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 Performance Measures									
RTP Goals	***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

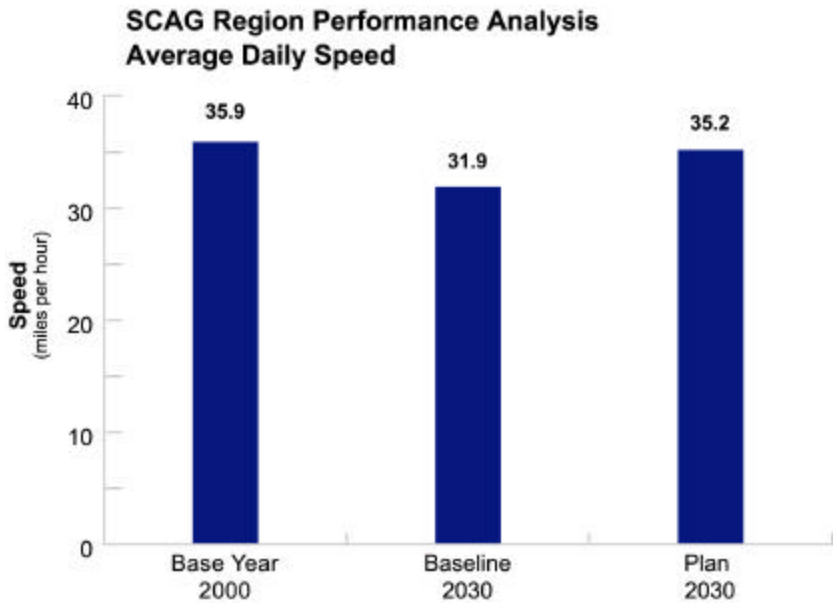


Figure 5.2 compares delay results and shows that the Plan reduces total daily person delay by more than 40 percent compared to the Baseline (No-Project) and an increase of 50 percent over the Base Year condition. This increase reflects the growth in the Region and the resulting incremental travel.

Figure 5.2

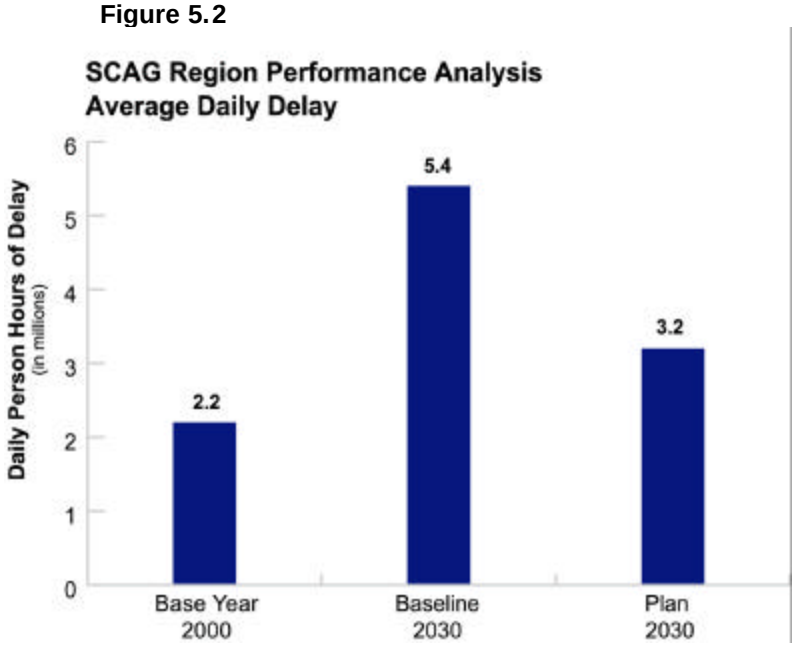
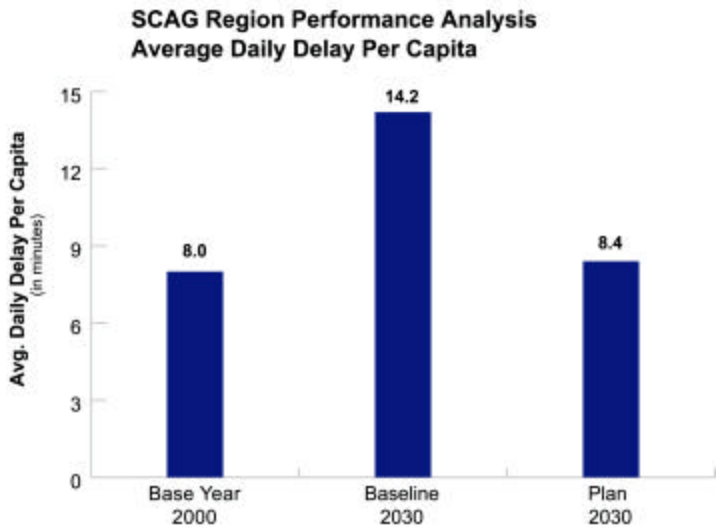


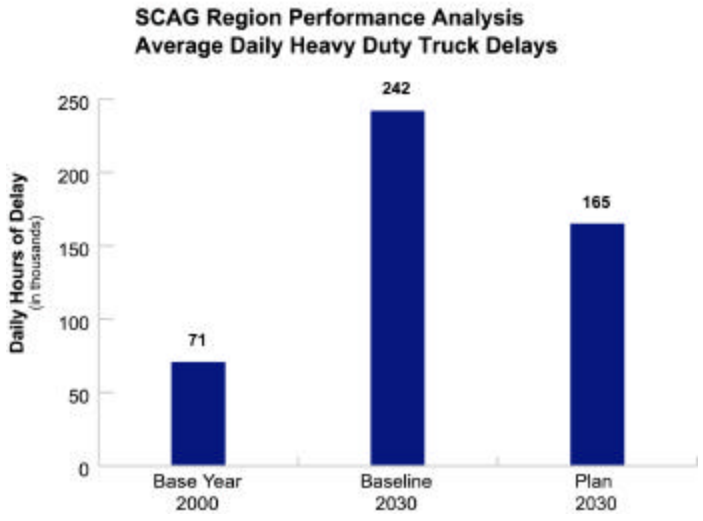
Figure 5.3 compares average daily delay per capita, which is a measure that takes into account that there will be more people traveling on the Region's transportation system by 2030. The results tell a different story. Whereas total delay for the Plan increases by 50 percent over Base Year conditions,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

Figure 5.3

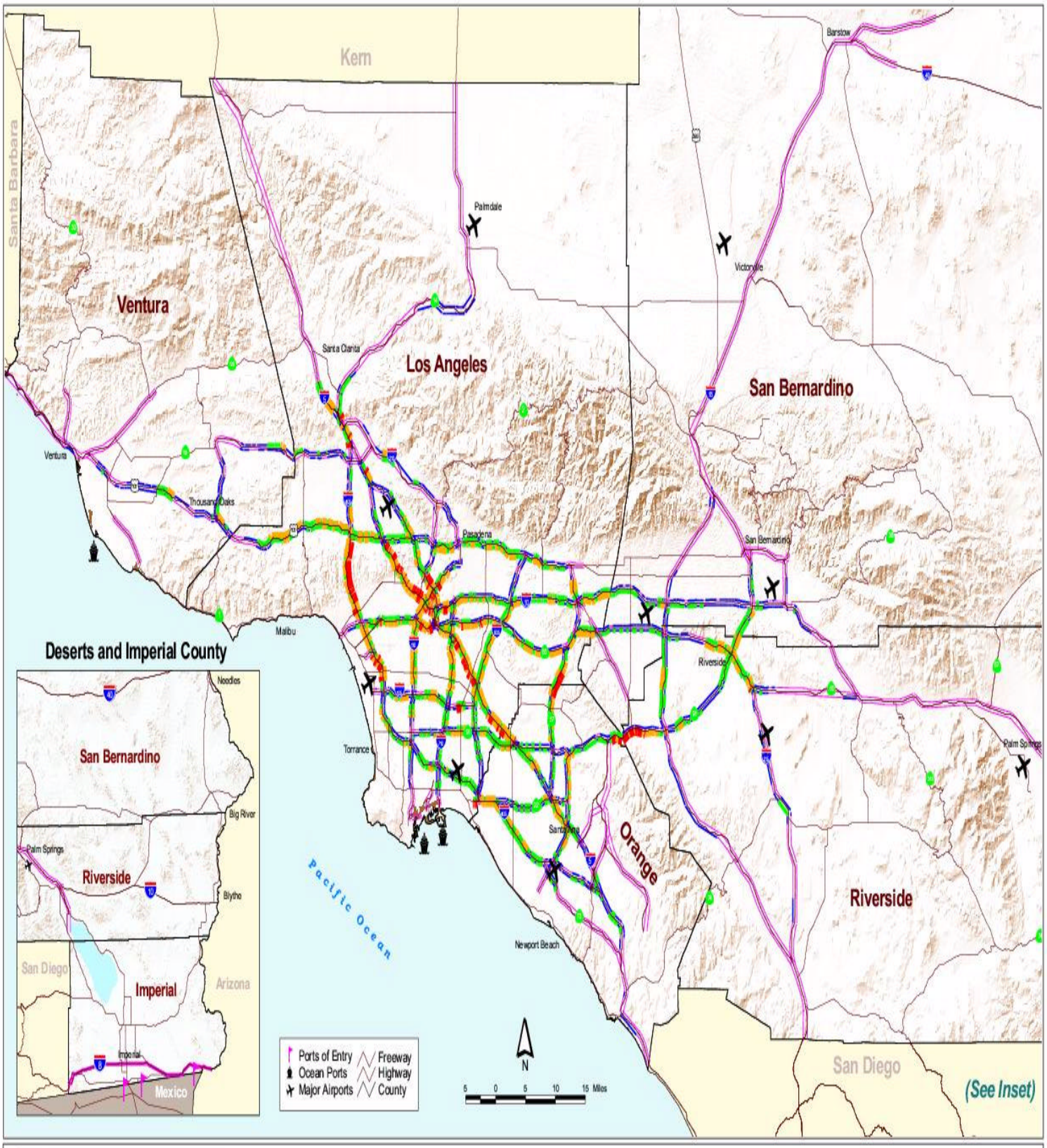


Finally, Figure 5.4 compares average daily Heavy Duty Truck delays, which shows an improvement of over 30 percent compared to the Baseline (No-Project). This is an important statistic given the Plan's emphasis on the logistics industry and its importance to the regional economy.

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.



PM Peak Congested Speed (mph)
- Less than 15
- 15 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 or Greater

2000 Base Year Freeway Speed
PM Peak (3 p.m. to 7 p.m.)

Exhibit 5.1

SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS

2004 RTP

PM Peak Congested Speed (mph)

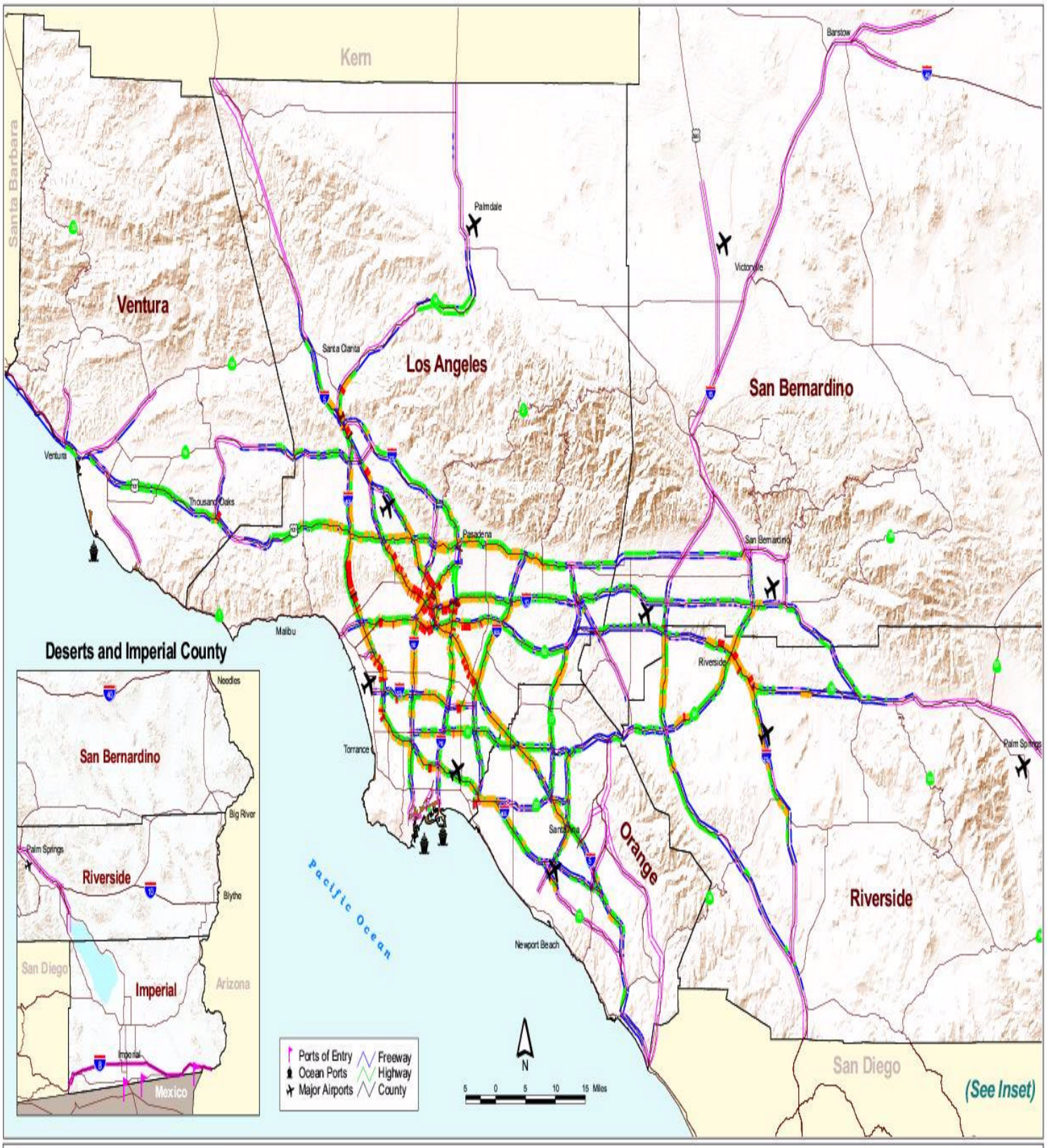
- Less than 15
- 15 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 or Greater

2030 Baseline (No Project) Freeway Speed PM Peak (3 p.m. to 7 p.m.)

Exhibit 5.2

SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS

2004 RTP



PM Peak Congested Speed (mph)

- Less than 15
- 15 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 or Greater

2030 Plan Freeway Speed
PM Peak (3 p.m. to 7 p.m.)

Exhibit 5.3

SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS

2004 RTP

Accessibility

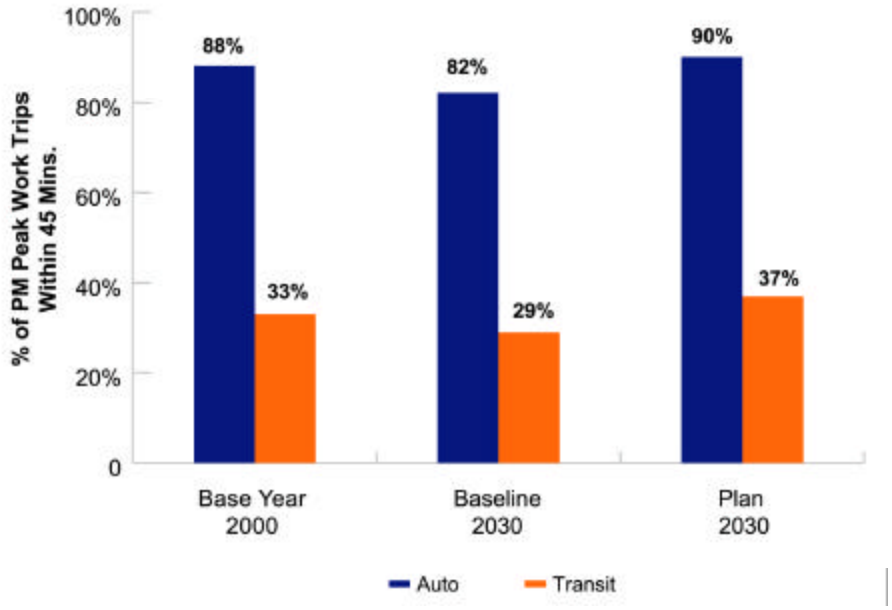
Accessibility measures how well the transportation system provides people access to opportunities. Opportunities can include jobs, education, medical care, recreation, shopping, or other activities that help improve people's lives.

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 Aarriving 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

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

Productivity

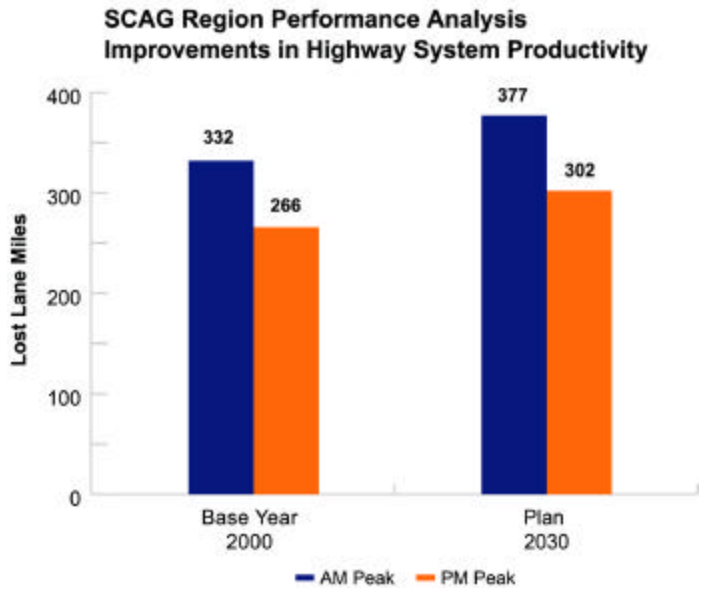
The productivity outcome reflects the degree to which the transportation system performs during peak demand conditions. It is a system efficiency measure. The productivity indicator is defined as the percent utilization during peak demand conditions.

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

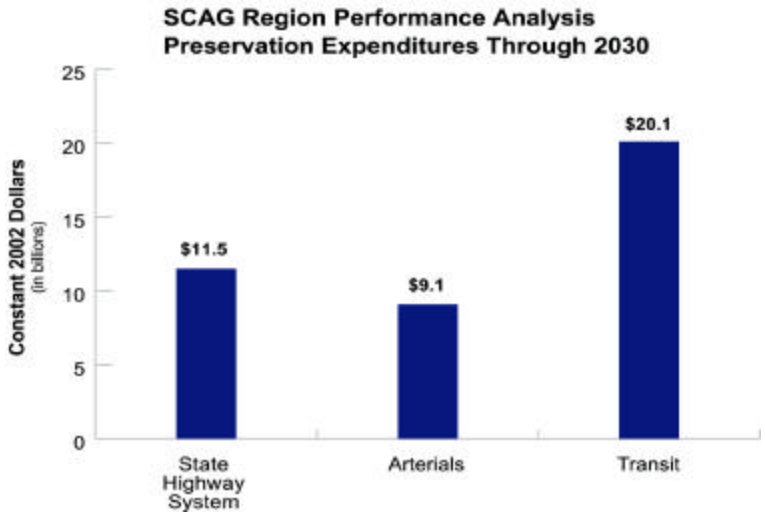


Preservation

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.

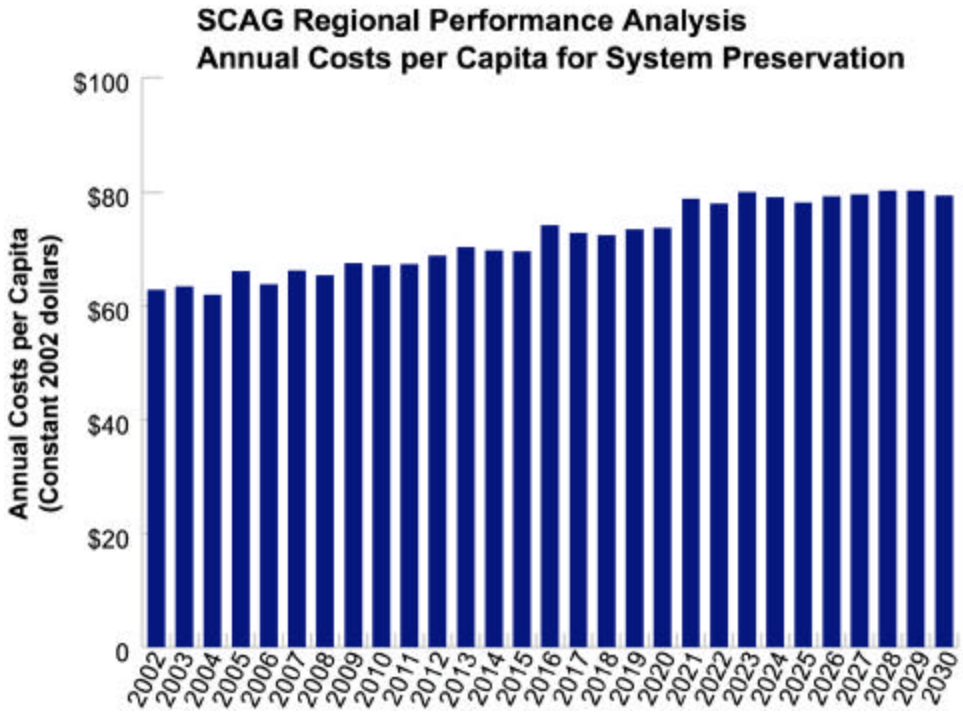
It is important to note that truck traffic adds significantly to pavement preservation costs. Furthermore, truck volume growth in the Region is expected to outpace population growth. Yet the Region's economic well-being depends on its transportation and logistics industry. Therefore, it is important 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:

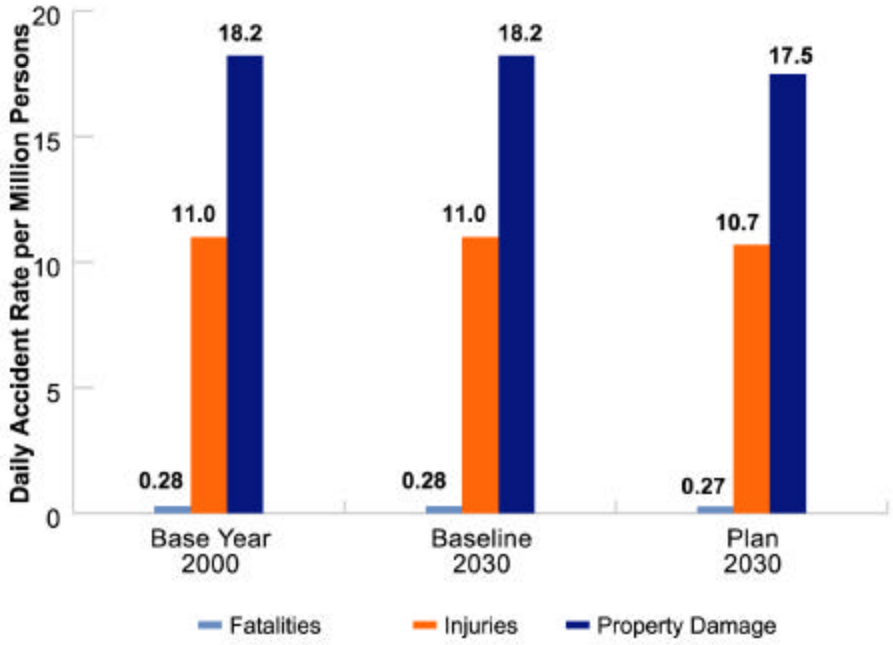
- Fatalities per million persons
- Injuries per million persons
- Property damage accidents per million persons

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

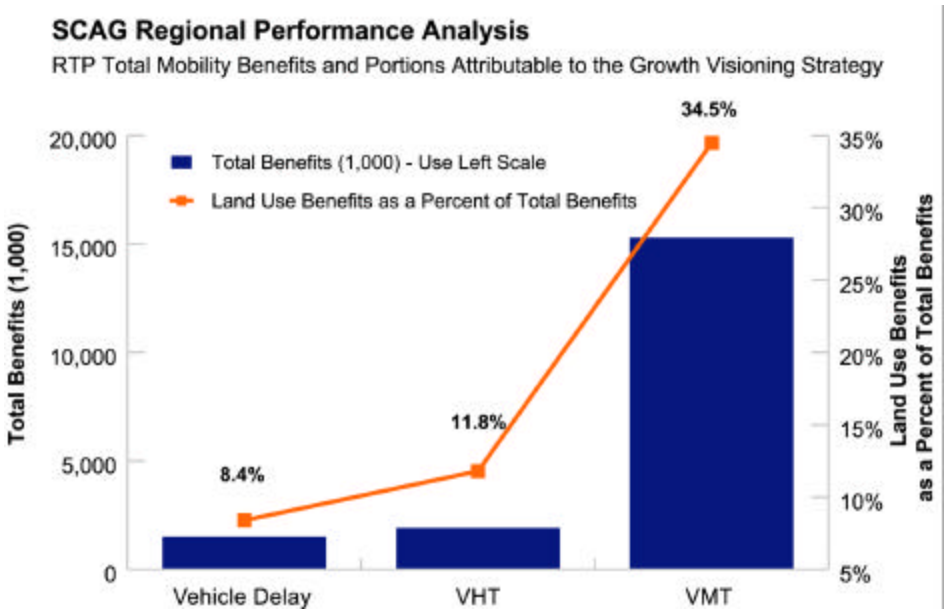
SCAG Regional Performance Analysis Benefit Cost Results

Project	*Value of $1 Invested*
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.

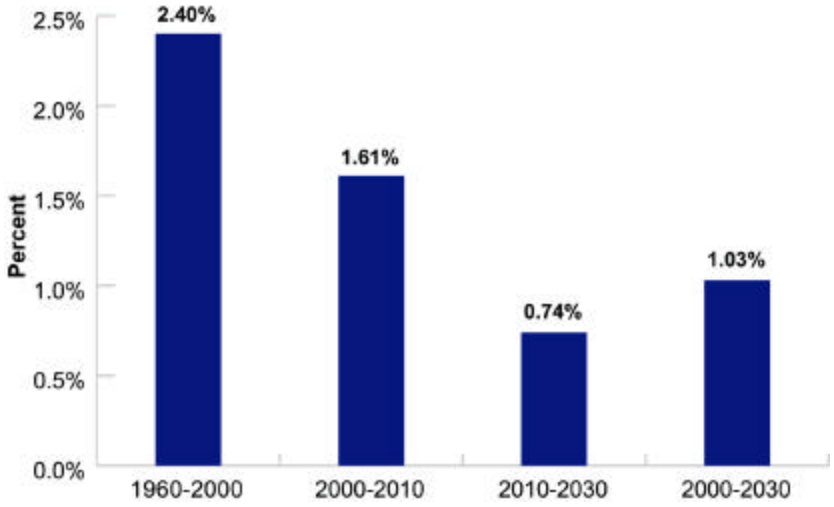
Unlike the 1960 to 2000 period, the Region will not have a large labor force to support a much smaller retired population. Instead, the Region will experience a situation where a smaller labor force made up of minority households will be supporting a large retired population made up of non-minority households. 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 andSCAG 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).

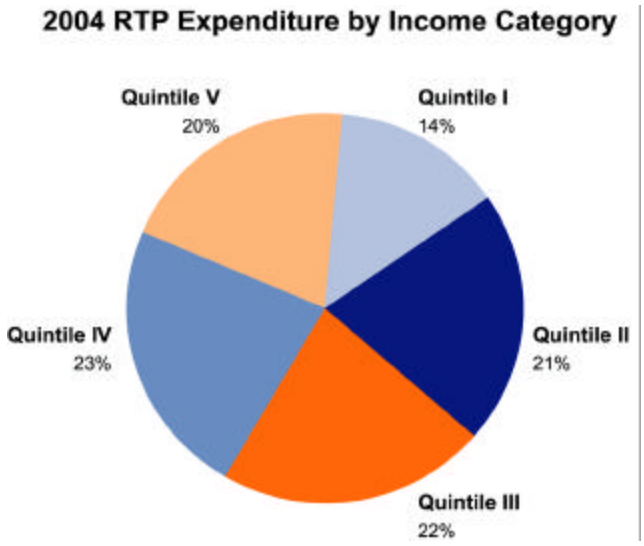
Environmental Justice Analysis Results

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

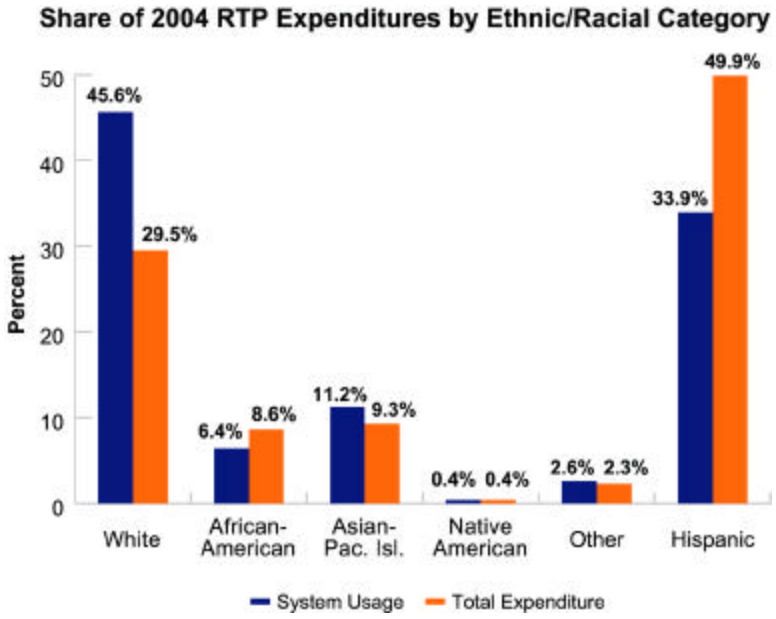
SCAG analyzed the distribution of Plan expenditures based on mode usage information by income quintile. This analysis showed that 57 percent of total public expenditures under the Plan would be spent on modes most commonly used by the lower three income quintiles, or the lowest 60 percent of the population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

Figure 5.12



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

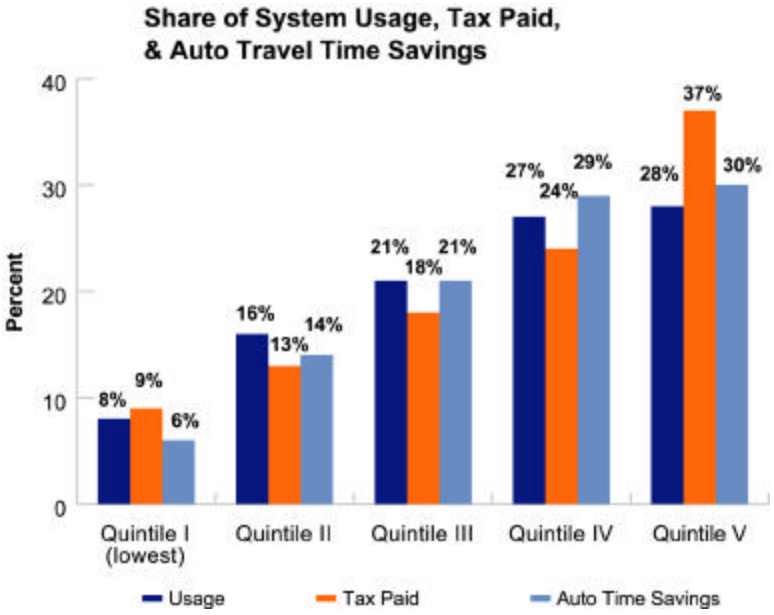


Figure 5.15

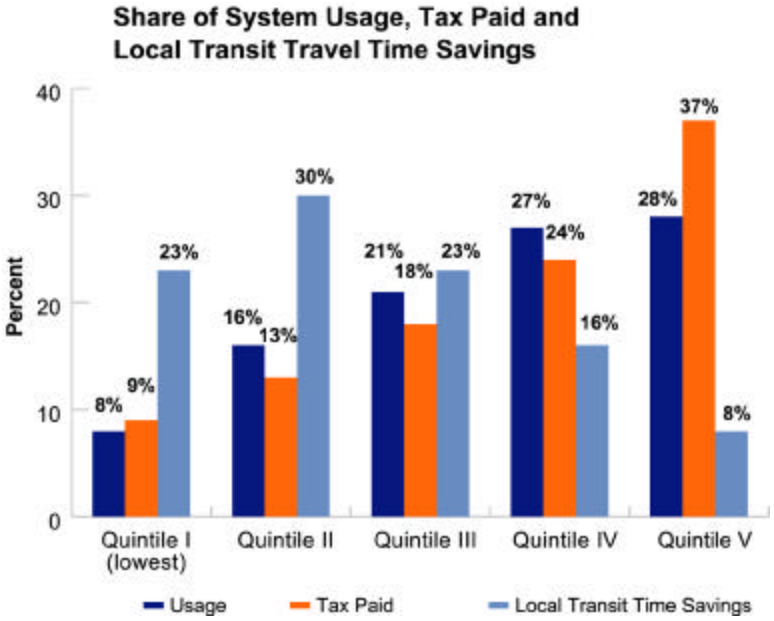
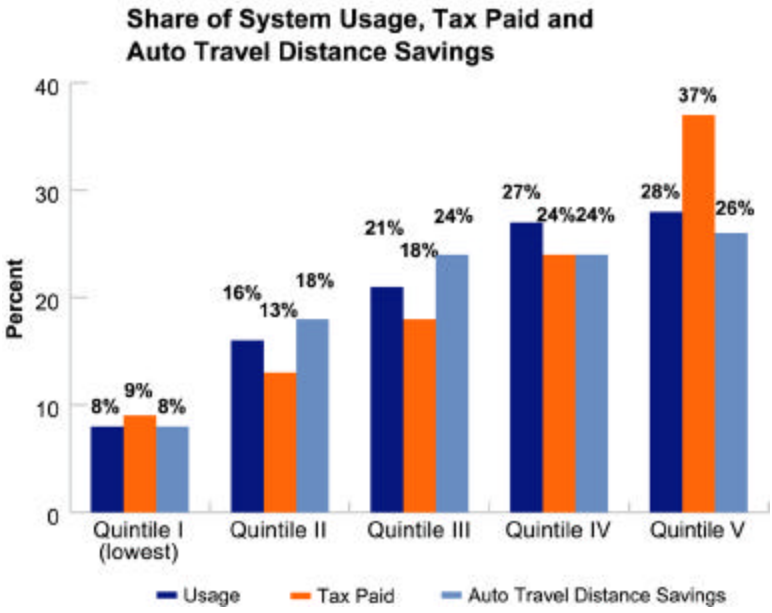


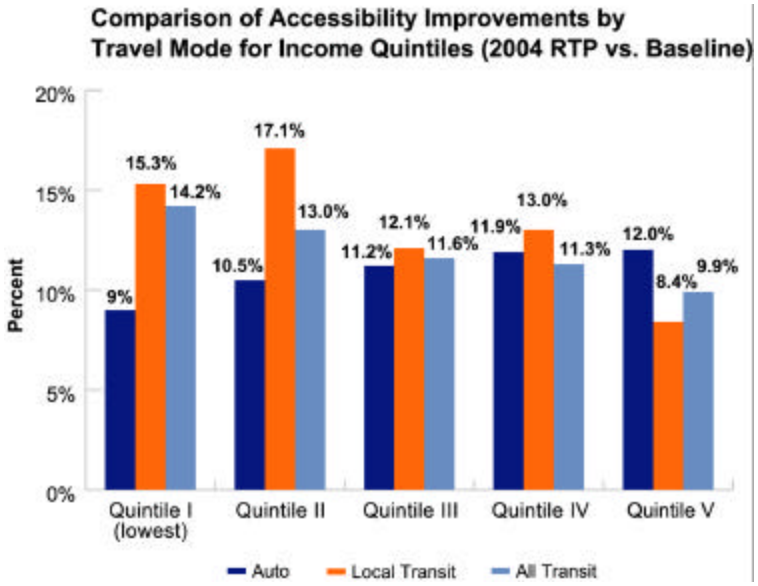
Figure 5.16



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

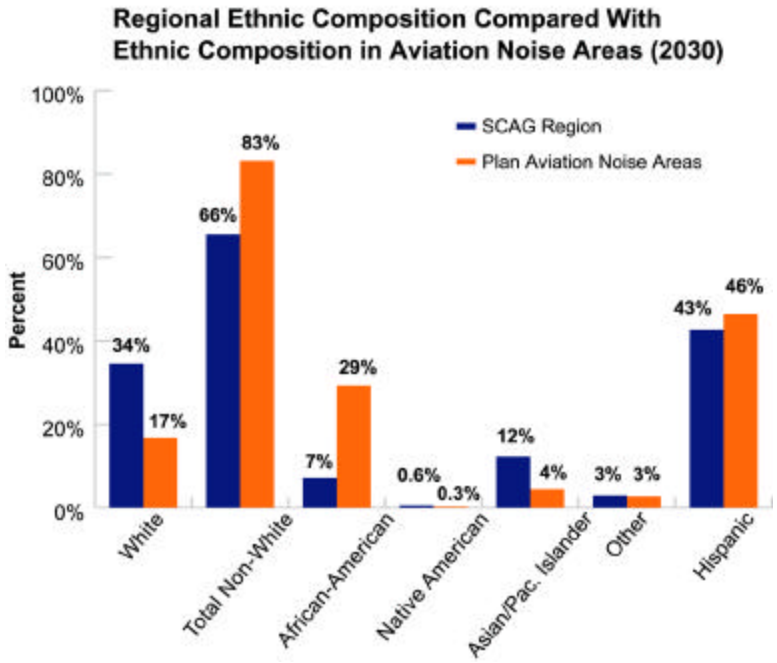


Aviation Noise

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.

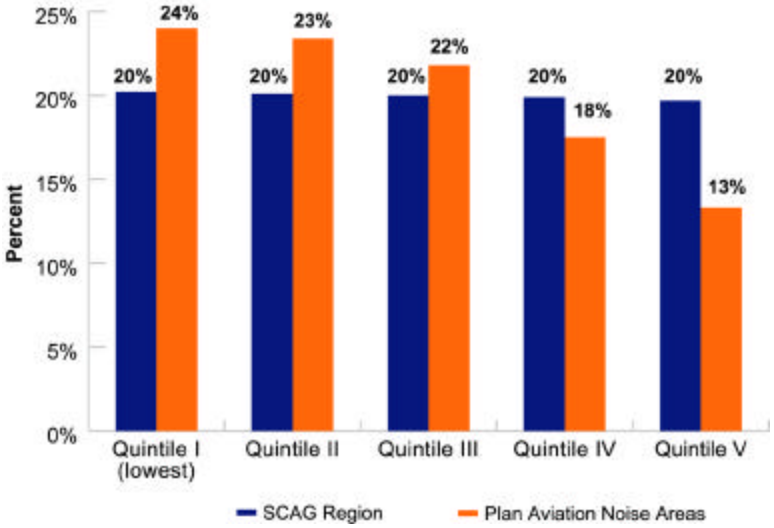
The analysis shows that aviation activities in the Region are expected to impose a disproportionate noise burden on minority residents near airports. In 2030, the Region is projected to have a non-White population of 66 percent, but in the aggregated noise areas, the population is projected to be 83 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

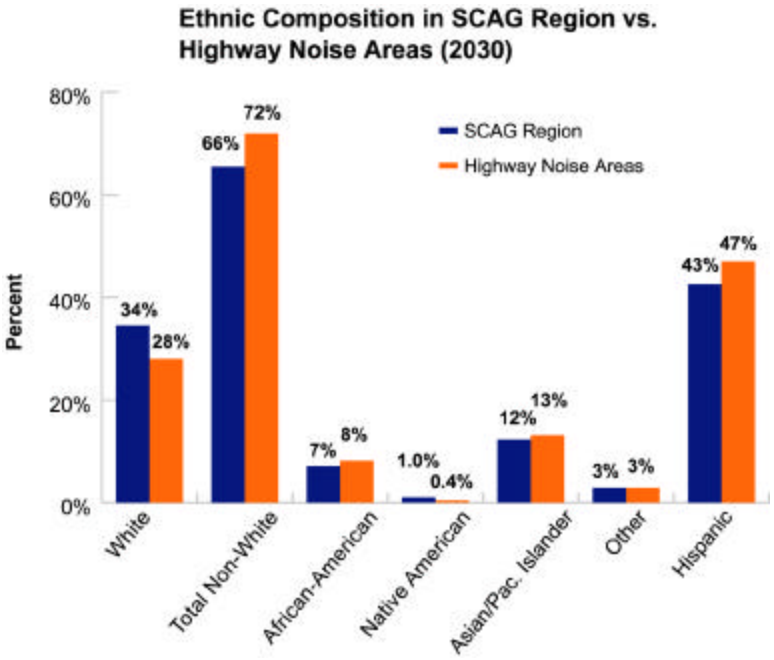
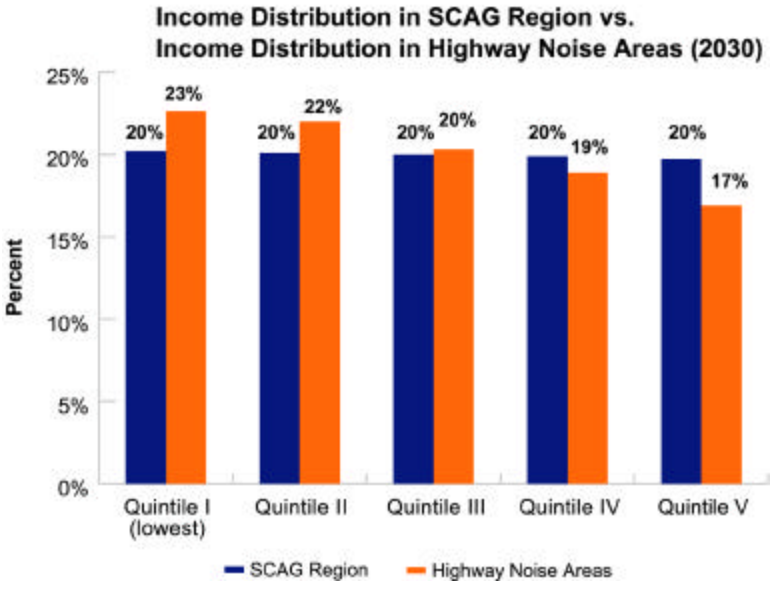


Figure 5.21



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 PM_{10}. Analysis was also conducted for the PM_{10} 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 PM_{10} 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

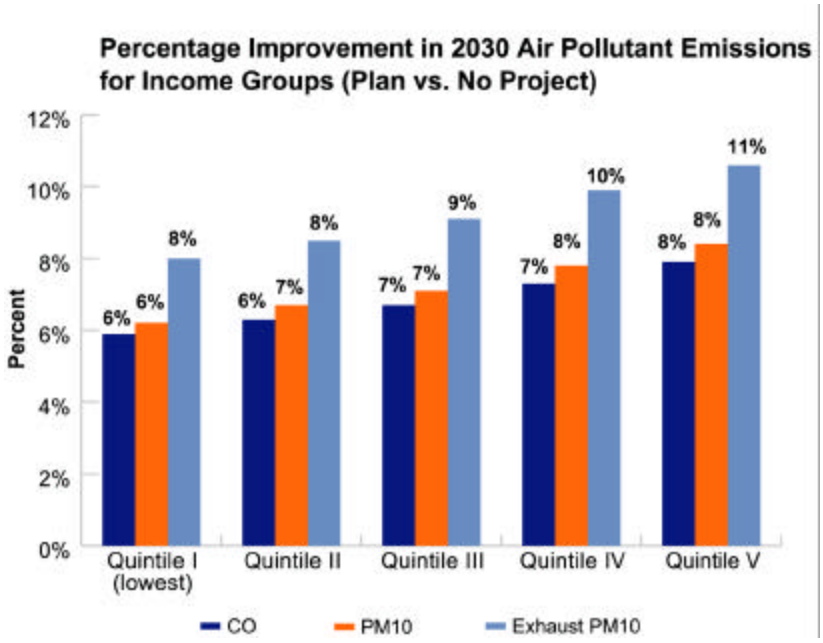
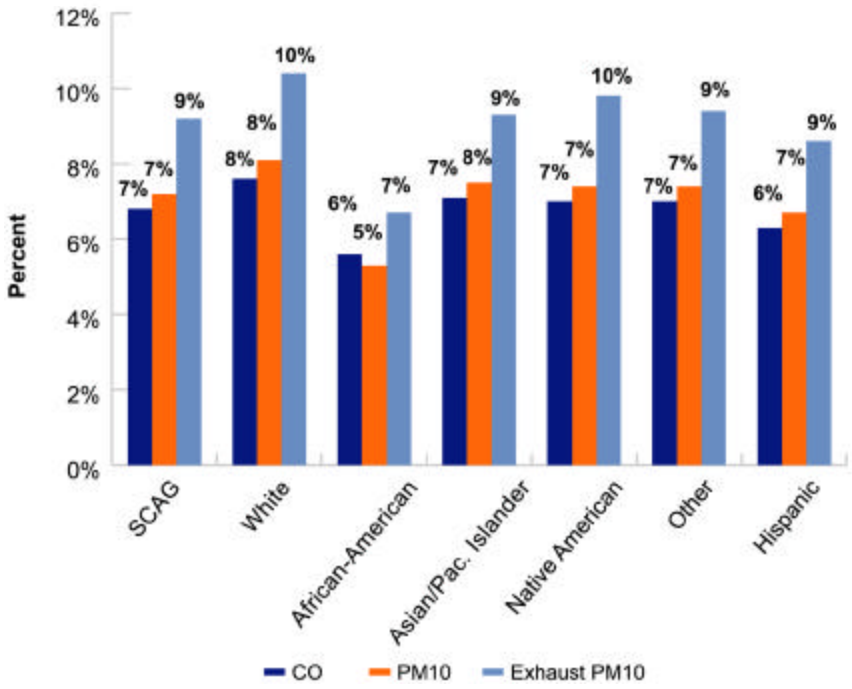


Figure 5.23

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

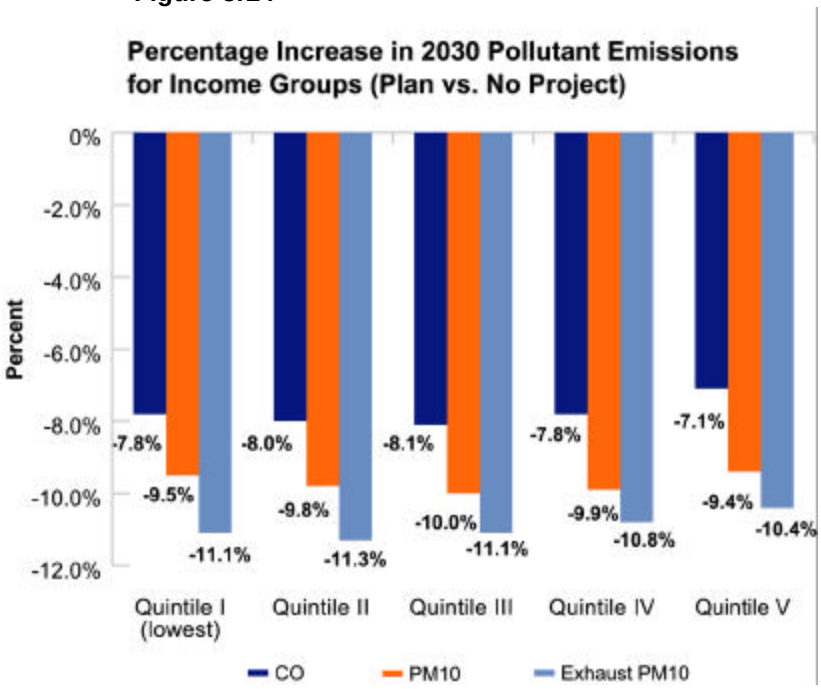


Figure 5.25