both
- ❖ Preferential parking, variable work hours and guaranteed ride-home programs for vanpoolers at work sites
- ❖ Limited or non-existent conventional or demand-responsive transit service

Key RTP recommendations to expand vanpooling in the Region include:

- ❖ Formalize and expand partnerships among public and private sector stakeholders to improve delivery of vanpool services regionally
- ❖ Increase the number of commuter vanpools from 1,400 to 5,000 through more effective marketing and the provision of non-monetary public sector incentives
- ❖ Establish a dedicated funding source for planning and implementing vanpool programs and services
- ❖ Expand the provision of vanpool services in the Region through an increase in dedicated public-sector staffing and resources
- ❖ Facilitate a regionally coordinated marketing strategy among the public and private sectors to enhance vanpool programs, increase ridership and improve outreach efforts

■ Increasing Work-at-Home (Telework/Telecommute and Home-Based Businesses)

Increasing the number of workers who work at home (self-employed, home-based business owners) or who telework/telecommute (wage and salary employees conducting some or all of their work from home) decreases home-based work trips, vehicle-miles of travel, congestion and vehicle emissions. This strategy is generally the result of employer-based decisions.

The 2001 RTP assumed that 2.3 percent and 4.7 percent of all work trips would be reduced due to telecommute and work-at-home in 2010 and 2025, respectively. Recently, the Bureau of Labor Statistics (BLS) documented that 15 percent of the nation's workforce (home-based businesses and wage and salary employees) report they work at home; 4 percent are self-employed in home businesses and do not commute to work; and 2.5 percent telecommute (2001-Bureau of Labor Statistics Population Survey). In the SCAG Region, according to the Association's 2002 Telework Survey, approximately 3.2 percent of the Region's wage and salary workers telework/telecommute from home instead of commuting to their primary place of employment.

National and regional surveys of those who telecommute indicate that it is a lack of support and trust from "management," rather than the provision of equipment or the desire of workers

to telecommute, that hampers the growth of telecommuting. The 2004 RTP, therefore, recommends the following actions:

- ❖ Formalize and expand partnerships among public and private sector stakeholders to increase opportunities for wage and salary workers regionally to telecommute in lieu of daily commuting
- ❖ Promote achievement of a 4–5 percent telework/telecommute goal to increase opportunities for wage and salary workers regionally to telecommute in lieu of daily commuting

■ Decreasing Discretionary Trips and Spreading Demand to Non-Peak Periods

Decreasing discretionary person and vehicle trips, especially during peak commute periods, and emphasizing the use of non-motorized modes offers opportunities to reduce demand and to improve the efficiency of the transportation system when the highest level of travel demand normally occurs.

Non-work, discretionary trips made during rush hours exacerbate demand for scarce transportation resources and could be better accommodated if shifted to non-peak periods of the day. The key issue is that providers of medical, shopping, school, recreation and related services often provide services during business hours that overlap commute periods. The 2004 RTP recommends the following:

- ❖ Explore the opportunity to develop and to disseminate educational programs at the county and community level that promote consumers' use of non-motorized travel modes for non-work trips made during commute hours
- ❖ Explore partnerships among public and private sector providers of medical, shopping, school, recreation and related services and programs to identify alternative modes of travel to their establishments and to evaluate their ability to offer consumer services during non-commute hours

■ Non-Motorized Transportation

Given the constraints on resources and our emphasis on land-use, the Plan recognizes the importance of non-motorized transportation as an important and integral part of the 2004 RTP. Reinforcing the importance, the Plan proposes over \$733 million in investments on non-motorized transportation over the Plan horizon, which is higher than proposed in any Plan in the past. The proposed funding for non-motorized transportation can be used to implement bikeway expansion projects, create a bicycle-, and pedestrian-friendly transportation environment, induce mixed-use development that promotes biking and walking, and conduct public safety education for bicyclists and pedestrians. The proposed funding level on a county-by-county basis is depicted in Table 4.4.

Thinking Out of the Box: Land Use-Transportation Connection

■ Reality-Based Vision

As discussed in Chapter 1, SCAG and its stakeholders have embarked on an ambitious growth visioning effort that demonstrates the value of land-use and transportation planning integration. The lessons learned from the two bookend scenarios—PILUT I and PILUT II—and the *COMPASS* public workshops were incorporated into the development of a pragmatic land-use growth alternative recommended for the RTP.

The following tenets were developed, through the body of work produced within the Growth Visioning program, to be used as the foundation of the Growth Vision RTP Alternative:

❖ Using infill where appropriate to revitalize underutilized development sites

The Growth Vision Alternative accommodates future growth, makes efficient use of our existing and planned infrastructure and maintains or improves quality of life. The use of infill in aging and underutilized sites provides a means of accommodating growth, revitalizing neighborhoods, districts or communities, and makes efficient use of the existing infrastructure.

❖ Focusing growth along transit corridors and nodes to utilize available capacity

Many existing corridors lack the residential and commercial density to adequately support non-auto transit uses. By intensifying these corridors with people-scaled, mixed-use developments, the existing transit system can more fully realize its potential for accommodating additional trips, taking strain off systems that are already at or over-capacity. This also creates vibrant, walkable communities capable of further reducing the reliance on autos for a variety of trips.

❖ Providing housing opportunities near job centers, and job opportunities, when appropriate, in housing-rich communities

Balancing the location of jobs and housing is an important strategy in meeting regional goals of relieving congestion, reducing commute times and trips, encouraging alternate modes of transportation and improving air quality. The Growth Vision Alternative achieves these goals via an infill strategy by co-locating job and housing centers in targeted livable communities suitable for accommodating additional growth.

❖ Providing housing opportunities to match changing demographics

Changing demographics will have an impact on the Region's economic future. The large "baby-boom" cohort will begin retiring after 2010. Other changes on the horizon include increased immigrant (younger) population, increased household size and lower per capita

income. These changes necessitate variation in housing types offered as well as amenities to serve the changing population.

❖ **Ensuring adequate access to open space**

Demographic trends, the need for adequate job opportunities and shelter, and the Region's historical development pattern set the stage for competing quality-of-life demands. Development patterns in the Growth Vision Alternative emphasize focusing growth in appropriate centers and corridors that make the most efficient use of developed land and minimize encroachment on public open space. This should improve access to existing large-scale and neighborhood-scale open space (e.g., pocket parks).

❖ **Changing land-use to correspond to the implementation of a decentralized regional aviation strategy and its consequent short- and long-term job creation**

The decentralized aviation strategy creates a significant number of high-paying jobs in the short and longer term. The Growth Vision Alternative responds to this by creating the opportunity for well-balanced communities to support the additional workforce.

❖ **Changing land-use to correspond to the implementation of regionally significant major transportation projects and their consequent short- and long-term job creation**

New regionally significant infrastructure, such as highways, rail expansion and Maglev, is planned to serve future housing and job centers in the high desert areas of Los Angeles and San Bernardino Counties and eastern Riverside County. Planned shifts of goods distribution functions to these areas also create long-term employment benefits.

❖ **Incorporating the local input and feedback on future growth received from 90 percent of the jurisdictions in the SCAG Region**

Ninety percent of the 188 jurisdictions participated during extensive public outreach over a two-year period for the development of the RTP Growth Forecast. This technical input and local expertise was critical in developing the RTP. **The Growth Vision Alternative respects local input through 2010 with adjustments occurring only after a ramp-up period intended to establish consensus on an implementation strategy.**

The Growth Vision Alternative was developed through significant work efforts by literally thousands of regional stakeholders. Inputs include: the analyses of the initial five scenarios approved by the Community, Economic and Human Development Committee (and dozens of iterations leading to these five); the *COMPASS* Growth Visioning program, including public workshops, focus groups, public opinion polling, and regional growth principles; and growth capacity, economic and redevelopment analyses. This Alternative is intended to represent a targeted distribution of population, households and employment to best meet the 2004 RTP goals approved by the Regional Council.

By incorporating the best features of PILUT I and PILUT II in conjunction with a decentralized airport demand strategy, regionally significant transportation infrastructure improvements, significant local government outreach contributions, and the *COMPASS* workshops, the Growth Vision Alternative achieves key strategies such as concentration of employment in mixed-use centers, regional jobs-housing balance and intercounty transit. It also maximizes mobility and accessibility within the anticipated 2030 transportation systems and improves air quality by encouraging mixed-use growth patterns that complement and enhance our current and planned transportation investments.

Strategic System Expansion / Capital Investments

This section describes strategic system expansions for each mode that are critical to maintaining and improving mobility, accessibility, and air quality for all residents of the Region in the face of the growth that will occur over the Plan period as described in Chapter 2.

■ Highways and Arterials

If we were to do nothing beyond completing committed (Baseline) projects by the year 2030, the Region's freeway network mixed-flow lane capacity would increase by less than 10 percent and the arterial system capacity would increase by about 7 percent. On the other hand, the High Occupancy Vehicle, or Diamond Lane network, will nearly double in terms of lane miles by 2030. SCAG recognizes that these three types of facilities will continue to provide the means for most travelers to get to their desired destinations.

Highway and Arterial Investments

The 2004 RTP contains approximately \$3.1 billion in highway and arterial improvement projects in addition to already-committed or programmed projects. Major categories of the proposed improvements include HOV gap closures, HOV connectors, mixed-flow improvements, toll lanes and high-occupancy toll (HOT) lanes as well as strategic arterial improvements. The 2004 RTP is based on input from the 2001 RTP and priorities submitted by the county commissions and the subregions. The proposed projects and strategies are based on a performance framework established for the 2004 RTP and support the underlying Growth Vision developed through the consensus process. The following provides a brief description of individual categories of improvements proposed in the Plan.

The Highway and Finance Task Force adopted a set of guiding principles in developing the highway improvement strategies. These principles are:

- ❖ Projects that enhance safety and security
- ❖ Projects that fill significant gaps in the freeway and HOV system (examples from the 2001 RTP include the SR-710 gap closure, SR-210 extension, I-10 HOV lane, and the I-605 HOV lane)

- ❖ Projects that relieve significant bottlenecks (examples include truck climbing lanes, mixed flow widening and reconfigurations like the I-215 in San Bernardino, mixed flow continuity projects, and completion of the HOV lanes on I-405 through the Sepulveda Pass)
- ❖ Projects that support improved operational performance (examples include auxiliary lanes and interchange improvements such as better ramps)
- ❖ Projects that improve system connectivity
- ❖ Projects that improve access to airports, cargo facilities, and intermodal centers
- ❖ Projects that maximize efficient use of existing capacity, such as Traffic Management Centers, ramp metering, signal synchronization and other ITS
- ❖ Projects to maintain and preserve the current investment in the highway system
- ❖ Advancing long-range study corridors from the 2001 RTP in high-demand and/or high-growth areas, based upon the findings of the RSTIS process
- ❖ Projects that support land-use goals

HOV Gap Closure

The completion of the HOV system will be an important step towards meeting future travel demand. A number of HOV projects proposed in the 2001 RTP have already been programmed in the current RTIP. Table 4.5 provides a summary of HOV gap closure projects⁵ proposed in the 2004 RTP beyond the Baseline and Tier 2 that are regionally significant.

⁵ Although not listed here, the RTP includes toll road projects in Orange County that are considered as "HOV projects and their pricing alternatives" in the 2003 Air Quality Management Plan. These improvements to the San Joaquin, Eastern, and Foothill toll roads in Orange County are Tier 2 projects and are depicted in Exhibit 4.6 and the Technical Appendix.

Table 4.5
HOV Projects

<i>Project</i>	<i>Implementation Schedule</i>	<i>County</i>
SR-710 (I-10 to Huntington Dr)	2012	Los Angeles
SR-710 (Huntington Dr to I-210)	2025	Los Angeles
SR-14 (Ave P-8 to Ave-L)	2015	Los Angeles
I-5 (SR-1 to Avenida Pico)	2020	Orange
I-15 (San Diego Co to SR-60)	2020	Riverside
I-215 (SR-60/I-215/SR-91 to San Bernardino Co)	2015	Riverside
I-215 (I-15 to Newport)	2030	Riverside
I-10 (I-15 to Yucaipa)	2020	San Bernardino
I-10 (Yucaipa to Riverside Co)	2025	San Bernardino
I-15 (Riverside Co to I-215)	2025	San Bernardino
I-15 (I-215 to D St)	2020	San Bernardino
I-215 (Riverside Co to I-10)	2015	San Bernardino
I-215 (SR-30 to I-15)	2025	San Bernardino

Note: Typically, Project Study Reports (PSR) must be completed for these projects in order to compete in the Call for Projects for the RTIP. The total proposed investment for HOV lane projects is \$1.7 billion. These projects are over and beyond Baseline and Tier 2 projects that are listed in the Technical Appendix.

HOV Connectors

HOV connectors are an important element of the regional HOV system. The connectors are constructed with drop ramps to the HOV lane along the freeway median to minimize weaving conflicts and maintain speeds. A number of HOV connectors are identified in the 2030 Baseline (No Project). The 2001 RTP identified several HOV freeway-to-freeway connector projects. Specific investments in HOV connectors are justified to maximize overall system performance. Table 4.6 provides a summary of HOV connector projects identified in the 2004 RTP as part of the constrained projects beyond the Baseline (No Project) and Tier 2. Exhibit 4.1 depicts the existing HOV system as well as the proposed HOV projects.

Table 4.6

HOV Connector Projects

<i>Project</i>	<i>Implementation Schedule</i>	<i>County</i>
I-5 / SR-170	2025	Los Angeles
I-5 / I-405	2025	Los Angeles
I-405 / I-605	2020	Orange
SR-22 / I-405	2020	Orange
SR-60 / I-215 E Jct	2025	Riverside
I-15 / SR-91	2025	Riverside
I-10 / I-215	2025	San Bernardino
I-10 / I-15	2025	San Bernardino

The total investment proposed for HOV Connector projects is \$0.6 billion. These projects are over and beyond Baseline and Tier 2 projects that are listed in the Technical Appendix.

Mixed Flow

Gaps in the freeway network create traffic bottlenecks during peak use. Several new mixed-flow freeway lanes are proposed to close gaps, increase capacity in certain congested commuter corridors and address county-to-county travel (especially from population-rich to employment-rich areas). Several routes are under consideration in the Four Corners area, where Los Angeles, Orange, Riverside and San Bernardino Counties converge.

SCAG, Caltrans and Riverside and Orange Counties are exploring methods to approach new corridor development in an environmentally sensitive manner. Regionally significant mixed-flow improvements, proposed in the 2004 RTP beyond the Baseline projects, are shown in Table 4.7. These projects also reflect strategic improvements needed to accommodate our growth vision for 2030. Proposed mixed flow improvements are depicted in Exhibit 4.2.

Additionally, SCAG's Transportation and Communications Committee approved consideration of the following corridor improvement alternatives in the Plan:

US-101 Corridor

Potential capacity enhancements will be considered within the existing right-of-way or requiring minimum right-of-way acquisition on the segment from the 101/134/170 interchange to the 23/101 interchange at the Ventura County line. This will be based upon the results of further analysis. Consideration will be given to extensive Transportation System Management (TSM) and transit options, as appropriate, identified in the corridor study, as well as priority near- and midterm TSM and transit options, as appropriate and identified by the City of Los Angeles Community Advisory process for all portions of the 101 Corridor. The study of long term east-west travel in the 101/San Fernando Valley Corridor will be continued as well as further study of improvements to system connectivity and potential operational improvements to key freeway-to-freeway interchanges.

I-710 Corridor

The RTP recognizes the I-710 Transportation Corridor (SR-60 to the Port of Long Beach) as a regionally significant transportation corridor as identified in the adopted State of Purpose and Need of the I-710 Major Corridor Study. While additional work is in progress to identify feasibility improvements in the corridor, the Plan identifies existing commitments to replace the Gerald Desmond Bridge as part of the financially constrained Plan, and the need to provide the equivalent of at least two lanes of additional capacity in each direction to move goods and people throughout the corridor. It is anticipated that a Locally Preferred Strategy, based upon the I-710 Major Corridor Study (Alternative B-TSM/TDM) and a hybrid of the MCA Alternatives C, D & E will be adopted by the I-710 Major Corridor Study Oversight Policy Committee, with the concurrence of the Los Angeles County Metropolitan Transportation Authority, Caltrans, SCAG and the Federal Highway Administration. SCAG will amend, as necessary, the 2004 RTP to include improvements as recommended, conditioned upon community acceptance, available funding, and regional air quality conformity requirements. Additional public funding and/or innovative funding may be needed to fully fund the Locally Preferred Strategy.

Table 4.7

Mixed Flow Projects

<i>Project</i>	<i>Implementation Schedule</i>	<i>County</i>
SR-98 (SR-111 to Dogwood/SR-98)	2012	Imperial
SR-111 (s/o SR-98 to Port of Entry)	2012	Imperial
SR-111 (SR-98 to I-8)	2012	Imperial
SR-111 (SR-78 to SR-115)	2012	Imperial
SR-115 (I-8 to Evan Hewes Hwy)	2012	Imperial
Dogwood Road Corridor /I-8 Overpass	2012	Imperial
SR-710 (I-10 to Huntington Dr)	2012	Los Angeles
SR-710 (Huntington Dr to I-210)	2025	Los Angeles
I-5 Interchanges (Orange Co to Rosemead Blvd)	2025	Los Angeles
SR-57 / SR-60 Interchange	2025	Los Angeles
SR-18 (SR-138 to San Bernardino Co.)	2020	Los Angeles
SR-57 (Orangethorpe to Lambert)	2010	Orange
SR-57 NB (4th through lane at SR-91)	2010	Orange
SR-91 (SR-55 to Riverside Co)	2010	Orange
I-405 (SR-73 to Beach)	2030	Orange
I-10 (Monterey to Dillon)	2025	Riverside
I-15 (I-215 to San Diego Co)	2030	Riverside
I-215 (SR-60/SR-91/I-215 to San Bernardino Co)	2015	Riverside
I-215 (Eucalyptus to I-15)	2025	Riverside
SR-71 (San Bernardino Co to SR-91)	2030	Riverside
SR-91 (Pierce St to Orange Co)	2030	Riverside
I-10 / SR-60 Interchange	2030	Riverside
SR-71 / SR-91 Interchange	2030	Riverside
SR-79 (Ramona to Domenigoni)	2015	Riverside
SR-79 (Hunter to Ramona)	2025	Riverside
CETAP Cajalco/Ramona Corridor	2010	Riverside
I-10 (Yucaipa to Ford westbound)	2015	San Bernardino
I-215 (Riverside Co to SR-30)	2015	San Bernardino
I-215 (SR-30 to I-15)	2025	San Bernardino
SR-210 (I-215 to I-10)	2020	San Bernardino
SR-18 (Los Angeles Co to US-395)	2020	San Bernardino
SR-33 Casitas Bypass	2020	Ventura
SR-118 (SR-232 to Moorpark)	2015	Ventura

The total proposed investment in Mixed Flow lanes is \$4.0 billion. These projects are over and beyond Baseline and Tier 2 projects that are listed in the Technical Appendix.

INSERT EXHIBIT 4.1: (HOV IMPROVEMENTS)

INSERT EXHIBIT 4.2: (MIXED FLOW IMPROVEMENTS)

Toll and High Occupancy Toll (HOT) Lane Corridors

Potential HOT lane facilities include expanded capacity parallel to SR-91 to address east/west congestion in the Riverside County area. While additional work is in progress through the CETAP process to identify and study the feasibility of specific alignments in this corridor, this Plan acknowledges the need for additional capacity in this corridor. Table 4.8 presents the list of Toll Corridor Projects recommended by the RTP. Additional studies on each of these corridor projects will be needed to further define and narrow down the options, determine alignment and obtain necessary community consensus. The Plan will support and respect the local processes as they move forward.

Table 4.8

Planned/Potential Toll Corridor Projects

<i>Project</i>	<i>Implementation Schedule</i>	<i>County</i>
El Camino Real Corridor (US101) (SR-23 to SR-234/SR-170) User-Fee-Backed Capacity Enhancement	2030	Los Angeles/Ventura
SR-91 (SR-241 to SR-71 including toll connection at SR-71)	2020	Orange
SR-91 / SR-241 (Add direct toll-to-toll or HOV connection, SR-241 to/from east SR-91)	2015	Orange/Riverside
CETAP Moreno Valley to San Bernardino Co (pending completion of corridor study)	2030	Riverside/San Bernardino
CETAP Orange Co to Riverside Co (pending completion of corridor study)	2030	Orange/Riverside

The total investment proposed for Toll Corridor projects is \$912 million in public funding and \$3.6 billion in private funding. These projects are over and beyond Baseline and Tier 2 projects that are listed in the Technical Appendix.

Strategic Arterial Improvements/Smart Street Improvements

Arterial roads account for over 80 percent of the total road network and already carry over 50 percent of total traffic. As it becomes more difficult to add lanes to existing freeways or build new freeways, maximizing the potential capacity of arterials becomes an attractive option to increase overall system capacity in already-developed areas. The Strategic Arterial Improvement concept could involve a combination of widening, signal prioritization and other Intelligent Transportation Systems (ITS) deployment and grade separation at critical high-volume intersections to enhance the flow speed and capacity of the arterial.

Arterial Improvements

In addition to the specific arterial improvements identified under the Smart Street Improvement Program, this Plan proposes a significant increase in funding for arterial improvements and capacity enhancements. Table 4.9 summarizes the recommended 2004 RTP investments in arterials by county. A complete list of eligible arterial improvements is contained in the Technical Appendix.

Table 4.9

Investment in Arterials

<i>County</i>	<i>Investment</i>
Imperial	\$279,500,000
Los Angeles	\$583,200,000
Orange	\$1,343,300,000
Riverside	\$2,899,000,000
San Bernardino	\$703,000,000
Ventura	\$135,000,000
Regional Total	\$5,943,000,000
<i>These projects are over and beyond Baseline and Tier 2 projects provided in the Technical Appendix</i>	

Soundwalls

Soundwalls are a regional issue associated primarily with freeway improvements. Federal and State laws require construction of noise barriers along freeways under the Community Noise Abatement Program and as part of new freeway construction projects and freeway widening/capacity enhancement projects on existing freeways. Accordingly, all new freeway construction or existing freeway widening costs include soundwall costs.

■ Public Transportation System

Public transportation services comprise a major portion of the Regional Mobility Strategy. The goals of public transportation services are to ensure mobility for people without access to automobiles and to provide attractive alternatives for drive-alone motorists or discretionary riders. The public transportation strategies and programs presented in the 2004 RTP were developed with these goals in mind. The Plan invests \$5.5 billion in local bus service, including service for the elderly and disabled, as well as bus stops and transit centers.

Strategies include a significant increase in service availability, major expansion in the use of bus rapid transit, and some restructuring of service to ensure efficient utilization of available capacity. New rapid bus lines will be implemented on heavily traveled corridors and many bus lines will be added or restructured to feed into the existing and proposed urban and commuter

rail system. Table 4.10 presents a list of the major transit investments recommended. A complete list is presented in the Technical Appendix.

Exhibit 4.5 depicts proposed transit corridor development superimposed on the existing system.

Bus Rapid Transit

Bus rapid transit (BRT) is designed to provide fast, high-quality bus service. BRT operates in mixed traffic or in dedicated guide-ways, utilizing low-floor buses, taking advantage of signal priority at intersections, boarding and alighting passengers through streamlined processes, and improving bus stop spacing at planned stations. BRT combines the routing flexibility of bus systems with some of the features of rail transit such as limited stops and streamlined boarding and alighting procedures. It uses specially identified buses stopping only at major intersections/destinations.

The proposed transit program recommends building on the success of existing BRT lines and includes a major expansion of bus rapid transit services throughout the Region. The proposed financially constrained bus rapid transit corridors are designed to connect major activity centers and create a multi-modal system that serves Southern California residents. Several proposed corridors link current bus routes to existing Metrolink stations and urban rail lines. BRT service for these corridors will be more frequent during peak periods. In addition to the re-routing of bus lines, the deployment of shuttles and circulators would feed into the current transit network. These circulators can be very effective when deployed in niche markets.

Metrolink Commuter Rail

Metrolink is the regional commuter rail service that operates in five Southern California counties. Southern California Regional Rail Authority (SCRRA) provides and maintains Metrolink services and facilities. SCRRA is a joint powers authority consisting of the Los Angeles Metropolitan Transportation Authority (MTA), Orange County Transportation Authority (OCTA), Riverside County Transportation Commission (RCTC), San Bernardino Associated Governments (SANBAG) and the Ventura County Transportation Commission (VCTC). The Metrolink system consists of 53 stations. It carries over 36,000 passenger trips and operates 143 trains per weekday.

The Plan invests \$1.8 billion in long-range capital improvements that, when fully implemented, will effectively double the Metrolink System's passenger-carrying capacity. The long-range capital plan includes selective double tracking on critical route segments, switching and signal improvements, communication system improvements, new rolling stock, rolling stock storage/maintenance facilities, new stations and enhancements to existing stations. Plans also include future service expansion on the Redlands and San Jacinto branch lines.

Table 4.10

Transit Corridor Projects

<i>Project</i>	<i>Type</i>	<i>Implementation Schedule</i>	<i>County</i>
Green Line Extension (Mariposa/Nash to LAX)	Light Rail	2020	Los Angeles
Crenshaw Transit Corridor (Wilshire to Green Line/LAX)	Transitway	2008*	Los Angeles
Gold Line Extension (Pasadena to Claremont)	Light Rail	2012*	Los Angeles
Metro Center Connector (connecting Gold Line, Blue Line, and Exposition Line in Downtown LA)	Light Rail	2012*	Los Angeles
Red Line Extension (Western to Fairfax)	Heavy Rail	2012*	Los Angeles
CenterLine Extension (final alignment TBD, north to Fullerton or west along PE ROW)	Light Rail	2030	Orange
Harbor Blvd (Brea to Newport Beach)	Bus Rapid Transit	2007	Orange
Westminster Blvd (Santa Ana to Long Beach)	Bus Rapid Transit	2009	Orange
Katella Ave (Orange to Blue Line/Long Beach)	Bus Rapid Transit	2013	Orange
Edinger Ave (Tustin to Huntington Beach)	Bus Rapid Transit	2017	Orange
Beach Blvd (Buena Park to Huntington Beach)	Bus Rapid Transit	2011	Orange
La Palma Ave (Buena Park to Anaheim)	Bus Rapid Transit	2015	Orange
Rapidlink 1A Corona Metrolink Station to Downtown Riverside-UCR	Bus Rapid Transit	2006	Riverside
Rapidlink 2B Downtown Riverside to Moreno Valley	Bus Rapid Transit	2010	Riverside
Coachella Valley	Bus Rapid Transit	2015	Riverside
San Bernardino/Redlands Extension (4th/Mt. Vernon to Grove/Central)	Rail Technology TBD	2014	San Bernardino
Gold Line Extension (Claremont to Montclair)	Light Rail	2014	San Bernardino

The total proposed investment in Transit Corridors is \$3.0 billion. These projects are over and beyond Baseline and Tier 2 projects that are listed in the Technical Appendix.
** Completion date is contingent upon passage of SB314.*

Land-Use – Transit Coordination

The regional transit program calls for increased and better coordination between transit and land-use planning. The Region must develop and adopt a long-term strategy for integrating the planning of commercial, residential and recreational land-uses with the transportation system as well as increasing land-use intensities in areas with higher transit services and access. This integration would complement and maximize the use of the Region's transit system resulting in increased ridership, reduced congestion, and improved air quality.

The Region must focus on encouraging local jurisdictions to include more mixed uses near transit services and facilities. It is mutually beneficial and necessary for transit agencies and local governments to communicate regularly regarding new developments. It is essential for transit operators to be involved in the development review process to ensure the same stature is given to transit services as other public services and infrastructure such as police, fire,

sewers and storm drains. Participation of local and regional transit agencies in the approval process for new developments is strongly encouraged to ensure that transit needs are included in development plans.

Transit-Oriented Development

The regional transit program calls for the local and regional transit and planning agencies to promote transit-oriented developments cooperatively along the major transit corridors. Transit-oriented development (TOD) is a land-use planning tool that promotes pedestrian-friendly environments and supports transit use/ridership. It improves transit accessibility, compact land patterns, walking-friendly environments, and reduced auto use. The TOD emphasis is on the establishment of high-density housing and commercial land-uses around bus and rail stations. TOD includes pedestrian- and non-motorized-friendly streets, mixed-use developments with retail, commercial spaces and schools; as well as parking management and ridesharing ordinances that reduce the amount of land needed for automobile use and parking.

Transit Centers

Balanced local land-use and transportation policies can reduce auto travel and support more pedestrian, mixed-use and transit-oriented developments throughout the Region. Transit facilities, services and centers are best when they are customer-friendly, community-oriented, and well designed. A network of transit-based centers and corridors, supported by infill development, maximizes the use of existing infrastructure, supports transit ridership, reduces automobile air pollution and preserves green space and undeveloped areas. Exhibit 4.3 depicts major activity centers in the Region today and Exhibit 4.4 depicts potential activity centers in 2030. The RTP supports development of a flexible transit system enabling a strong transit linkage between such activity centers.

To encourage the use of transit and ridesharing further, new transit centers and park-and-ride facilities will be constructed in areas that provide access to the freeway HOV network, transit corridors and express buses. Existing transit centers can be upgraded for multi-modal uses that support restructured transit services.

Recommendations

In addition to specific improvements to our public transportation system identified in this Plan, the following are specific recommendations and actions identified by the Regional Transit Task Force for the 2004 RTP:

Reduce Transit Travel Time

- ❖ Implement transit priority service in congested corridors.
- ❖ Maximize transit use of High Occupancy Vehicle (HOV) facilities.
- ❖ Improve on-time performance of transit services and/or adjust schedules to reflect actual travel times.
- ❖ Provide real-time electronic wait time signs at transit stops, and real-time transit schedule and route information on the Internet.

Create Integrated Regional Transit System

- ❖ Create seamless service for passengers traveling across jurisdictional boundaries in the Region.

- ❖ Fare structures must be designed so that the transit customer is not penalized when transferring between vehicles, modes or carriers.
- ❖ Structure local collector and distributor transit service to efficiently support line-haul transit corridors and rail systems.
- ❖ Provide outstanding intermodal connections between transit service/facilities and bicycle, pedestrian, auto and intercity transportation.
- ❖ Market transit services at the community level through local outreach activities with commercial and residential organizations.

Coordinate Transit with Land-Use

- ❖ Preserve adequate rights-of-way for future transit service in new or expanding corridors.
- ❖ Encourage local jurisdictions to implement transit-oriented development.
- ❖ Encourage local jurisdictions to locate higher densities and commercial land-uses close to corridors that can be well served by transit.
- ❖ Encourage local jurisdictions to orient buildings toward the street and locate off-street parking to the side or rear of buildings.
- ❖ Improve pedestrian access to bus stops and transit centers. Pedestrian access must be direct (not requiring out-of-direction travel), safe and attractive. Techniques to provide safe crossing of streets and roads at bus stop locations must be provided. Auto/transit conflicts should be minimized.
- ❖ Work with local jurisdictions to maintain existing and create additional park-and-ride facilities.
- ❖ Provide educational opportunities for planners to better understand the needs and benefits of transit and for the general public to better visualize and appreciate transit-supportive land-use.
- ❖ Explore potential changes to the California Environmental Quality Act, Congestion Management Program and other legislation; and work with other public agencies throughout the State to advocate for changes that will require no increase in vehicle trips or maintain/increase transit mode split for major developments.

Support Innovative Financing Strategies

- ❖ Support local revenue sources such as new and/or extended sales tax measures.
- ❖ Encourage fees to support transit in development agreements and as conditions of approval for new development.
- ❖ Encourage in lieu or other fees for transit in exchange for increasing floor area ratios or reducing parking requirements.
- ❖ Consider differentiated transit fares (e.g., reduced fare on off-peak trips, fares based on zones traveled).
- ❖ Encourage employer-based incentives.
- ❖ Leverage local, State, and federal funds for transit investments to the greatest extent possible.

INSERT EXHIBIT 4.3: 2000 ACTIVITY CENTERS

INSERT EXHIBIT 4.4 : 2030 ACTIVITY CENTERS

INSERT EXHIBIT 4.5: TRANSIT SYSTEM IMPROVEMENTS

■ Goods Movement

Challenges relative to goods movement were described in Chapter 2. The focus of this section is to describe goods movement projects and strategies beyond Baseline and Tier 2 that are intended to address those challenges.

Roadway Improvements to Address Truck Demand

In the domain of Goods Movement, the regional transportation system will be challenged to accommodate more than double the truck trips, according to modeling of total truck VMT by 2030. The 2004 RTP acknowledges the need for strategies to accommodate future growth in truck traffic. While specific strategy and alignment determinations need further evaluation and consensus building, the Plan assumes corridor improvement needs for a number of corridors summarized in Table 4.11. These corridors are depicted in Exhibit 4.6 as part of the user-fee-backed capacity improvement corridors.

One strategy being explored is the concept of dedicated facilities to accommodate truck traffic. This system would comprise upwards of 140 center-lane miles of dedicated facilities along alignments extending from the San Pedro Bay ports, through the East-West Corridor and out to strategic distribution points northeast or southwest of the urbanized areas. These projects will continue to be studied for the ultimate selection of locally preferred strategies. The Plan will support and respect the local processes as they move forward. However, more specificity is required to include these projects in the regional travel demand model. Therefore, these projects are modeled as two truck lanes in each direction for the 2004 RTP. These assumptions will be replaced by the preferred alternatives upon conclusion of the local processes, as necessary.

Table 4.11

Planned/Potential Additional Toll Corridors

<i>Project</i>	<i>Implementation Schedule</i>	<i>County</i>
I-710 Corridor (user-fee-backed capacity enhancement)	2020	Los Angeles
East-West Corridor (user-fee-backed capacity enhancement)	2030	Los Angeles, Orange, Riverside, San Bernardino
I-15 Corridor (user-fee-backed capacity enhancement)	2030	San Bernardino

Conceptual planning efforts have demonstrated that, given the volume of truck traffic along these alignments and an estimated capital development cost of approximately \$16.5 billion, a per-mile toll ranging from between \$0.38 to \$0.80, and averaging \$0.56 over a thirty-year financing period, would be sufficient to support financing for the development and operation of this system. Applicable to existing and forecast volumes of truck traffic within this nationally significant trade corridor, it is envisioned here that this toll would be imposed and administered by a regionally controlled Corridor Authority in concept. This authority would be instituted

conceptually as a “joint-powers authority” in a fashion analogous to that of the Transportation Corridor Agencies established in Orange County, and would similarly adhere to existing Caltrans and labor relations contracting protocols.

The development of a regional system of user-supported, dedicated facilities offers a viable and potentially self-financing solution for mitigating congestion and reducing mobile source emissions arising from surface transportation operations in Southern California. This also ensures the safe, reliable, and efficient movement of goods essential to the nation’s economy. The general motoring public would benefit significantly in terms of congestion relief, and enjoy greater operational safety and system reliability. Together with improved regional air quality, these environmental and safety advantages suggest that a significant level of public involvement in the realization of facilities would be warranted.

SCAG will complement its original State Route 60 Study, which evaluated the preliminary feasibility of a dedicated truck facility. Additional major investment studies of key regional goods movement corridors are underway for the I-710 and I-15, and the East-West Corridor (SR-210, I-210, I-10, SR-60, and SR-91). Combining insights gained from this set of studies, an outline of the best solutions to address the future growth of truck traffic in the Region can be discerned and allow for a preliminary analysis to ascertain what level of user-supported revenue contribution would be necessary to finance development of such a system. The proposed toll corridors or user-fee-backed capacity improvements are depicted in Exhibit 4.6. SCAG’s existing policy opposes Long Combination Vehicles (LCVs) on non-designated facilities. LCVs include tractor-trailer combinations with two or more trailers that weigh more than eighty thousand pounds.

Truck Climbing Lanes

In addition to the dedicated facilities, the Plan also proposes adding a number of truck climbing lane improvements to the Region’s highway system. The proposed truck climbing lanes above and beyond the currently committed projects identified in Baseline and Tier 2 are listed in Table 4.12. Truck climbing lanes are additional lanes located on the outside of the freeway in an uphill direction, which permit slower-moving trucks to operate at their own pace without reducing the speed of mixed-flow traffic.

Table 4.12

Truck Climbing Lane Projects

<i>Project</i>	<i>Implementation Schedule</i>	<i>County</i>
SR-57 (Lambert to Tonner)	2010	Orange
I-10 (San Bernardino Co to Banning City Limits)	2015	Riverside
SR-60 (Badlands east/of Moreno Valley to west/of I-10/SR-60 Jct)	2030	Riverside
I-15 (Devore to Summit)	2010	San Bernardino

The total investment proposed for Truck Climbing Lanes is \$1.79 million. These projects are over and beyond Baseline and Tier 2 projects that are listed in the Technical Appendix.

INSERT EXHIBIT 4.6: USER-FEE BACKED CAPACITY IMPROVEMENTS

Truck Stakeholder Input and Participation

Stakeholder input and participation was solicited in three ways: through the Goods Movement Advisory Committee (GMAC), Technical Advisory Committees, and meetings with individual organizations. The GMAC, which meets monthly at SCAG, includes representatives from the California Trucking Association (CTA) and provided stakeholders with the opportunity to review strategies proposed in the RTP to address truck demand. SCAG also established Technical Advisory Committees to solicit input for specific truck studies, such as the Truck-Rail and Truck Count studies. Finally, SCAG representatives met with representatives from the CTA as well as shippers and receivers to discuss truck capacity improvement strategies.

Regional Rail Capacity Improvement Program

Regional rail operations, serving both freight and passengers, are facing the very real prospect of a crippling level of congestion within just a few years' time. This section details a strategy that would provide an institutional and financial structure permitting public participation in the development of regional rail capacity. At its core, this strategy is designed to take advantage of the interest rate differential between private sector financial instruments and public sector tax-credit bonds to leverage the revenue streams' potential of eligible infrastructure investment opportunities. As so far developed, this strategy would enable the level of investment necessary in the Region's East-West Corridor for rail capacity improvements, \$1.2 billion, as well as providing a mechanism for the funding of local rail mitigation measures totaling \$2.2 billion.

Given the projected growth in freight and passenger railroad traffic, the Region faces a serious shortfall in mainline track and intermodal rail yard capacity. The mainlines east of downtown Los Angeles will reach capacity before the end of the decade and will need to be triple-tracked or even quadruple-tracked in some segments. There is also a need to build an estimated 130 highway-rail grade separations east of downtown Los Angeles. Other critical bottlenecks, such as the rail-to-rail crossing at Colton Junction and the two-track limitation of the Badger Bridge crossing of the Cerritos Channel, will need to be addressed. Additional track extensions, centralized traffic control, storage tracks and other yard improvements in the port area will also have to be constructed. Failure to build these improvements could jeopardize economic growth, environmental quality, and national security.

Conceptual Planning of Rail System Improvements

With the existing maximum capacity of 50 trains per day per line, a recent SCAG study showed that both BNSF and UP railroads would have track capacity shortfalls on certain line segments by 2010, barring any major improvements.

SCAG examined possible capacity improvements to the East-West Corridor rail lines. The objective was to devise a set of improvements that would maintain present levels of system delay with the number and types of rail operations forecast for 2010 and 2030 traffic levels. This exercise determined that there was a set of capital improvements and operating options that would allow the system to perform at its present level of service while accommodating the forecast increase in both freight and passenger rail operations.

Financial Strategy

The regional rail capacity improvement program recommended by SCAG would be financed with a revenue stream raised on corridor traffic hauled by UP and BNSF. It is also recommended that discussions take place with other West Coast ports regarding a similar revenue approach to minimize any potential for cargo diversion.

This revenue stream will provide a pool of capital for investment in the improvement program. The investment will be made along the regional mainline rail alignments. The movement of a greater volume of goods through the mainline system will require local congestion mitigation, thus the improvement program provides funding for grade separations.

In order to collect and distribute funds throughout the corridor for eligible capital improvement projects, it is envisioned in concept that a special agency be created. SCAG would have a critical role in the formulation of this agency. The role of this agency, here referred to as the Southern California Railroad Infrastructure Financing Authority (SCRIFA), conceptually would be limited to issuing and servicing debt, administering the revenue stream collection process, and distributing money for approved projects to the railroads and to implementing agencies.

SCRIFA would work with project sponsors to seek grant funding for capital and operating purposes, and would also seek federal loans and issue revenue bonds. Eligible capacity improvement projects in the corridor would include:

- ❖ Freight railroad infrastructure (tracks, signals, yards, rail-to-rail grade separations, and other freight rail facilities)
- ❖ Commuter rail facilities
- ❖ Grade separations of highway-rail crossings

The UP and the BNSF would jointly agree on the priority of alternative freight railroad infrastructure projects. The railroads and the SCRRA (Metrolink) would determine priorities for improving commuter rail operations. SCRIFA, in consultation with all stakeholders, would determine priorities for grade separation investments.

The proposed capacity improvements would include a total investment of \$3.4 billion in Southern California: \$1.2 billion for railroad infrastructure projects and approximately \$2.2 billion in grade separation projects. These capacity improvement projects would be financed by a revenue stream garnered from containers transiting the corridor. SCRIFA would accept a specific revenue stream designed to cover projected debt service and administrative costs.

National Coordination

Southern California recognizes the national precedence of this rail financing methodology, and is working with representatives of the FHWA and other regional planning agencies that are exploring similar initiatives in the Northwest, Mid-West, and Mid-Atlantic regions of the nation. This interregional collaboration and federal coordination will work to ensure that federal legislative and funding programs are structured in a fashion that permits each region to address their particular priorities within a uniform national framework.

INSERT EXHIBIT 4.7: MAINLINE FRIEGHT SYSTEM IMPROVEMENTS

Rail Stakeholder Input and Participation

Stakeholder input and participation was solicited in three ways: through the Goods Movement Advisory Committee (GMAC), Technical Advisory Committees, and meetings with individual organizations. The GMAC, which meets monthly at SCAG, consists of representatives from both the Burlington Northern and Santa Fe and Union Pacific railroads and provided stakeholders with the opportunity to review strategies proposed in the RTO to address freight rail demand. SCAG also established Technical Advisory Committees to solicit input for specific rail studies, such as the Los Angeles-Inland Empire Railroads Mainline Advanced Planning Study. Finally, SCAG representatives met with representatives from the railroads and other entities including the Alameda Corridor East Construction Authority and ONTRAC to discuss freight rail capacity improvement strategies.

San Diego and Imperial County Railroad Reopening

There is an effort to revive the line, which will operate from San Diego into Mexico but is closed off from Imperial County in the Carrizo Gorge area. Those involved in the resurrection say that by December, tracks could again become a key freight line between San Diego and Imperial Counties. It is an effort some local officials say could be beneficial to the Imperial County economy because it would make the county a much stronger chain in the State's and nation's transportation links.

Once complete, the line will carve a path for freight trains from San Diego into Mexico and back into the United States where the line flows through Carrizo Gorge into Imperial County. The rail line will end at U.S. Gypsum's Plaster City, where it will meet the Union Pacific railroad, which flows east deeper into Imperial County and toward Arizona and destinations east.

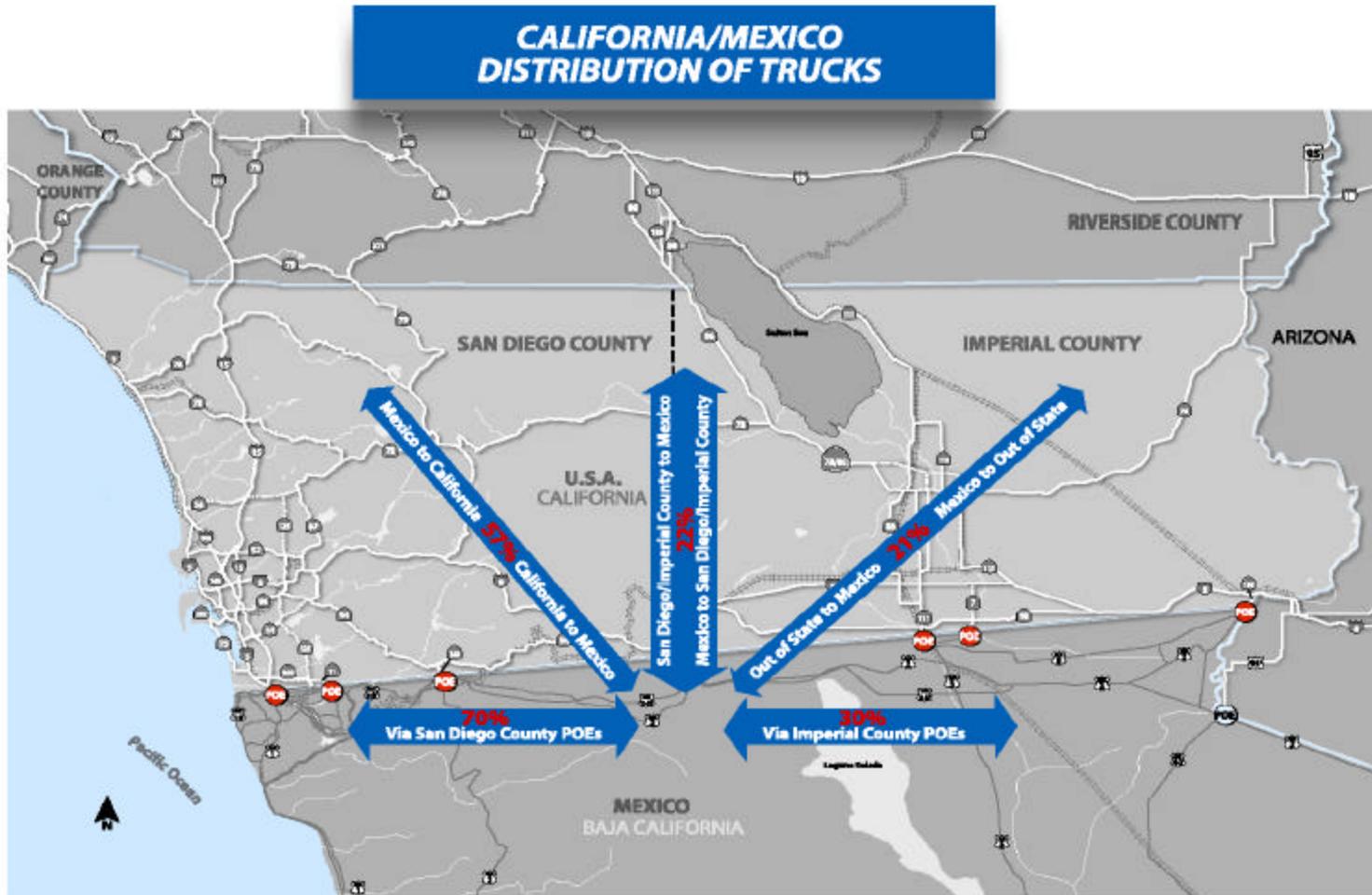
A look even further into the future could have the rail line provide passenger tourist services through the scenic Carrizo Gorge. In the more distant future, that line or a splinter line could be built as a straight line between San Diego and Imperial County without entering Mexico and could open the door to commuter service.

Border Crossings

California's exports increased 17 percent during the first year of NAFTA (1995). In 1999, Mexico became California's top export trade market. California's total trade was over \$30 billion in 2002. Trucks transport 98 percent of this trade. Over three-fourths of this trade has origins and destinations beyond San Diego and Imperial Valley.

Truck crossings are primarily processed at Otay Mesa (San Diego County) and Calexico East (Imperial County) Port of Entries (POEs). Currently, the average daily traffic of trucks traveling into California is 36,000. In 2003, two million trucks traveled northbound/southbound across the California/Baja California border. Figure 4.3 depicts the major truck distributions for the California/Mexico truck movements. The Plan allocated almost \$500 million to NAFTA network projects in Imperial County. Several projects are included in the Baseline and Tier 2 (e.g., SR-111, SR-7 from SR-98 to I-8, SR-78 / SR-111, I-8/Imperial Avenue, SR-98 from SR-111 to SR-7, SR-98 from Kloke Road to SR-111). In addition, the Plan allocates funding for the SR-115 NAFTA network project over and beyond Baseline and Tier 2.

Figure 4.3



Source: Imperial Valley Association of Governments (IVAG)

INSERT: EXHIBIT 4.8 GRADE SEPARATIONS

Marine Ports

The ports of Los Angeles, Long Beach and Hueneme are planning to invest \$6 billion over the next 25 years on an ambitious infrastructure development program including \$4 billion over the next 10 to 15 years for infrastructure improvement projects being sought by the San Pedro Bay ports. This program will include widening arterial streets, upgrading freeway ramps, separating railroad grade crossings, expanding rail yards, and adding intelligent transportation systems (ITS) to improve ground access management.

Inland Port

Conceptually, inland ports serve as cargo facilitation centers, where a number of import, export, manufacturing, packing, warehousing, forwarding, customs, and other activities (including Foreign Trade or Enterprise Zones) could take place on site or in near proximity.

Such facilities are being studied and will be considered further for development in San Bernardino, in Victorville at the Southern California Logistics Airport, in Barstow and in March Inland Port. These facilities will function as inland sorting and depository centers for ocean and domestic containers, possibly transported via dedicated rail or truck facilities. At one of these inland ports, containers or trailers can be assembled and sorted into line-haul trains destined for locations outside of the Region. Conversely, shipments arriving on westbound trains could be broken down and sorted for short-haul train delivery within the Region and to the ports. Each of these possible locations will be the subject of further study.

■ Maglev System

The Regional High Speed Rail Maglev System will ultimately facilitate the development of a regional airport system, and connect to major activity and multi-modal transportation centers in Los Angeles, Riverside, San Bernardino, and Orange Counties. Without a regional airport in El Toro, the Region needs to further decentralize its future growth in air passenger traffic and air cargo to its regional airports in the northern and eastern portions of the Region. Therefore, the Maglev system becomes more important and critical to the success of SCAG's decentralized regional aviation system.

The Maglev system is the name for an elevated monorail using the world's most advanced technology to move people and goods at a very high speed (up to 310 mph), with a high degree of safety, comfort, and reliability; and it is environmentally friendly. For the past four years, SCAG has been studying the feasibility of deploying four Maglev corridors in the Region:

- ❖ Los Angeles Airport (LAX) to March Inland Port in Riverside County (Moreno Valley)
- ❖ LAX to Palmdale
- ❖ Los Angeles Union Passenger Terminal (LAUPT) to Orange County (Anaheim)
- ❖ LAX to Orange County (Irvine Transportation Center)

In 2002, the Western States Maglev Alliance was formed between SCAG and the California-Nevada Super Speed Train Commission and was approved by the Regional Council. As a result of this alliance, the Plan supports continued analysis of the proposed Las Vegas to Anaheim Maglev segment that passes through Barstow (see Exhibit 4.9).

The SCAG Interregional High Speed Rail system will ultimately grow to cover over 275 miles of Maglev corridors in the SCAG Region, and will move up to 500,000 riders a day. When fully deployed, the Maglev system could complement the regional State highway transportation system. The Maglev program also envisions a longer-term connection to San Diego and other southern airports in the SCAG Region⁶, a connection between San Bernardino and Palmdale via a high desert alignment and interlining with the proposed California State High Speed Rail System. The California State High Speed Rail Authority has been commissioned to do preliminary development work on several north/south corridors. SCAG has supported the Antelope and San Joaquin Valley corridors (Resolution #96-357-1-B). The State of California should coordinate all high-speed rail-planning activities with SCAG and other stakeholders within the State, especially with regard to Maglev, aviation, environment, growth, access, finance and community development.

Three phases have been developed to implement the Maglev deployment program:

- ❖ **Phase 1**, Pre-Deployment Analysis, was completed in October 2003 and includes right-of-way assessment on the freeway system and railroad corridors, assessment of ridership and interaction with other transportation systems, LAUPT capacity analysis, stakeholder outreach, financial feasibility, public/private partnership, technology transfer, and identification of an Initial Operating Segment (IOS).
- ❖ **Phase 2**, Preliminary Engineering, will focus on defining the project to prepare preliminary engineering for the purpose of environmental assessment and analysis (EIR/EIS) for public/private investment.
- ❖ **Phase 3**, Project Deployment Strategy, will complete the investment quality analysis necessary to take the deployment program to the private market. This phase will include an investment-grade ridership and revenue forecast, operation plans, a detailed financial plan, and creation of a public/private consortium for project deployment.

In December 2002, SCAG's Regional Council approved the deployment of a 56-mile IOS of the Maglev system that would connect West Los Angeles via LAUPT to Ontario Airport. It is a component of a 92-mile corridor between LAX and March Inland Port in Riverside County. In selecting the IOS, SCAG considered the RTP performance measures, stakeholder support and environmental issues. At the same time, SCAG's Regional Council approved the advance planning of the LAX to Palmdale corridor and Los Angeles to Orange County corridor (Orange Line). It is anticipated that the IOS is expected to be implemented by the private sector by 2018.

⁶ SCAG will undertake a future study to determine the feasibility of extending Maglev services to the southernmost regions of California to connect regional airports in San Diego, Palm Springs, Imperial County and March Inland Port.

The feasibility studies for the four corridors demonstrated that the Maglev system could be constructed and deployed through a public-private partnership structure administered through a public agency, a joint powers authority (JPA), or a public nonprofit (PNP) format using a number of innovative and traditional funding mechanisms. The system would be financed through tax-exempt bonds and Federal Transportation Infrastructure Finance and Innovative Act (TIFIA) program loans that would be repaid through the project-generated revenues. No operating subsidies will be required.

The Maglev Deployment will move SCAG's Region forward through investment in critical infrastructure that will quickly improve surface transportation, enhance goods movement and revitalize the Southland's economy. The initiative is a short- to medium-term fix that will inject over \$26 billion into SCAG's regional economy between the years 2005 and 2018. The Maglev Deployment for the IOS will create approximately 92,000 jobs in the SCAG Region for a total private investment of \$5.5 billion. JPA formation for the IOS and LAX to other corridors is in process.

The completion of the privately funded Maglev projects beyond 2018 will result in improvements in productivity, quality of life, and mobility, and will enhance the Southern California economy. The project milestones are summarized in Table 4.13 and depicted on the map in Exhibit 4.9.

Table 4.13

2004 RTP Regional Maglev Milestones

Milestones	Capital Costs (\$ billion)	Capital Costs Period
Ontario - LA Union Station - West LA	\$ 5.5	2015 – 2018
Ontario - March Airport	\$ 2.4	2018 – 2020
West Los Angeles - LAX	\$ 0.7	2018 – 2020
LAX - Palmdale Airport	\$ 8.2	2020 – 2024
LAX - John Wayne Airport - Irvine Transit Center	\$ 9.0	2025 – 2030
LA Union Station - Central Orange County	\$ 3.6	2025 – 2030
Orange County - San Bernardino	Not available	2030+
San Bernardino / Victorville	Not available	2030+
Victorville / Palmdale	Not available	2030+
March Airport / San Diego	Not available	2030+

Note: SCAG will undertake a study to determine the feasibility of extending Maglev Services to regional airports in Palm Springs, Imperial County and San Diego to meet aviation demand.

Next Steps

- ❖ Prepare preliminary engineering for the IOS for the purpose of preparation of the federal Environmental Impact Statement (EIS) and/or State Environmental Impact Report (EIR) to a level necessary for public/private investment.
- ❖ Form a Joint Powers Authority (JPA) for the IOS, and market projects to public/private stakeholders.
- ❖ Secure federal, State and local funds by 2010 to complete deployment of the IOS and coalesce community support for operation of the IOS.
- ❖ Seek legislative support at the regional, State and federal levels for the Maglev deployment.

INSERT EXHIBIT 4.9: MAP OF MAGLEV

■ Aviation

SCAG has updated its regional growth forecast and has developed a new aviation demand forecast and plan that maximizes airport efficiency on a regional scale. The demand numbers by airport are shown in Table 4.14 in terms of million annual passengers (MAP).

Table 4.14

Existing Condition and the Regional Aviation Plan

	Bob Hope	John Wayne	Los Angeles International	Long Beach	March Inland Port	Ontario	Palm Springs	Palmdale	San Bernardino	So. Calif. Logistics	TOTAL
Existing Conditions	4.6	7.9	56.2	1.4	0	6.5	1.1	0	0	0	77.8
Regional Aviation Plan (2030)	10.7	10.8	78.0	3.8	8.0	30.0	3.2	12.8	8.7	4.0	170.0

Forecasts for the Bob Hope Airport assume higher passenger activity within the physical constraints of the airport than what is assumed by the airport staff.

The March Joint Powers Authority's focus is on 1) increased military activity; and 2) air cargo. SCAG projections assume commercial air passenger service not yet contemplated by the March Joint Powers Commission. SCAG has a longstanding policy to give priority to military and national defense needs.

Under the Regional Aviation Plan, there is a forecast regional demand of 170 million passengers in 2030, which results in an economic benefit of \$18 billion and 131,000 jobs over a constrained system, as shown in Table 4.15. The 170.0 MAP forecast to 2030 represents a 4.2 percent average annual passenger increase from 2003 levels. The reasons include:

1. The Regional Aviation Plan, in its decentralization of international service from LAX to Ontario and Palmdale airports, will create a significant amount of demand by placing that service closer to populations in fast-growing areas and generating additional economic activity in those areas.
2. Maglev will also create additional demand by virtue of increasing the speed and predictability of the airport access trips.
3. The Region's position as a gateway to the Pacific Rim is expected to capture increasing international travel to and from Asia.
4. The forecast 2030 plan horizon will capture the "baby boomer" retirement. Retirees travel at greater-than-average rates.

Table 4.15

Aviation-Related Economic Benefits

<i>Variation</i>	<i>Passengers</i>	<i>Economic Impacts (1998 Dollars)</i>	<i>Jobs</i>	<i>Economic Benefits (compared to Constrained)</i>
Constrained	140.8	\$ 87 Billion	630,000	---
Regional Aviation Plan	170.0	\$ 105 Billion	761,000	\$ 18 Billion / 131,000 Jobs

Under the Regional Aviation Plan, rather than relying on expanding existing urban airports, the future demand for air travel will be largely served by using available capacity at airfields located in the Inland Empire and north Los Angeles County where projected population growth will be best served. Cooperation between airport authorities is necessary to ensure efficient usage of capacity. Using this available capacity promotes a decentralized system that relieves pressure on constrained, urbanized airports and on the Region's surface transportation infrastructure.

Aviation Guiding Principles

- ❖ Provide for regional capture of economic development opportunities and job growth created by the prospect of significant regional air traffic growth between now and 2030.
- ❖ Distribute maximum opportunity to Southern California airports where population and job growth are expected to be strong and where local communities desire air traffic for economic development.
- ❖ Reflect environmental, environmental justice and local quality of life constraints at existing airports that operate in built-out urban environments.
- ❖ Reflect that each county should have both the obligation and the opportunity to meet its own air traffic needs where feasible.

Action Steps

- ❖ Support capacity expansion at major existing and potential airports to handle anticipated increases in passengers and cargo volume.
- ❖ Mitigate the effects of expanding airports and consider the reuse of former military airfields so that community impacts are minimized.
- ❖ Maximize air passenger and air cargo utilization of outlying airports in less-populated areas.

The Regional Aviation Plan attempts to distribute long-haul and international service to suburban airports, particularly Palmdale. With international service established at the Palmdale and Ontario airports, the Region would have a balanced system of three international airports, similar to the San Francisco Bay Area and New York regions. The Regional Aviation Plan incorporates the proposed Maglev system, which will strategically

connect the major airports and augment a balanced distribution of aviation demand and services in the Region.

The 170.0 total MAP served by the Regional Aviation Plan in 2030 is slightly higher than the 167.3 MAP that was forecast to be served by the 2001 adopted aviation plan by 2025. Given a lower aviation demand forecast resulting from the events of September 11, 2001, and the recent economic downturn, it can be concluded that the new assumptions and concepts incorporated into the Regional Aviation Plan alleviate the substantial loss of capacity associated with eliminating El Toro from the regional system.

The authority for the implementation of SCAG's regional aviation plan currently rests with individual airports. While SCAG forecasts Bob Hope Airport to reach an estimated physical capacity of 10.7 MAP, the facility believes there is less airside and ground access capacity than what SCAG's forecast indicates. The March Joint Powers Authority has indicated its priorities are: 1) increased military activity; and 2) air cargo. SCAG projections assume commercial air passenger service not yet contemplated by the March Joint Powers Commission. SCAG has a longstanding policy to give priority to military and national defense needs. SCAG will continue to work with the airports after the adoption of the 2004 RTP to resolve these issues.

SCAG will also, after the adoption of this RTP, study the feasibility of an international airport in Imperial County connected to San Diego County and the Inland Empire via Maglev. The proposed airport would serve San Diego County demand as well as eastern portions of the SCAG Region.

Under SCAG's Regional Aviation Plan, air cargo service becomes more decentralized. LAX, while serving greater amounts of air cargo, will handle only 27 percent of regional air cargo compared to 75 percent. Southern California Logistics Airport becomes a multi-modal freight-handling facility. In all, March Inland Port, Palmdale, San Bernardino International, and Southern California Logistics go from serving no air cargo to serving a combined 44 percent of the regional total. These projections are summarized in Table 4.16.

Cooperation between airports would be accomplished through the integration of airport master plans and the development of contractual agreements between airports. Also, these agreements would identify complementary roles and market niches between airports, to increase synergy in the system and maximize utilization of available airport capacities in the Region. For example, Los Angeles World Airports (LAWA) would play a key role in integrating master plans for the three airports it operates, LAX, Ontario and Palmdale.

The Regional Aviation Plan requires that an airport "Consortium" be developed through memoranda of understanding between all of the airports in the regional system. The agreements will establish a common framework for coordinating all airport master planning and facility construction consistent with an adopted Regional Aviation Plan. The Consortium would focus on on-airport operations and facilities, and would not have power of eminent domain.

Table 4.16

Air Cargo Demand - 2030 Regional Aviation Plan (Thousands of Tons of Air Cargo)

	2002		2030	
	Tons x 000	Percent of total	Tons x 000	Percent of total
Bpb Hope	43	1.6%	87	1.0%
John Wayne	15	0.6%	43	0.5%
LAX	1,958	74.7%	2,340	26.8%
Long Beach	58	2.2%	137	1.6%
March	0	0.00%	1,117	12.8%
Ontario	547	20.9%	2,252	25.8%
Palm Springs	0.8	0.03%	128	1.5%
Palmdale	0	0.00%	1,024	11.7%
San Bernardino	0	0.00%	1,092	12.5%
So.Cal. Logistics	0	0.00%	504	5.8%
TOTAL	2,623	100%	8,724	100%

The Regional Aviation Plan is assumed to spur the growth of corporate aviation at both suburban air carrier airports, and general aviation airports in both urban and suburban locations. The creation of more robust flight portfolios at suburban airports is expected to increase the inducement of “catalytic” demand in the Inland Empire and North Los Angeles County.

However, without Maglev, the Regional Aviation Plan would serve only a total of 155.0 MAP, or a loss of 15 MAP to the system (the system would also lose 266,000 tons of air cargo without Maglev, since some cargo would be transported to suburban airports via Maglev). Maglev also increases the market reach of these airports, by drawing passengers from urban core locations who can quickly access the suburban airports via Maglev to catch their desired flights. Maglev is vital to the implementation of the Regional Aviation Plan. The ability of airports to “broker” airlines to provide long-haul and international service to suburban airports will be dependent on the ability to quickly transport long-haul and international travelers at these airports to their destinations around the Region. The Plan requires that the airport Consortium work closely with the Maglev Joint Powers Authority to ensure systems integration.

The Regional Aviation Plan will be carried out by an implementation plan containing the following elements:

- ❖ LAWA will develop an “Integrated Metropolitan Airport System Plan.” This plan will detail how LAX, Ontario and Palmdale will work with each other and other regional airports in

efficiently meeting regional aviation demand as defined in the RTP Regional Aviation Plan.

- ❖ LAWA will provide needed financial support to Palmdale and Ontario airports to construct new facilities and establish long-haul and international service through attractive pricing arrangements and other inducements.
- ❖ Palmdale will become a limited international airport, making all of LAWA's commercial airports international airports.
- ❖ LAWA will broker cooperation from airlines to provide more robust flight portfolios at Palmdale and Ontario, including long-haul and international service.
- ❖ Agreements between LAWA and non-LAWA airports will be developed to promote further decentralization of the regional aviation system. Different roles and market niches for airports will be defined, so as to reduce competition and increase cooperation and coordination between airports, and maximize utilization of available airport capacities in the Region.
- ❖ The agreements will establish a common framework for a regional "Airport Consortium" that will coordinate all airport master planning and facility construction consistent with an adopted Regional Aviation Plan.
- ❖ The Regional Airport Consortium will coordinate with the Maglev Joint Powers Authority to ensure seamless Maglev connections to airports, and increase air passenger ridership via Maglev through integrated fares and other market tools.

Phasing of Implementation Plan

Very short term (to 2006):

- ❖ LAWA finalizes integrated Metropolitan Airport System Master Plan that integrates master plans for LAX, Ontario and Palmdale, and coordinates with plans for other airports in the Region.

Short term (2006 to 2010):

- ❖ LAWA initiates discussions with airlines to broker services at Palmdale and Ontario. This will include start-up commuter and short-haul service at Palmdale, and expansion of long-haul and international service at Ontario.
- ❖ LAWA and non-LAWA airports initiate discussions to coordinate service and define complementary roles and market niches between airports.

Medium term (2010 to 2020):

- ❖ LAX approaches capacity constraints.
- ❖ LAWA coordinates with airlines to expand long-haul and international service at Ontario Airport and initiates discussions on methods to establish long-haul and international service at Palmdale Airport.

- ❖ LAWA and non-LAWA Inland airports finalize Memoranda of Understanding and contractual agreements for forming a Regional Airport Consortium.
- ❖ Ontario Airport expands terminal facilities.
- ❖ The LAX to March Inland Port Maglev segment is completed.
- ❖ March Inland Port begins passenger service, reaches 1.7 MAP (2015).

Long term (2020 to 2030):

- ❖ Palmdale Airport constructs new international terminal facilities.
- ❖ LAWA finalizes agreements with airlines to bring long-haul and international service to Palmdale.
- ❖ LAX to Palmdale Airport Maglev segment is completed.
- ❖ LAX to Irvine Maglev segment is completed.
- ❖ Union Station to Central Orange County Maglev segment is completed.
- ❖ March Inland Port reaches 4 MAP (2025).

Very long term (after 2030):

- ❖ March Inland Port reaches 8 MAP (2030).
- ❖ Orange County to San Bernardino Maglev segment completed.
- ❖ San Bernardino to Victorville, Victorville to Palmdale, and March Inland Port to San Diego Maglev segments are completed.

Ground Access

The Regional Aviation Plan will have localized ground access impacts at a number of airports. Particularly, the Regional Aviation Plan will result in a dramatic increase in airport activities (people as well as cargo) at Ontario, Palmdale and a number of other airports. Analysis shows that airport traffic impacts are concentrated near airport areas but that background congestion affects both airports and local communities. A number of freeway and arterial improvements and transit strategies are proposed in the Plan to address the ground access issues as part of the overall transportation investment in the Region. Specific ground access improvements proposed in the Plan are identified in the Technical Appendix.

Transportation Finance: Meeting Our Needs

SCAG forecasts funding shortfalls over the 2004 RTP period. Numerous factors, including the expiration of local sales tax measures; declining gas tax revenues due to inflation, fuel efficiency and the introduction of alternative fuel vehicles; increasing operations and maintenance/rehabilitation costs; and the State's budget deficit, account for the SCAG Region's financial predicament. The Region would not be able to provide capacity enhancements beyond the short-term commitments without developing a strategy to generate additional transportation revenues.

■ Federal Policies Concerning Funding Strategies

Federal policies require the use of revenue sources that are “reasonably expected to be available.” The regulations further indicate that “proposed new revenues and/or new revenue sources to cover shortfalls shall be identified, including strategies for ensuring their availability for proposed investments.”

The SCAG Region’s funding strategies focus on continuing to maintain and protect revenue streams that the Region could potentially lose in the years to come. SCAG’s funding strategies provide sufficient revenue to fund the program of projects proposed in the 2004 RTP. Further, the strategies provide sufficient revenue to fund high-priority projects that ensure the SCAG Region remains in compliance with air quality conformity requirements.

■ State Policies Concerning Funding Strategies

The State of California also establishes policies governing the preparation of the Regional Transportation Plan. These policies were formulated in Senate Bill 45 (Chapter 622, Statutes of 1997) and in guidelines adopted by the California Transportation Commission. With regard to the funding element of the RTP, State policies require that financial plans be constrained and represent a “realistic projection of available revenues.” Further, State guidelines permit the inclusion of new funding consistent with the overall policies and program of investments recommended in the RTP.

■ Guiding Principles for the Development of Funding Strategies

To facilitate the development of the 2004 RTP funding strategies, the Highway and Transportation Finance Task Force, along with the Transportation and Communication Committee, adopted a set of guiding principles. The guiding principles are as follows:

- ❖ Maximize available resources
- ❖ Ensure revenue is adequate to maintain conformity
- ❖ Enhance regional and local choice in the selection of projects for funding
- ❖ Identify revenue sources that are reasonable and consistent with current funding practices and long-term trends in transportation finance

Recommended Funding Strategies to Implement SCAG's RTP

Within the framework of the aforementioned guiding principles, the Highway and Transportation Finance Task Force, along with various other SCAG committees, engaged in extensive debates concerning the adequacy and feasibility of various revenue options available to respond to the SCAG Region's funding shortfall. On the basis of the Task Force's actions and policy direction, the following funding strategies for the 2004 RTP were developed:

■ Public Funding Strategy

Protect / Strengthen Existing Transportation Revenues

In the 2001 RTP, an important strategy was the commitment of sales tax revenues from gasoline to transportation purposes. Proposition 42, approved by the voters in March 2002, provides that these funds will be available for transportation purposes. However, a caveat placed in the State Constitution allows this revenue to be diverted to the State's General Fund if the governor recommends such an action and the Legislature agrees by a two-thirds vote.

The diversion provision introduces considerable uncertainty in the availability of revenue, resulting in a reluctance to commit the funds to long-term transportation projects. To rectify this situation and to ensure that the Proposition 42 revenue is available when needed, the Constitution should be amended to remove this provision. This would make the sales tax on gasoline a truly viable revenue source.

Clearly, the need to stabilize transportation funding is more critical than ever in light of the governor's recent mid-year and budget year proposals to use transportation revenues for addressing General Fund problems. General Fund shortfalls will likely continue in future years, necessitating immediate action to remove the suspension provision in the State Constitution.

Additionally, Caltrans has reported that revenue assumptions made in the 2002 STIP Fund Estimate were overly optimistic. More recent projections indicate that the State Highway Account (SHA) cash balance will fall below planned levels primarily due to lower-than-expected truck weight fee revenues and gas tax receipts. Although Chapter 719, Statutes of 2003 (SB1055), increased fees as of January 1, 2004, to correct for the decline in truck weight fee revenues, there still remains considerable uncertainty regarding federal funding levels. The 2004 STIP Fund Estimate assumes a reduction in federal funding as a result of California's switch from MTBE to ethanol-blended gasoline. Current federal law taxes ethanol-blended gasoline at a lower rate and a portion of the revenue is directed into the Federal General Fund. As states like California switch to ethanol and contribute less to the Federal Highway Trust Fund, federal transportation revenues are expected to decline substantially. California will receive less in federal transportation funding unless the tax on ethanol is adjusted. Caltrans estimates that the ethanol conversion will cost California approximately \$2.8 billion in federal revenues over the five-year STIP period.

Continue Local Transportation Sales Taxes Where Necessary/Allow 55 percent Voter Approval for Local Transportation Sales Taxes

This was a component of the funding strategy in the 2001 RTP. Since the adoption of that Plan, Riverside County voters approved a thirty-year extension of its local transportation sales tax, which will provide the county with about \$3 billion through 2030. Successful extensions of local transportation sales taxes in San Bernardino and Imperial Counties are forecast to provide an additional \$4.3 billion in revenue through 2030.

Chapter 785, Statutes of 2003 (SB314), authorizes the LACMTA to place on the ballot before Los Angeles County voters another half-cent sales tax for transportation. This tax would be limited to a period of six-and-a-half years or less and is anticipated to generate about \$4 billion for specified Los Angeles County transportation-related capital projects and programs. Refer to Technical Appendix B for capital projects and programs as described in Chapter 785, Statutes of 2003 (SB314). The implementation schedules that are currently assumed for these specified projects are contingent upon the passage of this sales tax measure. To facilitate the passage of these taxes, the State Constitution should be amended to allow passage with a 55 percent majority instead of the currently required two-thirds majority. Several Constitutional Amendments have been introduced in the 2003-2004 session of the State Legislature that would provide for such a change.

With relatively positive public opinion poll findings, the Ventura County Transportation Commission (VCTC) is now examining the possibility of imposing a half-cent sales tax measure for transportation purposes in Ventura County. SCAG continues to monitor VCTC's efforts and intends to incorporate projected revenue estimates resulting from the sales tax initiative along with the specified projects upon further availability of information and progress.

Maximize Motor Vehicle Fuel User Fee Revenue Through Pay-As-You-Go and Debt Financing (Assuming an Adjustment to the Gas Tax Rate to Maintain Historical Purchasing Power)

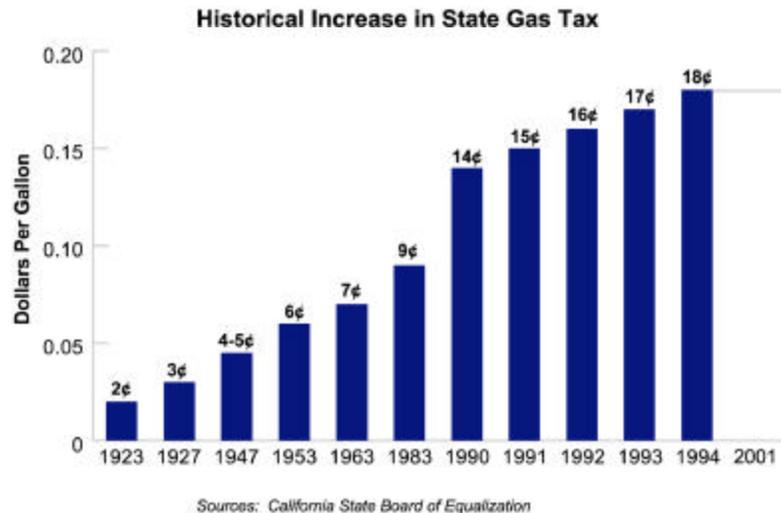
An important element in the 2001 RTP's revenue strategy was a five-cents-per-gallon increase in the motor vehicle fuel tax in 2010 and an additional penny annually between 2011 and 2015, for a total increase of ten cents. For the 2004 RTP, it is proposed that a portion of the revenue stream from that increase be committed to the issuance of debt to raise up-front revenues to fund RTP projects. The remaining portion of the revenue generated from the incremental increase in the State gas tax could be utilized for direct pay-as-you-go projects. Additionally, GARVEE bond financing (Grant Anticipation Revenue Vehicles) would be employed wherever feasible, pledging future federal funds to accelerate the 2004 RTP project development process.

This proposal would require State implementation legislation. However, with the existing authorization of debt financing using federal fuel tax revenue (GARVEEs), the federal government has already established a precedent that the State of California should follow.

State transportation revenues are collected primarily from the State motor vehicle fuel excise tax. The current State fuel excise tax was last increased between 1990 and 1994, when it was doubled from nine cents to 18 cents per gallon. If an assumption were made that the Legislature would provide for a similar increase sixteen years later in 2010, the revenue

stream for the RTP would be enhanced. As a matter of historical reference, the gas tax was first imposed at two cents per gallon in 1923. Subsequently, the tax rate increased as shown in Figure 4.4. In light of past legislative actions to adjust the tax rate, it is reasonable to assume further rate adjustments during the 2004 RTP time horizon.

Figure 4.4



Review Methods for Collecting Revenues from Alternative Fuel Vehicles

The fuel tax component of SCAG's public funding strategy seeks to offset the decline in gasoline tax revenues from inflation, fuel efficiency and alternative fuels. It includes the option to further study the implementation of a revenue raising mechanism on alternative fuel vehicles should the market penetration rate of such vehicles be substantial.

It is clearly important to understand that the Region's transportation revenue estimates are affected by the actual market penetration rate of alternative-fuel and fuel-efficient vehicles over the Plan period. If the penetration rate remains very low, the gasoline tax revenue loss would be minimal. However, it is likely that sources of energy for the motor vehicle fleet will become quite diverse and fuel efficiency of engines can be expected to increase during the time frame of the 2004 RTP (horizon year 2030). Recognizing this, SCAG will seek funding in the federal transportation reauthorization legislation to conduct research on alternative transportation user fee collection mechanisms for various fuel/vehicle engine combinations.

■ Development Mitigation Fee

Currently, the San Bernardino Associated Governments (SANBAG) is considering the feasibility of a development mitigation fee in addition to the County's Measure I renewal program (sales tax extension program). A Development Mitigation Committee was formed to determine whether there is a need for additional mitigation of the impacts of private development on regional transportation facilities. Upon further study, the committee will recommend to the SANBAG Board of Directors the most appropriate approach to

development mitigation, as deemed necessary. Initial revenue estimates for some approaches identified for further analyses indicate that about \$1.5 billion could be generated for arterials, grade separations, and interchanges in San Bernardino County.

■ Private / Innovative Funding Strategy

Consider the Feasibility of HOT Lanes for New Facilities

Given limited public funds to support transportation infrastructure development, high occupancy toll (HOT) lanes would be considered for some new facilities. Projected toll revenues could be substantial based upon some initial analyses of corridors within the SCAG Region.

Pursue User-Fee - Supported Project Financing for Major Regional Investments Where Applicable

There are several one-of-a-kind major regional projects proposed in the 2004 RTP, including the proposed Maglev system, special purpose facilities, and freight railroad system improvements. These proposals are to be debt financed and backed by user charges. The proposed debt financing instruments, including tax-exempt revenue bonds and tax credit bonds, facilitate public-private partnerships—most critical to addressing some of the Region's infrastructure funding issues.

In recognizing that limited public resources are available to address many large-scale transportation projects in the Region, this strategy simply provides that the Region will consider the feasibility of using innovative public-private partnership arrangements to develop transportation infrastructure where such financing strategies are applicable. These financing arrangements are most applicable where we have identified projects capable of generating their own streams of revenues to offset capital development, operations and maintenance as well as any associated debt service costs.

Potential financing structures identified for the three proposed projects include:

Special Purpose Facility Financing

- ❖ Total development cost for a regional system of 140 miles including potentially the I-710 corridor, the East-West Corridor, and the I-15 corridor, is estimated to be \$16.5 billion.
- ❖ Net revenues generated from tolls would be leveraged to issue tax-exempt revenue bonds.
- ❖ Capital financing instruments may include a combination of senior-lien tax-exempt revenue bonds and federal credit enhancement in the form of loans (at 33% total eligible capital cost—TIFIA).
- ❖ For the preliminary financial analysis, tolls were assumed to be imposed at an average rate of \$0.56 per mile.

Regional Rail Capacity Project Financing

- ❖ Total development cost for this component is estimated to be \$3.4 billion (\$1.2 billion for capacity improvements and \$2.2 billion for grade separations).
- ❖ The financial analysis relies upon taking advantage of the interest rate differential between private sector financing costs and tax-credit bonds, a public financing mechanism that would substitute federal tax credits for interest payments.
- ❖ It is assumed that a revenue stream equivalent averaging \$5.39 per TEU would be generated to finance the program.

Maglev Project Financing

- ❖ The cost for this initial operating segment (IOS) is estimated to be \$5.5 billion.
- ❖ The financing structure for this project relies upon the issuance of tax-exempt revenue bonds and TIFIA loans.
- ❖ An average charge of \$0.37 per passenger mile would be needed to finance the project.

■ Funding Components and SCAG's Regional Checkbook

Table 4.17 itemizes each new funding component. The components, taken together, make up the SCAG Region's public and private funding strategies in developing a financially feasible and comprehensive 2004 RTP. Furthermore, Table 4.18 outlines SCAG's regional checkbook for the 2004 RTP.

Table 4.17

2004 RTP Revenue Sources (2002-2030, In Billions \$2002)

Baseline Public Revenues	Extends existing local, State, and federal funds for transportation out to the year 2030.	\$120
RTP Funding Strategies	Public Funding:	\$31
	<ul style="list-style-type: none"> Cont./Explore Local Transportation Sales Taxes (Imperial, Los Angeles, and Bernardino Counties) - \$8 billion 	
	<ul style="list-style-type: none"> Maximize Motor Vehicles Fuel User Fee Revenue (State increase or Regional imposition totaling 10 cents: 5 cents in 2010 and 1 cent per year from 2010 to 2015) - \$21.7 billion 	
	<ul style="list-style-type: none"> Development Mitigation Fee (San Bernardino County) - \$1.5 billion 	
	Private / Other Funding	\$62
	<ul style="list-style-type: none"> Includes HOT lanes and User-Fee – Supported Major Regional Investments – Public-Private Partnerships. 	
	<ul style="list-style-type: none"> Other funds may include those local revenue sources not fully or traditionally captured in the RTP financial plan. 	
Total Revenue		\$213

Table 4.18

2004 RTP Regional Checkbook by County (2002-2030, In Billions \$2002)

County	Baseline Revenues	Committed Costs	Net Balance	Public Funding Strategy	Total Public Funding Available for 2004 RTP Investments
Imperial	\$1.1	\$0.8	\$0.3	\$0.3	\$0.6
Los Angeles	\$76.0	\$79.4	(\$3.4)	\$15.4	\$12.0
Orange	\$20.5	\$15.8	\$4.7	\$3.0	\$7.7
Riverside	\$12.1	\$6.0	\$6.1	\$2.6	\$8.7
San Bernardino	\$8.0	\$10.9	(\$2.9)	\$8.8	\$5.8
Ventura	\$2.7	\$2.5	\$0.2	\$1.1	\$1.3
Total	\$120.4	\$115.4	\$5.0	\$31.2	\$36.1

Chapter 5



Plan Performance: How
Will the Plan Perform?

CHAPTER 5 PLAN PERFORMANCE: HOW WILL THE PLAN PERFORM?

System / Investment Performance

This chapter summarizes how well the 2004 RTP performs in meeting its adopted goals and satisfying State and federal requirements. For instance, the California Transportation Commission (CTC), following State and federal laws, requires that SCAG use “program level” transportation system performance measures that reflect goals adopted by the SCAG Regional Council. Table 5.1 summarizes these adopted goals and their related performance outcomes. One or more performance measures were developed for each of these outcomes to quantify the Plan’s performance.

Table 5.1

2004 RTP Goals and Related Performance Outcomes

RTP Goals	RTP Performance Measures									
	Mobility	Accessibility	Cost-Effectiveness	Reliability	Productivity	Safety	Preservation	Sustainability	Environment	Geographic Equity
Maximize mobility and accessibility for all people and goods in the Region	✓	✓	✓							✓
Ensure travel safety and reliability for all people and goods in the Region	✓			✓		✓				✓
Preserve and ensure a sustainable regional transportation system							✓	✓		✓
Maximize the productivity of our transportation system	✓				✓					✓
Protect the environment, improve air quality and promote energy efficiency									✓	✓
Encourage land use and growth patterns that complement our transportation investments	✓	✓							✓	✓

The RTP's Technical Advisory Committee (TAC) was charged with guiding the development and application of performance measures to ensure that the best performing set of improvement strategies was presented in the 2004 RTP. The TAC members represent the county transportation commissions, subregional Councils of Government, Caltrans districts, air districts, California Air Resources Board, Federal Department of Transportation, and environmental and transportation advocacy groups. The TAC evaluated numerous scenarios and presented its recommendation to SCAG's Regional Council. The selected strategy is presented in this Plan and this chapter shows the performance results for the 2004 RTP.

■ Plan Investment Performance

This section provides detailed information on each of the performance outcomes and related measures approved by the Regional Council for inclusion in the 2004 RTP. The basic concept for each criterion is to compare the performance of the Plan (2030) to both the Base Year (2000) and the Baseline (No-Project) scenario for 2030. The analysis is based upon the SCAG regional travel demand model.

Mobility

The mobility performance outcome relies on two commonly used measures: speed and delay. Speed and delay were computed using SCAG's regional travel demand model with results as follows:

- ❖ Speed is the average speed experienced by travelers regardless of mode in miles per hour (mph).
- ❖ Delay is the difference between the actual travel time and travel time that would be experienced if a person traveled at the legal speed limit. This measure is reported as person-hours of delay, which is presented here as a total and as delay per capita. The latter normalizes the results with the expected population growth during the Plan period (i.e., through 2030).

Figure 5.1 compares the speeds of the three scenarios. It shows that the Plan improves average daily speeds by 10 percent compared to the Baseline (No-Project) and represents only a half-mile-per-hour decline over Base Year results.

Figure 5.1

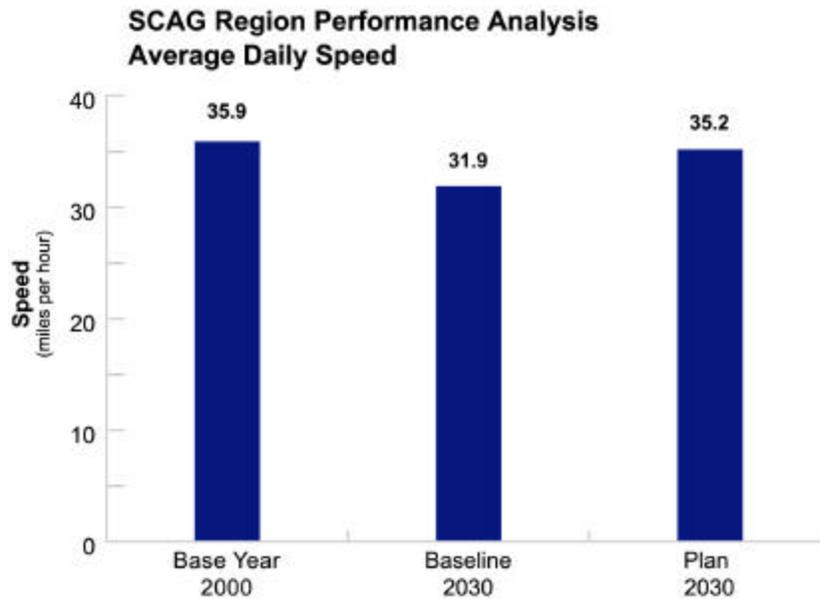


Figure 5.2 compares delay results and shows that the Plan reduces total daily person delay by more than 40 percent compared to the Baseline (No-Project) and an increase of 50 percent over the Base Year condition. This increase reflects the growth in the Region and the resulting incremental travel.

Figure 5.2

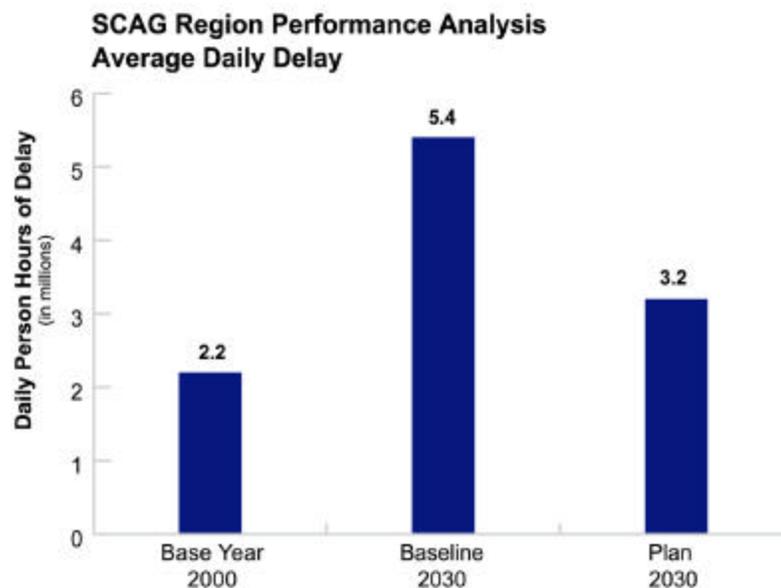
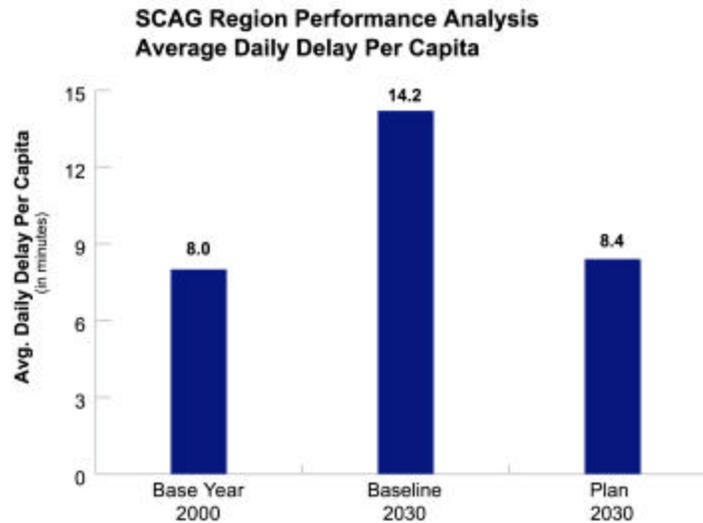


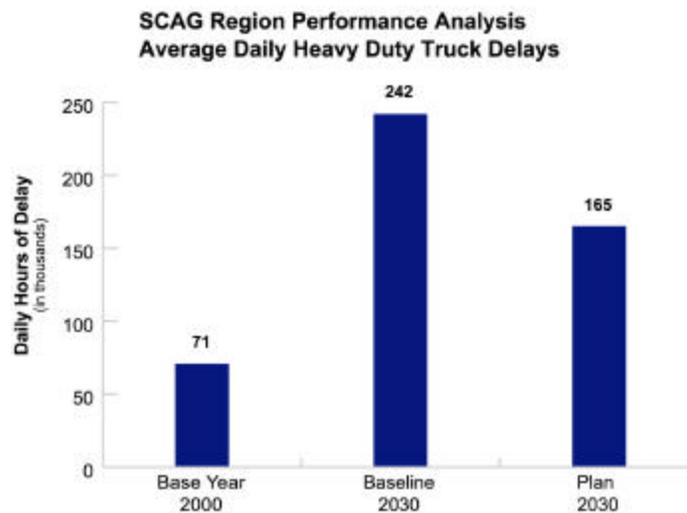
Figure 5.3 compares average daily delay per capita, which is a measure that takes into account that there will be more people traveling on the Region's transportation system by 2030. The results tell a different story. Whereas total delay for the Plan increases by 50 percent over Base Year conditions, it actually remains almost constant on a per capita basis.

Figure 5.3



Finally, Figure 5.4 compares average daily Heavy Duty Truck delays, which shows an improvement of over 30 percent compared to the Baseline (No-Project). This is an important statistic given the Plan's emphasis on the logistics industry and its importance to the regional economy.

Figure 5.4



Exhibits 5.1, 5.2, and 5.3 depict regional PM peak (3 p.m. to 7 p.m.) freeway speeds for Base Year 2000, Baseline (No-Project) in 2030, and Plan in 2030, respectively.

INSERT EXHIBIT 5.1: 2000 BASE YEAR FREEWAY SPEED PM PEAK

INSERT EXHIBIT 5.2: 2030 BASELINE (NO PROJECT) PM PEAK FREEWAY SPEED

INSERT EXHIBIT 5.3: 2030 PLAN PM PEAK FREEWAY SPEED

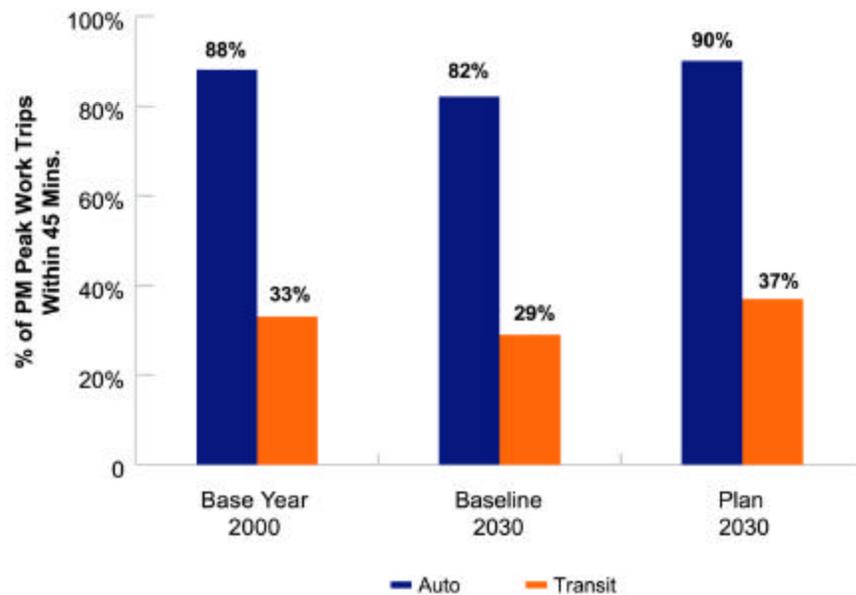
Accessibility

Accessibility measures how well the transportation system provides people access to opportunities. Opportunities can include jobs, education, medical care, recreation, shopping, or other activities that help improve people's lives.

For the 2004 RTP, accessibility is defined as the percentage of the population who can travel between work and home within 45 minutes during the PM peak period. Access to employment is used as a reasonable proxy for access to all opportunities, since work trips make up a large percentage of total trips during commute periods. Figure 5.5 compares the Plan to Base Year and Baseline (No-Project), and presents the percent of work trips completed within 45 minutes for both automobiles and transit.

The figure clearly shows that the Plan not only improves accessibility compared to the Baseline (No-Project), but it actually shows an improvement compared to Base Year conditions for both auto and transit. This is primarily due to the Land-Use Integration strategy, which intensifies densities and focuses development close to work and along major transit corridors. Yet, transit accessibility still performs significantly worse than auto accessibility, which is a problem that will continue to challenge transportation planners and decision-makers in the Region.

Figure 5.5
SCAG Region Performance Analysis
Auto and Transit Accessibility



Reliability

The reliability outcome reflects the degree to which travelers experience variations in their trip times from day to day. As such, it captures the relative predictability of the public's travel time. Unlike mobility (which measures how quickly the transportation system is moving people) and accessibility (which addresses how good the system is in providing access to opportunities, primarily jobs), reliability focuses on how much mobility and accessibility vary from day to day.

The reliability measure is calculated by using the statistical concept of the standard deviation. The indicator is computed by dividing the standard deviation of travel time for a given trip by the average travel time of that trip, measured over many days and weeks. Table 5.2 shows how a traveler can use this indicator depending on the importance of arriving on time. For example, if a person's morning commute takes on average 26 minutes, but varies 15 percent from day to day, then he or she must plan the trip to account for additional time. Table 5.2 also shows that if this person wants to be 99 percent confident that he or she arrives on time, he or she must plan for 38 minutes of travel instead of 26.

Table 5.2

Variability of Travel Time: Hypothetical Illustration

Trip (from, to)	Time Period	Average Travel Time	Variability of Travel Time	Travel Time Based on Level of Confidence of Arriving on Time		
				70%	95%	99%
Hypothetical Commute Trip	AM Peak	26 min.	15%	30 min.	34 min.	38 min.
	PM Peak	32 min.	25%	40 min.	48 min.	56 min.
	Off Peak	20 min.	10%	22 min.	24 min.	26 min.

This indicator is relatively new in transportation planning and operations, and exact models to compute and forecast it are not available. However, by using existing travel time data and research results, it is possible to estimate Plan impacts on reliability. Table 5.3 presents these results, which reflect the benefits derived from the investments that help respond more quickly and effectively to traffic accidents or provide traveler information. However, it is critical to continue to monitor this measure and improve the tools to forecast the impacts of such investments in future SCAG planning cycles.

Table 5.3

SCAG Regional Performance Analysis Improvements in Travel Time Reliability

<i>Peak Period</i>	<i>Hour</i>	<i>Base Year 2000 Average Percent Variability of Travel Time</i>	<i>Plan 2030 Average Percent Variability of Travel Time</i>
	6 am to 7 am	11%	10%
Morning Peak Period (6 am to 9 am)	7 am to 8 am	15%	13%
	8 am to 9 am	15%	13%
Afternoon Peak Period (3 pm to 7 pm)	3 pm to 4 pm	21%	19%
	4 pm to 5 pm	20%	18%
	5 pm to 6 pm	19%	17%
	6 pm to 7 pm	22%	20%

Productivity

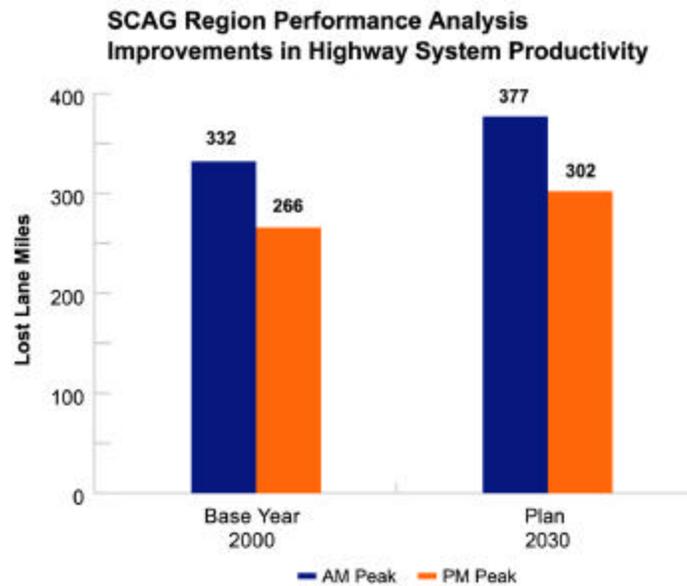
The productivity outcome reflects the degree to which the transportation system performs during peak demand conditions. It is a system efficiency measure. The productivity indicator is defined as the percent utilization during peak demand conditions.

As an example, freeways are typically designed to carry 2,000 vehicles per lane per hour. However, in many locations on the Region's freeway system, vehicles weaving and merging in and out of traffic cause bottlenecks, which lead to significant reductions in capacity utilization. Again, using freeways as an example, the carrying capacity of a freeway lane can drop by as much as 50 percent, allowing only 1,000 vehicles per hour to pass. In effect, the system "loses" capacity, which can be estimated in terms of lost lane-miles.

Figure 5.6 summarizes the current estimate for productivity losses on the Region's freeway system and the expected improvements due to Plan investments. Maximizing the system's productivity is a critical goal of this RTP and the overall system management approach aims to recapture lost productivity.

Note that the Plan improves productivity by committing to investments in State Highway operations discussed in Chapter 4. Transit productivity will also improve through increased ridership, which maximizes the number of seats occupied during peak demand conditions.

Figure 5.6

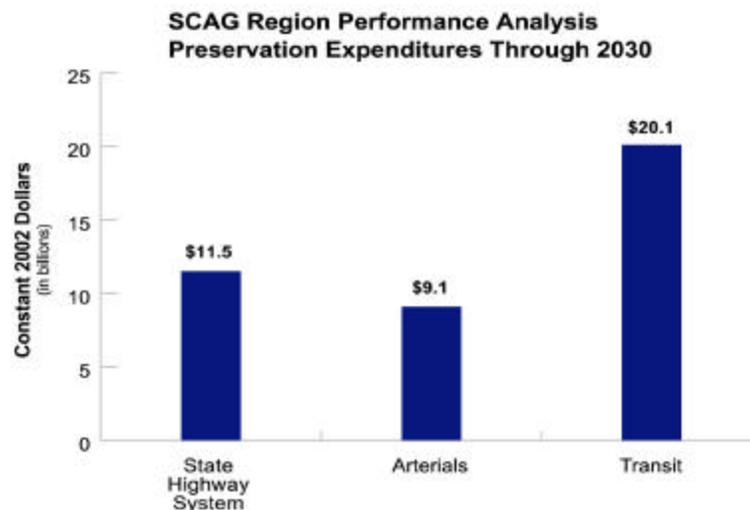


Preservation

The preservation outcome reflects how well the Region is taking care of its multi-modal transportation infrastructure. Figure 5.7 presents the total preservation costs through the year 2030 for State Highways, arterials, and transit. The total cost for all three categories through 2030 adds up to more than \$40 billion.

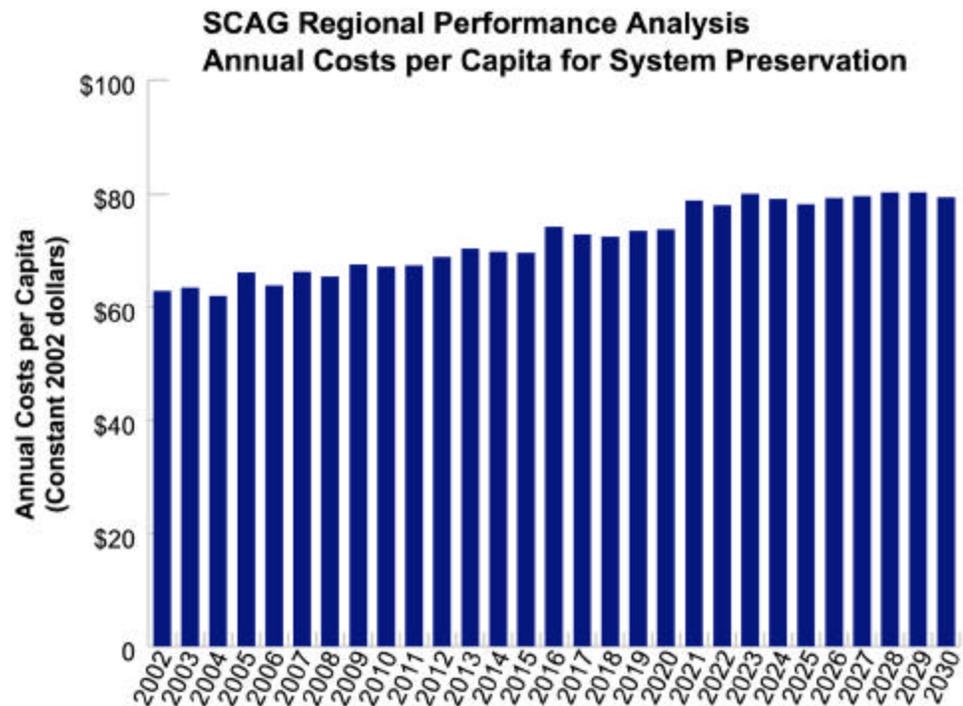
It is important to note that truck traffic adds significantly to pavement preservation costs. Furthermore, truck volume growth in the Region is expected to outpace population growth. Yet the Region's economic well-being depends on its transportation and logistics industry. Therefore, it is important to monitor truck traffic on major corridors and revisit the State Highways preservation expenditures to ensure that the Region's system remains in adequate condition and that the logistics industry remains vibrant.

Figure 5.7



An average annual cost per capita is a useful measure to understand and consider the growing costs of maintaining the Region's aging infrastructure. The indicator reflects the burden or responsibility placed on every person in the Region annually to preserve the transportation system. As can be seen in Figure 5.8, these costs increase by about 1/3 over the duration of the Plan.

Figure 5.8



Safety

Improving safety by minimizing accidents is a critical outcome of the RTP. The safety indicators used to measure and track safety-related performance are:

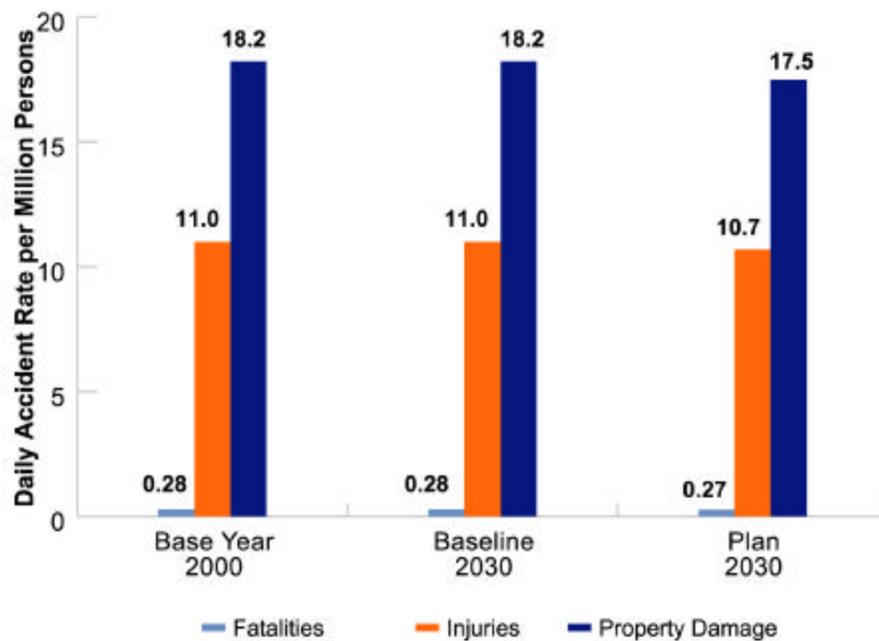
- ❖ Fatalities per million persons
- ❖ Injuries per million persons
- ❖ Property damage accidents per million persons

State and regional transportation agencies dedicate funds to projects that specifically address safety deficiencies. However, it is not possible to predict the reduction in accident rates resulting from these investments. Hence, the safety results presented here are estimated based on current accident rate trends for the different modes applied to projected levels of system use by mode. They represent a conservative estimate for safety benefits.

Figure 5.9 compares safety indicators for the Base Year, Baseline (No-Project), and Plan scenarios. The overall improvement is estimated based on overall accident rates by mode (e.g., auto, bus, and rail) and facility (e.g., freeways and principal arterials).

Figure 5.9

SCAG Regional Performance Analysis Accident Rates



Sustainability

A transportation system is sustainable if it maintains its overall performance over time with the same costs for its users. Sustainability, therefore, reflects how our decisions today affect future generations. The indicator for sustainability is the total inflation-adjusted cost per capita to maintain overall system performance at current conditions.

The performance measures presented in this chapter show that the planned transportation system in 2030 will perform approximately as well as it does today. However, the overall cost of the Plan represents a \$20 per capita per year increase to cover preservation and operations investments.

Note that despite this incremental cost, the Plan performs extremely well given the expected population and travel growth in the Region.

Cost-Effectiveness

Cost-effectiveness reflects the degree to which transportation expenditures in the Plan yield benefits that the transportation users experience. It attempts to measure how much “bang for the buck” is received from the Plan. The indicator for cost-effectiveness is the benefit-cost ratio. Benefits are divided into several categories as follows:

- ❖ Delay savings
- ❖ Safety improvements
- ❖ Air quality improvements
- ❖ Reductions in vehicle operating costs

For each of these categories, models are used to estimate the benefits of the Plan compared to Baseline (No-Project). The benefits are converted into dollars, added together, and divided by the total incremental costs of the Plan's transportation improvements. Table 5.4 summarizes the results of the benefit-cost analysis.

Table 5.4

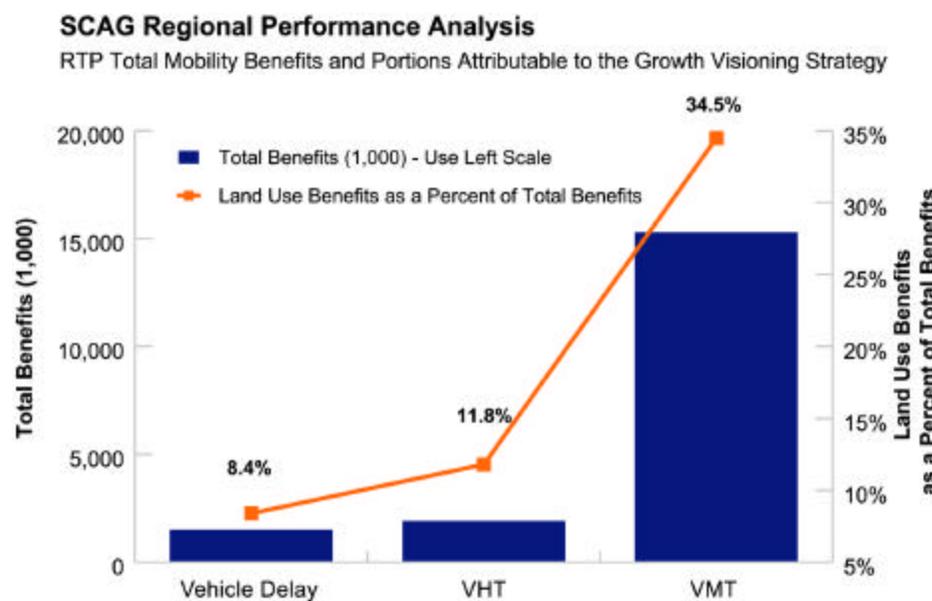
SCAG Regional Performance Analysis Benefit Cost Results

<i>Project</i>	<i>Value of \$1 Invested</i>
2004 RTP (present value)	\$3.08
2004 RTP (constant dollar)	\$5.05

Mobility Benefits Attributable to the Land-Use Strategies

Significant mobility improvements result from the Growth Vision approach of focusing development in centers and along transportation corridors, promoting transit-oriented development, attempting to achieve a job-housing balance, as well as using other strategies. Compared to Baseline (No-Project), the Plan reduces VMT by 15 million vehicle miles, of which almost 35 percent result from incorporating land-use strategies in support of transportation investments (see Figure 5.10). Notable benefits are also achieved in reducing vehicle hours traveled (-12 percent) and vehicle hours of delay (-8 percent).

Figure 5.10



Economic Impact Analysis

■ Decline in Employment Growth Rate

The 2004 RTP growth forecast foresees a sharp and unprecedented decline in growth rate, and change and makeup of the labor force in the Region—particularly after 2010 as a large number of “Baby Boomers” start to reach retirement age. The share of total population and households of elderly and retired persons in the Region is projected to double from today. These households are more likely to be headed by non-minority (i.e., non-Hispanic Whites) householders. “Baby Boomers” born between 1946 and 1964 will change the shape of our population structure from a pyramid, with fewer older persons at the top, to a column with retired and working-aged populations being similar in size.

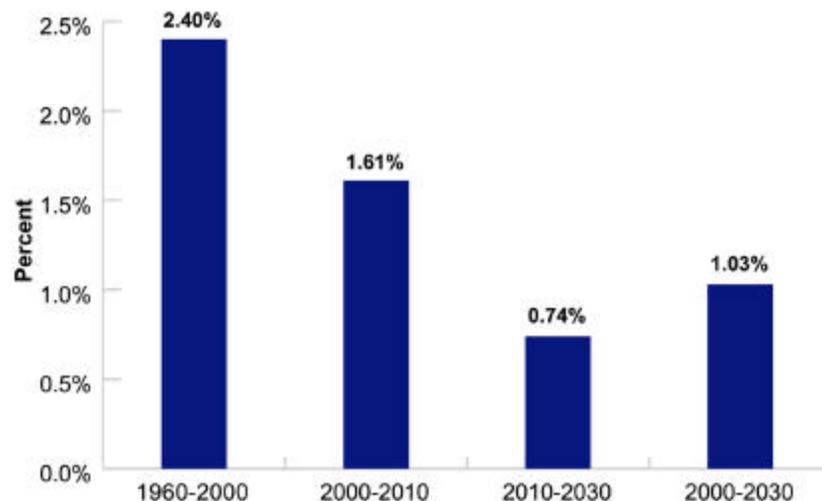
Unlike the 1960 to 2000 period, the Region will not have a large labor force to support a much smaller retired population. Instead, the Region will experience a situation where a smaller labor force made up of minority households will be supporting a large retired population made up of non-minority households. The minority groups today account for 90 percent of future population growth. These minority households, increased by immigration, will be larger, consist of multiple generations and be headed by younger individuals in the workforce. Labor force size and employment growth will be sensitive to these changes in demographics.

During the 2000–2030 forecast period, employment growth will be constrained by the size of the anticipated labor force. A major challenge for the Region will be to prepare and match younger workers with future jobs. Matching needed skills and education levels with new and especially better-paying future jobs will affect migration trends and immigration levels. These impacts will be felt most after 2010.

While the Region, during the last 40 years (1960–2000), expanded its job base at an annual compound growth rate of 2.4 percent, the SCAG Region's job growth rate is now projected to be only 0.74 percent during the 20-year period between 2010 and 2030 (Figure 5.11).

Figure 5.11

SCAG Region Historical and Projected Annual Compound Employment Growth Rates



This is about one-third of what was achieved in prior decades. The projected employment growth trends after 2010 suggest an imbalance between the size of the labor force, the retired population that employed workers must support, and the amount of job growth that can be achieved. As a result, the regional economy is expected to face tremendous downward pressure and may not be able to produce the jobs, wealth and prosperity that it did in prior decades. The economic health of the Region is tied to job growth, particularly the creation of

high-pay jobs that match the skills and education level of the Region's future workforce made up primarily of households headed by minority populations.

■ Public and Private Sector Investments

The 2004 RTP proposes investing \$36.1 billion (in 2002 constant dollars) from public funding sources between 2002 and 2030 over and beyond existing commitments. In addition, to address continuing challenges limiting the growth in transportation revenue, constraining transportation investment, and enlarging gaps in unmet transportation demand, funding strategies relying on user-based fees and direct investment from the private sector become even more important and critical to the economic health of the Region.

The economic impacts from private-sector-funded projects are different from those funded by tax dollars. Since transportation projects funded by retail sales and gasoline tax revenues are simply extensions of past economic trends, most of their economic impacts are reflected in the Baseline (No-Project) employment growth forecast. However, enabling private sector engagement in transportation investments, through innovative financial arrangements, will generate and create new economic activities not experienced before and not captured by past historical trends. As a result, private sector investments in transportation infrastructure will work to boost regional economic and job growth above the No-Project growth forecast (*Economic Impact Analyses for 1998 and 2001 RTP*).

The impacts of the RTP expenditures were estimated using the economic input/output model (IMPLAN) and are presented in Table 5.5. The Region is expected to gain an annual average of 21,900 jobs from the implementation of public-sector-funded infrastructure projects recommended in the RTP. Privately funded projects recommended in the RTP would add 31,060 jobs annually during the planning period. Nevertheless, transportation, as important as it is to long-term mobility, employment, and income creation, is not the only area of investment needed to ensure economic vitality after 2010. The Region will also need to explore other economic development strategies such as workforce development, support for regional industry clusters, and investment in communities in need.

Table 5.5

Average Annual Economic Impacts for 2004 RTP (Direct, Indirect and Induced Impacts)

	Average Annual Investment (in millions \$2002)	Employment (no. of Jobs)	Output (in million \$2002)	Income (in million \$2002)
Public Sector	\$ 1,290	21,910	\$ 2,260	\$ 750
Private Sector	\$ 2,110	31,060	\$ 3,840	\$ 1,060

Source: Final 2004 RTP and SCAG Input-Output Model.

■ Improving Economic Vitality after 2010

The 2004 RTP boosts regional employment economic vitality after 2010 through transportation infrastructure investments funded through the private sector and backed by user fees. Debt finance strategies backed by these fees can be readily applied to goods movement projects, the IOS of Maglev, and others. The innovative finance strategy of private sector investments will enable the Region to pool \$26.2 billion. This regional strategy, if successful, will become a powerful economic development tool that will generate jobs, increase per capita wealth and restore economic competitiveness and social equity. In the long run, private sector infrastructure investments can revitalize the SCAG Region's economy and enhance its global economic position. It addresses the gap between projected and needed additional job growth after 2010. Moreover, the economic benefits from private investments of this magnitude will not be confined to the SCAG Region; positive State and national economic impacts will also be generated.

Transportation Conformity Analysis

In the federally designated non-attainment and maintenance areas, the MPO (SCAG) is required to make a conformity finding before approving the 2004 RTP. The SCAG Region is situated in one or more federal non-attainment areas, with the exception of a less-populated area in the eastern portion of Riverside County.

The 2004 RTP must comply with the Environmental Protection Agency's (EPA) Transportation Conformity Rule and all associated court cases. Additionally, it must conform to the goals and objectives of the applicable State Implementation Plans (approved by EPA) developed for improving the air quality in the SCAG Region. The 2004 RTP must pass the following tests and analyses to meet all requirements for conformity finding:

- ❖ Regional Emission Analysis
- ❖ Timely Implementation of Transportation Control Measures (TCMs) Analysis
- ❖ Financial Constraint Analysis
- ❖ Interagency Consultation and Public Involvement Analysis

■ Regional Emissions Analysis

The regional emissions analysis should be conducted by non-attainment area/by pollutant and should conform to the applicable emissions budgets. The applicable emissions budgets are those approved and found to be adequate for conformity determination by EPA. In the absence of applicable emissions budgets, the regional emission tests for conformity finding are based on the build/no-build scenario. The regional emissions analysis produced a positive conformity finding for the Region.

■ Timely Implementation of TCMs Analysis

All TCM projects subject to reporting must be fully funded and on schedule to pass the analysis. In the SCAG Region, there are two areas for which the ozone SIPS contain TCMs.

- ❖ The ozone AQMP/SIP for the SCAB area (TCM categories: HOV measures, transit and system management measures, and information-based transportation strategies)
- ❖ The ozone AQMP/SIP for the Ventura County portion of SCCAB (TCM strategies: ridesharing, non-motorized, traffic-flow improvements, land-use, and transit)

Reporting on timely implementation of TCMS for conformity finding is based on the TCMs listed in the 2002 Regional Transportation Improvement Program (RTIP). For the conformity finding of the 2004 RTP, the CTCs in the SCAB area and Ventura County provide SCAG with the status of all TCM projects listed in the first two years of the 2002 RTIP.

■ Financial Constraint Analysis

The 2004 RTP is financially constrained and is financed by federal, State and local sources. Detailed information on the financial analysis is included in the Technical Appendix.

■ Interagency Consultation and Public Involvement

The 2004 RTP was circulated for a public review and comment period. Throughout its development, the 2004 RTP has been discussed at meetings of various policy committees, task forces, technical advisory committees, and conformity and subregional working groups. A public hearing was held on January 15, 2004, prior to SCAG's Regional Council approving the 2004 RTP in April 2004.

Detailed information and analysis on the transportation conformity of the 2004 RTP are included in the Technical Appendix.

Environmental Justice

Environmental justice requirements applicable to SCAG's transportation plans stem from Title VI of the Civil Rights Act of 1964, President Clinton's 1994 Executive Order 12898 on Environmental Justice, related DOT and FHWA orders, and federal planning regulations. In accordance with these laws and regulations, SCAG seeks to ensure that the RTP's benefits and burdens are distributed equitably across groups based on race, income, age and disability.

SCAG's environmental justice program includes two main elements: public outreach and analysis. Our public outreach efforts are intended to assure that all members of the public have an opportunity to participate meaningfully in the planning process. These efforts include targeted outreach to minority and low-income communities throughout the Region to assure

that their concerns are heard and addressed. SCAG's 2004 RTP examines several performance measures to determine if there is a disproportionate negative impact of the Plan on any income, ethnic, or age group. If inequities are found, they should be mitigated (although they can be justified if there is no less-discriminatory alternative or if any alternative would pose an extraordinary financial cost).

■ Environmental Justice Analysis Results

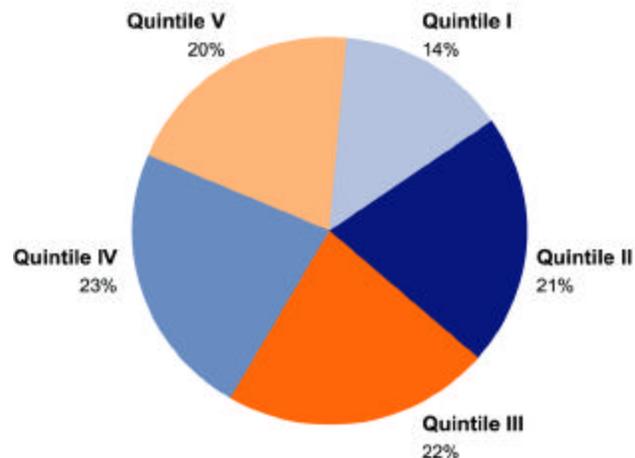
The performance results in the following section are based on comparison of conditions with the Plan to conditions without the Plan (referred to as Baseline [No-Project]). Households are divided into quintiles, or five equally sized groups based on income. Quintile 1 refers to the lowest fifth of households in terms of annual income, Quintile 5 to the highest fifth.

Distribution of Plan Expenditures

SCAG analyzed the distribution of Plan expenditures based on mode usage information by income quintile. This analysis showed that 57 percent of total public expenditures under the Plan would be spent on modes most commonly used by the lower three income quintiles, or the lowest 60 percent of the population in terms of income (see Figure 5.12).

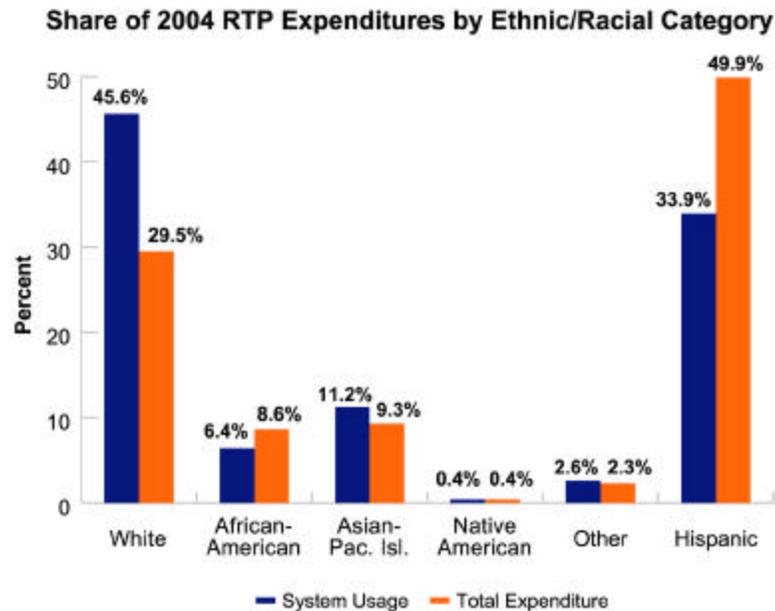
Figure 5.12

2004 RTP Expenditure by Income Category



Using Public Use Microdata Samples (PUMS) from 2000 U.S. Census data, SCAG was also able to determine mode usage by racial and ethnic category. This data was also compared with Plan expenditures by mode. As shown in Figure 5.13, for most ethnic and racial categories, the shares of Plan investments are similar to the shares of system usage. For Hispanics, the share of Plan expenditures (50 percent) is substantially greater than this group's share of system usage (34 percent), while for African-Americans, the share of Plan expenditures (9 percent) also exceeds their share of system usage (6 percent).

Figure 5.13



Share of Benefits and Burdens

SCAG analyzed the share of Plan burdens, in the form of federal, State and local sales and gasoline taxes paid, in comparison with the share of Plan benefits, in the form of travel time and distance savings by several modes.

For auto travel, the share of time savings for most income groups is roughly comparable to their share of taxes paid and their share of transportation system usage (see Figure 5.14). The lowest income quintile does not enjoy benefits quite up to the level of their tax share or usage for travel by auto, but this deficit is compensated for by a large share of time savings when using transit (see Figure 5.15). The highest income quintile pays a larger share of taxes (37 percent) than it receives in time savings benefits for travel by auto (30 percent). Benefits in terms of time savings on transit are heavily concentrated in the two lowest income quintiles (53 percent of all time savings).

SCAG also computed savings in terms of person-miles traveled, or PMT. These results indicate that the share of driving distance savings, like that for time savings, generally resembles the share of usage and taxes paid (see Figure 5.16). This is another way of estimating the benefits of land-use strategies—locating homes nearer to work places and intensifying land-use—reflected in the Plan.

Figure 5.14

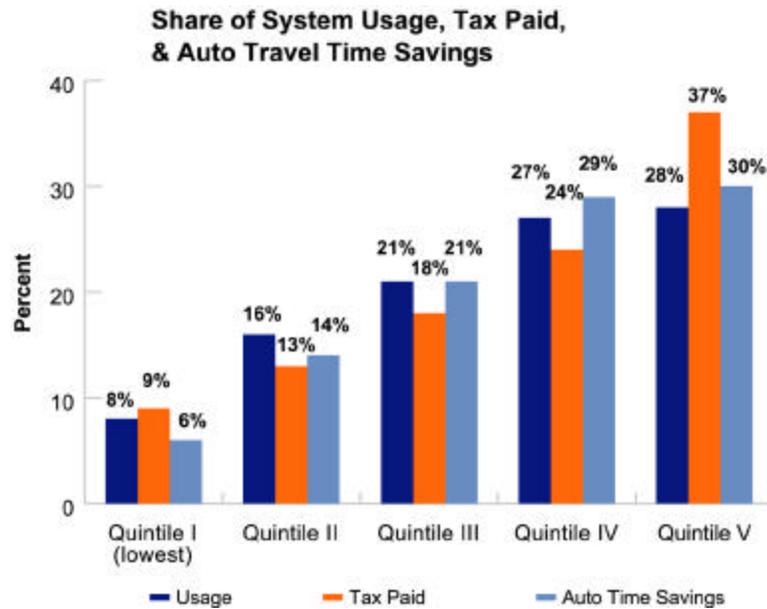


Figure 5.15

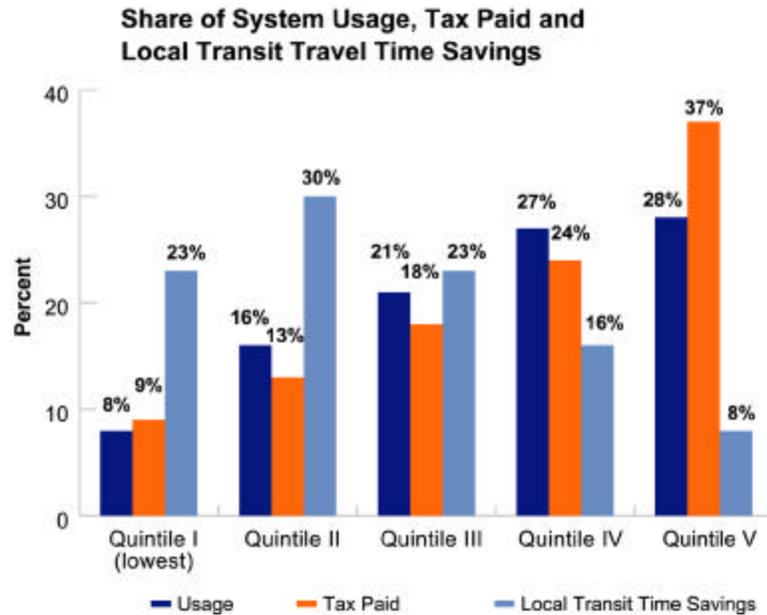
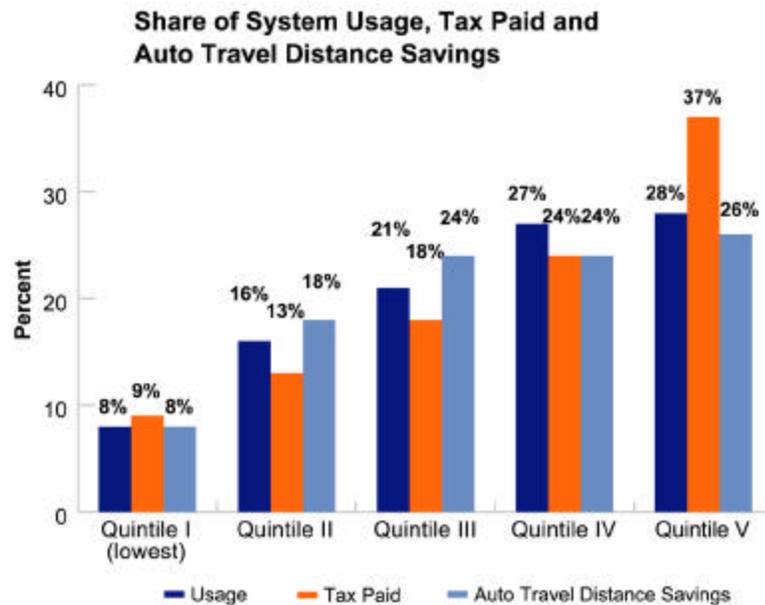


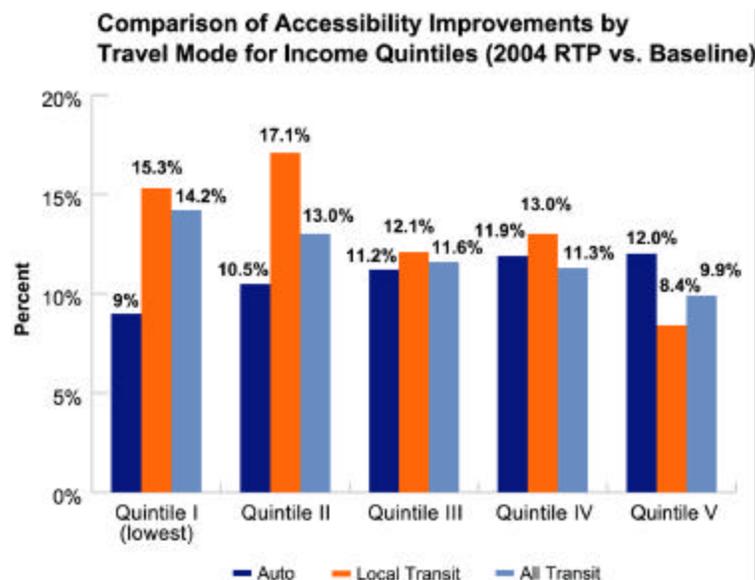
Figure 5.16



Accessibility to Jobs and Services

The investments in the 2004 RTP will improve accessibility to jobs and services for all the Region's residents. Improvements for auto travel are fairly consistent across all income quintiles and racial/ethnic categories, ranging from a low of 12.9 percent for Quintile 1 to a high of about 12 percent for the higher income quintiles (see Figure 5.17). Increases in accessibility via low-cost transit—buses and urban rail—are comparable, and are clearly greater for the lower income groups. Improvements in accessibility by all forms of transit—low-cost, plus Metrolink commuter rail and Maglev—average 12 percent and are slightly higher for the lower income groups than for the upper ones.

Figure 5.17

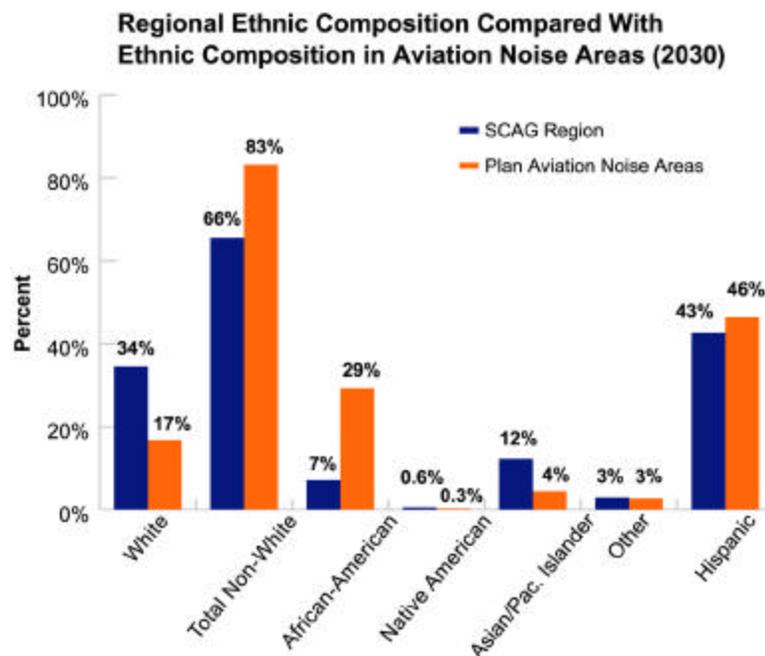


Aviation Noise

SCAG used noise modeling to determine what areas would be impacted by noise exceeding a Community Noise Equivalent Level (CNEL) of 65 decibels (dB) in 2030. This is a noise level above which the FAA considers residences to be an incompatible land-use with aviation. The aggregate demographics of households in these noise areas were compared with the demographics of the SCAG Region as a whole for 2030.

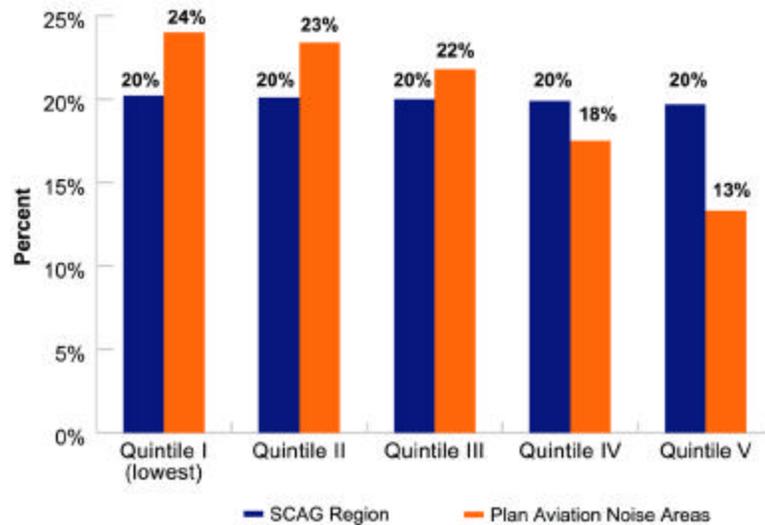
The analysis shows that aviation activities in the Region are expected to impose a disproportionate noise burden on minority residents near airports. In 2030, the Region is projected to have a non-White population of 66 percent, but in the aggregated noise areas, the population is projected to be 83 percent non-White under the Regional Aviation Plan (see Figure 5.18). A particularly notable disproportionate impact is projected for African-Americans, who will represent only 7 percent of the Region in 2030 but are estimated to represent 29 percent of those living in aviation noise areas. In the 2001 RTP, the inclusion of El Toro in the adopted Plan alleviated the impact on African-American neighbors to LAX, but this option is not possible in the 2004 Plan.

Figure 5.18



The analysis by income category shows a modest disproportion in noise impacts. Each income quintile (by definition) contains 20 percent of the Region's households in 2030; under the Regional Aviation Plan, the lowest income quintile will represent 24 percent of the households impacted by noise above 65 dB CNEL (see Figure 5.19). The disparity between the lowest and highest quintile is 11 percentage points.

Figure 5.19
Income Distribution in SCAG Region vs.
Income Distribution in Aviation Noise Areas (2030)



Highway Noise

SCAG used highway noise modeling to determine what roadway segments in the Region would experience a perceptible increase in noise levels between the base year (2000) and the Plan year (2030). The aggregate demographics of households within 150 feet of either size of these roadway segments were determined and compared with regional demographics. This analysis indicates a moderate disproportionate impact: in 2030, the Region will be 66 percent non-White, but in roadway noise areas, the proportion is 72 percent non-White, a disparity of 6 percentage points (see Figure 5.20). Of the various ethnic groups affected, Hispanics are projected to experience the greatest disparity (about 4 percentage points). There is a similar moderate disproportionate impact across income groups, with the lowest quintile representing 23 percent of the households in highway noise areas in 2030 compared to 20 percent of households in the Region as a whole (see Figure 5.21). There is a difference of 6 percentage points between the lowest and highest income quintiles—a moderate but notable disparity.

It is important to realize that disproportionate highway noise impacts are also found in the base year 2000, and in fact, the disparities are projected to be less severe in 2030 than they are today. The identification of these impacts at the regional level highlights the importance of soundwalls and similar noise mitigation measures for individual transportation projects.

Figure 5. 20

Ethnic Composition in SCAG Region vs. Highway Noise Areas (2030)

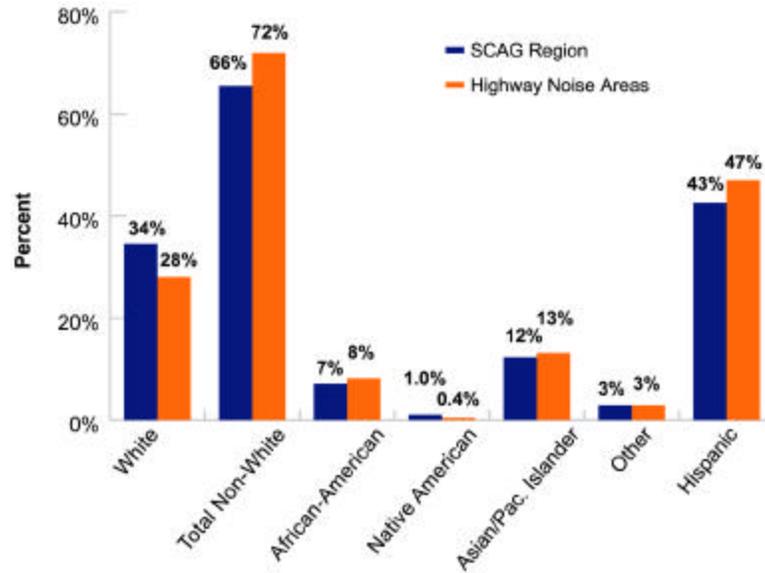
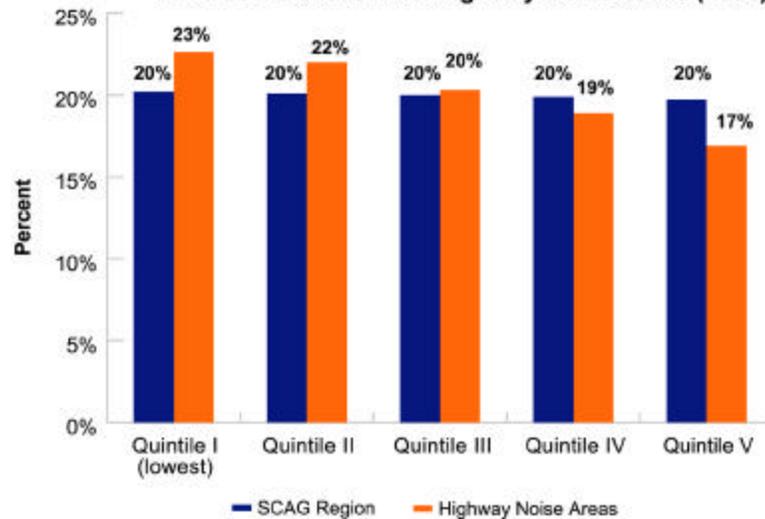


Figure 5.21

Income Distribution in SCAG Region vs. Income Distribution in Highway Noise Areas (2030)



Air Pollutant Emissions

SCAG estimated the changes in emissions that would be experienced by various income and ethnic groups under the 2004 RTP. Since SCAG does not have the tools to estimate air quality resulting from the dispersion of emitted air pollutants, the analysis was based on emissions estimates for pollutants that have localized health effects: CO and PM₁₀. Analysis was also conducted for the PM₁₀ exhaust emissions from heavy-duty vehicles: an indicator for diesel toxic air contaminants. The results were computed based on the average emissions at the Traffic Analysis Zone (TAZ) level (estimated by SCAG's Direct Travel Impact Model), and weighted according to the population of each ethnic or income group in that TAZ.

The results show that all income and ethnic groups, as well as disabled and elderly (over 65) populations, will benefit overall from improvements in CO and PM₁₀ emissions when the RTP conditions are compared to the Baseline (No-Project) conditions (see Figures 5.22 and 5.23). As the figures show, improvements are in the range of 7 to 11 percent overall (with variations due to the different weighing factors).

Figure 5.22

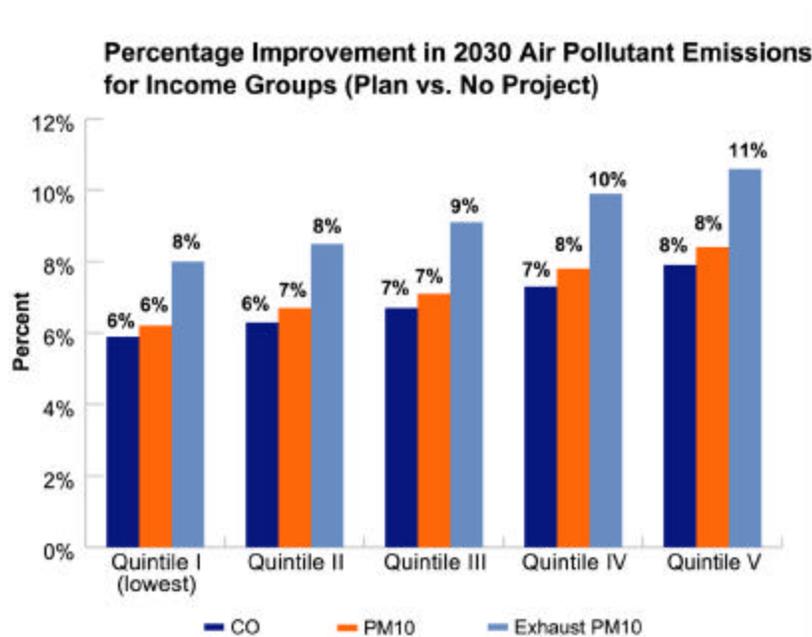
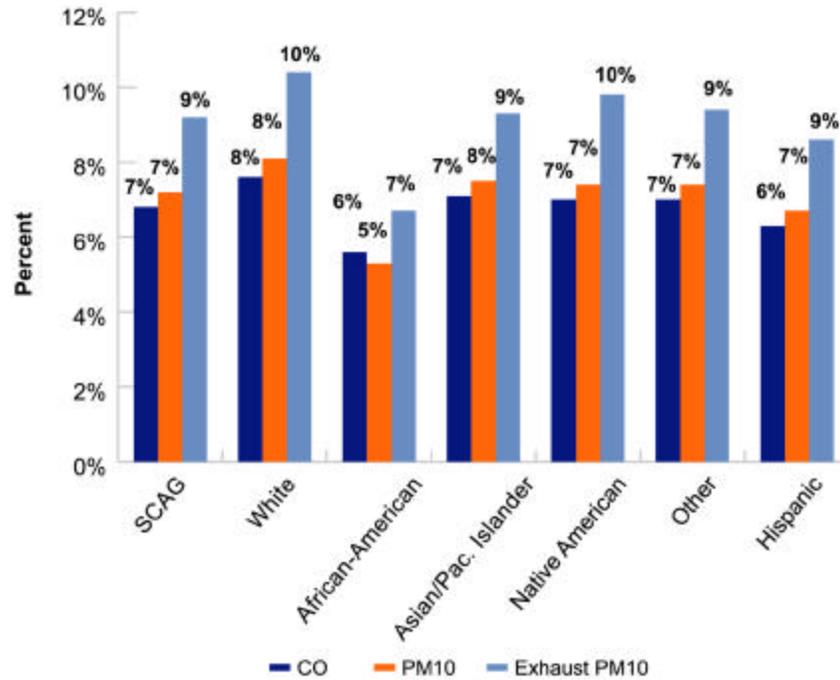


Figure 5.23

Percentage Improvement in 2030 Air Pollutant Emissions for Racial/Ethnic Groups (Plan vs. No Project)



Since not all areas will experience reduced emissions under the Plan, SCAG also analyzed the distribution in areas where emissions are projected to increase. These results show that the increase in emissions exposure is approximately the same across income groups (see Figure 5.24) and racial/ethnic groups (see Figure 5.25).

Figure 5.24

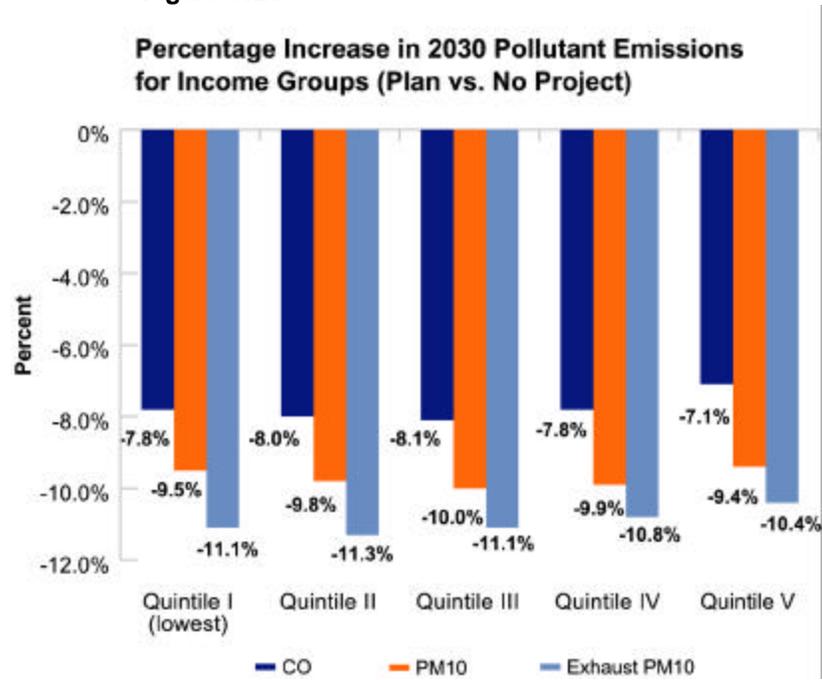
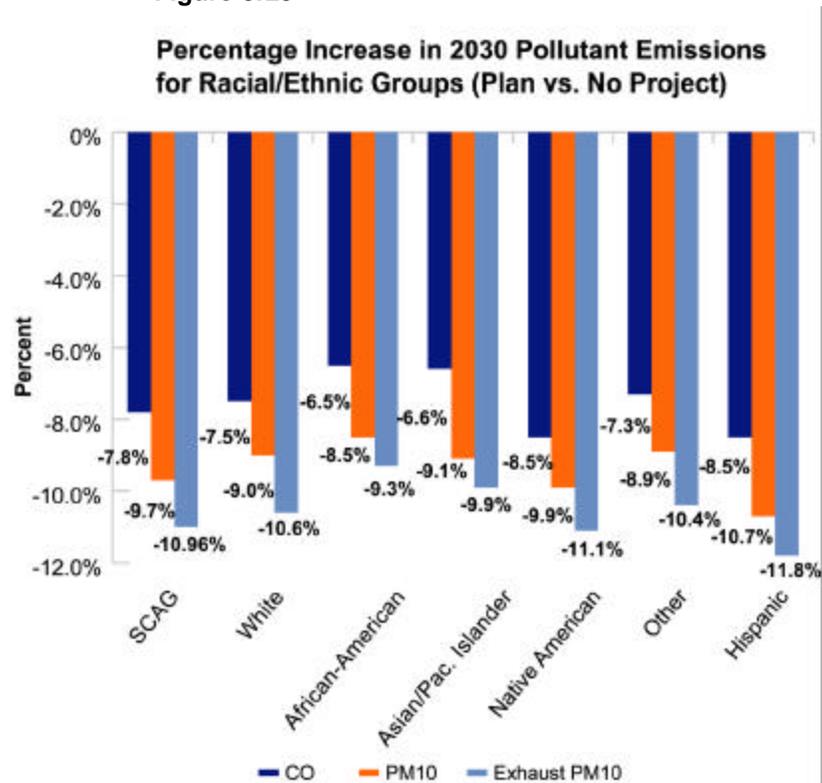


Figure 5.25



Chapter 6



Implementing Our Plans &
Monitoring Our Progress

CHAPTER 6 IMPLEMENTING OUR PLANS AND MONITORING OUR PROGRESS

This section discusses how SCAG, as the MPO for the six-county Region, monitors the implementation of the 2004 RTP and monitors its progress in achieving its stated goals and system performance.

As discussed in Chapter 2, the 2004 RTP comes at a time of great challenges. SCAG and its partners believe they have addressed these challenges from a planning perspective. However, as with any plan, its success or failure depends on execution.

SCAG intends to continue its longstanding role as the monitoring agency for Plan implementation in all its facets.

Securing the Planned Funding

When establishing funding strategies for the 2004 RTP, current policies of the State and federal governments must be taken into account. State government policies are especially important in that the State can provide revenues directly or it can authorize various local and regional transportation funding programs. With the enactment of Senate Bill 45 (Chapter 622, Statutes of 1997), the State restructured its transportation policies governing transportation planning and investments. Because of this legislation, transportation investment priorities were to be established at the regional and county level. To support this effort, 75 percent of the State revenue for the construction of transportation projects was allocated to the Region. In accordance with the regional emphasis of SB45, the objective of SCAG's proposed funding strategy is to create a predictable stream of revenue for new transportation projects while ensuring local/regional control over the prioritization of the projects.

■ **Action Plan for Implementing Funding Strategy**

To realize the SCAG Region's proposed program of transportation funding, several activities must be undertaken. The following provides a list of some actions to be taken:

Milestone	Action	Years
1	Undertake a regionwide, multiyear public awareness program to familiarize decision-makers with the issues being addressed in the RTP and the importance of the funding strategies to regional mobility, economic well-being and the quality of life.	Ongoing
2	Initiate one-on-one communications with State and federal legislators representing the Region, to explain the long-term transportation requirements of the Region and the funding options needed to address these requirements.	Ongoing
3	Create a regional partnership involving SCAG, the County Transportation Commissions, the subregions and private interests to advocate the implementation of the funding strategies.	2003-2005

SCAG believes that these three actions provide the framework for a multiyear implementation program. The funding components of the program would likely be implemented over the next five to ten years and would require the formation of coalitions both within the Southern California Region and throughout the State. Each funding proposal has its own set of conditions that will influence implementation. Recognizing this, SCAG proposes the following actions:

Join with the “self-help” counties and other groups to obtain authorization for a less than two-thirds vote requirement to continue the local transportation sales tax programs.

Local sales taxes have become a central feature of transportation funding over the last two decades in the SCAG Region and elsewhere in California. The objective is to obtain passage of a Constitutional Amendment that would reduce the approval requirement from two-thirds vote for a local sales tax measure to a 55 percent majority. There is statewide consensus within the transportation community that this is necessary. Current legislative initiatives including ACA 7 (Dutra) and SCA 2 (Torlakson) would reduce the vote threshold requirement to 55 percent for transportation sales taxes. SCA 2, however, would require that 25 percent of the funds be dedicated to smart-growth projects.

It should be noted that despite the existing two-thirds voter approval requirement, some counties in the SCAG Region are planning to pursue reauthorization of their respective sales taxes. The process for pursuing reauthorization of the sales tax measures in the SCAG Region would entail a series of important actions including:

Milestone	Action(s)
1	Establishing a Measure Renewal Committee
2	Campaign Finance
3	Marketing/Public Awareness Surveys
4	Expenditure Plan
5	Local Consensus
6	Ballot Measure by County CTC/Extension of Local Sales Tax

Development Mitigation Strategy.

In coordination with the Measure I renewal effort in San Bernardino County, steps have already been taken to consider the feasibility of integrating a development mitigation program that would generate revenues for regional arterials and interchanges in San Bernardino County. More recent polls (January 2003) indicated support by a majority of county voters to consider mechanisms for ensuring that new development pays a portion of the cost of new transportation improvements. Accordingly, an Ad Hoc Development Mitigation Committee was formed to consider a development mitigation strategy associated with the Measure I renewal program. Further study is required.

Adjust the fuel excise tax rate to maintain historical purchasing power. Further, maximize fuel tax revenue through pay-as-you-go and debt financing.

To ensure adequate revenues for the 2004 RTP, SCAG proposes a five-cent gas tax increase in 2010 with an additional penny per year until 2015. By the year 2010, it also will have been about 16 years since the motor vehicle fuel tax was last increased in California. Clearly, there will be a statewide interest in increasing fuel tax revenues to offset the continuing decline in the revenue's purchasing power.

Further, it is proposed that a portion of the revenue stream from the increase in the gas tax be committed to the issuance of debt to accelerate RTP project development (assisting the Region to secure and maintain conformity). The remaining portion of the revenue generated from the incremental increase in the gas tax could be utilized for direct pay-as-you-go projects. For this to occur, it will be necessary for the State to pass enabling legislation authorizing the issuance of debt guaranteed by future gas tax revenues. Alternatively, the Legislature could authorize the Region to impose a local gas tax/user fee for funding projects along with revenue bond authority. While the Plan anticipates the fuel tax increase to begin in 2010, the actual implementation strategy must begin now. This entails the following actions:

- ❖ Developing stakeholder consensus on a statewide and regional funding strategy
- ❖ Evaluating the merits of a regional gas tax/user fee measure and the institutional framework necessary to implement and manage such a regional program

❖ Focusing on public education

The above three activities should begin now because there are numerous technical and policy issues that must be addressed prior to introducing the tax/fee measure during the 2007-2009 period for imposition between 2010 and 2015. Moreover, there is a need for increasing the public's awareness regarding the transportation investment requirements and revenue needs.

Milestone	Action(s)	Year(s)
1	Subsequent updates to the Regional Transportation Plan to develop a blueprint program of expenditures	(2005–2009)
2	Develop State/regional consensus	(2003–2009)
3	Evaluate whether to pursue State or regional fuel tax initiative	(2005)
4	Public education/outreach	(2002–2009)
5	Introduce legislation	(2007–2009)
6	Adjust the State motor vehicle fuel excise tax/user fees (or regional fuel tax imposition)	(2010–2015)

Pursue user-fee- supported project financing for major regional investments where applicable.

The success of pursuing user-fee–supported project financing for our proposed large-scale projects, including Maglev, special purpose facilities and the rail capacity improvement program, is predicated on the enactment of enabling statutes and administrative actions. SCAG's initial evaluation of the proposed project-financing program identified three core objectives:

- ❖ Creating an institutional authority for project implementation and management
- ❖ Facilitating access to innovative financing mechanisms
- ❖ Accelerating State and federal environmental review processes

Institutional Arrangements/Governance and Management Structure

The pursuit of State legislation would be necessary to facilitate the implementation of this program. The legislation would establish an institutional framework for the governance and management of an implementing authority for the user-fee–backed special purpose facilities and rail capacity programs. A separate Joint-Powers Authority (JPA) is currently under development for the proposed Maglev component. In addition to SCAG, the other agencies involved in the institutional structure would include the county transportation commissions, Southern California Regional Rail Authority (SCRRA), Caltrans, and private sector partners.

Financing Mechanisms

As stipulated in the adopted 2001 RTP and previously in Chapter 4, innovative user-fee approaches would be employed to finance special purpose facilities, railway capacity, and Maglev projects. The financing structure includes the issuance of tax-exempt revenue bonds, secured by user-fee revenues generated by specific transportation facilities. Additionally, lower-cost federal credit enhancement programs would be utilized. The rail capacity improvement program would rely on federal legislation authorizing the use of federal tax credit bonds. Already, industry groups are pursuing legislation to amend current tax code provisions—facilitating the use of private activity bonds including tax credit bonds.

Environmental Streamlining/Accelerated Project Development/Joint EIS.

To facilitate project implementation, the objective is to streamline the environmental documentation process by preparing one document that would cover all three projects: Maglev, “special purpose facilities,” and rail improvements. This would be advantageous in analyzing corridor impacts. In the best case scenario, an EIR/EIS (or three simultaneous documents) would require about two years to prepare, with 6 months to prepare preliminary engineering and a minimum of a year and a half to complete the environmental document(s).

Milestone	Action(s)	Year(s)
1	Continue stakeholder meetings (regional, statewide, and national)	2003–2004
2	Initiate media and public outreach campaign	2003–2004
3	Develop State and federal legislation relating to institutional authority structure and financing mechanisms	2003–2004
4	Introduce legislation to stakeholders for discussion and input	2003–2004
5	Secure bill endorsement from local, State, and federal stakeholders (public and private interests)	2003–2004
6	Secure State and federal legislators to introduce legislation and achieve enactment	2003–2004

These actions need to be pursued aggressively. Also, monitoring the progress of these actions is an important part of the Plan—ensuring that SCAG will consider creative actions as necessary through the course of Plan updating. Continued development of new revenue sources for transportation and the expansion of financing techniques depend upon institutional readiness. SCAG and the transportation community as a whole must continue to push the envelope and develop creative means to address our transportation challenges.

Embracing System Management and Operation

SCAG will take a proactive role in ensuring that the management and operation of the system is given high priority in the funding plans of the implementing agencies. This will be accomplished by working closely with our stakeholders in developing expenditure guidelines through existing regional planning and interagency consultation and coordination processes.

Integrating the Growth Vision Strategy

■ Action Plan for Implementing Regional Growth Vision Alternative

The SCAG 2004 RTP Preferred Alternative—the Growth Vision Alternative—addresses the mandates of transportation planning law through the integration of land-use decisions and transportation investments. To a greater extent than previous Plans, this integration is central to the performance of the Plan and, thus, specific action items addressing the implementation of the land-use component have been identified in conjunction with the financial, aviation, and other plans and programs identified in the 2004 RTP.

The previously discussed Growth Vision Alternative Tenets form the framework for the implementation of the Growth Vision Alternative to meet the system improvement and performance objectives of the 2004 RTP. Transportation modeling analysis confirms that these tenets, if implemented, realize significant regional benefits in the form of transportation congestion relief and improved air quality. However, the success of the Growth Vision can take many forms. It is not any one specific action that will define success, but rather the combination of policies, strategies and efforts by all that share the responsibility of creating the Region's future.

To ensure the realization of our Growth Vision, SCAG will continue its Growth Visioning efforts for at least seven years in order to continue working throughout the Region to accomplish needed urban form strategies after 2010. There will be two RTP updates prior to 2010 that will allow us to check our progress. We will be able to assess the regional feasibility of full implementation during this period.

A first step for the Region is to identify barriers to implementing the vision and develop policy strategies and decisions that guide change at the local, regional, State and federal levels. A sustained effort involving numerous actions is required to foster the level of cooperation needed by all levels of decision-makers. In particular, engaging those city and county governments, subregions, county transportation commissions (CTCs) and other agencies directly responsible for individual land-use and transportation decision-making that have regional implications is imperative.

The following actions, identified by responsible party, are intended to bring about the realization of the Growth Vision Alternative by the Plan's horizon year of 2030.

Key Growth Vision Alternative Actions - SCAG		
1	Continue working through the Growth Visioning program to refine the Vision and identify additional strategies, policies and implementation tools to realize the Growth Vision Alternative	2007
2	Host a series of "Policy Forums" with regional stakeholders to explore the directions, policies and partnerships necessary for realizing the Growth Vision Alternative	2004
3	Utilize the <i>State of the Region</i> report to measure progress toward quantifiable goals derived from the Growth Vision Alternatives. SCAG will annually monitor progress on growth vision strategies in the plans for inclusion in appropriate reporting on the Plan as a whole.	Ongoing
4	Provide technical assistance and other resources, as appropriate, to leaders/agencies involved in land-use decision-making	Ongoing
5	Support legislation that provides incentives to public and private agencies that incorporate the Growth Vision Alternative strategies into development projects	Ongoing
6	Support federal and State funding initiatives designed to promote mixed-use and multi-modal development	Ongoing
7	Continue exploring strategies to ensure implementation of regionally significant transportation projects	Ongoing

The following actions seek to establish or enhance coordination and communication with SCAG's fourteen subregional bodies and six county transportation commissions (CTCs).

Key Growth Vision Alternative Actions – Transportation Planning Agency Coordination

1	Evaluate projects within the RTP in consideration of the tenets of the Growth Vision	2005
2	Establish objective transportation performance measures of local city and county plans to recognize and measure regional impacts	2005
3	Consider an incentive mechanism to showcase and reward exemplary achievements	2007
4	Encourage coordination and cooperation between SCAG and other regional, subregional, county, State, local and other levels of planning	Ongoing
5	Support and pursue legislation and funding that is supportive of the goals and strategies associated with the Growth Vision Alternative	Ongoing

There are myriad actions that only local governments can take that will ensure the continued shared benefits of the Growth Vision Alternative. SCAG must seek out partnerships with cities, counties, subregions, and others that have land-use authority to develop locally based strategies aimed at achieving regional goals. Through the development and revision of general plans and related regulations, changes in land-use development can occur that support the goals and strategies of the Plan.

Key Growth Vision Alternative Actions – Local Government

1	Detail specific local actions that support the Plan and document impacts and benefits	Ongoing
2	Increase and facilitate the ease of use of various planning tools, such as specific plans, that will aid public and private agencies in projects that support the goals and strategies of the Growth Vision Alternative plan	Ongoing
3	Incorporate in the development of General Plans and in exercising zoning authority redevelopment of underutilized low-intensity corridors as higher-density, mixed use arterials	Ongoing
4	Identify and revise regulations, such as variable parking requirements for areas well served by transit, that facilitate mixed-use multi-modal corridors	Ongoing
5	Develop policies which foster the development of housing near employment centers and appropriate employment activities near housing	Ongoing

Key Growth Vision Alternative Actions – Local Government		
6	Develop policies that encourage a variety of housing types to accommodate the Region’s changing demographic and lifestyle needs	Ongoing
7	Encourage design standards that focus on the efficient movement of pedestrian traffic and other, non-automobile, modes of transit	Ongoing
8	Encourage the preservation of open space within urbanized areas and on the development fringe of the Region	Ongoing

SCAG cannot implement the Growth Vision alone. Its realization is dependent on the efforts and collaboration of literally thousands of leaders. To this end, SCAG, our member governments and other responsible agencies will all need to contribute and work together. The actions identified above provide the necessary foundation to ensure the implementation of the 2004 RTP, and achieve its transportation system performance and air quality goals.

Implementing the RTP

■ Regional Transportation Improvement Program

Every even-numbered year, SCAG prepares the Regional Transportation Improvement Program (RTIP). This document is the short-term implementation tool for the transportation goals described in the adopted RTP.

The RTIP provides a listing of projects proposed for implementation in the Region during the six-year period covered by the document. The RTIP projects are described in detail, with funding amounts allocated by source and fiscal year. RTIP projects are categorized according to the transportation system to which they apply: State Highways, Local Highways, or Transit.

One of the first steps in RTP implementation is that during each RTIP development cycle, SCAG provides the County Transportation Commissions (CTCs) and Imperial Valley Association of Governments (IVAG) with RTIP Guidelines. The RTIP Guidelines is the tool used by the counties in the development of their county transportation improvement programs (TIPs).

The RTP non-motorized, rideshare, ITS, and TDM investments were developed in consultation with the county transportation commissions and the Imperial Valley Association of Governments. These TDM investments are annualized in the RTIP Guidelines in order to provide the county commissions and the Imperial Valley Association of Governments with average yearly investments. The investments are reflected in the RTIP Guidelines by category, in order to facilitate monitoring and ensure RTP implementation.

The RTIP Guidelines also contains the RTP constrained project listing. The counties need to program these projects for initiation within an appropriate timeframe to ensure that they become operational during the time frame indicated in the RTP.

The RTP and RTIP must be financially constrained. The RTIP guidelines provide the RTP funding forecasts for the programming years associated with the RTIP cycle under development. The CTC's and IVAG should program within the RTP forecasts. If a county programs more in project costs than can be accommodated by the RTP financial forecasts, then appropriate justification must accompany the county TIP documentation and be accepted by SCAG prior to TIP approval.

■ Regionally Significant Transportation Investment Studies

Within the context of regional transportation planning, the first step toward strategy or program development is the Regionally Significant Transportation Investment Study (RSTIS) or a corridor feasibility study of alternatives including a National Environmental Policy Act (NEPA) "purpose and need" statement and preliminary environmental documentation.

SCAG, in cooperation with other stakeholders, will approve the initiation and scope of an RSTIS. Before a project can be included in the RTIP for construction, the project must be one of the alternatives in a completed RSTIS, and must have a completed project initiation document and cleared environmental documents. The RSTIS will be included in SCAG's Overall Work Program.

Regionally significant alternatives must be evaluated by the RTP performance measures in order to be considered for incorporation in the RTP. RSTIS analyses are currently being performed for corridors in the Region, including I-405, SR-57, and SR-91. The 2004 RTP includes alternative modes and technology (intelligent transportation vehicle and highway systems), general alignment, number of lanes, the degree of demand management and operating characteristics. Furthermore, an RSTIS is required to evaluate the effectiveness and cost-effectiveness of alternatives in attaining local, regional, State and national goals and objectives. This analysis will consider the direct and indirect costs (of capital, operating and maintenance and rights-of-way) of alternatives; benefits or impacts of mobility improvements; air quality requirements; social, economic and environmental impacts, including environmental justice; safety, operating efficiencies; financing (federal, State and private sources); energy consumption; and public outreach. The results of the RSTIS will help lead to a decision by SCAG, in cooperation with participating public and private organizations, on the design and scope of the investment for the RTP. The preferred alternative of an RSTIS must meet the performance and financial criteria established by the RTP, and it must be approved by the Regional Council before being included in the RTP and RTIP.

An RSTIS is eligible for funds authorized under Sections 8, 9 and 26 of the Federal Transit Act, State planning funds, as well as planning and capital funds appropriated under Title 23, United States Code.

RSTISs or other analyses are appropriate when regionally significant investments in the RTP do not have complete environmental analysis, design concept and scope (mode and alignment not fully determined). In cases requiring further analysis, the RTP may stipulate either a set of assumptions concerning the proposed improvement or no-build condition pending the completion of a corridor or sub-area analysis. The RTP should have enough detail to provide a plan conformity determination.

Monitoring Our Progress

As the designated MPO for the six-county Region, SCAG monitors transportation plans, projects and programs for consistency with regional plans. SCAG also monitors the performance of the transportation system. This performance monitoring is especially important to inform the planning process for future RTPs. We cannot solve our regional transportation problems until we can identify and measure them.

SCAG is required to prepare the RTP using performance-based measures that will help public officials to better analyze transportation options and trade-offs. By examining performance of the existing system over time, the RTPA can monitor trends and identify regional transportation needs that may be considered in the RTP. Performance measurement helps to clarify the link between transportation decisions and eventual outcomes, thereby improving discussion of planning options and communication with the public. This may also help determine which improvements provide the best means for maximizing the system's performance within cost and other constraints.

SCAG has developed performance measures (see Chapters 2 and 5) for the regional transportation system. New tools are being developed that will help SCAG to monitor system performance over time. The Freeway Performance Measurement System (PeMS) is being developed and has the ability to measure freeway speeds, delay, and reliability for the regional freeway system. SCAG monitors a number of performance measures through a benchmarking process in the annual *State of the Region* report.

Transportation planning for the Region requires continually improved information on the condition and utilization of the transportation system. Special reports are required periodically from SCAG to show the condition of the highway infrastructure and to monitor the Region's overall traffic. The Highway Performance Monitoring System (HPMS) is a federally mandated program designed by the Federal Highway Administration (FHWA) to assess the performance of the nation's highway system. Under the Clean Air Act, SCAG is also required to report periodically on vehicle miles traveled in each air basin to determine whether traffic growth is consistent with the projections on which the State Implementation Plans (SIPs) are based.

The HPMS is one of the components of an Internet-based transportation system currently under development, the Regional Transportation Monitoring System (RTMS). RTMS is the source for real-time and historical transportation data collected from different local and regional transportation agencies as well as from private data sources. Based on a GIS mapping system, RTMS will be the main monitoring system for collection and distribution of

highway and transit data, local and regional traffic information and activities, as well as hosting the subregional transportation monitoring programs.

The following sections outline several of the significant tools used by SCAG to monitor regional progress in advancing the 2004 RTP.

■ RTIP Database Management

To manage the RTIP process efficiently, SCAG has developed an RTIP database. The RTIP database serves as a listing for projects in the RTIP, as well as a mechanism for monitoring project implementation in the approved RTIP. The RTIP database provides a data repository for tracking proposed transportation projects. Data regarding State, local and transit projects include: project sponsors, project descriptions, tracking numbers, funding sources and programmed years, as well as environmental information and proposed project completion dates. The County Transportation Commissions, Imperial Valley Association of Governments and SCAG staffs input this data in the RTIP database. Once the SCAG Regional Council approves the RTIP, the data are transmitted to Caltrans for incorporation into the statewide database, or California Transportation Improvement Program System (CTIPS).

■ Conformity

In federally designated non-attainment or maintenance areas, specific monitoring procedures and tests for consistency are required under the federal Transportation Conformity Rule. At the time of conformity determination, the RTIP must be consistent with the RTP. At any given time, there is only one federally approved and conforming RTP or RTIP in place as the operating document. During project implementation, sponsor agencies must implement only those projects that are consistent with the conforming RTIP and RTP. The project design concept and scope must be consistent with those reflected in the conforming RTIP.

The project sponsors must inform SCAG (as the Region's MPO) of any delay in implementing any Transportation Control Measure (TCM) project that is included in an approved SIP. SCAG must also be informed of any project that is regionally significant and modeled, regardless of funding sources. The Timely Implementation Report and a complete list of TCMs is provided in the Technical Appendix. In association with CTCs and the air districts, SCAG must report on the timely implementation of TCMs. Additionally, SCAG monitors changes resulting from legal, legislative or election processes that may impact the transportation conformity requirements, the implementation of any TCM or regionally significant project. SCAG informs the sponsor agency of required actions. In the case of TCM projects, the sponsor agency must officially substitute or replace the affected TCM project.

In addition to the federally required Timely Implementation Reports and any other required reports, staff will report to its Regional Council on progress in implementing regionally significant projects, programs and strategies, as part of the RTIP update process.

SCAG's Transportation Conformity Working Group and Modeling Task Force are two official forums used for interagency consultation. There may be additional ad hoc forums, if needed, to facilitate the required course of action.

■ **Highway Performance Monitoring System (HPMS)**

HPMS is used as a transportation monitoring and management tool to determine the allocation of federal aid funds, to assist in setting policies and to forecast future transportation needs as it analyzes the transportation system's length, condition and performance. Additionally, HPMS is used to provide data to the Environmental Protection Agency (EPA) to assist in monitoring air quality conformity, and its data are used in support of the Biennial Report to Congress on the Status of the Nation's Highways. In California, the California Department of Transportation (Caltrans) implements the program annually. SCAG's responsibility is to assist Caltrans in collecting data from local jurisdictions. SCAG's responsibility also includes distribution, collection and administration of all HPMS survey packages in the six-county Region.

■ **VMT, Emission and Congestion Report**

Beginning six years after the date of enactment of the Clean Air Act Amendments of 1990, any state containing serious and worse ozone non-attainment areas, or moderate and/or serious carbon monoxide non-attainment areas, is required to demonstrate whether current aggregate vehicle miles traveled (VMT), aggregate vehicle emissions, congestion levels and other relevant parameters are consistent with those used for the area's demonstration of attainment. Within the SCAG Region, the South Coast Air Basin (SCAB), the South Central Coast Air Basin (SCCAB) and the three areas within the Southeast Desert are designated as ozone non-attainment areas. Additionally, SCAB is designated as a non-attainment area for carbon monoxide. As the Region's MPO, SCAG is responsible for forecasting and tracking VMT, emissions and congestion, and submitting these reports to the California Air Resources Board (CARB). VMT reports for carbon monoxide non-attainment areas are submitted annually. VMT reports for ozone non-attainment areas are submitted every three years.

■ **Transit System Performance Assessment**

Implementation of the RTP requires changes in the operating practices of transit agencies and integration of the three tiers of transit into a single functioning system. The process of integration is the responsibility of the operators. SCAG will be evaluating the performance of selected operators to provide feedback and to transfer applicable lessons to other operators in the Region. Issues to be evaluated include the application of advanced transportation technologies applied to the scheduling and routing of transit.

■ Intergovernmental Review

Under federal law, SCAG is designated as the Regional Clearinghouse for review of all submitted plans, plan changes, projects and programs for consistency with adopted regional plans and policies. Regionally significant transportation projects reviewed for consistency with regional plans are defined as: construction or expansion of freeways; State highways; principal arterials; routes that provide primary access to major activity centers, such as amusement parks, regional shopping centers, military bases, airports and ports; goods movement routes, including both truck routes and rail lines; intermodal transfer facilities, such as transit centers, rail stations, airports and ports; and fixed transit routes, such as light and heavy rail and commuter rail. Any project involving transportation improvements is reviewed to determine whether such improvements are included in the RTIP.

■ The State of the Region

The annual *State of the Region* report published by SCAG is intended to help members of the public and private sectors analyze the trends and challenges that confront the Region. The report tracks a series of indicators on major issues facing the Region including:

- ❖ vehicle hours of delay (to measure congestion)
- ❖ vehicle miles traveled (which are directly related to mobile source emissions and are also important in determining the demand for infrastructure improvements)
- ❖ daily person trips (both home-to-work and total trips, which are used in regional models to measure the amount of travel and forecast trends expected to continue)
- ❖ total passenger trips for the major transit operators
- ❖ airport activity for the major airports (including passenger traffic, aircraft operations and air cargo)

Chapter 7



Beyond the Plan

Corridor Preservation

The Community and Environmental Transportation Acceptability Process (CETAP) underway in Riverside County has led to the identification of four corridors (two intracounty corridors and two intercounty corridors). CETAP long-range corridors previously described in the unconstrained portion of the 1998 Plan are in the constrained portion in the 2001 RTP and are carried forward to the 2004 RTP. The ultimate goal of the CETAP process is the preservation of rights-of-way to be used for a future transportation project. Ideally, the CETAP effort in Riverside County will encourage other agencies to consider a similar effort since there still remain large amounts of open space where future corridors will be needed to meet transportation demand.

As Riverside County has shown, it is important to identify and preserve transportation corridors needed to expand or enhance transportation for future generations. Local governments will find it difficult to obtain optimal locations for these corridors unless efforts to preserve them are made early. The American Association of State Highway and Transportation Officials (AASHTO) Report on Corridor Preservation states that early efforts provide the following benefits:

- ❖ prevent inconsistent development
- ❖ minimize or avoid environmental, social and economic impacts
- ❖ prevent the loss of desirable corridor locations
- ❖ allow for the orderly assessment of impacts
- ❖ permit orderly project development
- ❖ reduce costs

Ideally, the long-range corridors will encourage planners and policy-makers to start preparing strategies for preserving corridors now. Planning can prevent losing rights-of-way needed for transportation beyond the year 2030. Thus, rights-of-way preservation is a reasonable concern, particularly in areas where development may block a long-range corridor. More opportunities to capitalize on preservation are available in less-urban areas, where local governments have an opportunity to obtain available land for new transportation facilities.

The first step in this kind of planning is to identify potential long-range corridors and determine if there is a need to preserve them. This will require intergovernmental coordination and should include a funding component. Next, criteria to evaluate and prioritize the selected corridors must be developed. Once a corridor is selected, environmental studies will be needed. Traditional preservation techniques include purchasing land or using government statutes to place a corridor alignment on a general plan land-use map. Other State and federal funds can be used to assist in acquiring land for long-range corridors.

The SCAG Region is pursuing a new, environmentally sensitive approach to considering development. This approach envisions that transportation options will be developed with environmentally sensitive land-uses and habitat issues as part of the planning and design criteria. It would involve early and active involvement by all stakeholders. The information sources for long-range corridors include:

- ❖ various long-range transportation studies
- ❖ recommendations from Caltrans
- ❖ transportation corridor projects expected to be operational after 2030
- ❖ informal discussions with public agency staff

In addition, the Southwest Passage is included to address the needs for preserving corridors to move goods and freight. Table 7.1 and Exhibit 7.1 identify Post-2030 Long-Range Corridors.

Table 7.1
Post-2030 Long-Range Corridors

<i>Corridor</i>	<i>Source</i>
Imperial County Corridors:	
Forrester Road and Westmoreland Bypass Corridor	IVAG
State Route 111 Corridor	IVAG
State Route 115 Corridor	IVAG
Inter/Intracounty Passenger and Freight Rail Corridor	IVAG
Los Angeles County Corridors:	
Santa Clarita Bypass	Caltrans 07
State Route 27	LACMTA
State Route 39 Corridor	Caltrans 07
U.S. Highway 101	LACMTA
State Route 126 Corridor	Caltrans 07
State Route 134/210 Corridor	LACMTA
Interstate 405 Corridor (segment)	Caltrans 07, LACMTA
Orange County Corridors:	
Interstate 405 Corridor (segment)	Caltrans 12
San Bernardino County Corridors:	
Euclid Avenue Corridor	SANBAG
Interstate 15 Corridor	SCAG
Ventura County Corridors:	
Santa Paula Branch Line Corridor	VCTC
State Route 118 Corridor	Caltrans 07
Intercounty Corridors:	
Southwest Passage Corridor	SCAG
High Desert Corridor	Caltrans 07 and 08
Los Angeles/Coachella Valley/Calexico Rail Corridor	Caltrans 08 and 12, Riverside County, SCAG
North South Corridor	Caltrans 12
Soquel/Jurupa-Limonite/Alder Corridor	SCAG
Cal-Nevada High Speed Rail	OCTA

INSERT EXHIBIT 7.1: POST 2030 LONG RANGE CORRIDOR MAP

Unconstrained Projects – Our Unmet Needs

Beyond the 2004 RTP, it is estimated that there are approximately \$100 billion in unmet needs in the Region for capital improvements, as well as unfunded operation and maintenance needs due to lack of funding. SCAG, in cooperation and coordination with the stakeholders, maintains a list of capital projects that are financially unconstrained, and are thus called, “Unconstrained Projects.” Conceivably, as the future funding picture changes, some of these projects could be advanced to the “constrained” status (based on performance) in future RTP updates.

Glossary



Glossary

AASHTO	American Association of State Highway and Transportation Officials – a nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia and Puerto Rico.
ACE	Alameda Corridor East – a 35-mile corridor extending through the San Gabriel Valley between East Los Angeles and Pomona and connecting the Alameda Corridor to the transcontinental railroad network.
ADA	Americans with Disabilities Act of 1990 – guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, State and local government services, and telecommunications. It prescribes federal transportation requirements for transportation providers.
Antelope Valley AQMD	Antelope Valley Air Quality Management District – the air pollution control agency for the portion of Los Angeles County north of the San Gabriel Mountains.
AQMP	Air Quality Management Plan – regional plan for air quality improvement in compliance with federal and State requirements.
ATIS	Advanced Traveler Information Systems – technology used to provide travelers with information, both pre-trip and in-vehicle, so they can better utilize the transportation system.
ATMS	Advanced Transportation Management Systems – technology used to improve the operations of the transportation network.
AVO	Average Vehicle Occupancy – calculated by dividing the total number of travelers by the total number of vehicles.
Base Year	The year 2000, used in the RTP performance analysis as a reference point for current conditions.
Baseline	Future scenario in which only projects in the 2002 RTIP that have federal environmental clearance by December 2002 are assumed to be completed. The Baseline functions as the “No-Project” alternative used in the RTP Program EIR.
BLS	Bureau of Labor Statistics – the principal fact-finding agency for the federal government in the broad field of labor economics and statistics.
BNSF	Burlington Northern and Santa Fe Railway Company.
Bus Rapid Transit	Bus transit service that seeks to reduce travel time through measures such as traffic signal priority, automatic vehicle location, dedicated bus lanes, limited-stop service, and faster fare collection policies.
CAA	Clean Air Act (CAA) – 1970 federal act that authorized EPA to establish air quality standards to limit levels of pollutants in the air. EPA has promulgated such standards (or NAAQS) for six criteria pollutants: sulfur dioxide (SO ₂), nitrogen dioxide (NO ₂), carbon monoxide (CO), ozone, lead, and particulate matter (PM ₁₀). All areas of the United States must maintain ambient levels of these pollutants below the ceilings established by the NAAQS; any area that does not meet these standards is a “nonattainment” area. States must develop SIPs to explain how they will comply with the CAA. The act was amended in 1977 and again in 1990.

Caltrans	California Department of Transportation – State agency responsible for the design, construction, maintenance, and operation of the California State Highway System, as well as that portion of the Interstate Highway System within the State's boundaries.
CARB	California Air Resources Board – State agency responsible for attaining and maintaining healthy air quality through setting and enforcing emissions standards, conducting research, monitoring air quality, providing education and outreach, and overseeing/assisting local air quality districts.
Catalytic demand	Additional aviation demand that is created by companies that locate in the proximity of expanding airports with developable land around them, to reduce airport ground access time and costs for their employees and clients. Catalytic demand is greatest for large hub airports, particularly international airports.
CEQA	California Environmental Quality Act – State law providing certain environmental protections that apply to all transportation projects funded with State funds.
CETAP	Community Environmental and Transportation Acceptability Process – part of the Riverside County Integrated Project that is examining where to locate possible major new multi-modal transportation facilities to serve the current and future transportation needs of Western Riverside County, while minimizing impacts on communities and the environment.
CMAQ	Congestion Mitigation and Air Quality Program – federal program initiated by ISTEA to provide funding for surface transportation and other related projects that contribute to air quality improvements and reduce congestion.
CMS	Congestion Management System (also the federal reference to California Congestion Management Program) – a program to reduce congestion on regional streets and roads using travel demand reduction and operational management strategies.
CO	Carbon monoxide – a colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely. It is a byproduct of highway vehicle exhaust, which contributes about 60 percent of all CO emissions nationwide.
COG	Council of Governments – under State law, a single or multi-county council created by a joint powers agreement.
COMPASS / Growth Visioning	A planning process guided by input from the public and initiated by SCAG to develop a regional strategy for addressing future growth in Southern California.
Congestion pricing	User fee imposed on vehicles during peak demand periods on congested roadways.
Constant dollars	Dollars expended/received in a specific year adjusted for inflation/deflation relative to another time period.
Corridor	In planning, a broad geographical band that follows a general directional flow or connects major sources of trips. It may contain a number of streets and highways, and transit lines and routes.

CTC	California Transportation Commission – a nine-member board appointed by the governor to oversee and administer State and federal transportation funds and provide oversight on project delivery.
CTIPS	California Transportation Improvement Program System – a project programming database system used to efficiently and effectively develop and manage various transportation programming documents as required under State and federal law.
Current dollars	Actual dollars expended/received in a specific year without adjustments for inflation/deflation.
CVO	Commercial Vehicle Operations – management of commercial vehicle activities through ITS.
Deficiency Plan	Set of provisions contained in a Congestion Management Plan to address congestion, when unacceptable levels of congestion occur. Projects implemented through the Deficiency Plan must, by statute, have both mobility and air quality benefits.
DTIM	Direct Travel Impact Model – a vehicle emissions forecasting model.
EDF	Environmental Defense Fund – a national nonprofit organization that seeks to protect the environmental rights of all people, including future generations.
EIR	Environmental Impact Report – an informational document, required under CEQA, which will inform public agency decision-makers and the public generally of: the significant environmental effects of a project, possible ways to minimize significant effects, and reasonable alternatives to the project.
EMFAC	Emission Factor – model that estimates on-road motor vehicle emission rates for current year as well as back-casted and forecasted inventories.
EPA	Environmental Protection Agency – federal agency established to develop and enforce regulations that implement environmental laws enacted by Congress to protect human health and safeguard the natural environment.
FAA	Federal Aviation Administration – federal agency responsible for issuing and enforcing safety regulations and minimum standards, managing air space and air traffic, and building and maintaining air navigation facilities.
FHWA	Federal Highway Administration – federal agency responsible for administering the Federal-Aid Highway Program, which provides federal financial assistance to the states to construct and improve the National Highway System, urban and rural roads, and bridges.
Financially constrained	Expenditures are said to be financially constrained if they are within limits of anticipated revenues.
FRA	Federal Railroad Administration – federal agency created to promulgate and enforce rail safety regulations, administer railroad assistance programs, conduct research and development in support of improved railroad safety and national rail transportation policy, and consolidate government support of rail transportation activities.

FTA	Federal Transit Administration – the federal agency responsible for administering federal transit funds and assisting in the planning and establishment of areawide urban mass transportation systems. As opposed to FHWA funding, most FTA funds are allocated directly to local agencies, rather than Caltrans.
FTIP	Federal Transportation Improvement Program – a three-year list of all transportation projects proposed for federal transportation funding within the planning area of an MPO. (Note: The FTIP is locally referred to as the 2002 RTIP.)
FY	Fiscal Year – period of time beginning July 1 and ending the following June 30.
GARVEE	Grant Anticipation Revenue Vehicles – a debt financing instrument authorized to receive federal reimbursement of debt service and related financing costs under Section 122 of Title 23, United States Code. GARVEEs can be issued by a state, a political subdivision of a state, or a public authority.
GIS	Geographic Information System – powerful mapping software that links information about where things are with information about what things are like. GIS allows users to examine relationships between features distributed unevenly over space, seeking patterns that may not be apparent without using advanced techniques of query, selection, analysis, and display.
GNP	Gross National Product – an estimate of the total value of goods and services produced in any specified country in a given year. GNP can be measured as a total amount or an amount per capita.
Grade crossing	A crossing or intersection of highways, railroad tracks, other guideways, or pedestrian walks, or combinations of these at the same level or grade.
HDT	Heavy Duty Truck – truck with a gross vehicle weight of 8,500 pounds or more.
Home-based work trips	Trips that go between home and work, either directly or with an intermediate stop. Home-based work trips include telecommuting, working at home and non-motorized transportation work trips.
HOT Lane	High Occupancy Toll Lane – an HOV lane that single-occupant drivers can pay to drive in.
HOV Lane	High Occupancy Vehicle Lane – a lane restricted to vehicles with two (and in some cases three) or more occupants to encourage carpooling. Vehicles include automobiles, vans, buses and taxis.
HPMS	Highway Performance Monitoring System – a federally mandated program designed by FHWA to assess the performance of the nation’s highway system.
HUD	U.S. Department of Housing and Urban Development – federal agency charged with increasing homeownership, supporting community development, and increasing access to affordable housing free from discrimination.
ICAPCD	Imperial County Air Pollution Control District – local air agency mandated by State and federal regulations to implement and enforce air pollution rules and regulations.

Infrastructure	The basic facilities, equipment, services and installations needed for the growth and functioning of a community.
IOS	Initial Operating Segment.
ISTEA	Intermodal Surface Transportation Efficiency Act – signed into federal law on December 18, 1991, it provided authorization for highways, highway safety and mass transportation for FYs 1991–1997 and served as the legislative vehicle for defining federal surface transportation policy.
ITIP	Interregional Transportation Improvement Program - the portion of the STIP that includes projects selected by Caltrans (25 percent of STIP funds).
ITS	Intelligent Transportation Systems – systems that use modern detection, communications and computing technology to collect data on system operations and performance, communicate that information to system managers and users, and use that information to manage and adjust the transportation system to respond to changing operating conditions, congestion or accidents. ITS technology can be applied to arterials, freeways, transit, trucks and private vehicles. ITS include Advanced Traveler Information Systems (ATIS), Advanced Public Transit Systems (APTS), Advanced Traffic Management Systems (ATMS), Advanced Vehicle Control Systems (AVCS) and Commercial Vehicle Operations (CVO).
IVAG	Imperial Valley Association of Governments – Council of Governments for Imperial County. IVAG is responsible for short-range transportation planning, including all projects utilizing federal and State highway and transit funds.
JPA	Joint Powers Authority – two or more agencies that enter into a cooperative agreement to jointly wield powers that are common to them. JPAs are a vehicle for the cooperative use of existing governmental powers to finance and provide infrastructure and/or services in a cost-efficient manner.
LACMTA	Los Angeles County Metropolitan Transportation Authority, more commonly referred to as the MTA – agency responsible for planning and funding countywide transportation improvements, administering the county’s transportation sales tax revenues, and operating bus and rail transit service.
LAUPT	Los Angeles Union Passenger Terminal, also known as Union Station.
LAWA	Los Angeles World Airports – aviation authority of the City of Los Angeles. LAWA owns and operates Los Angeles International (LAX), Ontario International, Van Nuys, and Palmdale airports.
LCVs	Longer-Combination Vehicles – includes tractor-trailer combinations with two or more trailers that weigh more than 80,000 pounds.
LEM	Location Efficient Mortgage – allows people to qualify for larger loan amounts if they choose a home in a densely populated community that is well-served by public transit, and where destinations are located close together so that they can also walk and bike instead of driving everywhere.

Livable Communities	Communities that are pedestrian- and transit-friendly environments, achieved through local government building and design standards and private builders' implementation.
LTF	Local Transportation Fund – fund which receives TDA revenues.
MAGLEV	Magnetic Levitation high-speed transportation system.
MAP	Million Annual Passengers – used to quantify airport activity.
Market incentives	Measures designed to encourage certain actions or behaviors. These include inducements for the use of carpools, buses and other HOVs in place of single-occupant automobile travel. Examples include HOV lanes, preferential parking, and financial incentives.
MDAB	Mojave Desert Air Basin – area defined by State law as comprising the desert portions of Los Angeles, Kern, Riverside, and San Bernardino Counties.
MDAQMD	Mojave Desert Air Quality Management District – local air agency mandated by State and federal regulations to implement and enforce air pollution rules and regulations; encompasses the desert portion of San Bernardino County from the summit of the Cajon Pass north to the Inyo County Line, as well as the Palo Verde Valley portion of Riverside County.
Measure A	Revenues generated from Riverside County's local half-cent sales tax.
Measure I	Revenues generated from San Bernardino County's local half-cent sales tax.
Metrolink	Regional commuter rail system connecting Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties and operated by SCRRA.
MIS	Major Investment Study – the preliminary study, including preliminary environmental documentation, for choosing alternative transportation projects for federal transportation funding. An MIS is a requirement, which is conducted cooperatively by the study sponsor and the MPO.
Mixed flow	Traffic movement having autos, trucks, buses and motorcycles sharing traffic lanes.
Mode	A particular form of travel (e.g., walking, traveling by automobile, traveling by bus or traveling by train).
Mode split	The proportion of total person trips using various specified modes of transportation.
Model	A mathematical description of a real-life situation that uses data on past and present conditions to make a projection.
MPO	Metropolitan Planning Organization – A federally required planning body responsible for transportation planning and project selection in a region.

MTS	Metropolitan Transportation System – regional network of roadways and transit corridors.
Multi-modal	A mixture of the several modes of transportation, such as transit, highways, non-motorized, etc.
NAAQS	National Ambient Air Quality Standards – targets established by the U.S. Environmental Protection Agency (EPA) for the maximum contribution of a specific pollutant in the air.
NAFTA	North American Free Trade Agreement – agreement between the governments of Canada, Mexico, and the United States to eliminate barriers to trade and facilitate the cross-border movement of goods and services.
NEPA	National Environmental Protection Act – federal environmental law that applies to all projects funded with federal funds or requiring review by a federal agency.
NOx	Nitrogen oxides – a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. NOx is a major component of ozone and smog, and is one of six principal air pollutants tracked by the EPA.
OCTA	Orange County Transportation Authority – agency responsible for planning and funding countywide transportation improvements, administering the county’s transportation sales tax revenues, and operating bus transit service.
OnTrac	Orange-North America Trade Rail Access Corridor – formed in April of 2000 to build and support the Orangethorpe Avenue Grade Separation and Trade Corridor project, a 5-mile-long railroad-lowering project that will completely grade separate 11 rail crossings in the cities of Placentia and Anaheim.
OWP	Overall Work Program – SCAG develops an OWP annually, describing proposed transportation planning activities for the upcoming fiscal year, including those required by federal and State law.
PRC	Peer Review Committee – an “informal” committee of technical experts usually organized and invited to review and comment on various technical issues and processes used in the planning process.
PeMS	Freeway Performance Measurement System – a service provided by the University of California, Berkeley, to collect historical and real-time freeway data from freeways in the State of California in order to compute freeway performance measures.
Person trip	A trip made by a person by any mode or combination of modes for any purpose.
PILUT	Planning for Integrated Land-Use and Transportation – planning process initiated by SCAG to integrate the tasks related to RTP and PEIR development and COMPASS/Growth Visioning.
PM ₁₀	Particulate Matter – a mixture of solid particles and liquid droplets found in the air, 10 micrometers or less in size (a micrometer is one-millionth of a meter). These coarse particles are generally emitted from sources such as vehicles traveling on unpaved roads, materials handling, and crushing and grinding operations, as well as windblown dust.

PM _{2.5}	Particulate Matter – a mixture of solid particles and liquid droplets found in the air, 2.5 micrometers or less in size (a micrometer is one-millionth of a meter). These fine particles result from fuel combustion from motor vehicles, power generation, and industrial facilities, as well as from residential fireplaces and wood stoves.
Proposition 42	As of March 2002, placed in the State Constitution those provisions of current law requiring the use of State gasoline sales tax revenues for State and local transportation purposes.
Proposition A	Revenues generated from Los Angeles County's local half-cent sales tax. Los Angeles County has two permanent local sales taxes (Propositions C and A).
Proposition C	Revenues generated from Los Angeles County's local half-cent sales tax. Los Angeles County has two permanent local sales taxes (Propositions C and A).
PSR	Project Study Report – defines and justifies the project's scope, cost, and schedule. PSRs are prepared for State highway projects and PSR equivalents are prepared for projects not on the State highway system. Under State law, a PSR or PSR equivalent is required for STIP programming.
PTA	Public Transportation Account – the major State transportation account for mass transportation purposes. Revenues include a portion of the sales tax on gasoline and diesel fuels.
PUC	Public Utilities Commission – regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies.
Railroad siding	A short stretch of railroad track used to store rolling stock or enable trains on the same line to pass; also called sidetrack.
RCTC	Riverside County Transportation Commission – agency responsible for planning and funding countywide transportation improvements and administering the county's transportation sales tax revenues.
Robust flight portfolio	Providing a range of flight offerings in different haul length categories including short-haul, medium-haul, long-haul and international flights.
RTIP	Regional Transportation Improvement Program – refers to the share of capital outlay improvement funds controlled by regional agencies (75 percent of STIP funds). (Note: The FTIP is locally referred to as the 2002 RTIP.)
RTP	Regional Transportation Plan (RTP) – federally required 20-year plan prepared by metropolitan planning organizations and updated every three years. Includes projections of population growth and travel demand, along with a specific list of proposed projects to be funded.
RHNA	Regional Housing Needs Assessment – quantifies the need for housing within each jurisdiction of the SCAG Region based on population growth projections. Communities then address this need through the process of completing the housing elements of their general plans.
ROG	Reactive organic gas – organic compounds assumed to be reactive at urban/regional scales. Those organic compounds that are regulated because they lead to ozone formation.

RSTIS	Regionally Significant Transportation Investment Study -- involves identifying all reasonable transportation options, their costs, and their environmental impacts. RSTIS projects are generally highway or transit improvements that have a significant impact on the capacity, traffic flow, level of service or mode share at the transportation corridor or sub-area level.
RSTP	Regional Surface Transportation Program – established by the California State Statute utilizing federal Surface Transportation Program funds. Approximately 76 percent of the State’s RSTP funds must be obligated on projects located within the 11 urbanized areas of California with populations of 200,000 or more.
RTMS	Regional Transportation Monitoring System – internet-based transportation monitoring system. The RTMS will be the source for real-time and historical transportation data collected from local, regional and private data sources.
SAFETEA	Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 – Bush administration’s proposal for the six-year federal transportation reauthorization program (2004–2009).
SANBAG	San Bernardino Associated Governments –SANBAG is the council of governments and transportation planning agency for San Bernardino County. SANBAG is responsible for cooperative regional planning and developing an efficient multi-modal transportation system countywide.
SANDAG	San Diego Association of Governments
SB45	Senate Bill 45 (Chapter 622, Statutes of 1997, Kopp) – established the current STIP process and shifted control of decision-making from the State to the regional level.
SCAB	South Coast Air Basin – comprises the non-Antelope Valley portion of Los Angeles County, Orange County, Riverside County, and the non-desert portion of San Bernardino County.
SCAG	Southern California Association of Governments – the metropolitan planning organization (MPO) for six counties including Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.
SCAQMD	South Coast Air Quality Management District – the air pollution control agency for Orange County and major portions of Los Angeles, San Bernardino and Riverside Counties in Southern California.
SCCAB	South Central Coast Air Basin – comprises San Luis Obispo, Santa Barbara, and Ventura Counties.
SCRIFA	Southern California Railroad Infrastructure Financing Authority.

SCRRRA	Southern California Regional Rail Authority – formed in August 1991, the SCRRRA plans, designs, constructs and administers the operation of regional passenger rail lines (Metrolink) serving the counties of Los Angeles, Orange, Riverside, San Bernardino and Ventura.
SED	Socioeconomic Data – population, employment and housing forecast.
SHA	State Highway Account – the major State transportation account for highway purposes. Revenues include the State excise taxes on gasoline and diesel fuel and truck weight fees.
SHOPP	State Highway Operation and Protection Program – a four-year capital improvement program for rehabilitation, safety, and operational improvements on state highways.
SIP	State Implementation Plan - State air quality plan to ensure compliance with State and federal air quality standards. In order to be eligible for federal funding, projects must demonstrate conformity with the SIP.
SO _x	Sulfur Oxide – any of several compounds of sulfur and oxygen, formed from burning fuels such as coal and oil.
SSAB	Salton Sea Air Basin – comprises the Coachella Valley portion of Riverside County and all of Imperial County.
STA	State Transit Assistance – State funding program for mass transit operations and capital projects. Current law requires that STA receive 50 percent of PTA revenues.
STIP	State Transportation Improvement Program – a four-year capital outlay plan that includes the cost and schedule estimates for all transportation projects funded with any amount of State funds. The STIP is approved and adopted by the CTC and is the combined result of the ITIP and the RTIP.
STP	Surface Transportation Program – provides flexible funding that may be used by states and localities for projects on any federal-aid highway, bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities. A portion of funds reserved for rural areas may be spent on rural minor collectors.
TANN	Traveler Advisory News Network – provides real-time traffic and transportation information content to communications service providers and consumer media channels both nationally and internationally.
TAZ	Traffic Analysis Zone – zone system used in travel demand forecasting.
TCM	Transportation Control Measure – a project or program that is designed to reduce emissions or concentrations of air pollutants from transportation sources. TCMs are referenced in the State Implementation Plan (SIP) for the applicable air basin and have priority for programming and implementation ahead of non-TCMs.

TCRP	Traffic Congestion Relief Program – enacted by State legislation in 2000 to provide additional funding for transportation over a six-year period (later extended to eight years). The program is funded by a combination of General Fund revenues (one-time) and ongoing revenues from the State sales tax on gasoline. In March 2002 voters passed Proposition 42, which permanently dedicated gasoline sales tax revenues to transportation purposes.
TDA	Transportation Development Act – State law enacted in 1971 that provided a 0.25 percent sales tax on all retail sales in each county for transit, bicycle, and pedestrian purposes. In non-urban areas, funds may be used for streets and roads under certain conditions.
TDM	Transportation Demand Management – strategies that result in more efficient use of transportation resources, such as ridesharing, telecommuting, park and ride programs, pedestrian improvements, and alternative work schedules.
TEA-21	Transportation Equity Act for the 21 st Century – signed into federal law on June 9, 1998, TEA-21 authorizes the federal surface transportation programs for highways, highway safety, and transit for the six-year period 1998–2003. TEA-21 builds upon the initiatives established in ISTEA.
TEU	Twenty-feet Equivalent Unit.
Tier 2	The set of 2002 RTIP projects that is not included in the Baseline scenario. Tier 2 projects are recognized as committed projects and the RTP gives them first-funding priority after the Baseline.
TIFIA	Transportation Infrastructure Finance and Innovation Act of 1998 – established a new federal credit program under which the USDOT may provide three forms of credit assistance—secured (direct) loans, loan guarantees, and standby lines of credit—for surface transportation projects of national or regional significance. The program's fundamental goal is to leverage federal funds by attracting substantial private and other non-federal co-investment in critical improvements to the nation's surface transportation system. Sponsors may include state departments of transportation, transit operators, special authorities, local governments, and private entities.
TOD	Transit-Oriented Development – a land-use planning tool that promotes pedestrian-friendly environments and supports transit use and ridership. TOD focuses on high-density housing and commercial land-uses around bus and rail stations.
TP & D	Transportation Planning and Development Account – a State transit trust fund that is the funding source for the STA program.
Transit-dependent	Individual(s) dependent on public transit to meet private mobility needs (e.g., unable to drive, not a car owner, not licensed to drive, etc.).
Trantrak	RTIP database management system.
TUMF	Transportation Uniform Mitigation Fee – ordinance enacted by the Riverside County Board of Supervisors and cities to impose a fee on new development to fund related transportation improvements.
UP	Union Pacific Railroad.

USDOT	U.S. Department of Transportation – federal agency responsible for the development of transportation policies and programs that contribute to providing fast, safe, efficient, and convenient transportation at the lowest cost consistent with those and other national objectives, including the efficient use and conservation of the resources of the United States. USDOT is comprised of ten operating administrations, including FHWA, FTA, FAA, and FRA.
VCTC	Ventura County Transportation Commission – agency responsible for planning and funding countywide transportation improvements.
Vehicle Hours of Delay	The travel time spent on the highway due to congestion. Delay is estimated as the difference between vehicle hours traveled at a specified free flow speed and vehicle hours traveled at a congested speed.
Vehicle trip	The one-way movement of a vehicle between two points.
VMT	Vehicle Miles Traveled – on highways, a measurement of the total miles traveled by all vehicles in the area for a specified time period. It is calculated by the number of vehicles times the miles traveled in a given area or on a given highway during the time period. In transit, the number of vehicle miles operated on a given route or line or network during a specified time period.
VOC	Volatile Organic Compounds – organic gases emitted from a variety of sources, including motor vehicles, chemical plants, refineries, factories, consumer and commercial products, and other industrial sources. Ozone, the main component of smog, is formed from the reaction of VOCs and NO _x in the presence of heat and sunlight.

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Bert Becker, Chief Financial Officer
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Jim Sims, Director, Information Services
Rich Macias, Manager, Transportation Planning & Programs

RTP Core Team

Naresh Amaty, Lead Senior Planner & Project Manager
Alan Bowser, Senior Planner
Annie Nam, Senior Planner
Alan Thompson, Senior Planner
Philip Law, Associate Planner
Bernice Villanueva, Associate Planner

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