

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

The State of the Region 2007

MEASURING REGIONAL PROGRESS



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SCAG Region



Preface

The Southern California Association of Governments (SCAG) is the largest regional planning organization in the nation. The SCAG region, also referred to as Southern California in this report, includes six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura) and 187 cities. Currently, with more than 18 million residents, the region has more population than any state in the nation with the exceptions of California, Texas and New York. It is also the 15th largest economy in the world.

The State of the Region 2007 tracks the progress in Southern California through the use of a set of interrelated performance indicators. The report compares the recent performance of our region with its own previous record and that of other large U.S. metropolitan regions. It also includes three essays on critical regional issues: the prospects of transit-oriented development, residents' opinions on quality of life, and the current public health crisis from air pollution. The report is intended to raise public awareness, focus policy deliberations and shape collective actions on vital issues affecting our shared future.

It should be noted that in addition to absolute improvements within our region, performance relative to other regions is equally important. Southern California competes with other metropolitan regions nationally and globally, and quality of life differentials have consequences for our region's competitiveness in attracting business investment and human capital.

As one of the top global gateway regions serving both the nation and the international community, the performance of Southern California impacts not only the quality of life of its own residents but also carries national and global implications. Hence, the region also needs to make contributions to address global issues such as climate change.

Assessing the region's performance is an integral component of the regional policy process. Findings from the State of the Region provide a basis for regional policy development and implementation. Since 2005, SCAG has been working collaboratively with local governments, stakeholders and partners in developing a new Regional Comprehensive Plan (RCP) and Regional Transportation Plan (RTP). The new RCP and RTP, with drafts currently under public review, contain goals and action plans to improve the region's performance for both current and future generations.

Preparation of the 2007 Report was guided by SCAG's Benchmarks Task Force, consisting of local elected officials and regional issue experts in Southern California. A companion piece, the State of the Region Report Card, includes grades for selected issue areas developed by the Benchmarks Task Force. The complete 2007 State of the Region Report, Report Card and the draft RCP and RTP have been posted on the SCAG website at www.scag.ca.gov.



Executive Summary

The State of the Region 2007 focuses on the performance of Southern California since 2000, particularly in 2006. As documented in the previous State of the Region Reports, the SCAG region lost significant ground during the 1990s relative to other large metropolitan regions in the nation with respect to basic socioeconomic well-being such as employment, income, education and housing affordability. This is primarily due to the economic and demographic transformations occurring throughout the region. They included the 1991-1994 recession, the most severe one since the Great Depression accompanied by record levels of residents leaving Southern California as well as influx of immigrants. However, during the same decade, the region was able to achieve significant progress in improving air quality and reducing violent crimes.

Between 2000 and 2005, the SCAG region did not lose additional ground in its basic socioeconomic well-being relative to other large metropolitan regions. This is partly because the 2001 national recession, which centered on the high tech industries, impacted other large metropolitan regions such as the San Francisco Bay Area more severely than the SCAG region. In addition, during this five-year period, housing and its related sectors such as construction, finance and real estate industries were stronger engines for growth in the region than in the rest of the nation. For example, the number of residential building permits issued in the region increased from 56,000 units in 2000 to 91,000 units in 2005, a jump of more than 60 percent compared to only a 35 percent increase for the nation, and the median home price in the region more than doubled in contrast to less than a 40 percent increase nationally.

During 2006, housing and its related sectors slowed down significantly in the region and the nation. For example, the number of residential permits dropped by 14 percent in the region while its median

home price appreciation slowed to only 8 percent in 2006. In addition, gasoline prices surged to its peak level of \$2.80 per gallon in 2006, becoming another factor to constrain growth. Despite these limiting factors, Southern California made progress in numerous areas in 2006 including a record low unemployment rate, and increases in real per capita income and median household income. This was partly due to the continuing rise in international trade, the recovery of the Los Angeles County economy and stabilization of the manufacturing sector. The region also made progress in increasing the share of alternative modes for commuting and reducing violent crimes. However, all these achievements were tempered by the stagnation of real average wage per job, record high housing cost burdens for owners and renters, continuing rise in high school dropout rate, and the severe health impacts from air pollution confirmed by recent studies.

Highlights of the findings are summarized below, and discussed in further detail in the main report.

- 1. Population growth in the region has been slowing due to increased domestic outmigration. However, since 2000, population in the region has increased by almost 2 million. The region also continued the demographic transformation in its ethnic composition, longer settlement of the immigrant population, disproportionately higher but declining share of the nation's immigrant population (legal or unauthorized), growing population share of immigrants' second-generation descendants, and the aging of the overall population.**

Since 2000, population in the region has increased by almost 2 million to reach 18.5 million in 2006. After achieving its largest annual increase in 2001 of approximately 350,000, population



growth in the SCAG region slowed to 213,000 in 2006. A major factor behind the slowing growth was the increased net domestic outmigration, i.e., there were more people moving out of Southern California to the rest of the nation than vice versa. This could be due to the widening gap of the cost of living between the region and the rest of the nation particularly with respect to housing, and the overall economic recovery in the rest of the nation. As to the sources of population growth between 2000 and 2006, over half (55 percent) was due to natural increase, 44 percent was from net foreign immigration and only 1 percent from net domestic migration.

There are five important demographic dynamics at work in Southern California. They include the continuing change in the ethnic composition, longer settlement of the immigrant population, disproportionately higher but declining share of the nation's immigrants population (legal or unauthorized), growing share of immigrants' second generation, and the aging of the overall population. All five dynamics continued through 2006. They are inter-related and together have significant implications for the future

performance potential of Southern California. As to the transformation in ethnic composition, the share of the Hispanic population reached 44 percent in 2006, about a 4-percentage point increase from 2000 and a dramatic increase from only 10 percent in 1960. About 8 percent of the region's residents were unauthorized immigrants. The growing share of the immigrants' second-generation contributed to a slower pace of aging process in Southern California than in the rest of the nation. Among the nine largest metropolitan regions in the nation, the SCAG region continued to be the second youngest in terms of median age (33.5) in 2006, following the Dallas region (33.2).

2. Despite a weakening housing sector, the region continued its job expansion in 2006 with the lowest unemployment rate since 1980. Job growth slowed in the Inland Empire and Orange County but accelerated in Los Angeles County. Gains in both real per capita income and real median household income in 2006 were tempered by the stagnation in real average payroll per job. Since 2000, the region has achieved little in real per capita income and real average payroll per job while real median household income in 2006 was still below its 2000 level.

In 2006, the region's job market continued to show a broad-based expansion over the previous year. After gaining about 131,000 jobs (or 1.9 percent) in 2005, total wage and salary jobs in the region increased by more than 156,000 (2.2 percent) during 2006. The increase in 2006 was the highest since 2000 in terms of number of jobs and growth rate. Accelerated growth in professional and business services, logistics and hospitality sectors and stabilization of the manufacturing sector particularly in Los Angeles County more than offset the weakness in housing-related

sectors that slowed the growth in the Inland Empire and Orange County. In 2006, the region achieved a slightly higher rate of job growth (2.2 percent) than the rest of the state (1.5 percent) and the nation (1.8 percent).

It should be noted that the region achieved its lowest unemployment rate (4.6 percent) in 2006 since 1980. However, based on preliminary data, average payroll per job in the region at \$46,414 in 2006 changed little from 2005 after adjusting for inflation, and continued to rank last among the nine largest metropolitan regions in the nation. Between 2000 and 2006, average wage per job was somewhat stagnant at the national, state and regional levels. In 2006, the real average wage per job in the region was only slightly above its 2000 level.

In 2006, partly due to the improvement of the job market, real personal income per capita in the region increased by 1.3 percent to reach \$36,614, while it also increased for the nation (1.9 percent to reach \$36,276) as well as the state (1.5 percent to reach \$38,956). However, real per capita income only increased by 1.5 percent between 2000 and 2006. Among the 17 largest metropolitan regions in the nation, the SCAG region ranked 16th in per capita income in 2005, dropping from the 4th highest in 1970 and 7th highest in 1990.

The real median household income in the region at \$55,678 in 2006 represented a 2.6 percent increase from 2005. Nevertheless, it was still 4 percent below its 1999 level. Between 1999 and 2006, real median household income also declined at the state and national levels. In 2006, 13.6 percent of residents in the region lived in poverty, a slight decrease from 2005 (14 percent) but a notable improvement from 1999 (15.6 percent). However, in

2006, there were still over 19 percent of children under 18 living in poverty.

3. Building permit decline in 2006 was concentrated in single-family housing while permits for multi-family units actually increased. Since 2000, the region has achieved steady increases in homeownership rates. However, with record high housing prices and continuing rent increases in 2006, the region experienced record high housing cost burdens for both owners and renters.

From 2005 to 2006, the total number of building permits issued dropped by 14 percent from 91,000 to 78,200 units, a decline for the second consecutive year. Total valuation of permits also decreased by \$2.5 billion (22 percent) reaching almost \$18 billion. Notably, the decline was only for the single-family units while permits for multi-family units actually achieved a 15 percent (or 3,700 units) increase. Within the region, the decline in building permits was concentrated in the Inland Empire. Among the total permits issued in 2006, about 36 percent were for multi-family housing, an increase from 27 percent in 2005. In both Los Angeles and Orange counties, more than 60 percent of the building permits issued was for multi-family units.

Since 2000, homeownership in the region has been increasing steadily to reach almost 57 percent, an increase of 2 percentage points. Homeownership in Riverside County reached 69.2 percent in 2006, the highest in the region, followed by Ventura County with 68.7 percent. Los Angeles County, though its homeownership increased from 47.9 percent in 2000 to over 49 percent in 2006, continued to be the lowest in the region. Among the nine largest metropolitan regions in the nation, the SCAG region

continued to have the second lowest homeownership rate, just above the New York region (56 percent).

With record high housing prices and continuing rent increases, housing cost burdens continued to rise across the region and reached record highs in 2006 for both owner and renter households. The housing affordability gap between the region and the nation has also been widening. While 60 percent of the first-time homebuyers in the nation can afford an entry-level home in 2006, less than 30 percent of the region's first-time homebuyers could achieve the same. In addition, over 53 percent of owner and renter households had monthly housing costs at or greater than 30 percent of household incomes in 2006, up by 13 and 10 percentage points respectively since 2000. Among the nine largest metropolitan regions in the nation, the SCAG region continued to have the highest level of housing cost burden for owner and renter households.



- 4. In 2006, for the second consecutive year, the region experienced a decrease in drive-alone share and an increase in alternative modes share of commuting, both reversing the recent trends. These trend reversals were partly due to steep increases in gasoline prices. The region also achieved the highest transit boardings since 2000. From 2004 to 2006, total vehicle miles traveled (VMT) generally stabilized and VMT per household declined for two consecutive years.**

For the past few decades, Southern California has been consistently experiencing very high levels of congestion. The SCAG region (particularly Los Angeles and Orange counties) regularly ranks as the most congested metropolitan region in the nation. Contributing factors include large population and physical extent of the region, significant population growth, high automobile dependence, low levels of transit usage, and a maturing regional highway system with limited options for expansion.

An average gasoline price at \$2.80 in 2006 was the highest since 1970. High gasoline prices since 2004 have impacted the commuters' mode choices and total vehicle miles traveled. From 2004 to 2006, there was a notable decrease in the region's share of drive-alone commuting from 76.7 percent to 74.1 percent, reversing the trend of steady increases between 2000 and 2004. During the same period, the share of alternative modes for commuting increased from 23.3 percent to 25.9 percent, reversing the previous trend of a steady decline.

In addition, between 2004 and 2006, total VMT generally stabilized despite the continuing growth in population and employment. It should be noted that historically, the rate of VMT growth was noticeably higher than that of population growth. VMT per

household in the region actually declined for two consecutive years between 2004 and 2006. Finally, average commute time in 2006 also declined slightly throughout the region from 2005.

Total transit boardings in the region in FY 2006 (from July 2005 to June 2006) increased by 6 percent to a record high of 737 million since 1990. Transit trips per capita at 40 were also the highest since 1990. This was primarily due to the continuing growth of the Los Angeles Metro transit system ridership facilitated by the surge in gasoline prices.

5. The region continued to have the highest concentration of PM_{2.5} and ozone in the nation and improvements have shown signs of leveling off. Recent studies confirmed the severe health impacts from PM_{2.5} including an estimated 5,400 premature deaths per year. About 80 percent of emissions reduction needed are under the federal or state jurisdictions. The region continued to meet the federal standards for carbon monoxide.

Despite the significant improvements during the past two decades, the region still has some of the worst air quality. Specifically, the South Coast Air Basin has the highest concentration of ozone and PM_{2.5} in the nation. In addition, improvements to ozone and PM_{2.5} have shown signs of leveling off over the past few years.

In 2006, the annual average PM_{2.5} concentration in the South Coast Air Basin was 20.6 ug/m³, a slight decrease from that in 2005 (21 ug/m³) but continuing to significantly exceed the federal standard of 15 ug/m³. The South Coast Air Basin also exceeded the (new) federal 24-hour standard for PM_{2.5} on 11 percent of sampling days in 2006, and its maximum 24-hour PM_{2.5}

concentration in the South Coast Air Basin at 54 ug/m³ also well exceeded the new federal standard of 35 ug/m³.

PM_{2.5} is responsible for most of the serious health effects known from exposure to ambient air pollutants. The South Coast has almost a 52 percent share of the nation in population-weighted exposures to PM_{2.5} above the national annual average standard. Accordingly, residents in the South Coast suffer extraordinary health impacts annually including an estimated 5,400 premature deaths, 140,000 children with asthma and respiratory symptoms and close to one million lost work days. About 80 percent of the emission sources for PM_{2.5} are within the state or federal jurisdictions and not within local control. To have any reasonable expectation of meeting the 2014 PM_{2.5} deadline, the pace of improvement for PM_{2.5} must accelerate under the federal and state jurisdictions.

Between 2005 and 2006, the number of days exceeding the federal 24-hour standard (150 ug/m³) for PM₁₀ increased slightly from 0 to 2.8 days in the Mojave Desert Air Basin, and from 8.5 days to 12.5 days in the Salton Sea Air Basin. The South Coast Air Basin did not experience any exceedance of the federal 24-hour standard between 2004 and 2006.

Ozone pollution worsened slightly in the South Coast Air Basin and Ventura County in 2006 but improved in the Mojave Desert and Salton Sea air basins. In the most populous South Coast Air Basin, the number of days exceeding the federal 8-hour ozone standard increased slightly from 84 days in 2005 to 86 days in 2006. However, since 1998 ozone improvements have shown signs of leveling off. However, during the same period, both the Mojave Desert and the Salton Sea air basins experienced some reductions in the number of days exceeding the federal 8-hour standard, from 55 to 50 days and 43 to 32 days respectively.

6. The burning of fossil fuels contributes significantly to regional air pollution and global warming and poses a serious threat to the economic well-being, public health, and the environment of Southern California and beyond. Strong dependence on foreign imports greatly reduces the reliability and security of this vital resource.

Energy use in California and the region are predominantly fossil-fuel based (i.e. petroleum, natural gas and coal). Since 1990, the shares of fossil fuels of total energy consumption in the state and the region have remained relatively constant around 86 percent. California obtains nearly two-thirds of its energy from outside its borders, including 63 percent of petroleum, 85 percent of natural gas and 22 percent of electricity. The share of foreign petroleum imports has been increasing rapidly, from below 10 percent in 1995 to over 40 percent in 2006. The transportation sector is the largest energy user at 39 percent, followed by the industrial sector at 24 percent.

The use of fossil fuels generated significant impacts on regional air quality including PM_{2.5} and ozone pollution. For example, the burning of fossil fuels for mobile sources in the region is responsible for more than 85 percent of its total NO_x emissions, a precursor of ozone pollution. In addition, the combustion of fossil fuels to release their energy creates carbon dioxide emissions (CO₂), the most significant greenhouse gas that affects global climate change and specifically global warming. Currently, the Earth is warming faster than any time in the previous 1,000 years, and eleven of the last 12 years (1995-2006) with the exception of 1995 ranked among the 12 warmest years on record since 1850.

In 2000, California generated 473 million metric tons (CO₂ equivalent) emissions, and is projected to reach over 600 million

metric tons by 2020. Among the climate change pollutants for California, 81 percent are CO₂ emissions from fossil fuel combustion. In terms of total CO₂ emissions, California is second only to Texas in the nation and is the 16th largest source of climate change emissions in the world, exceeding most nations. The SCAG region, with close to half of the state's population and economic activities, is a major contributor to the global warming problem and should also be a major contributor to its solution.

7. Since 2000, the high school dropout rate has been increasing, reaching over 15 percent in 2006. The region had only 36 percent of its high school graduates in 2006 completing courses required for University of California (UC) or California State University (CSU) entrance, little improvement from 2000. There continues to be significant disparities in educational performance among different racial and ethnic groups. On the other hand, the region has made steady improvements in educational attainment among residents.

Between 2000 and 2006, dropout rates for high schools in the region increased from 12.1 percent to 15.3 percent. During this period, the dropout rate of San Bernardino County increased continuously from 12 percent to almost 21 percent, the highest in the region and significantly higher than the state average of nearly 15 percent. Except for Orange County, every county in the region experienced a much higher dropout rate in 2006 than in 2000.

As to college readiness, only 36 percent of high school graduates in 2006 completed courses required for University of California (UC) or California State University (CSU) entrance. When compared to 2000, only Orange and Imperial counties made some improvement. There continues to be significant disparities in



educational performance among different racial and ethnic groups with respect to, for example, high school dropout rates and college readiness.

There were noticeable improvements in educational attainment in the region between 2000 and 2006, consistent with national trends. The percentage of adults with at least a high school degree increased from 74 to 77 percent while it increased from 25 to 27 percent for adults with at least a bachelor's degree. Nevertheless, among the nine largest metropolitan regions, the SCAG region remained second to last with at least a bachelor's degree (27 percent). Between 2000 and 2006, the coastal counties within the region achieved greater improvements in educational attainment for at least a bachelor's degree than the inland counties.

- 8. Violent crime rates have continued to decline to its lowest level in three decades. Juvenile felony arrest rate increased for the third consecutive year in contrast to the trend of continuous decline between 1990 and 2003. Hate crime activities in 2006 were also at their lowest level since 2000.**

In 2006, the violent crime rate in the region decreased slightly by 1.7 percent to its lowest level in three decades. The violent crime rate in the region in 2006 was less than 40 percent of its peak level in 1992. Within the region, Imperial County achieved the most significant reduction of 18 percent in the violent crime rate. Violent crime rate in the region was only 10 percent higher than the national average in 2006, a remarkable improvement from a 40 percent gap in 2000. Ventura and Orange counties had about half of the national rate, and only Los Angeles County experienced a significantly higher rate than the national average.

From 2005 to 2006, the juvenile felony arrest rate in the region increased by almost 5 percent. This was the third consecutive year of increase in contrast to the trend of continuous decline between 1990 and 2003. Nevertheless, the juvenile felony arrest rate in the region in 2006 was only about 43 percent of the 1990 level.

Between 2005 and 2006, property crime rates in the region declined by 5 percent. Specifically, San Bernardino and Orange counties achieved notable reductions of 7 percent respectively. The number of hate crime events and victims in the region decreased by 9 percent and 5 percent respectively, reaching their lowest levels since 2000.

Report Card Summary

Based on the performance indicator information as contained in this Executive Summary and discussed in further detail in the remainder of the report, SCAG's Benchmarks Task Force developed the Report Card for 2006 for selected issue areas as shown below. It should be noted that grades in the Report Card represented the regional average while an individual county may perform above or below the average. In addition, not all the issues covered in this report were graded.

The Benchmarks Task Force will consider the potential inclusion of additional issue categories into the Report Card.

The State of the Region Report Card Summary

	Grade A: excellent	B: moderately well	C: average	D: potential failure	F: failing
Sector	2002	2003	2004	2005	2006
Employment	B-	B	B	B	B
Income	C-	C-	C	C	C
Housing	D+	D	D	D	D
Mobility	D-	D-	F	F	D-
Air Quality	C	C-	C	C	D
Education	D	D	D	D	D-
Safety	B	B	B	B	B

**A complete copy of the State of the Region Report Card can be accessed at www.scag.ca.gov/publications*

The Path Forward

Since 2000, the region has achieved mixed performance results on the primary performance indicators. On the one hand, unlike during the 1990s, the SCAG region overall has not lost additional ground since 2000 in the basic socioeconomic well-being (e.g., employment, income, and education) relative to other large metropolitan regions in the nation. On the other hand, it has achieved little absolute improvements in several areas (e.g., per capita income and average wage per job) and fared worse in some areas (e.g., high school dropout rates and housing affordability). At the end of 2006, the SCAG region continued to perform significantly below the average of the nine largest metropolitan regions with respect to the basic socioeconomic well-being of its residents. Furthermore, improvements to air quality have shown signs of leveling off and strategies to reach attainment are increasingly more difficult to develop and implement. Climate change emissions from burning fossil fuels in the region have also continued to rise. However, the region has made notable progress in a few areas including reducing violent crime

rates, increasing homeownership and achieving the lowest unemployment rates for the past three decades.

Looking ahead, the region is expected to increase another 5 million residents in the next 25 years with a majority from natural increases, along with an estimated tripling of international trade. During the same period, it will experience important demographic and labor force transformations as baby boomers retire and will largely be replaced by immigrants and their children. A predominant challenge of the region is how to regain its economic competitiveness (e.g., per capita income and average wage per job) and improve the quality of life for current and future generations while accommodating the tremendous growth in population and trade in a period of major demographic and labor force transformations.

In 2006, the first baby boomers reached 60 and the entire baby boomer generation will pass their retirement age within the next 25 years. Currently, immigrants and their children account for about 54 percent of the region's population, and among the total child population in the region, more than 45 percent belong to the immigrants' second generation. Accordingly, immigrants and particularly their children will have major impacts on the future performance outcomes of the region. The current trend of longer settlement of the immigrant population in the region facilitates a positive prospect for the socioeconomic competitiveness of our region since immigrants' socioeconomic status generally improves as they have settled longer. However, this prospect should not be taken for granted since supportive policies are necessary to, for example, reduce the high school dropout rates and improve the educational performance of the immigrants' second generation.

The severe health impacts from air quality and the urgent need to address global climate change have become key drivers for planning. To

achieve federal standards to protect the health of the residents, the region will need to, among others, transform the existing freight movement system to a clean technology based system. In addition, AB 32 (California Global Warming Solutions Act), enacted in 2006, required innovative actions to reduce the greenhouse gas emissions to the 1990 level by 2020. Both the goals related to air quality and climate change require substantial reduction of VMT associated with fossil fuels. The climate change legislation is historic in aiming at reversing long-standing trends such as VMT growth. The region has also been facing persistent challenges (e.g., socio-economic disparities among different ethnic/racial groups) that require bold actions.

To reverse long-standing undesirable trends or address persistent challenges will require integrated system planning, innovations on many fronts, and collaborative partnerships of public, private and non-profit sectors. Economic competitiveness, livability, environmental sustainability, and social equity are interrelated among each other particularly at the regional level. Accordingly, an integrated system planning strategy at the regional level is essential to improve the overall performance. Innovation is required because many of the past practices will no longer be sufficient. There are needs for innovation in planning process, technology deployment, financing mechanisms, and institutional design for implementation. There is also a great need for collaboration among public, private and non-profit sectors for policy development and implementation.

Based on the understanding discussed above, SCAG has been working collaboratively to develop and implement several initiatives to significantly improve the competitiveness and quality of life in the region. They include, among others, a regional growth vision, a regional goods movement strategy, and Southwest Alliance. The Compass Blueprint (2% Strategy) is aimed at focusing future development and redevelopment

in strategic transit corridors and urban centers in order to reduce congestion, produce more affordable housing, decrease the region's dependence on automobiles and associated fossil fuels, and preserve open space. The Regional Strategy for Goods Movement is aimed at, among other objectives, enhancing economic competitiveness, fostering upward mobility and improving air quality. The Southwest Alliance initiative is pursuing interregional collaboration with neighboring regions including Mexico to develop an economic development plan for the larger region including infrastructure development. Those initiatives have gained momentum partly through extensive partnership. In addition, passage of the historic state infrastructure bond initiatives in November 2006 has also brought notable new resources for change.

Finally, over the past three years, SCAG has been working with many stakeholders to develop a new Regional Comprehensive Plan (RCP). The vision of the RCP is to foster a Southern California region that addresses future needs while recognizing the interrelationship between economic prosperity, natural resources sustainability, and quality of life. Through measured performance and tangible outcomes, the RCP serves as both an action plan for implementation of short-term strategies and a call to action for strategic, long-term initiatives for sustaining a livable region. In short, the RCP will strive to furnish an integrated system planning strategy to substantially improve the region's livability, mobility, competitiveness and sustainability.



Among the total child population in the region, more than 45 percent belongs to the immigrants' second generation.

Population

Growth Characteristics

During the year 2006, the SCAG region added 213,000 residents, reaching a total of 18.5 million. This represents close to half of the population in the state and over 6 percent in the nation (Figure 1). Since the April 2000 Census, population in the region has increased by almost 2 million (or 12 percent). However, after achieving its largest annual increase in 2001 of approximately 350,000, population growth in the region has been slowing. The SCAG region has more population than any state in the nation with the exceptions of California, Texas and New York.

Figure 1
Population Increase: 2005 and 2006 (Thousands)

County	1990	2000	1/1/2005	1/1/2006	1/1/2007	2005 Increase		2006 Increase	
						Number	Percent	Number	Percent
Imperial	109.3	142.3	161.7	167.0	172.6	5.3	3.3%	5.6	3.4%
Los Angeles	8,863.0	9,519.3	10,191.0	10,257.9	10,331.9	66.9	0.7%	74.0	0.7%
Orange	2,410.6	2,846.2	3,050.4	3,071.9	3,098.1	21.5	0.7%	26.2	0.9%
Riverside	1,170.4	1,545.3	1,885.6	1,966.6	2,031.6	81.0	4.3%	65.0	3.3%
San Bernardino	1,418.3	1,710.1	1,948.4	1,993.9	2,028.0	45.5	2.3%	34.1	1.7%
Ventura	669.0	753.1	811.2	817.3	825.5	6.1	0.8%	8.2	1.0%
REGION	14,640.6	16,516.3	18,048.3	18,274.6	18,487.7	226.3	1.3%	213.1	1.2%
Rest of California	15,117.6	17,356.7	18,694.8	18,920.6	19,174.8	225.8	1.2%	254.2	1.3%
California	29,758.2	33,873.0	36,743.1	37,195.2	37,662.5	452.1	1.2%	467.3	1.3%
U.S.	248,709.8	281,421.9	295,134.8	298,024.8	300,888.8	2,890.0	1.2%	2,864.0	1.0%

Source: U.S. Census Bureau, 1990 and 2000 Census, and California Department of Finance

Since 1990, annual population growth in the region has varied significantly (Figure 2).¹ Average annual growth dropped from about 300,000 in 1991 to about 70,000 in 1995 due to the severe recession, and then resumed accelerated growth to reach 350,000 in 2001. Since 2001, despite a generally stable natural increase (births over deaths) of approximately 164,000 per year, total population growth in the region has been reduced from about 350,000 (over 2 percent growth rate) to about 220,000 (1.2 percent) per year. Specifically, between 2001

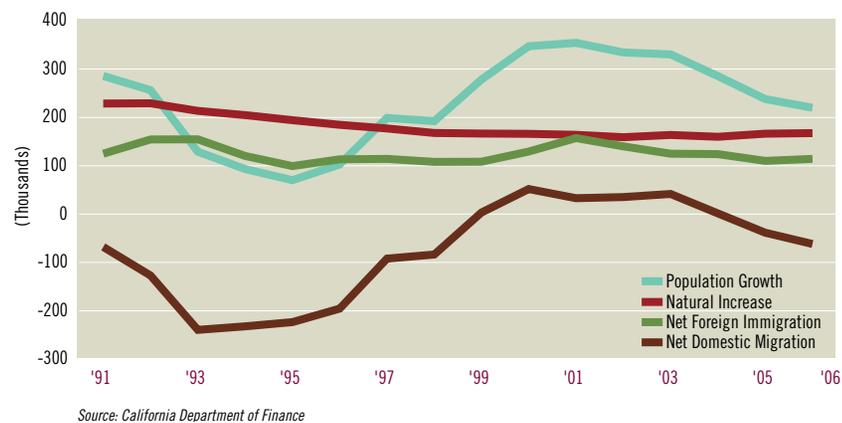


and 2006, the net foreign immigration into the region dropped from about 157,000 to 115,000. This is consistent with the trend that recent immigrants are becoming a little more dispersed throughout the nation and are increasingly less concentrated in historical gateway regions particularly Southern California. During the same period, domestic migration also decreased from about 33,000 net in-migration in 2001 to 62,000 net outmigration in 2006, i.e., there were 62,000 more people moving out of Southern California to the rest of the nation in 2006 than vice versa.

The reversal in domestic migration occurred when the job market in the region was actually improving and performing a little better than the rest of the nation (as discussed in the Employment Section). The turnaround in domestic migration could be due to the widening gap of cost of living between the region and the rest of the nation, and the overall economic recovery in the rest of the nation. For example,

between 2000 and 2006, overall cost of living as measured by the consumer price index rose by 23 percent in the region compared to the national average of 17 percent.² An important factor contributing to the widening gaps of cost of living is the relatively higher housing prices in the region. Between 2000 and 2006, median housing price jumped by 160 percent in the region while it increased less than 40 percent in the nation (see Figure 15 page 28).

Figure 2
Population Growth by Types of Source
1991-2006



In 2006, population growth in the region of 1.2 percent was slightly lower than that of the rest of the state (1.3 percent) in contrast to the previous track record of faster growth. Though the region as a whole continued to grow faster than the nation, its three coastal counties (Los Angeles, Orange and Ventura) grew at slightly lower rates than the national averages for the past three years. The three inland counties (Riverside, San Bernardino and Imperial) continued to grow two to three times faster than the nation. Among the nine largest metropolitan regions in the nation, Southern California experienced the second highest growth rate

between 2000 and 2006 following only the Dallas region (see Figure 122 page 145).

Population growth in the region in 2006 accounted for 46 percent of the total increase in the state. *Four of the top six California counties experiencing absolute population increase were in the SCAG region, including Los Angeles (1st), Riverside (2nd), San Bernardino (4th) and Orange counties (6th).*³ Two neighboring counties of the SCAG region also made it into the top ten, San Diego (3rd) and Kern (7th). Another neighboring county, Santa Barbara, increased only about 4,400 people during 2006. During 2006, the region reached another milestone in its growth history. Specifically, both Riverside and San Bernardino counties surpassed 2 million residents while the City of Los Angeles reached the 4 million mark.





As to the rate of growth, the three inland counties achieved significantly higher growth rates than the rest of the state (1.3 percent). Specifically, Imperial County achieved the highest growth rate of 3.4 percent in the state in 2006, followed by Riverside County (3.3 percent) while the neighboring Kern County ranked third.

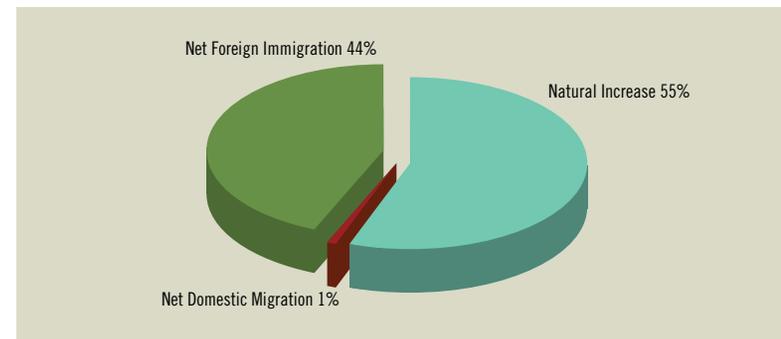
Among the top ten fastest growing cities under 300,000 in the state in 2006 based on absolute change, seven were from the SCAG region including the top four: Fontana, Santa Clarita, Irvine, and Victorville. In addition, the region also includes the top three fastest growing cities based on percentage change including Beaumont (21 percent), Imperial (17 percent) and Lake Elsinore (15 percent).⁴

In 2006, the Inland Empire (Riverside and San Bernardino counties) captured almost half (47 percent) of the total population growth in the region, significantly higher than their share of only 22 percent of the region's total population. Another 35 percent of the total growth

in the region in 2006 took place in Los Angeles County, lower than its population share of 56 percent.

As to the sources of population growth in the region between 2000 and 2006, over half (55 percent) was due to natural increase, 44 percent was from net foreign immigration and only 1 percent from net domestic migration (Figure 3). Within the region, natural increase, foreign immigration and domestic migration contributed differently to the population growth among different counties (Figure 4). Overall, natural increase contributed much more significantly to the growth in the three coastal counties (Los Angeles, Orange and Ventura) and Imperial than the Inland Empire (Riverside and San Bernardino) where net domestic immigration played a more significant role. While migration to the coastal counties consisted exclusively of foreign immigrants, migration to the Inland Empire was primarily domestic migrants who moved within the region (i.e. intra-regional migration), particularly from Los Angeles County.

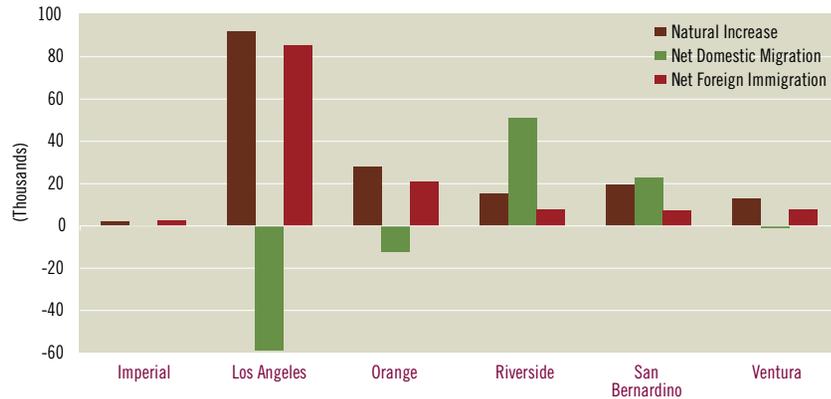
Figure 3
Population Growth by Types of Source
2000-2006



Source: California Department of Finance

Figure 4

Population Growth - Types of Source by County, 2000-2006
(Annual Average)



Source: California Department of Finance

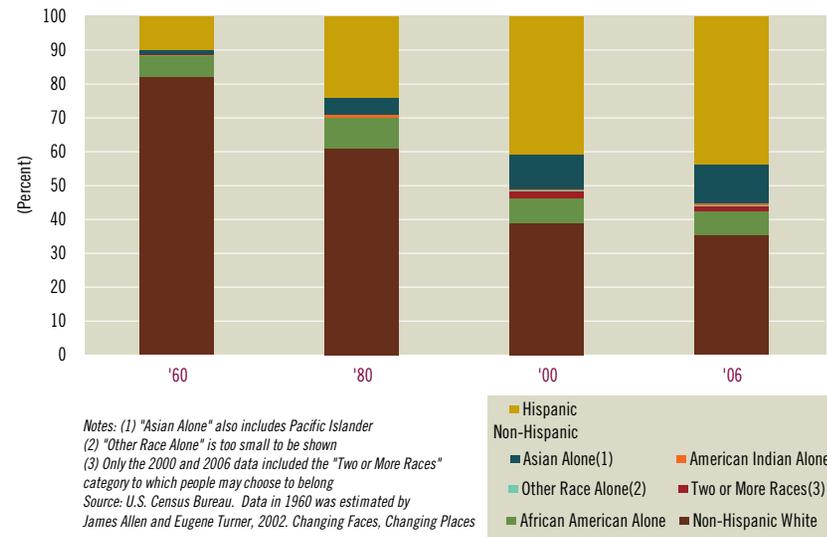
Demographic Dynamics

There are five important demographic dynamics at work in Southern California. They include the continuing change in the ethnic composition, longer settlement of the immigrant population, disproportionately higher but declining share of the nation's immigrant (legal or unauthorized) population, growing share of immigrants' second generation and the aging of the overall population. These five dynamics are interrelated and together they have significant implications for the future performance potential of Southern California. All five dynamics continued through 2006. As a result of these dynamics, the nativity, ethnic composition and age structure of the population in the region today diverge widely from that of the nation.⁵ The following provides a summary of the demographic dynamics that were discussed in further detail in the 2005 Report and the 2006 Report guest essay (with the exception of the dynamics on unauthorized immigrants that are introduced for the first time in this report).⁶

As to the transformation in ethnic composition, the share of the Hispanic population reached 44 percent in 2006, about a 4 percentage point increase from 2000 and a dramatic jump from only 10 percent in 1960 (Figure 5). The share of the Asian population increased from 2 percent in 1960 to almost 12 percent in 2006. Since 1960, the share of the non-Hispanic White population declined from about 80 to 39 percent in 2000 and 35.5 percent in 2006. The share of the African American population in the region was just below 7 percent in 2006. Since 2000, the vast majority (80 percent) of the growth in the region were Hispanics.⁷

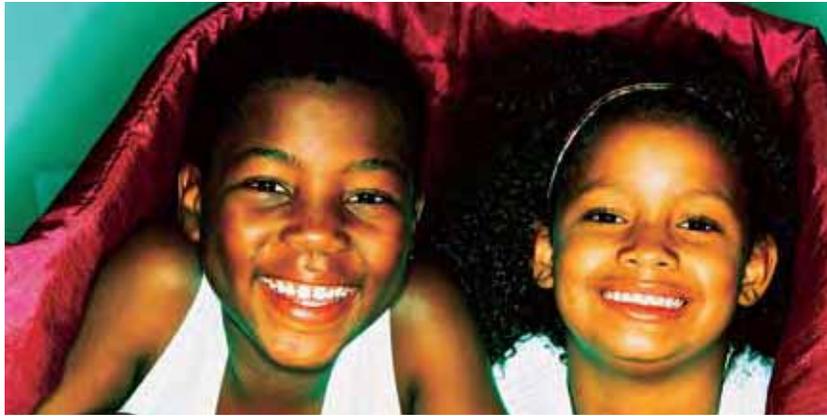
Figure 5

Population by Race and Ethnicity



Notes: (1) "Asian Alone" also includes Pacific Islander
 (2) "Other Race Alone" is too small to be shown
 (3) Only the 2000 and 2006 data included the "Two or More Races" category to which people may choose to belong
 Source: U.S. Census Bureau. Data in 1960 was estimated by James Allen and Eugene Turner, 2002. *Changing Faces, Changing Places*

An important demographic dynamic is that the region's immigrant population has achieved longer settlement which has important implications for its overall level of socioeconomic well-being. In 2006, about 31 percent (5.5 million) of the region's total population were foreign-born



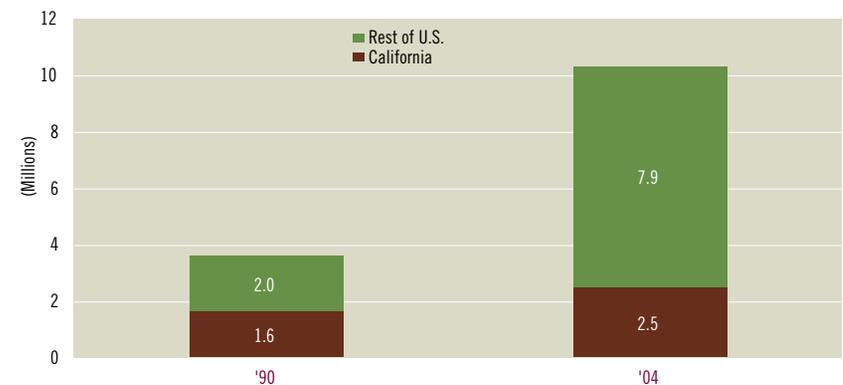
and they represented about 15 percent of the immigrants in the nation, markedly higher than the region's share of the total population in the nation at only 6.1 percent. Recent immigrants to the U.S. have increasingly pursued economic opportunities in areas where fewer immigrants had lived previously. As a result, Southern California's share of immigrant arrivals dropped from about 25 percent to 10 percent between 1990 and 2006. As to the share of the total population in the region, new immigrants increased from 4 percent in 1970 to 14 percent in 1990 then decreased to 11 percent in 2000, while the share of the settled immigrant population (arrived U.S. more than 10 years ago) increased continuously from just below 6 percent in 1970 to 20 percent in 2000. The level of socioeconomic well-being (e.g., educational attainment, household income, poverty rate, homeownership rate, etc.) of the immigrant population improves noticeably with the length of settlement.⁸ The maturing settlement of the immigrant population could bring positive performance outcomes for the region's future, particularly with supportive public policies.

The growing share of settled immigrants also results in a growing share of the immigrants' second generation in the region, i.e. U.S.-born residents with at least one foreign-born parent. Currently, about 23 percent

(or 4.3 million) of the population in the region belongs to the immigrants' second generation.⁹ Among the total child population in the region, more than 45 percent belongs to the immigrants' second generation. Accordingly, the educational and occupational attainment of immigrants' second-generation, particularly children, will significantly impact the region's future performance.

Since 1990, unauthorized immigrants have been growing rapidly at the national level (Figure 6). Between 1990 and 2004, estimates of unauthorized immigrants in the nation grew from 3.6 million to 10.4 million. During this period, unauthorized immigrants grew from 1.6 million to 2.45 million in California, a 50-percent increase. However, they grew from 2 million to 7.9 million in the rest of the nation, almost four-fold. Since 1990, unauthorized immigrants have also expanded their migration network outside the traditional gateways such as Southern California, similar to their legal counterpart. In 2004, California's estimated 2.45 million unauthorized immigrants accounted for about a quarter of the national total, a significant decline from 42 percent in 1990.

Figure 6
Estimated Unauthorized Immigrants
 (California vs. Rest of U.S.)

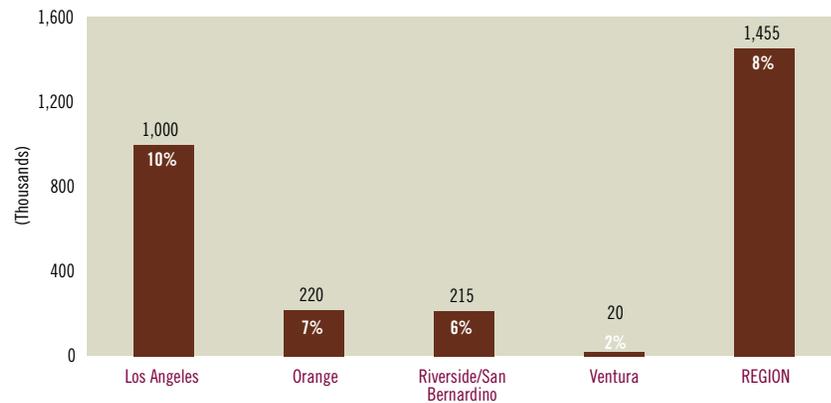


Source: Passel, J. S. 2005. *Unauthorized Immigrants*, Pew Hispanic Center

In the SCAG region, there were close to 1.5 million unauthorized immigrants in 2004, about 60 percent of the state total and 15 percent of the national total. The population share of unauthorized immigrants in the region at 8.4 percent was significantly higher than the rest of the state (5.4 percent) and the national average (3.6 percent). Unauthorized immigrants in the region were concentrated mainly in Los Angeles County, with a total of 1 million and accounting for 10 percent of the county's population (Figure 7).

Figure 7

Estimated Unauthorized Immigrants, 2004
(Number and Share of County/Region Population)



* Imperial County data not available
Source: Fortuny, K., & Jeffrey Passel, 2007. *The Characteristics of Unauthorized Immigrants in California, Los Angeles County, and the United States*, the Urban Institute

Unauthorized immigrants have distinct characteristics when compared with their legal counterpart and the natives. Using Los Angeles County as an example, first, the vast majority (72 percent) of unauthorized immigrants were in their prime working age between 18 and 49 years old in contrast to only 34 percent for the U.S. born. Unauthorized immigrants had higher labor force participation rates particularly for males



at 94 percent. In addition, unauthorized immigrants had much lower educational attainment with only 42 percent having at least a high school education versus 62 percent for legal immigrants and 92 percent for the native-born. Consequently, the average incomes for unauthorized immigrant families at \$26,300 were significantly lower than the U.S. born families at \$50,300 (Figure 8).

Figure 8

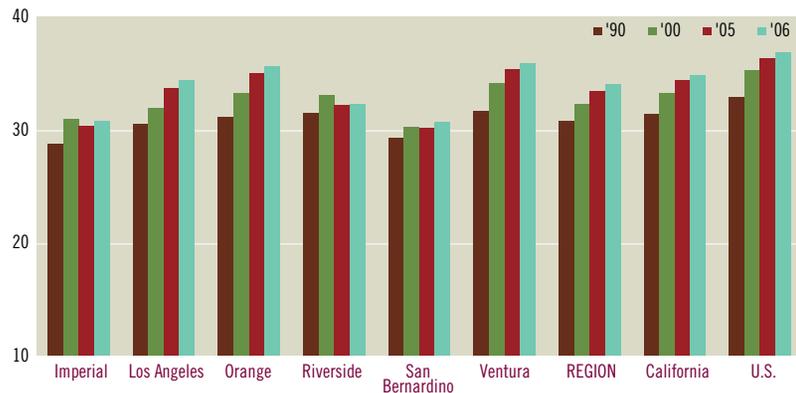
Comparison among U.S. Born, Legal and Unauthorized Immigrants for Los Angeles County, 2004

	U.S. Born	Legal Immigrants	Unauthorized Immigrants
Population Share of 18-49 Years	34%	49%	72%
Labor force participation (male)	81%	83%	94%
Labor force participation (female)	72%	58%	61%
Education: high school graduate or above	92%	62%	42%
Family income (average)	\$50,300	\$39,700	\$26,300

Source: Fortuny, K., & Jeffrey Passel, 2007. *The Characteristics of Unauthorized Immigrants in California, Los Angeles County, and the United States*, the Urban Institute

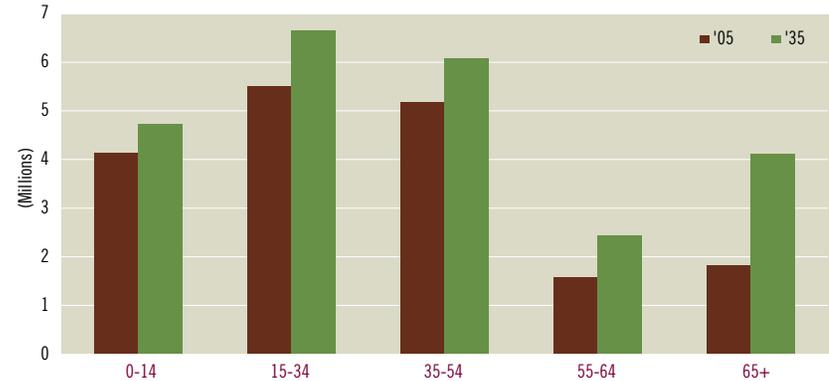
As to the aging of the overall population, the median age continued to rise over time as in the rest of the nation (Figure 9). Median age increased from 30.7 in 1990 to 32.2 in 2000 and 33.5 in 2006.¹⁰ In 2006, the region continued to be younger than the state (34.4) and the nation (36.4). Among the nine largest metropolitan regions in the nation, the SCAG region continued to be the second youngest in terms of median age, following the Dallas region (33.2) with Boston the oldest (38.2). The growing share of the immigrants' second generation contributed to the slower pace of aging process in Southern California than in the rest of the nation. The share of people 65 years and over in the region increased slightly from 9.6 percent to 10.2 percent between 2000 and 2006. However, with the aging of the baby boomer generation, the population 65 years or older in the region is expected to increase by 2.3 million to a total of 4.1 million, about 16 percent of the total population in 2035 (Figure 10).¹¹

Figure 9
Median Age



Source: U.S. Census Bureau, 1990 and 2000 Census, 2005 and 2006 American Community Survey

Figure 10
Population by Age Group



Source: Southern California Association of Governments





In 2006, the logistics sector provided about 620,000 jobs, or one in twelve jobs in the region.

The Economy

Employment

Total Employment

Why is this important?

The number, types and wage level of employment in large part determine our region's economic activities and well-being. Income generated through employment accounts for about 70 percent of the total personal income in the region.¹

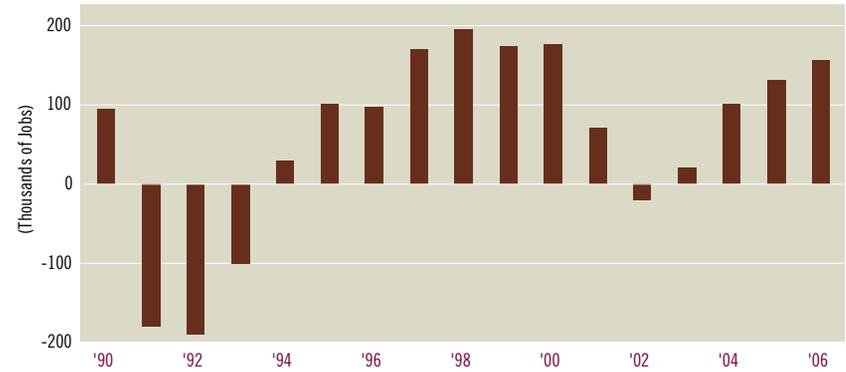
How are we doing?

In 2006, despite a weakening housing sector, the region's job market continued to show a broad-based expansion over the previous year (Figure 11). After gaining about 131,000 jobs (or 1.9 percent) in 2005, total wage and salary jobs in the region grew by more than 156,000 (2.2 percent) during 2006. The increase in 2006 was the highest since 2000 in terms of number of jobs as well as rate of growth.



Figure 11

Wage and Salary Employment (Change from Previous Year)



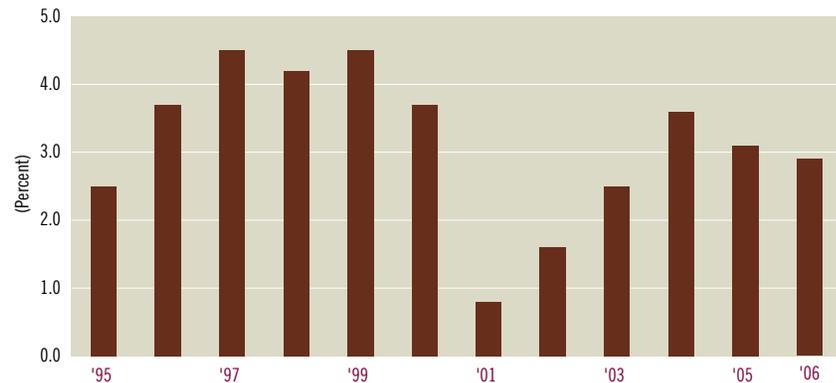
Source: California Employment Development Department

The year 2006 was also the third consecutive year since 2000 that job gains took place at the national level. Since the end of 2001, growth of the real gross domestic product (GDP) has been recovering. After dropping from 3.7 percent in 2000 to 0.8 percent in 2001 due to the recession, real GDP increased at an accelerated pace from 1.6 percent in 2002 to 3.6 percent in 2004 then slowing somewhat to 3.1 percent in 2005. During 2006, GDP growth further moderated to 2.9 percent, just below the 3-percent average generally during an economic expansion period (Figure 12).



Figure 12

Real Gross Domestic Product (GDP), U.S.
(Percent Change from Previous Year)



Source: U.S. Bureau of Economic Analysis

Between 2005 and 2006, gasoline prices surged almost 25 percent. An increase in energy prices slows economic growth in the short run primarily through its effects on spending, or aggregate demand. Because the United States imports most of its oil, an increase in oil price will lead to reductions in domestic spending. At the same time that higher oil prices slow economic growth, they also create inflationary pressures that could further reduce the demand.

Gains in real GDP in 2006 were due primarily to the continuing growth in consumer spending and private investment, though at lower rates than that in the previous period. Real consumer spending increased by 3.1 percent between 2005 and 2006, slightly less than the 3.2 percent gain during the previous period.² As to the private non-residential investment, it expanded by 6.6 percent after a 7.1 percent increase in 2005. Private residential investment, however, suffered a 4.6 percent decline in 2006 in contrast to the 6.6-percent increase in 2005. From 2005 to 2006, productivity growth slowed from 1.9 percent to 1

percent. In 2006, even with the slightly lower growth rate of real GDP than in 2005, the lower rate of productivity growth resulted in a slightly higher rate of job growth.

In 2006, the region achieved a slightly higher rate of job growth (2.2 percent) than the rest of the state (1.5 percent) and the nation (1.8 percent) (Figure 13). Between 2000 and 2006, the SCAG region performed better every year in job growth rates relative to the rest of the state and the nation (Figure 14). Between 2005 and 2006, the nation added almost 2.5 million jobs and since early 2005 its job base expanded from the pre-recession (2000) level. Total jobs for the rest of California finally expanded from the pre-recession (2000) level during 2006.



Figure 13

Wage and Salary Employment
(Thousands)

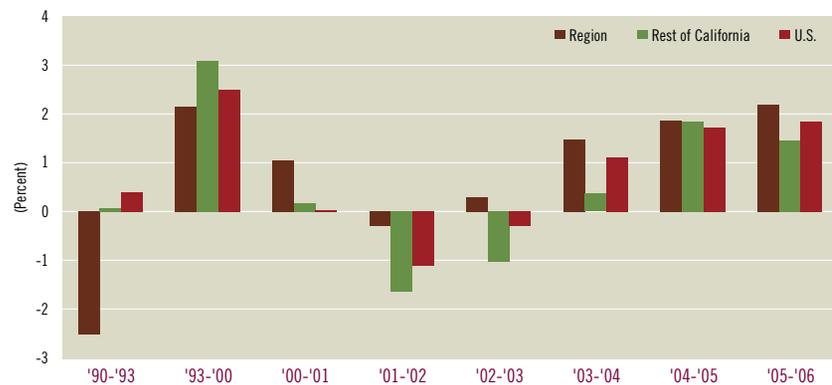
County	'90	'00	'04	'05	'06	'04-'05		'05-'06	
						Number	%	Number	%
Imperial	44.9	50.4	51.3	53.0	56.7	1.7	3.3	3.7	7.0
Los Angeles	4,149.5	4,079.8	4,004.1	4,031.6	4,100.2	27.5	0.7	68.6	1.7
Orange	1,179.0	1,396.5	1,463.4	1,496.5	1,525.5	33.1	2.3	29.0	1.9
Riverside	321.7	466.5	557.4	593.1	624.5	35.7	6.4	31.4	5.3
San Bernardino	413.4	543.6	621.3	647.1	663.9	25.8	4.2	16.8	2.6
Ventura	247.0	294.3	306.9	313.7	320.7	6.8	2.2	7.0	2.2
REGION	6,355.5	6,831.1	7,004.4	7,135.0	7,291.5	130.6	1.9	156.5	2.2
Rest of California	6,507.9	8,065.6	7,895.4	8,040.9	8,158.5	145.5	1.8	117.6	1.5
California	12,863.4	14,896.7	14,899.8	15,175.9	15,450.0	276.1	1.9	274.1	1.8
U.S.	109,403.0	131,785.0	131,435.0	133,703.0	136,174.0	2,268.0	1.7	2,471.0	1.8

Source: California Employment Development Department and Council of Economic Advisers



Figure 14

Employment Change
(Annual Average)

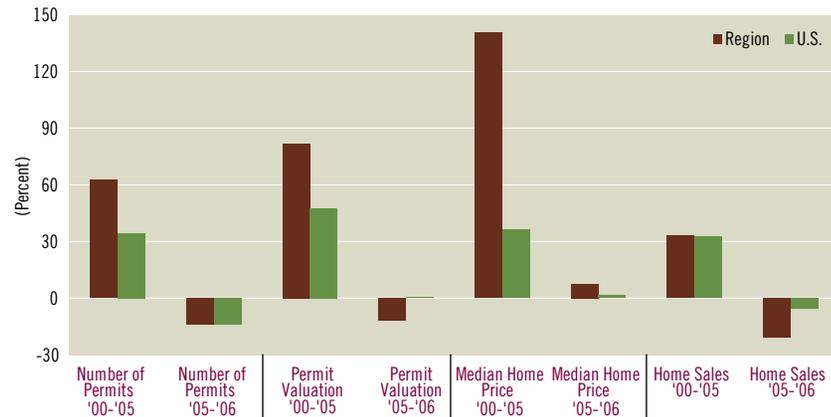


Source: California Employment Development Department and Council of Economic Advisers

All the national trends discussed above also affected the job market in Southern California. In addition, between 2000 and 2005, housing-related sectors contributed much more significantly to the job growth and economic expansion in the SCAG region than in the rest of the nation (Figure 15). Specifically, during this period, the impacts from both housing wealth (due to higher home equity) and housing construction on job growth were disproportionately higher in the region than in the rest of the nation. However, between 2005 and 2006, housing sector slowed significantly at the regional and national levels. Between 2000 and 2006, Southern California also experienced higher rates of population growth than the rest of the nation, which contributed to job growth in sectors such as retail trade, education and health care.

Figure 15

Building Permit and Home Price
(Percent Change)



Source: Construction Industry Research Board, Joint Center for Housing Studies of Harvard University, Real Estate Research Council of Southern California, National Association of Realtors, and U.S. Census Bureau

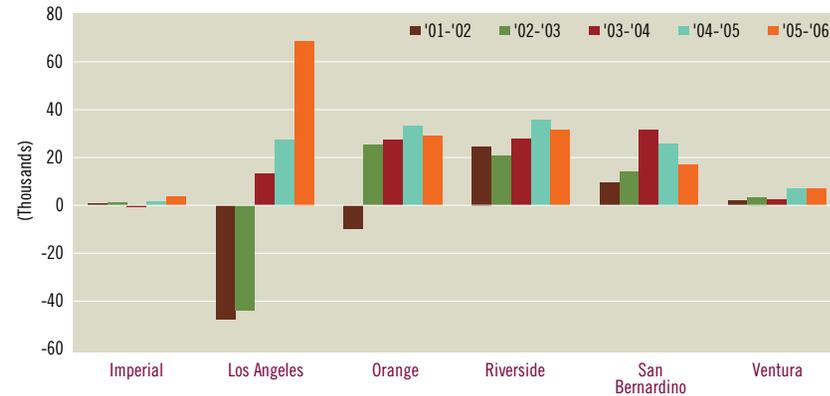
Within the region, every county expanded its payroll jobs in 2006. For the first time during this decade, Los Angeles County became the region's leading job generator in 2006, adding 69,000 jobs (or 1.7 percent growth rate) and accounting for 44 percent of the total job increase in the region. This represented a sharp acceleration from only 28,000 job increase (0.7 percent) in 2005 (Figures 16 and 17). However, total payroll jobs in Los Angeles County in 2006 were still 50,000 below its 1990 level. Job growth was concentrated in the professional and business services, retail trade, logistics, and leisure and hospitality sectors.

Jobs in the Inland Empire (Riverside and San Bernardino counties) increased by 48,000 (or 3.9 percent) in 2006, noticeably less than the 62,000 job increase (5.2 percent) during the previous period. Riverside County, adding 31,400 jobs in 2006, continued to achieve a phenomenal growth of 5.3 percent though somewhat lower than the 6.4 percent growth in 2005. Job gains in Riverside County were concentrated

in professional and business services, construction, leisure and hospitality and logistics. San Bernardino County, however, saw its job growth slowing significantly from 4.2 percent in 2005 to only 2.6 percent in 2006 with 17,000 new jobs concentrated in logistics, professional and business services and retail trade.

Figure 16

Employment Change by County
(Thousands of Jobs)



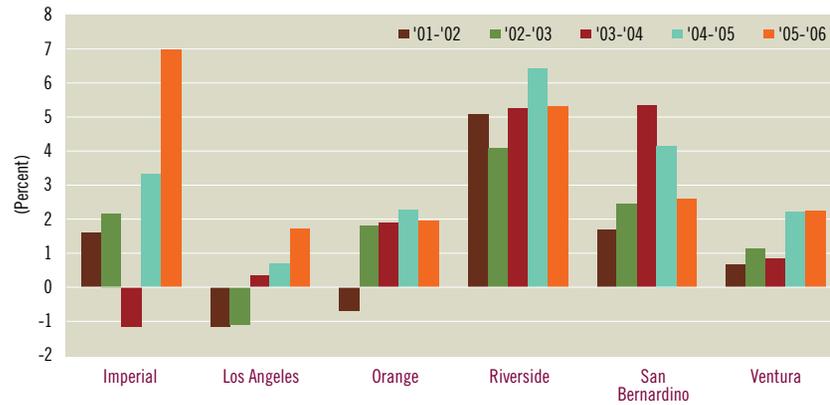
Source: California Employment Development Department and Council of Economic Advisers

In Orange County, after gaining 33,000 jobs (or 2.3 percent) in 2005, total payroll job growth slowed slightly to 29,000 (or 1.9 percent) in 2006. Between 2001 and 2004, financial activities were the top new job generator in Orange County each year. However, from 2005 to 2006, there was almost no job increase in the financial activities sector. Professional and business services sector was the top job generator in the county, adding more than 10,000 new jobs in 2006.

In Ventura County, total payroll jobs added almost 7,000 (2.2 percent) in 2006, similar to the performance during the previous period. Finally, Imperial County's payroll jobs increased by 3,700 (7 percent) in 2006,

a major improvement from the 3.3 percent increase in the previous period. Job growth took place primarily in the agricultural, government, and professional and business services sectors.

Figure 17
Employment Change by County
(Percent)



Source: California Employment Development Department and Council of Economic Advisers



Employment by Sector

Why is this important?

Different economic sectors have different levels of wages as well as future growth potential in employment and income. Composition of occupations also varies among the different economic sectors. A more diversified regional economy will be less vulnerable to turbulent environments, such as recessions or disasters.

How are we doing?³

Between 2000 and 2006, total payroll jobs in the region increased from 6.8 million to 7.3 million. Among the sectors, professional and business services was the largest generating more than 1 million jobs.

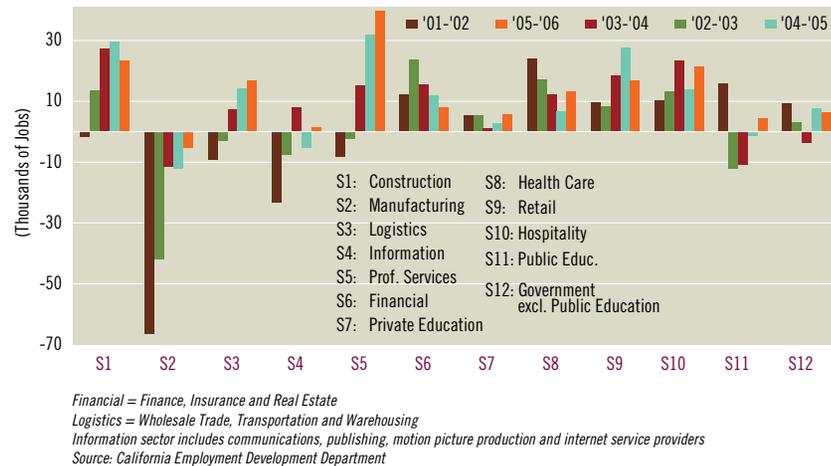
In 2006, all of the region's twelve major economic sectors achieved job increases with the exception of manufacturing that experienced a very slight loss (Figure 18). The top five job generators in 2006 included professional and business services, construction, leisure and hospitality, retail trade and logistics.

The professional and business services sector includes, for example, administrative support, legal, accounting, architecture, engineering, advertising and consulting services. It was the top job producer in 2006, increasing almost 40,000 jobs (3.9 percent). This more than doubled the gains of 15,000 jobs (1.6 percent) in 2004, after two consecutive years of combined losses of 10,000. About a third of the job gains in this sector were in employment services.

The construction sector added another 23,000 jobs in 2006, much lower than the average increase of 30,000 during the previous two years. Only 27 percent of the increase in 2006 took place in the Inland Empire compared to 40 percent in 2005. The rate of growth of almost 6 percent, though less than the 7.4 percent growth in 2005,

was still the highest among the twelve sectors followed by the professional and business services (3.9 percent), and leisure and hospitality (3.1 percent).

Figure 18
Employment Change by Selected Sectors, (2001-2006)



After increasing 14,000 (2 percent) in 2005, the leisure and hospitality sector added another 21,500 (3.1 percent) jobs in 2006. Retail trade increased by more than 17,000 jobs (2.2 percent) in 2006, less than the average gains of 23,000 during the previous two years. As the housing market cooled down, gains in retail trade employment were reduced as related to furniture, building materials and garden equipment supplies. Retail trade is primarily a population-serving sector. With an increase of about 2 million residents since 2000, retail trade has been growing steadily throughout the recession and recovery.

The logistics sector includes transportation, warehousing and wholesale trade that have particularly strong ties to the region's international



trade activities. Transportation and warehousing includes truck, rail and air transportation, couriers and messengers, support services for transportation, and warehousing and storage. In 2006, the logistics sector provided about 620,000 jobs, or one in twelve jobs in the region. Among the total logistics jobs in the state, more than 54 percent were in Southern California. In 2006, the logistics sector added almost 17,000 jobs (2.8 percent), continuing to expand at a faster pace after its recovery in 2004.

Financial activities sector added only 8,000 jobs (or 1.8 percent) in 2006, moderating continuously from the gains of 24,000 (5.8 percent) in 2003 and 12,000 (2.7 percent) in 2005. Specifically, job growth in financial activities sector in Orange County almost stopped in 2006 after consecutive increases of an average of 7,500 per year since 2000. Growth in the financial activities sector also slowed in the Inland Empire counties, reducing its rate of growth from 7.1 percent to

5.9 percent from 2005 to 2006. These counties tend to be tied more closely to the housing market (than Los Angeles County) that continued to cool down in 2006.

Job gains in the health care sector reached 13,000 in 2006, doubling the amount in the previous period. Much of the gains experienced in 2006 were in outpatient health care service employment. Job growth in the government sector (excluding education) slowed somewhat from 7,680 to 6,500.

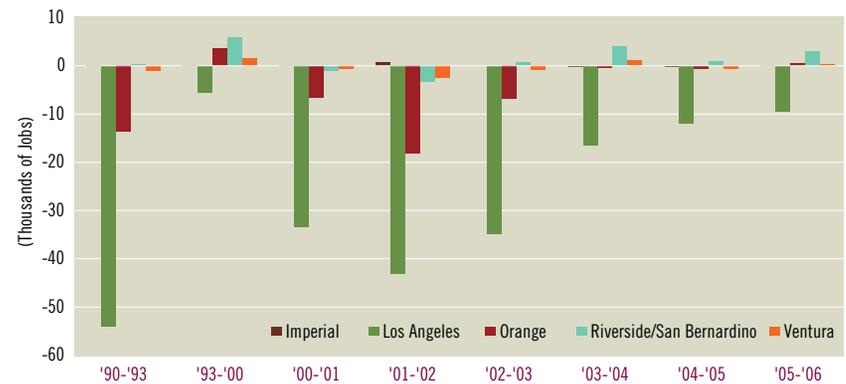
The two sectors that shifted from job losses to gains from 2005 to 2006 were the information and public education. After losing 5,400 jobs (2 percent) in 2005, the information sector gained 1,600 jobs (0.6 percent) in 2006. The public education sector also turned a loss of 1,280 jobs in 2005 to a gain of 4,300 in 2006.

Manufacturing Sector

Between 2000 and 2003, manufacturing employment at the national level dropped from 17.2 to 14.3 million, a loss of almost 3 million jobs. Between 2003 and 2006, it only lost 165,000 jobs. In the SCAG region, it has lost more than 330,000 manufacturing jobs since 1990, most of them (280,000) in durable manufacturing. Between 1990 and 1993, the manufacturing sector in Southern California lost an average of 56,000 jobs per year (Figure 19). After some recovery from 1994 to 1998, it began to decline again. Since 2004, losses in manufacturing began to stabilize. In 2006, the region lost 5,400 (0.7 percent) manufacturing jobs, the lowest loss since 1998. It should be noted that in 2006, the region continued to be the largest manufacturing center in the nation followed by Chicago and Detroit.

Figure 19

Manufacturing Employment Change (Annual Average)



Source: California Employment Development Department

Unemployment

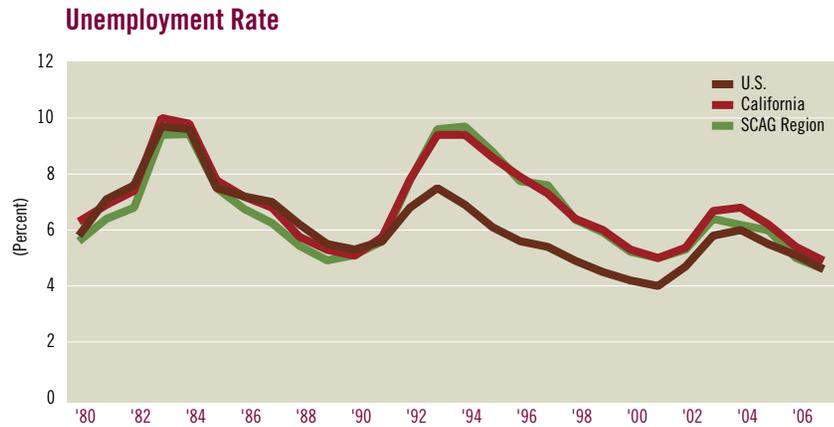
Why is this important?

Unemployment significantly impacts the economic and social well-being of individuals and families. Groups with higher unemployment rates will naturally have higher poverty rates. Places with higher unemployment rates require higher levels of public assistance.

How are we doing?

In 2006, the region achieved its lowest unemployment rate (4.6 percent) since 1980. Equally important, the region finally closed its unemployment rate gap with respect to the national average. During the 1990s, unemployment rates in the region were much higher than that in the nation. From 2005 to 2006, the unemployment rate in the region declined further from 5 percent to 4.6 percent. During the same period, the unemployment rate fell from 5.1 to 4.6 percent nationally, while it decreased from 5.4 to 4.9 percent in the state (Figure 20).

Figure 20



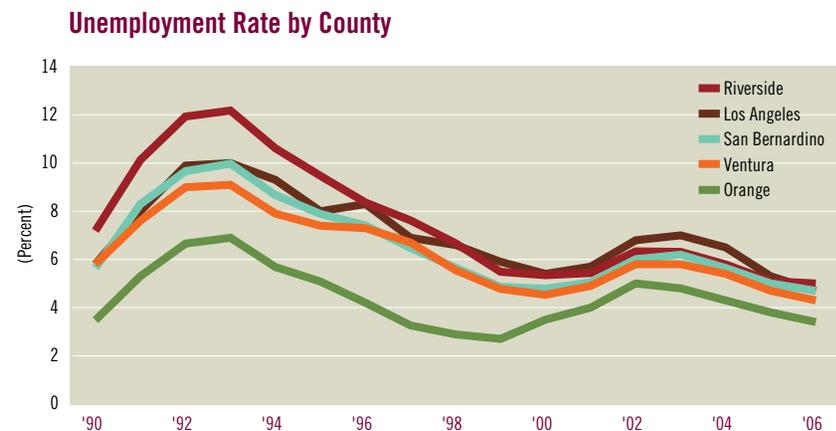
Source: California Employment Development Department

In 2006, unemployment rate declined in every county in the region. Notably, the unemployment rate in Los Angeles County dropped from 5.3 to 4.7 percent (Figure 21). Unemployment rates in the Inland Empire changed little particularly in Riverside County, from 5.1 to 5 percent. Imperial County has historically experienced much higher unemployment



rates than the rest of the region (Figure 22). In 2006, its unemployment rate at 15.3 percent represented an improvement from the 17.4 percent just two years ago. At 3.4 percent, Orange County continued to have the lowest unemployment rate in the region in 2006 and one of the lowest in the nation. Ventura County's unemployment rate at 4.3 percent was the second lowest in the region.

Figure 21



Source: California Employment Development Department



Figure 22

Unemployment Rate - Imperial County



Source: California Employment Development Department

Average Wage per Job

Why is this important?

The average wage per job provides an indication of the overall quality of jobs available in the region. Higher average wage per job contributes to higher per capita income.

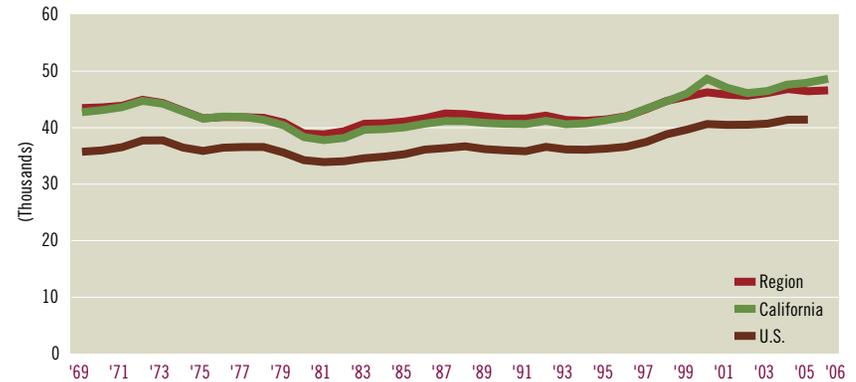
How are we doing?

Based on preliminary data, the real average wage per job (after adjusting for inflation) in the region was \$46,414 in 2006, an increase of 0.31 percent from 2005 (Figure 23).⁴ The information sector continued to have the highest average wage per job (\$78,420) followed by financial activities (\$73,780), while the leisure and hospitality sector had the lowest average wage per job (\$24,690) followed by retail trade (\$29,580).

Figure 23

Real Average Wage Per Job

(2006 Dollars)



* U.S. Data is not available for 2006
Source: U.S. Bureau of Economic Analysis

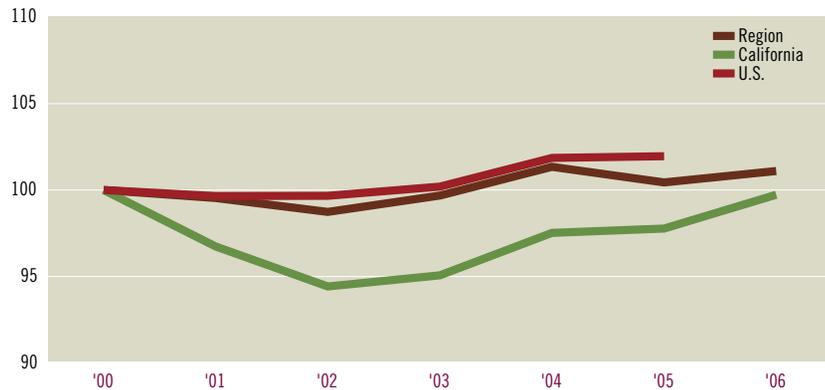
Between 2000 and 2006, real average wage per job was somewhat stagnant at the national, state and regional levels. In 2006, the real average wage per job in the region was only slightly above its 2000 level (Figure 24).





Figure 24

Growth of Real Average Wage Per Job
(2000 as the Base Year=100)

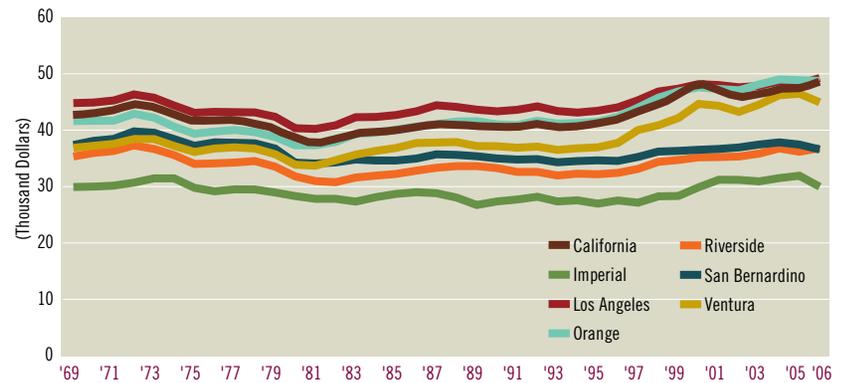


**U.S. Data is not available for 2006
Source: U.S. Bureau of Economic Analysis and California Economic Development Department*

Within the region, Ventura and Orange counties accomplished the most improvements in their real average wages per job between 1969 and 2006, increasing by 23 and 18 percent respectively. During the same period, the real average wages per job in Riverside and San Bernardino counties remained almost unchanged. In 2005, Orange County had the highest average wage per job while Imperial had the lowest (Figure 25).

Figure 25

Real Average Wage Per Job
(2006 Dollars)



Source: U.S. Bureau of Economic Analysis and Employment Development Department Quarterly Census of Employment and Wages

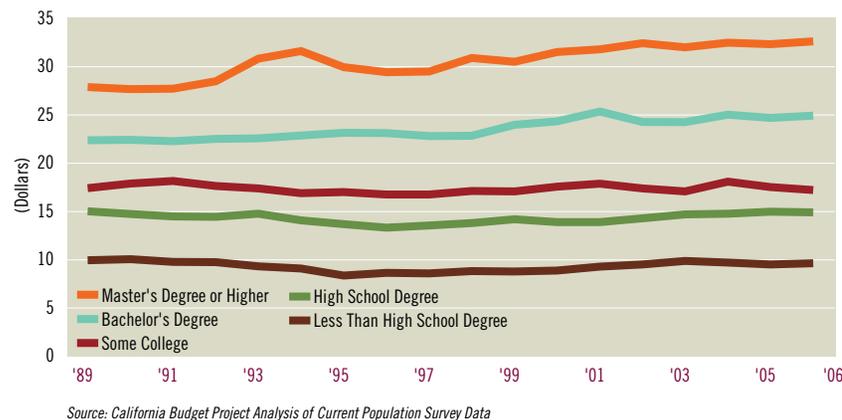
Based on statewide data, median hourly wage has been closely correlated with the worker's educational attainment. Since 1989, only



workers with at least a bachelor's degree have been able to achieve steady increases in their median hourly wages (Figure 26). In 2006, the median hourly wages for workers without a bachelor's degree remained essentially the same as their respective 1989 levels.⁵

Figure 26

California Median Hourly Wage by Educational Attainment
(2006 Dollars)



In 2005 (the most current year where comparative data for metropolitan regions are available), the SCAG region ranked last in average wage per job at about \$44,277 among the 9 largest metropolitan regions (see Figure 123 page 146). The San Francisco Bay Area managed to achieve the highest increase (2.7 percent) in 2005, and continued to have the highest average wage per job at approximately \$58,800 in 2005, followed by the New York region at about \$56,000.

In 2005, only five of the nine metropolitan regions achieved higher real average payrolls per job than their respective 2000 levels (see Figure 124 page 146). Between 2000 and 2005, the Washington D.C. region achieved the best performance with an almost 6 percent increase, followed by the Chicago and Philadelphia regions. The SCAG region had

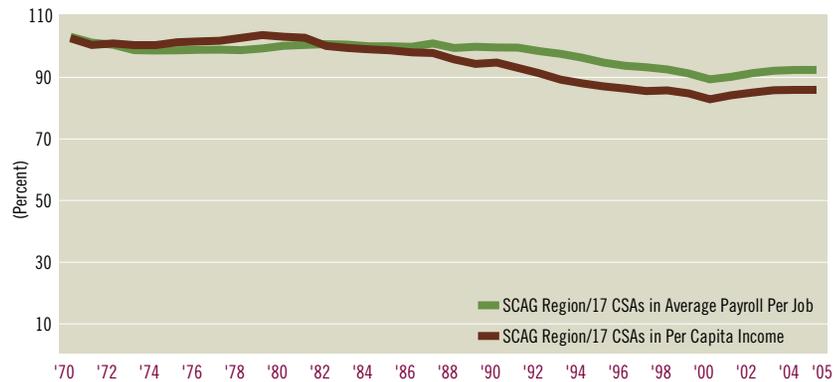
an average performance with only a 0.4 percent increase. During this period, the San Francisco Bay Area lost the most ground with its 2005 income dropping 6 percent below its 2000 level.

Prior to 1990, the SCAG region maintained an average wage per job almost the same as the average of the 17 largest metropolitan regions (Figure 27). Between 1990 and 2000, it declined relative to the average of the 17 largest metropolitan regions from about 100 percent to 89 percent. During the recent recession (particularly between 2000 and 2003), several of the largest metropolitan regions, including San Francisco Bay Area, New York and Boston, suffered much larger losses in average wage per job than the SCAG region. Hence, from 2000 to 2005, the average wage per job in the SCAG region relative to the average of the 17 largest metropolitan regions improved somewhat from about 89 percent to 92 percent.



Figure 27

SCAG Region vs. 17 Largest Metropolitan Regions
(Average Payroll Per Job and Per Capita Personal Income)



* Defined as the CSAs (Combined Statistical Areas)
Source: U.S. Bureau of Economic Analysis

Income

Why is this important?

Real personal income per capita (with inflation adjustment) is one of the most important indicators of economic well-being. An increase in real per capita income is generally associated with improving social and economic indicators such as reduced poverty and an increase in educational attainment. Median household income reflects the well-being of households that are in the median position – their incomes are higher than half of the total households but lower than the other half. Total personal income provides an indication of an area’s consumption capacity as well as the strength of its economy.

How are we doing?

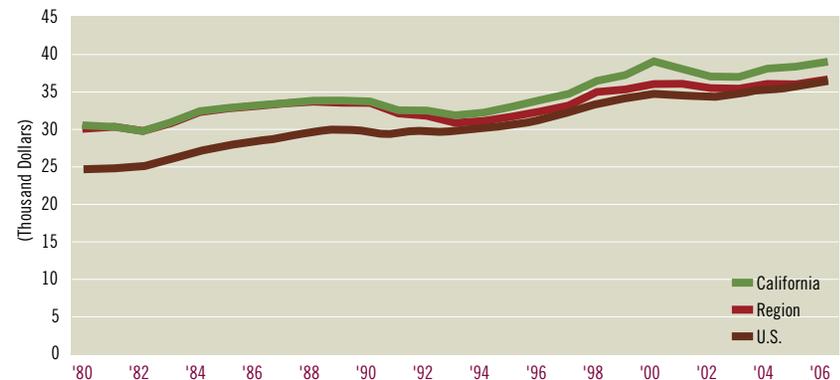
Since 1992, per capita income in the region has been tracking closely that of the nation (Figure 28). In 2006, due to continued economic



recovery and expansion, real personal income per capita in the region increased by 1.3 percent to reach \$36,614, while it also increased for the nation (1.9 percent to reach \$36,276) as well as the state (1.5 percent to reach \$38,956) (Figure 29). The increases were generally parallel with the improvements in the job market.

Figure 28

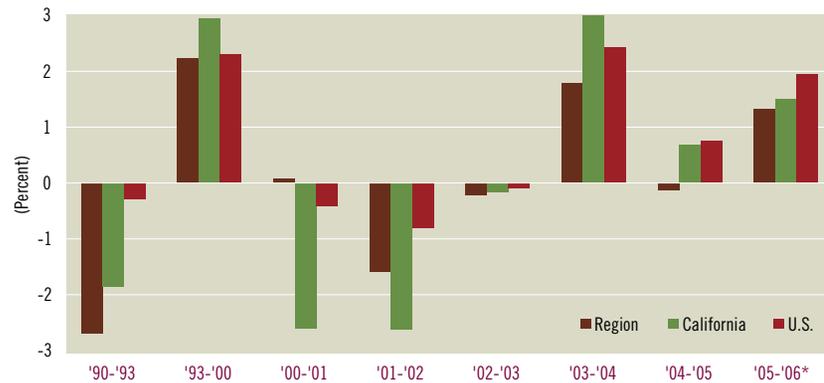
Real Personal Income Per Capita
(2006 Dollars)



Source: U.S. Bureau of Economic Analysis

Figure 29

Growth of Real Personal Income Per Capita
(Annual Average)



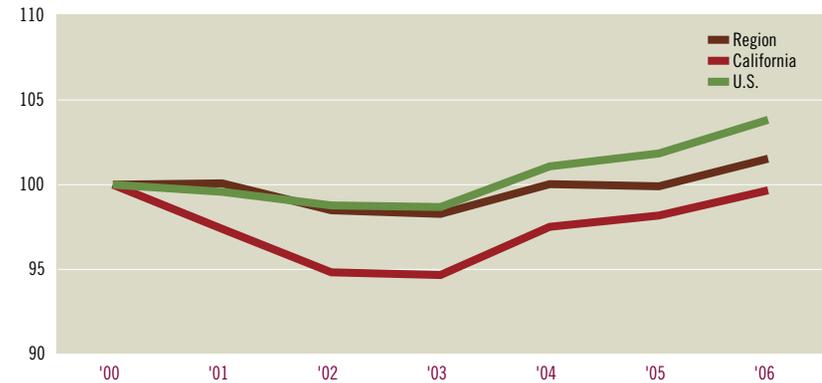
* Data for 2006 are preliminary
Source: U.S. Bureau of Economic Analysis

Despite the gains in 2006, real per capita income increased only 1.5 percent in the region between 2000 and 2006 due to the consecutive declines in 2002 and 2003 (Figure 30). In 2006, real per capita income for the state was the same as its 2000 level.



Figure 30

Growth of Real Personal Income Per Capita
(2000 as the Base Year = 100)



* Data for 2006 are preliminary
Source: U.S. Bureau of Economic Analysis

Among the 17 largest metropolitan regions in the nation, the SCAG region ranked 16th in terms of per capita income in 2005 just ahead of the Atlanta region (see Figure 125 page 147). Over the past three decades, the SCAG region's per capita income ranking dropped from the 4th highest in 1970 to 7th highest in 1990 and 16th place in 2000. Since 1982, the SCAG region's per capita personal income has been below the average of the 17 largest metropolitan regions, and the gap had widened until 2000. In 2005, per capita personal income in the SCAG region was 86 percent of the average of the 17 largest metropolitan regions, improving noticeably from the lowest level of 83 percent in 2000 (see Figure 27 page 36).

In 2005, only two of the nine metropolitan regions achieved higher real per capita income than their respective 2000 levels (see Figure 126 page 147). Between 2000 and 2005, the Washington D.C. region achieved the best performance with an almost 5 percent increase, followed by the Philadelphia region with a 3 percent improvement. The

SCAG region had an average performance in 2005 just below its 2000 level. During this period, the San Francisco Bay Area lost the most ground with only 94 percent of its 2000 level in 2005.

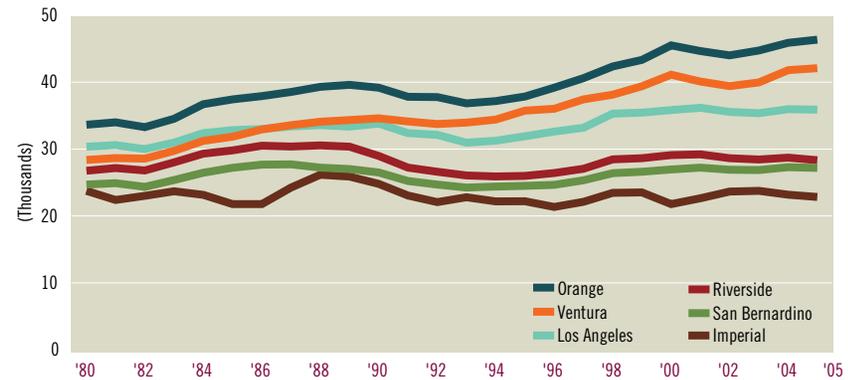
From 2004 to 2005, real personal income per capita changed slightly in Orange and Imperial counties while it stayed almost the same in the remaining four counties in the region (Figure 31). Per capita income in Imperial County declined by 1.5 percent in 2005 while it increased by 1.1 percent in Orange County. In 2005, the real per capita incomes in Imperial and Riverside counties were still lower than their respective 1990 levels. In the region, Orange County continued to have the highest per capita personal income (\$44,453) in 2005 while Imperial County had the lowest (\$21,899).



Figure 31

Real Personal Income Per Capita by County

(2006 Dollars)



Source: U.S. Bureau of Economic Analysis

Total Personal Income

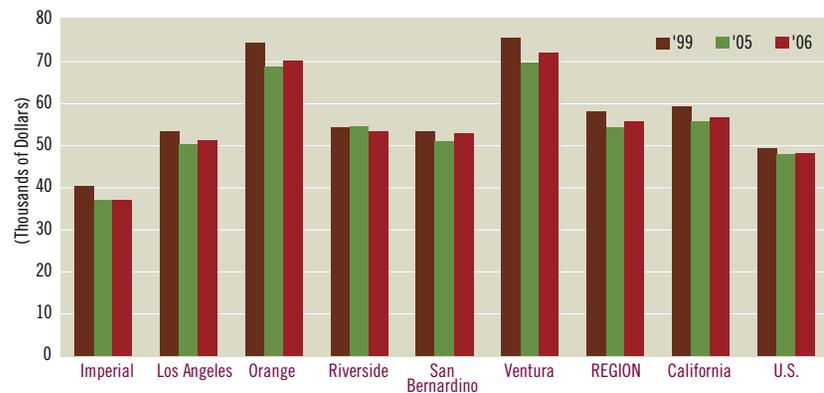
Between 2000 and 2005, the SCAG region performed at a better level in its growth of total personal income than the per capita personal income. During this period, SCAG region's share of the total personal income in the nation increased by 0.22 percent, following the Washington D.C area (0.24 percent). Among the nine largest metropolitan regions in the nation, five experienced declining shares during the five year period (see Figure 127 page 148). The San Francisco Bay Area suffered the worse performance with a sharp decrease of almost 0.5 percent in its share, while the New York region experienced a decline of 0.41 percent. However, during the 1990s, the SCAG region suffered the largest loss in its national share of 0.76 percent while the San Francisco Bay Area attained the largest gain of 0.62 percent. Among the large metropolitan regions, because the SCAG region generally had one of the highest population growth rates, it would generally rank lower when comparing based on per capita instead of total personal income.

Household Income and Earnings

Household income includes income from all sources for all members of the household. Nationally, real median household income at \$48,201 in 2006 was slightly higher (0.7 percent) than the 2005 level at \$47,845.⁶ In California, real median household income in 2006 at \$56,645 was 1.7 percent higher than the previous year. In 2006, real median household income in the region at \$55,678 represented a 2.6 percent increase from 2005. Nevertheless, it was 4 percent below the 1999 level. Between 1999 and 2006, real median household income declined in every county within the region, as well as at the state and national levels (Figure 32). During the 1990s, real median household income in the region also declined slightly contrary to the national trend.⁷

Figure 32

Median Household Income (2006 Dollars)



Source: U.S. Census Bureau, Current Population Survey (for U.S. only), 2000 Census, 2005 and 2006 American Community Survey

Within the household income, earnings from work represent the largest component. Earnings are the sum of wage and salary income and self-employment income. The 2006 American Community Survey (ACS) showed that 82 percent of aggregate household income came from



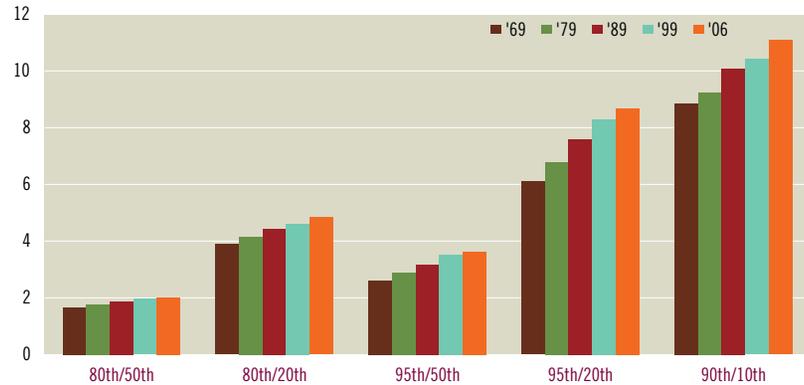
earnings, however, earnings trends do not necessarily follow the income trends. In the region, while median household income in 2006 rose by 2.6 percent, the real median earnings of men and women who worked full-time, year-round declined by 4 percent and 3 percent, respectively.

Income Inequality

One way to measure income inequality is through the household income ratios among households at different percentiles. For example, the income level for the 90th percentile indicates how the highest income group fared in a given year while the 10th percentile indicates the lowest income group. The 90th percentile is the level of income for a given area that 90 percent of households are beneath. The 10th percentile is the level of income that 10 percent of households are beneath. At the national level, income inequality has been increasing steadily since 1969 (Figure 33). Between 1979 and 1999, the SCAG region generally had a slightly higher income inequality than the nation when comparing household income ratios.⁸ In 2006, income inequality at the national level continued to widen. For example, the very rich households (90th percentile) in 2006 had an income just over 11 times

that of the income for the very poor households (10th percentile), an increase from just over 10 times in 1995.⁹

Figure 33
Household Income Ratios, U.S.



Source: U.S. Census Bureau, Current Population Reports

Poverty

Why is this important?

The poverty rate measures the proportion of a population that has an income below the poverty line and therefore lacks the economic resources needed to support a minimum acceptable standard of living. The poverty line is adjusted for family size. Poverty not only results in current economic hardship, but also limits an individual's and family's future development opportunities. A higher poverty rate is both a cause, as well as an outcome, of lower educational attainment and higher unemployment rates. The extent of poverty also reflects the need for various kinds of public assistance. Poverty among children is of particular concern. Poverty in childhood is associated with a higher risk for dropping out of school, poor health, teenage pregnancy and a long-term economic disadvantage as adults.

How are we doing?

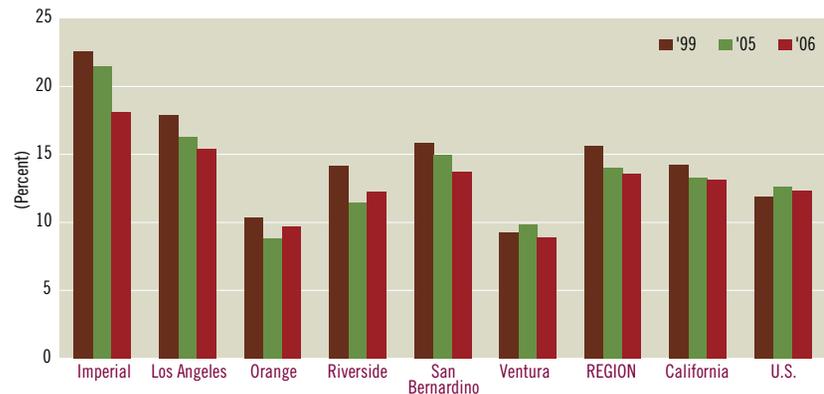
In 2006, a family of four (including two children) earning less than \$20,444 a year was classified as living in poverty, compared with \$15,769 for a family of three with one child; \$13,500 for a household of two with no children; and \$10,488 for unrelated individuals.¹⁰ Between 2005 and 2006, the poverty rate for all people lowered slightly at the national, state and regional level. Nationally, the poverty rate of 12.3 percent in 2006 was slightly down from 12.6 percent in 2005. In California, the poverty rate for all people at 13.2 percent in 2005, a slight decrease from 13.3 percent in 2005.

In the SCAG region, 13.6 percent of residents lived in poverty in 2006, a slight reduction from 2005 (14 percent) though continuing to be slightly higher than that of the state (13.2 percent) and the nation (13.3 percent) (Figure 34). In addition, 19.2 percent of children under 18 were below the poverty line in 2006, a slight decline from 2005 (19.7 percent) (Figure 35). The poverty rate was highest for female-headed households with children under 18 years old (32 percent), and lowest for married couple families (6.7 percent).¹¹ In 2006, Orange County continued to maintain the lowest poverty rate for all residents within the region of 9.7 percent while Imperial County experienced the highest at 18 percent.



Figure 34

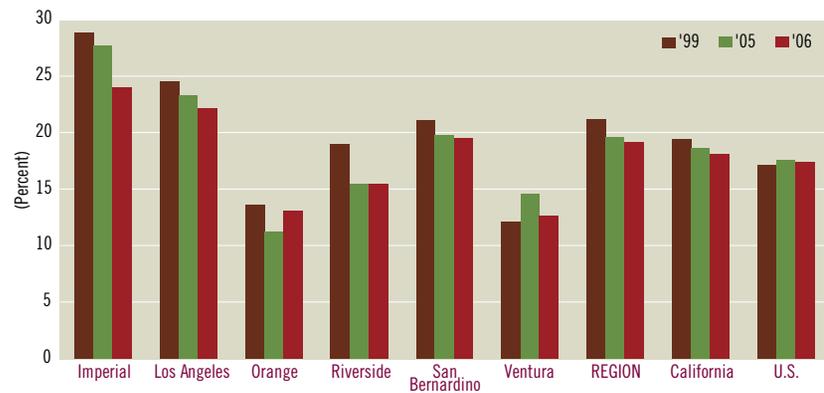
Persons Living in Poverty



Source: U.S. Census Bureau, Current Population Survey (for U.S. only), 2000 Census, 2005 and 2006 American Community Survey

Figure 35

Children Under 18 Living in Poverty



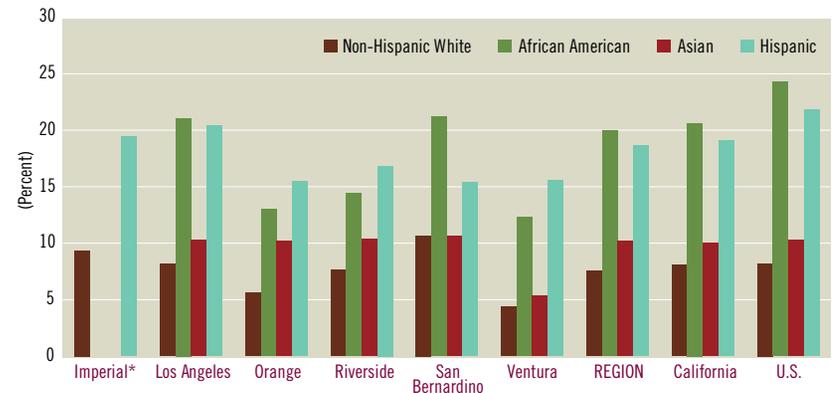
Source: U.S. Census Bureau, Current Population Survey (for U.S. only), 2000 Census, 2005 and 2006 American Community Survey

Within the region, African American and Hispanic residents experienced significantly higher poverty rates than their non-Hispanic White and Asian counterparts. Specifically, 20 and 19 percent of African

American and Hispanic residents respectively lived in poverty in 2006 compared to only 10 percent of Asian and less than 8 percent of non-Hispanic white residents (Figure 36).

Figure 36

Persons Living in Poverty by Race/Ethnicity, 2006



*Data for African American and Asian is not available for Imperial County
Source: U.S. Census Bureau, Current Population Survey (for U.S. only) and 2006 American Community Survey

In 2006, the SCAG region continued to have the highest poverty rate (13.6 percent) for all people among the nine largest metropolitan regions in the nation followed by the Detroit region (13.1 percent), while the Washington D.C. region achieved the lowest poverty rate of only 7.7 percent (see Figure 128 page 148).

Taxable Sales

Why is this important?

Taxable sales provide important revenue sources for state and local governments and special districts. While employment and income are measures on the production side, taxable sales measures the level of

consumption activities. Taxable sales tend to follow closely with trends in personal income, job market and consumer confidence.

How are we doing?

In 2006, total taxable sales in the region were estimated to increase by about 6.7 percent from 2005, slowing down from the 8 percent growth between 2004 and 2005 (Figure 37).¹² Nevertheless, the 6.7 percent rate of growth was still somewhat higher than the average (6 percent) during the past ten years.

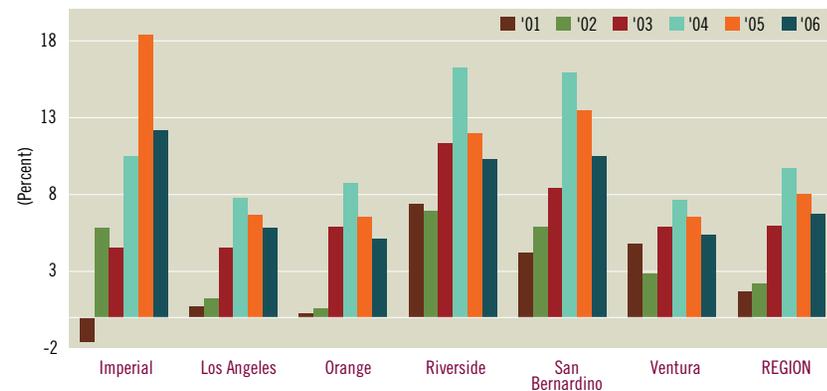
From 2000 to 2002, total taxable sales in the region increased by only about 2 percent per year. The wealth effects due to significant increases in home equity, particularly during 2003 and 2004, contributed to the accelerated growth in taxable sales. During these two years, total taxable sales in the region grew 2 to 3 percent above the growth rate of its total personal income. The three inland counties within the region, supported by faster population growth, all achieved more than 10 percent growth in their taxable sales in 2006, almost doubling the corresponding rates for the three coastal counties. Imperial County (12.5 percent) had the



highest rate of growth in taxable sales in 2006 followed by San Bernardino (10.5 percent) and Riverside (10.3 percent) counties.

Figure 37

Taxable Sales (Change from Previous Year)



*Change between 2005 and 2006 is based on data for the first two quarters
Source: California State Board of Equalization

International Trade

Why is this important?

International trade includes export and import activities that create job opportunities and bring income into the region. Though exporting goods produced in Southern California generates higher net economic benefits for the region, imports can create economic benefits too. The region's role as a major transshipment center linking domestic and global markets is also of national and international significance.

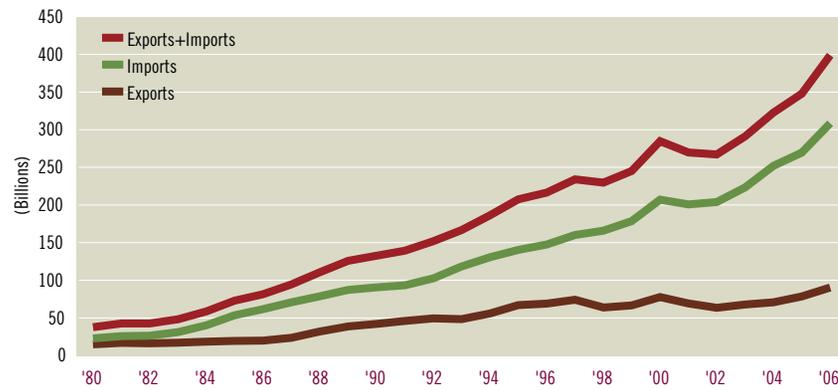
How are we doing?

Between 2005 and 2006, total trade through the Los Angeles Customs District (LACD) increased from \$348 billion to \$399 billion (or 15

percent), a new record level. This almost doubled the rate of growth during the previous period (Figure 38). Among the \$51 billion increase, \$39 billion was from imports, and another \$12 billion from exports.

Among the \$399 billion in trade passing through the LACD, imports accounted for 77 percent, exports 23 percent. In 2006, among the \$90 billion exports out of the LACD, 46 percent (\$41 billion) was by air and the rest 54 percent was by sea. Exports by air are generally smaller and higher value goods. On the other hand, among the \$309 billion imports into the LACD, 87 percent were by sea with the other 13 percent by air.

Figure 38
Exports and Imports - LA Customs District
 (Current Dollars)



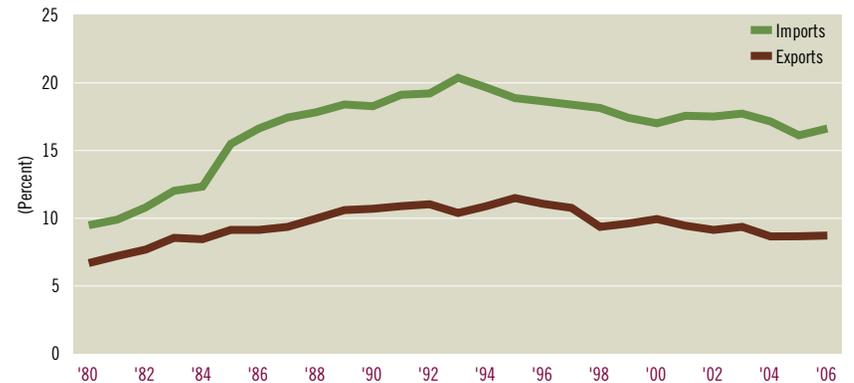
Source: U.S. Census Bureau

The region's prominence in international trade has been fostered through its large domestic market, global ties through its growing Asian and Hispanic communities, strategic location, and excellent trade infrastructure serving the rest of the nation. Total trade through the LACD increased from less than \$40 billion in 1980 to \$399 billion in 2006. The region's direct employment in international trade also increased

from about 175,000 in 1980 to 485,000 in 2006, which represents an increase of 35,000 jobs from 2005.¹³ Trade jobs are found in a variety of activities, including vessel operation, cargo handling, surface transportation (truck and rail), trade finance, freight forwarding, custom brokerage, insurance, etc.

Between 1980 and 2006, the share of the LACD's trade value of the U.S. total grew from about 8 percent to its peak of 16 percent in 1993 and then began declining to 13.8 percent in 2006. The share of the LACD's export of the U.S. total was just below 9 percent in 2006 while its share of imports was close to 17 percent (Figure 39). In 2006, the LACD retained the number one ranking in the U.S in terms of total trade value, followed by the New York (\$295 billion) and Detroit (\$238 billion) customs districts.

Figure 39
Exports and Imports - LA Customs District
 (Percent of U.S.)



Source: U.S. Census Bureau



Between 1993 and 2006, the share of multi-family units with building permits increased from 20 percent to 36 percent.

Housing

Housing Construction

Why is this important?

The magnitude of housing construction, population growth, and new households is a major determinant of housing prices. Different geographical distributions of new housing result in different needs for support infrastructure and services. The residential construction industry is also an important source of employment and corporate profit in the region.

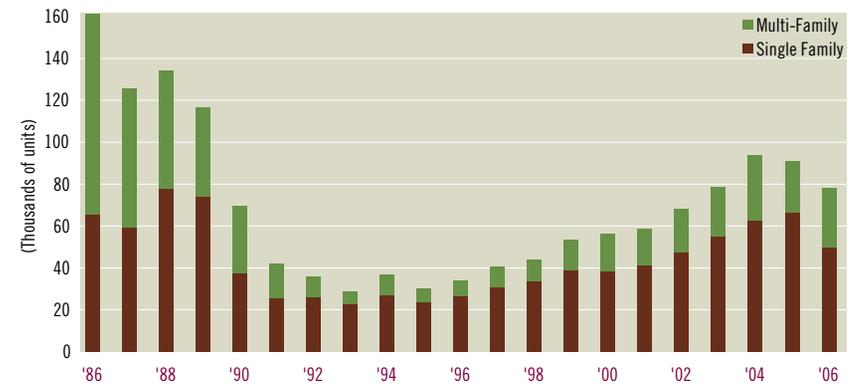
How are we doing?

From 2005 to 2006, the total number of building permits issued in the region fell by 14 percent from 91,000 units to 78,200 units that were just



below the 2003 level (Figure 40). This was the largest annual decline since 1990. Notably, the decline was only within the single-family sector in which the number of permits dropped by 25 percent (or 16,600 units) in one year. Permits for multi-family units achieved a 15 percent (or 3,700 units) increase but was still below the 2004 level. Between 1995 and 2004, housing construction activities in the region experienced a major recovery. After reaching its peak of 93,700 units in 2004, the number of permits issued has declined for two consecutive years.

Figure 40
Residential Building Permit Activity



Source: Construction Industry Research Board

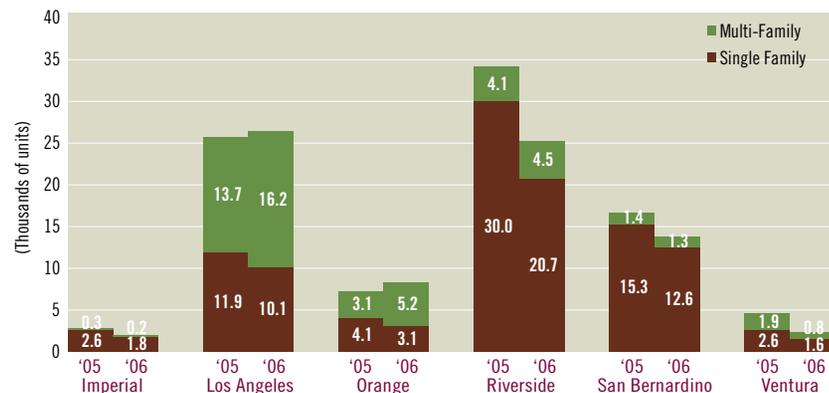
Within the region, the decline in building permits was concentrated in the Inland Empire (Figure 41). Specifically, between 2005 and 2006, the number of permits issued dropped by 9,000 units (26 percent) alone in Riverside County concentrating in the single-family sector. It also decreased by 2,800 units (17 percent) in San Bernardino County. The performance of the three coastal counties varied. While the number of permits issued fell by 2,100 units (or 47 percent) in Ventura County, it increased by 700 units (3 percent) in Los Angeles

County, and 1,100 units (15 percent) in Orange County concentrating in multi-family housing.

As to the distribution of permits within the region, the Inland Empire counties accounted for about half of the total permits issued in 2006, a decline from 58 percent in the previous year. In particular, Los Angeles County led among the six counties in the total number of permits issued (26,341), close to 34 percent of the regional total, followed closely by Riverside County (25,246 or 32 percent).

Figure 41

Residential Building Permits by Housing Types, 2005-2006



Source: Construction Industry Research Board

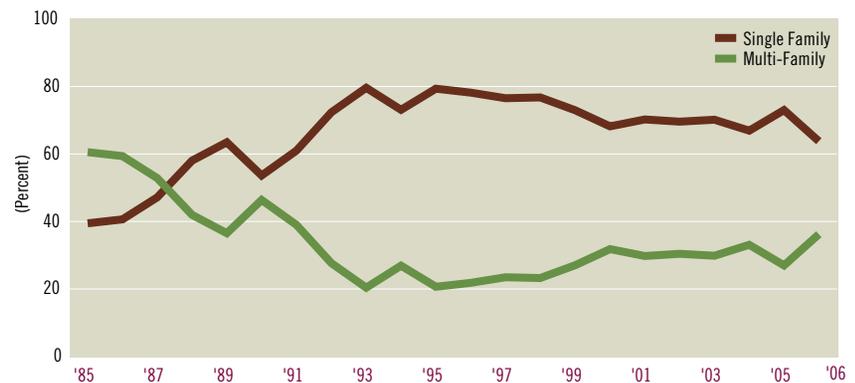
Among the total permits issued in 2006, about 36 percent were for multi-family housing, an increase from 27 percent in 2005. *Between 1993 and 2006, the share of multi-family units was on an upward trend increasing from 20 percent to 36 percent, while the share of single family units declined from 80 percent to 64 percent (Figure 42).*

Within the region, there continued to be significant differences between the coastal and inland counties with respect to the share of multi-family

housing permits. Specifically, in both Los Angeles and Orange counties, more than 60 percent of the building permits issues were in multi-family though Ventura County's share was only 34 percent. In the remaining three inland counties, 80 percent or higher of the total permits were for single-family housing construction.

Figure 42

Composition of Residential Building Permits, 1985-2006



Source: Construction Industry Research Board

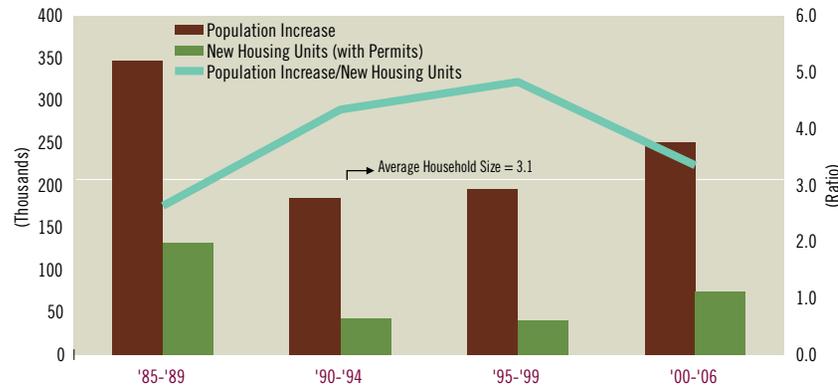
Since 2000, the continuous increase of permit activities (except for 2005 and 2006) and the recent slowdown in population growth have narrowed the gap significantly between housing supply and demand.





For example, yearly population in the region increased by about 293,000 between 2000 and 2006 compared to only 195,000 between 1995 and 1999, a rise of about 50 percent. However, annual building permits issued during the period from 2000 to 2006 were over 72,000, an 80 percent increase from about 40,000 units in the previous 5-year period (Figure 43). Hence, the ratio between population growth and new housing units with permits dropped markedly from 4.8 persons per unit (during the period between 1995 and 1999) to 3.4 persons per unit (during the period between 2000 and 2006), though still somewhat higher than the average household size of 3.1 persons per unit.

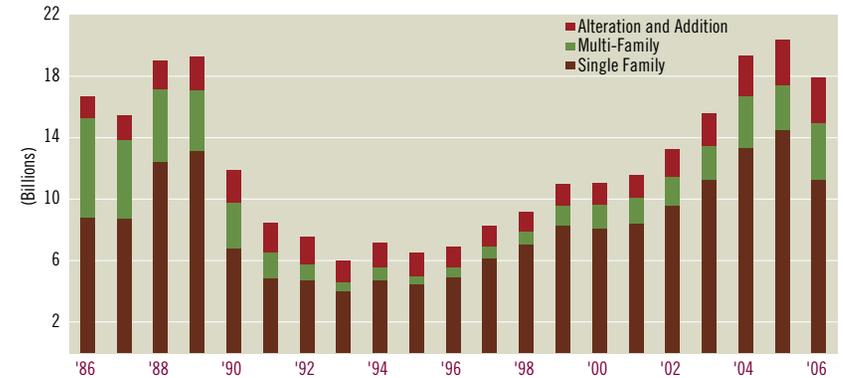
Figure 43
Population Increase vs. Building Permits, 1985-2006
 (Annual Average)



Source: California Department of Finance and Construction Industry Research Board

Total valuation of permits in 2006 reached almost \$18 billion, a decline of \$2.5 billion (22 percent). This was the first decline since 1994 and was primarily concentrated in single-family housing (Figure 44).

Figure 44
Valuation of Residential Building Permits



Source: Construction Industry Research Board



Homeownership

Why is this important?

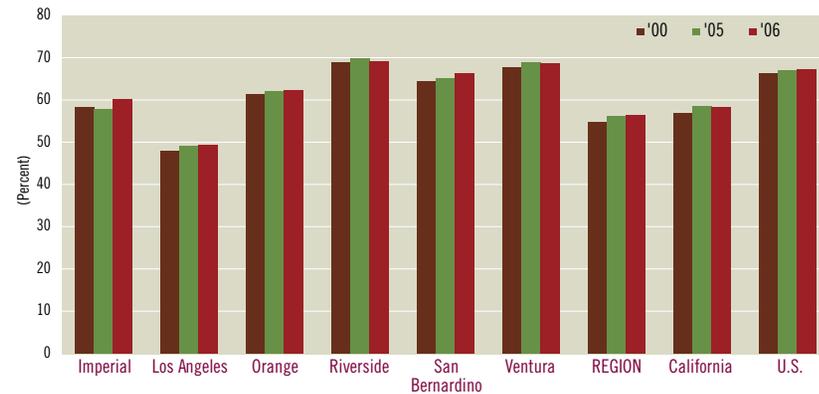
Owning one's home has long been considered an important part of the American Dream. The equity generated from homeownership represents almost 45 percent of total household wealth.¹ Homeownership has also been an important pathway particularly for working-class families to accumulate enough wealth to ascend into the middle class.² Higher homeownership rates also help to improve neighborhood stability.

How are we doing?

From 2005 to 2006, homeownership rates increased very slightly at the regional and national levels, and remained unchanged at the state level. *Since 2000, homeownership in the region has been increasing steadily to reach close to 57 percent, an increase of about 2 percentage points (Figure 45).* Within the region, every county achieved an increase in homeownership during the six year period. Homeownership in Riverside County, though it decreased slightly by 0.5 percent from 2005, reached 69.2 percent in 2006 and was still the highest in the region followed by Ventura County with 68.7 percent. Riverside and Ventura counties are the only two counties with homeownership higher than the national average at 67.3 percent. Between 2005 and 2006, there were notable increases in homeownership rate in San Bernardino County, from 65.1 percent to 66.4 percent, approaching the national average. In 2006, Imperial County's homeownership also reached over 60 percent for the first time. Homeownership in Los Angeles County increased from 47.9 percent in 2000 to over 49 percent in 2006. However, it continued to have the lowest homeownership rate in the region.

Figure 45

Homeownership Rates



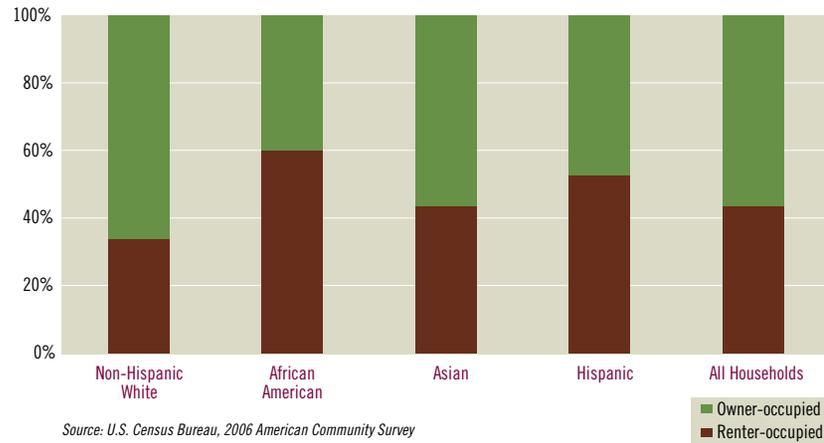
Source: U.S. Census Bureau, 2000 Census, 2005 and 2006 American Community Survey

Among the 9 largest metropolitan regions in the nation, the SCAG region continued to have the second lowest homeownership, just above the New York region (56 percent). Detroit region had the highest homeownership rate at 74 percent (see Figure 129 page 149).

Since 2000, the extended homeownership boom attracted many moderate- and higher-income households from the rental market. As a result, rental markets have become further skewed toward lower-income and minority households.³ Within the region, 44 percent of the households relied on rental housing in 2006. Among the different racial/ethnic groups, 60 percent of African American households depended on rental housing, followed by Hispanic households with 53 percent. For the non-Hispanic White households, only 34 percent were renters. Improving Hispanic and recent immigrant homeownership achievement will be an important challenge since they account for well over 90 percent of the future household growth in the region.

Figure 46

Share of Owner or Renter Households by Race/Ethnicity of Householder, 2006

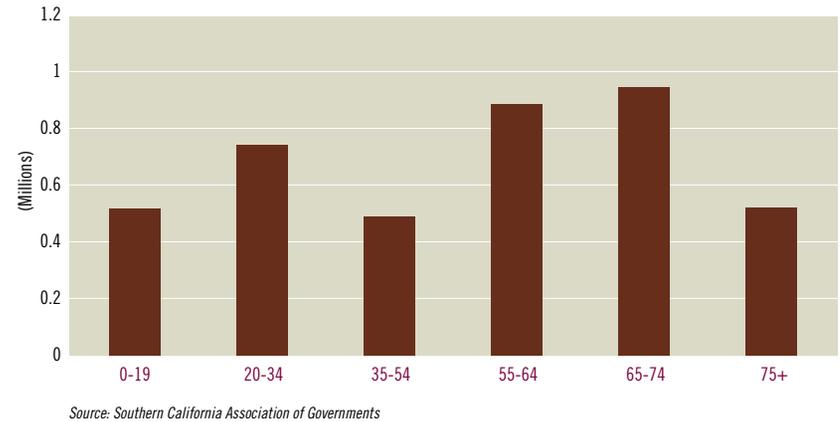


Among the different age groups, those between 20 and 34 years old generally depend the most on rental housing. Population projections for the region indicated that by 2025 there will be approximately three-quarter million increase in residents aged 20-34, pointing to significant demand ahead for rental housing.



Figure 47

Change in Population by Age Group, 2005-2025



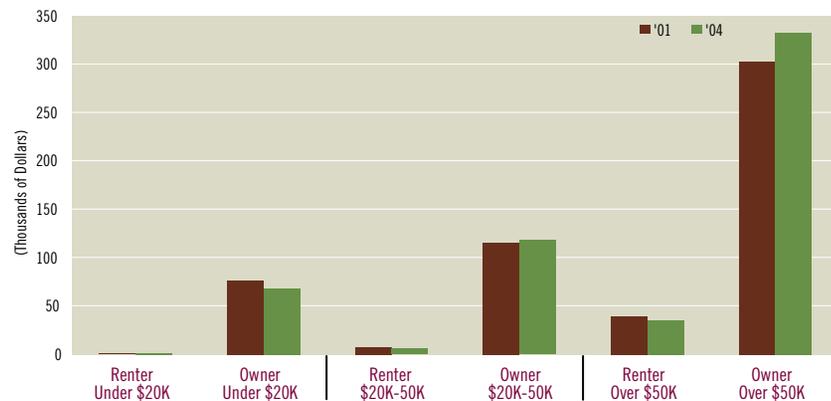
Close to half of the total household wealth is held as home equity through homeownership. This is partially the reason that renters have significantly less wealth than homeowners even within the same household income category. Based on national data in 2004, for households with an annual income between \$20,000 and \$50,000, the median wealth of renter households was only \$6,000 while it was \$118,000 for owner households, almost 20 times higher (Figure 48). The wealth disparities between renter and owner households also grew larger in recent years. Since 2001, the run-up of home prices has benefited many existing homeowners in terms of rising home equity. On the other hand, the continuing rise of rent has been draining the financial resources of renters. Consequently, between 2001 and 2004, the wealth disparities between homeowners and renters generally widened, particularly for households with income higher than \$20,000. For example, for households with income over \$50,000, the median wealth for owner households grew from \$307,000 to \$332,000 between 2001 and 2004, while it declined from \$39,000 to \$35,000 for renter households. Since home appreciations in the SCAG region were considerably higher than



that in the nation, the corresponding wealth disparities are estimated to be larger in the region. *The significant and widening wealth disparities between renter and owner households further underscore the importance of homeownership.*

Figure 48

Median Wealth of Renter and Owner Households by Household Income



Source: Joint Center for Housing Studies of Harvard University, 2007, *The State of the Nation's Housing*

Housing Affordability

Why is this important?

Housing affordability provides an indication of the level of financial burden of housing expenses. Housing constitutes the largest share of household expenditures among all consumption items. When a household spends too much on housing, there is not enough left to meet other household needs, such as transportation, healthcare or education. Housing affordability also affects decisions as to where to live. Hence, housing affordability is an indicator reflecting the fundamental well-being of households. In addition, it influences business decisions to locate or expand in the region. Lack of affordable housing will result in a weakening of our region's attractiveness and competitiveness.

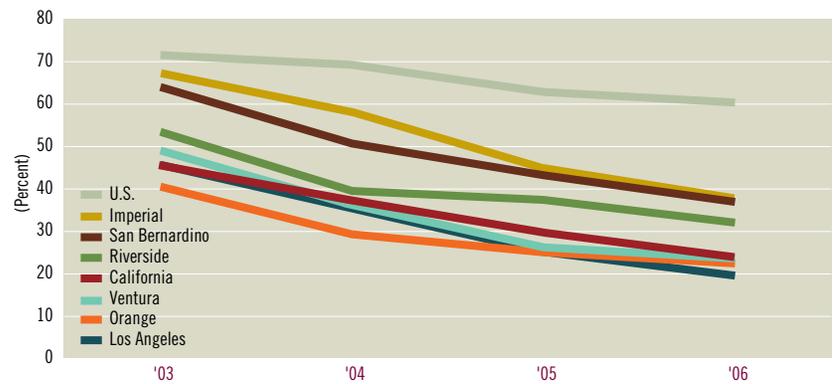
How are we doing?

Housing affordability can be measured by the share of first-time homebuyers who can afford to purchase an entry-level home at 85 percent of the median price or by the share of household income spent on housing. *By both measures, housing affordability continued to decline throughout Southern California and reached a record low in 2006.*

First-time buyers typically purchase an entry-level home at 85 percent of the median home price.⁴ Between 2003 and 2006, the share of first time buyers who can afford to purchase an entry-level home dropped by about a half in the three coastal counties, from more than 40 percent to just over 20 percent. During the same period, it dropped from 64 to 37 percent in San Bernardino County and from 53 to 32 percent in Riverside County. *While 60 percent of the first-time homebuyers in the nation can afford an entry-level home, less than 30 percent of the region's first-time homebuyers could achieve the same.* Since 2003, the housing

affordability gap between the region and the nation has widened for the first-time homebuyers (Figure 49).

Figure 49
Housing Affordability for First-time Buyers
 (Percent of Households Who Can Afford to Purchase a Home at 85% of the Median-Priced Home)



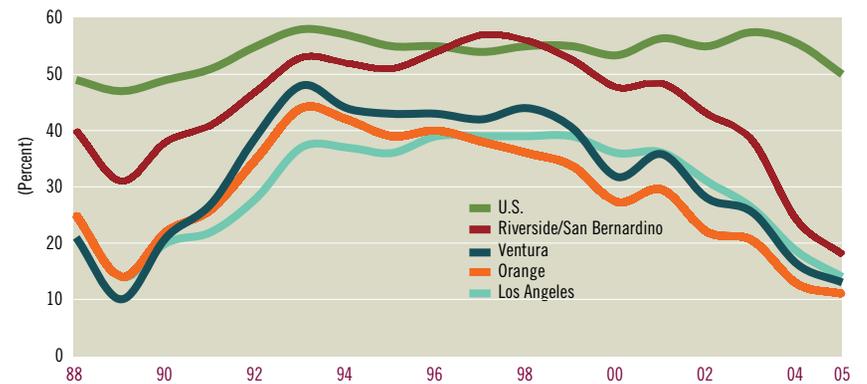
Source: California Association of Realtors, estimates for Imperial

As to the general population, the share of households able to afford a median-priced home in the three coastal counties (Los Angeles,



Orange and Ventura) dropped below 15 percent in 2005, the lowest since 1989. In 2005, every county in the region had lower housing affordability than the national average and the gaps have continued to widen since 1997 (Figure 50).

Figure 50
Housing Affordability
 (Percent of Households Who Can Afford to Purchase a Median-Priced Home)



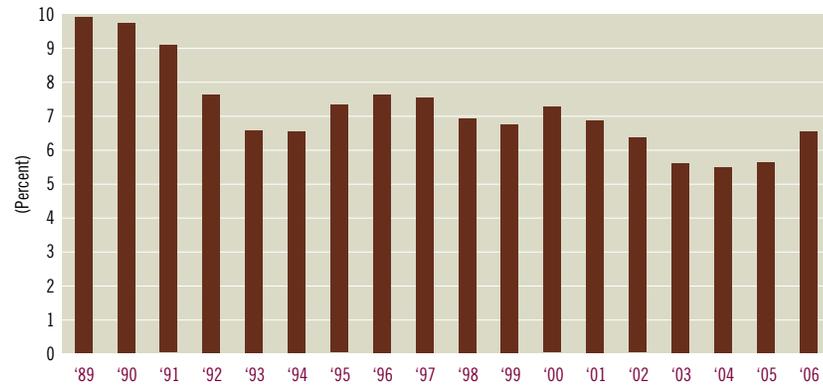
Data for Imperial County not available
 Source: California Association of Realtors

Housing affordability is generally impacted by household income, home prices and mortgage interest rates. Between 2005 and 2006, average mortgage interest rate rose from 5.64 to 6.53 percent (Figure 51). During 2006, home appreciation at 8 percent at the regional level, though the lowest since 2000, continued to outpace the income growth making housing less affordable.

Real median household income increased by 2.6 percent from 2005 to 2006. However, median home prices in the region reached historic peaks in 2006 in almost every county in the region (Figure 52). Between 2000 and 2006, median home prices for existing homes more than doubled in Los Angeles, Orange, Ventura, and Imperial counties

and almost tripled in the Inland Empire. In 2006, home appreciation slowed significantly from the previous period, particularly for the Inland Empire. Specifically, home appreciation in the Inland Empire was about 7 percent in 2006, a significant drop from 26 percent in 2005 and 34 percent in 2004. Home appreciation in Orange and Ventura counties were below 3 percent in 2006, a significant decline from 10 percent in 2005 and almost 30 percent in 2004.

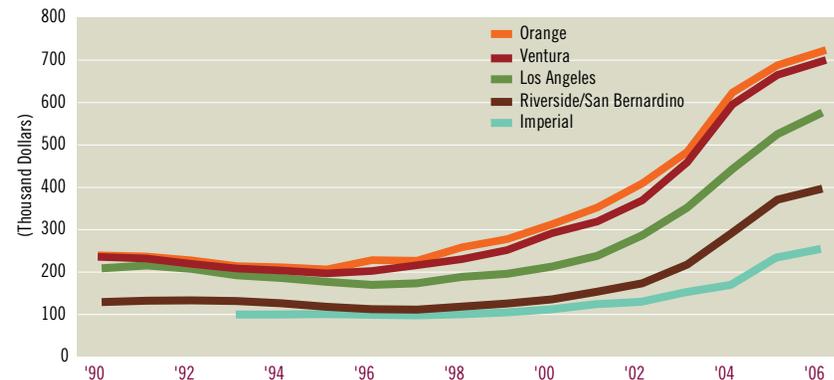
Figure 51
Average Mortgage Rate



Source: Real Estate Research Council of Southern California



Figure 52
Median Home Price
(Existing Single-Family Homes in Current Dollars)



* Imperial County data not available between 1990 and 1992
Source: California Association of Realtors and DataQuick Information Systems

The record high home prices were affected by several factors including low interest rates, wider availability and uses of non-traditional mortgage financing and the accumulation of unmet demand since the early 1990s. In 2006, though average mortgage interest rate rose to 6.53 percent, it is still considered low by historical standard. Lower interest rates could allow for higher selling prices and still keep the same monthly mortgage payment amount. In addition, there are wider availability and uses of non-prime mortgage financing in recent years. Between 2001 and 2006, the use of non-prime loans nationally surged from 23 percent to 51 percent.⁵ Prime loans consist of conventional and jumbo loans, and non-prime loans include sub-prime, Alt-A, home equity and FHA/VA loans.⁶

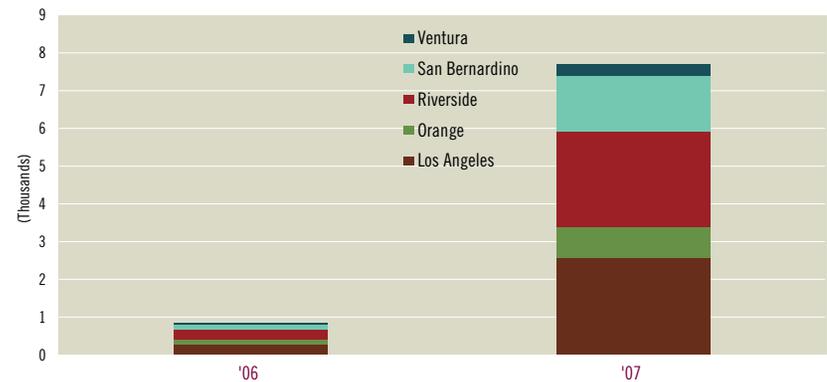
In 2006, 20 percent of all loans in the state and the nation were sub-prime loans, more than doubling its share in 2001. Subprime loans are generally loans made available to borrowers who do not qualify for conventional financing due to low credit scores. A subprime loan also tends

to involve loose underwriting requirements, such as minimum down payment and the option to provide a “stated income” without documentation. Also over 30 percent of loan originations in California in 2006 were loans with interest-only features, compared to 22 percent nationally. At the end of 2006, there were 229,268 adjustable-rate mortgages between one and three years old in Riverside and San Bernardino counties, and almost 32 percent of those were subprime loans.⁷ As housing prices are leveling off and lending standards are becoming stricter, borrowers could no longer refinance or cash out their homes for a profit, triggering a rising tide of defaults, the first step to foreclosures.

Between 2005 and 2006, the number of notices of defaults in the region increased from about 35,000 to 60,000, the highest level since 1999.⁸ This represented a 70 percent jump compared to only 3-percent increase during the previous period. Riverside County saw its notices of defaults almost doubled between 2005 and 2006 since the use of sub-prime products by first-time homebuyers were concentrated in the relatively more affordable communities such as the Inland Empire.

In 2007, foreclosures surged in the region and the rest of the state. During the second quarter in 2007, there were about 7,800 foreclosures in the region, an increase from only about 860 during the second quarter in 2006 (Figure 53). More than half of the foreclosures in the region in 2007 (second quarter) took place in the Inland Empire. At the state level, foreclosures hit a record high of 17,400 during the second quarter in 2007, surpassing the previous peak of 15,400 in 1996 (third quarter). *Because the number of subprime loans funded peaked in 2006, and the interest rates of these loans are not scheduled to reset for a few more years, the increased rate of foreclosures may continue through 2008.*

Figure 53
Home Foreclosures
(2nd Quarter Data)



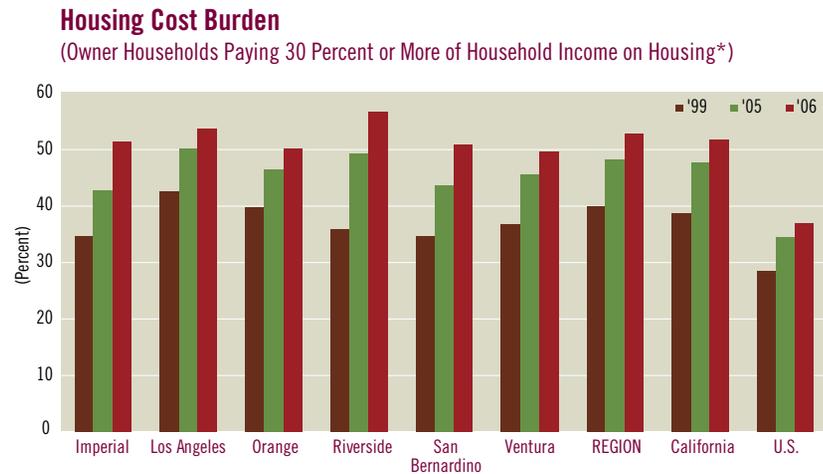
Source: DataQuick Information Systems

In 2006, about 53 percent of the region’s owner households (with a mortgage) had monthly costs at or greater than 30 percent of household incomes, about a 5-percent increase from 2005 and considerably higher than the national average of 37 percent (Figure 54). Statewide data further indicated that 20 percent of recent California homeowners spend more than half of their incomes on housing costs.⁹ At the national level in 2006, only 37 percent of owner households had monthly costs at or greater than 30 percent of household incomes. In 2006, the SCAG region had the highest homeowners housing cost burden among the nine largest metropolitan regions in the nation, followed closely by the San Francisco Bay Area (see Figure 130 page 149).

Within the region, every county has experienced a significant increase in housing cost burden since 2000. In 2006, Riverside County had the highest cost burden with 57 percent of owner households paying 30 percent or more of household income on housing. In addition, between

2005 and 2006, the three inland counties experienced larger percentage increases in housing cost burdens than their coastal counterparts.

Figure 54

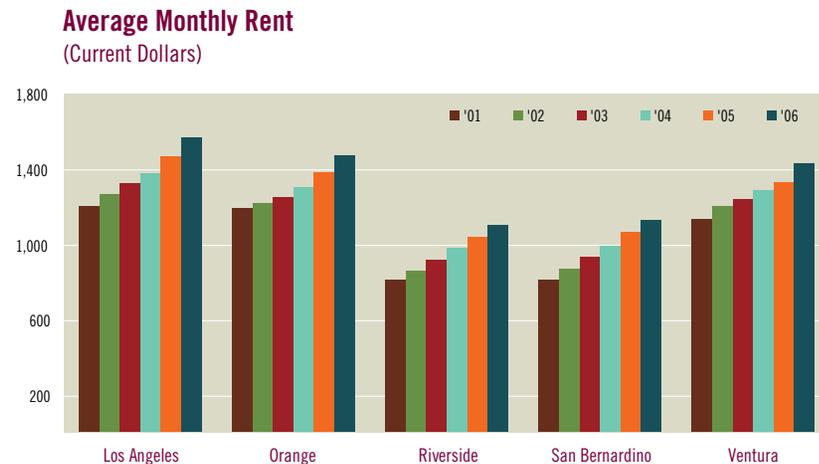


* Percentage share of all owner households with a mortgage
Source: U.S. Census Bureau, 2000 Census, 2005 and 2006 American Community Survey

With rising interest rates, record home prices, slowing of the home sale market and continuing population growth, demand for rental units has been growing. At the same time, the conversion of apartments to condominiums reduced the supply of rental units. Between 2005 and 2006, average rents in the region increased generally by more than 7 percent (without inflation adjustment). In 2006, average monthly rents were around \$1,500 in the coastal counties and above \$1,100 in the Inland Empire (Figure 55). The Los Angeles/Orange county area topped all markets in the west for the most expensive monthly rents while occupancy rate remained at almost 96 percent. Among the over 2.4 million renter households in the region in 2006, more than 53 percent (1.2 million households) spent 30 percent or more of their incomes on rent, noticeably higher than the national average of 46 percent (Figure 56).

Within the region, Riverside County suffered the highest cost burden with 56.3 percent of renter households paying 30 percent or more of household income on housing.

Figure 55

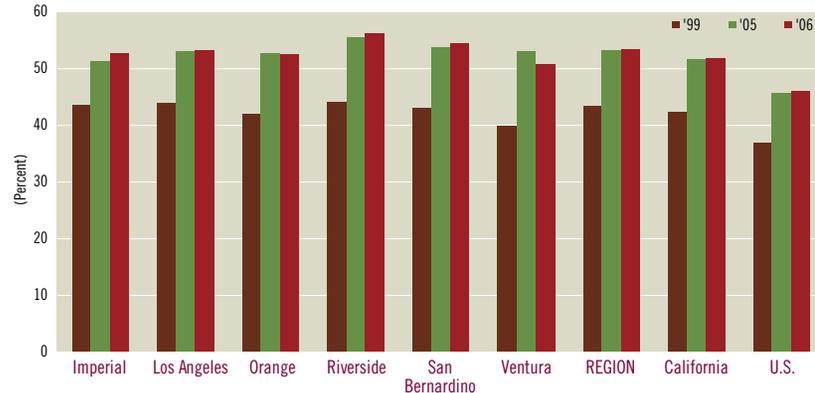


Data for Imperial County not available
Source: Real Estate Research Council of Southern California

Though changed little between 2005 and 2006, rental cost burden has generally been increasing steady at the regional, state and national levels. Among the nine largest metropolitan regions in the nation, the SCAG region continued to have the highest share (53 percent) of rental households with monthly rent at or greater than 30 percent of household income (see Figure 131 page 150). Following the SCAG region was the Boston region, with 49 percent of renters spending 30 percent or more of their incomes on rent. In addition, California had the highest median rent among all states in 2006 except Hawaii. Hence, rental housing is an important public policy issue at the regional as well as state levels.

Figure 56

Rental Cost Burden
(Renters Paying 30 Percent or More of Household Income on Rent)



Source: U.S. Census Bureau, 2000 Census, 2005 and 2006 American Community Survey

Housing Crowding

Why is this important?

Housing crowding measures the percent of housing units with more than one person per room, including all rooms except bathrooms. It provides an indication of housing shortages and housing affordability. Lack of affordable housing will lead to higher levels of housing crowding.

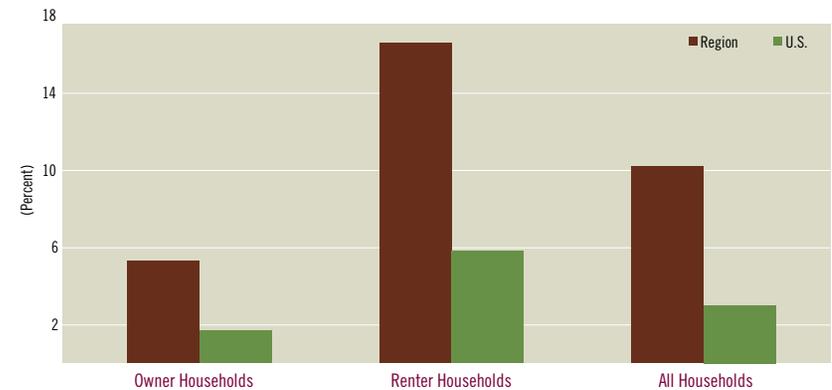
How are we doing?

In 2006, about 10.2 percent of the occupied housing units were considered to be crowded, a slight decrease of 0.4 percent from the previous year. Between 2000 and 2006, the share of crowded housing in the SCAG region dropped 3.6 percentage points. Within the region, Los Angeles County continued to have the highest rate (12.1 percent) of crowded housing.

Overcrowding is most common in rental housing due to higher concentrations of lower-income households. In 2006, while only 5.3 percent of the owner households in the region lived in crowded housing, close to 17 percent of the renter households experienced the same (Figure 57). Hence, a renter household was about 3 times more likely to live in crowded conditions than their owner household counterpart. Nationally, the disparity between renter and owner households living in crowded housing was much smaller, 5.8 percent vs. 1.7 percent respectively.

Figure 57

Housing Crowding*, 2006



* With more than one occupant per room excluding bathrooms
Source: U.S. Census Bureau, 2006 American Community Survey

In 2006, Southern California continued to have the highest rate of crowded housing among the nine largest metropolitan regions.

TODs for Southern California: Challenges and Prospects

Anastasia Loukaitou-Sideris, Ph.D.

When the idea of transit oriented development (TOD) entered the lexicon of planning in the late 1980s, it was enthusiastically endorsed by some planners and academics who viewed TODs as a way of mitigating the ubiquity of sprawl and as a strategy for smart growth. But actual implementation of TOD projects was slow to follow as developers and funding institutions were hesitant about the level of public acceptance and marketability of such projects in a region that seemed to be married to the private automobile.

Twenty years later, however, the concept of TOD is no longer “academic,” but has been successfully implemented in many metropolitan regions throughout the nation. In Los Angeles County, many housing and mixed-use projects have appeared in close proximity to stations in Pasadena, South Pasadena, Hollywood, Long Beach, and other areas, and more are on the drawing boards or at various stages of the approval and development process. Municipalities and Metropolitan Planning Organizations, and even many developers are enthusiastic about building



near transit. Why has development around transit become popular? Which are the motivations and incentives but also the constraints and problems of building adjacent to stations? Can TODs have an effect in reducing traffic congestion, improving environmental quality, and enhancing housing supply and affordability in Southern California? Finally, what are the necessary antecedents and appropriate strategies for attracting development around stations and along transit corridors?

To address these questions I will draw from the experiences of two transit lines which represent the first and last built segments of Los Angeles County’s metro rail system: The Blue Line and the Gold Line. The Blue Line opened in 1990 as the first twenty-two mile increment of a long-awaited light rail system, connecting downtown Los Angeles to downtown Long Beach. The line used existing, but largely unused tracks of an earlier system. While the line has been operating for 17 years it has not been able to realize its development potential of creating vibrant transit station neighborhoods. With the exception of a few TODs, especially near the Long Beach stations, there has been little development along the Blue Line corridor. The Gold Line, on the other hand, which opened in July 2003 linking downtown Los Angeles to Pasadena, has generated considerable development activity around many of its stations, although it has not yet reached its projected capacity in terms of transit trips. I will argue that a lot has changed in the region in the thirteen years that separate the inauguration of the two lines, which is partly responsible for the change in attitudes and the new-found popularity of TODs.

Learning from Past Mistakes

When the Blue Line was still at a conceptual stage of development, rail advocates emphasized the various benefits, in addition to mobility, that the line could bring to the depressed inner city neighborhoods

it was passing through. But when my colleague Tridib Banerjee and I studied the line, ten years after its inauguration, we found empty fields and classical inner city decay in the vicinity of many stations. We argued that the line was suffering from the “Blue Line Blues,” which was a combination of four types of problems and a number of missing antecedents for economic development, whose combined presence was halting development and positive change around its stations.

There were certainly *planning problems*, which included a general lack of planning by municipalities and jurisdictions in anticipation of the line, and a lack of coordination among the different public-sector agencies to instigate joint development opportunities. *Environmental problems* that plagued development in the vicinity of Blue Line stations included an abundance of contaminated sites and incompatible land uses. Much of the land along the corridor was simply not fit for new housing or neighborhood development or it was zoned for uses not compatible with TODs. The *social and structural problems* and obstacles that beset many inner city communities—poverty, unemployment, crime, and gang violence -- defined a negative image for investment in many of the Blue Line’s station neighborhoods. Being populated mostly by minority and immigrant residents these neighborhoods were also lacking the political clout and ability to voice their opinions in public hearings or demand more resources. Finally, *economic problems* such as the high cost of land near stations combined with a general lack of development incentives frustrated development along the line.

The Blue Line corridor represented a clear case of lacking preconditions or missing antecedents for TODs. These included: 1) the back door location of many stations, which are located in the industrial backlot of metropolitan Los Angeles, away from the center of communities; 2) an absence of a critical mass of density near station areas; 3) a lack of



a good interface with other transportation modes that led to the poor accessibility of many stations; 4) pedestrian unfriendly stations lacking good pedestrian connections to the surrounding neighborhoods; 5) a lack of an overall urban design framework or vision for station area development; 6) a landscape of deprivation in the immediate station neighborhoods and a general lack of desirable neighborhood amenities; 7) regulatory barriers such as antiquated zoning and a lengthy permitting process; 8) lack of institutional commitment and missed opportunities for land acquisition and joint development from the part of municipalities and transportation agency; and 9) a lack of community involvement and participation in the planning process.

Indeed, when the Blue Line was built, municipalities seemed unprepared or unconcerned with planning for development in adjacent sites. This stymied opportunities for development around its stations. Since that time, however, municipalities have learned from past mistakes and have become increasingly eager to make TODs happen by specifically

planning for them and offering development- and financial incentives. In anticipation of the Gold Line, for example, the city of South Pasadena created a master plan for not just the station site but for the whole Mission District, awarding additional density entitlements if the developers allowed for a mixture of uses and provided public parking near the station. The city also raised a total of \$5 million funds from different sources to subsidize the Mission Meridian project. Seeking to maximize development opportunities by increasing allowable densities around its station areas, the city of Pasadena also prepared plans in anticipation of the Gold Line, and reduced parking requirements for developers building near stations.

In the years that separated the construction of the two lines many municipalities realized that growth and development around station areas does not simply happen by the mere presence of the transportation network. There is a need for a plan and a vision for the station area combined with incentives for TODs.

Pressing Issues, Pressing Trends

Pressing issues and trends in the Southern California region have forced many municipalities to start considering ways of accommodating urban growth and its associated effects. During the thirteen years that separated the inauguration of the two light rail lines, drastic demographic, economic, and environmental transformations took place in the region, which made the visioning of an alternative urban form necessary and urgent. For one, population size has reached 9.5 million in Los Angeles County alone, and according to SCAG projections, is expected to grow by 30% by 2025. If cities are to continue to accommodate Southern California residents into the single-family homes that are dotting the region's landscape, they would have to keep pushing the urban boundaries ever outwards, leapfrogging into farmland and extending



the urban sprawl. Also importantly, the region's changing demographics, which include a growing share of Latino transit-dependent households and more older people often willing to consider alternatives to the suburban single family housing, are likely to generate more demand for TODs.

Second, the supply of housing in the region fell far short from meeting consumer demand, while housing prices skyrocketed. Median home prices generally doubled over the span of four years, from 2001 to 2005, and housing affordability reached a record low in 2005. These trends mean of course that an increasing share of households can no longer afford the singly-family home of the American dream. Different and more affordable housing options should be made available that may include duplexes, town homes, apartments, and condominiums.

Third, the region reached the dubious record of the worst traffic congestion in the nation. Traffic gridlocks are now a daily occurrence

on Southern California freeways and surface streets. It comes as no surprise that transportation emerged as the top concern of residents in the Southern California Public Opinion survey. Urban housing in close proximity to jobs and retail opportunities has become a desirable option for urbanites wishing to avoid long commutes and the accompanying exposure to traffic congestion. In Los Angeles County, for example more than half of the residential building permits issued in 2005 were for multi-family housing.

Fourth, solo driving has also become much more expensive in recent years. Since 2001 gasoline prices have doubled from \$1.60 to \$3.20 per gallon. Having more transportation options, including walking and riding the bus or the train, is becoming quite appealing for a number of households. While the private car still remains the undisputed travel mode of choice for most households in the region, transit has increased its share. Indeed the region experienced a record high of 672 million transit boardings in 2005.

Finally, concerns about the region's air quality and the effects of global climate change are worrisome for Southern Californians who placed the environment as their third most important concern in the Southern California Opinion Poll. The region's excessive reliance on the automobile means that residents use more energy for transportation (about 40%) than for other activities. The burning of fossil fuels from automobile emissions, therefore, contributes greatly to its air quality woes. Indeed, the South Coast Air Basin has some of the worst air quality in the nation.

The aforementioned demographic and economic realities, trends, and concerns have expanded the market for TODs and have encouraged or forced a larger segment of the public to seek alternative ways of living beyond the single-family house.

Regional Response: An Enabling Policy Environment

When we studied the reasons for the lackluster effect of the Blue Line on its adjacent neighborhoods we observed a lack of institutional will and initiative. We emphasized the need for regional thinking and public sector involvement, commitment, and support. Today, this seems to be happening at different scales.

California voters have approved Proposition 1C, a \$2.8 billion bond for affordable housing that includes \$300 million for a TOD implementation program. This is supposed to provide grants for municipalities and transit agencies to build the necessary infrastructure that can make TODs feasible. An additional provision of Prop 1C is the availability of loans for mixed-use, housing, and commercial developments within one quarter mile of a transit station. The California Department of Housing and Community Development with the help of MPOs including SCAG are in the process of drafting program guidelines to implement the provisions of such a TOD program.



In Southern California, SCAG has initiated the Compass Blueprint 2% strategy that envisions the direction of future development in strategic opportunity areas that do not exceed 2% of the region's land resources. A significant part of this development is anticipated to happen around transit hubs, railway stations, major bus stations, and along transit corridors. More importantly, the large scale visioning process initiated by Compass educates sub-regional and local stakeholders about the necessity of alternative types of development that are more compact and sustainable. The combined effect of these actions at the state, regional, and municipal levels creates an enabling policy environment which was absent a decade ago. It comes as no surprise that developers are responding.

A Changing Mindset of Developers

Indeed, today some of the initial fears that developers and lending institutions had for TODs have been appeased and a significantly higher number of development projects are being planned and built around transit stations and along transit corridors than in the late 1980s and 1990s. For quite long, developers were reluctant to build TODs because they perceived them as only attractive to a narrow market segment: singles, young professionals, and 'empty nesters.' For one, this market segment is by no means small, as national trends have indicated. Indeed, by 1980, only 30% of the US households were dual-career couples with children. Specifically along the Gold Line corridor, 38% of the households are composed of only one person, according to the 2000 Census. Talking to developers who built along the Gold Line corridor we found that they now target a significantly larger market segment that also includes different age groups of families, seniors, two-income households, and single-income earners. Developers attributed this widening of the market to a rising demand for an alternative way of living generated by the aforementioned pressures. Additionally,

developers seem to appreciate the enabling policy environment that includes development incentives such as increased floor-area ratios (FARs), reduced parking ratios, relaxed open space requirements, and sometimes public sector subsidies. Importantly, these developers and their architects now see a good potential for TODs, acknowledging the demand for more affordable homes, schools, and offices in the metropolitan core instead of the edge cities.

Tensions and Challenges

While a number of motivations give incentives to municipalities and developers to pursue more compact and higher density development around transit stations and along transit corridors, a number of tensions and contradictions still remain. A first concern has to do with the difficulty of changing a long-standing urban form dominated by low-density, single-family uses. When TODs are developed in and around established residential neighborhoods, we often witness tensions between integrating the broader TOD goal of higher density dwelling and the desire of communities to maintain the character of their existing built form. This creates a design challenge of how to make higher





density look less dense, as well as a broader challenge of “bringing the public along” to share the TOD concept.

Another tension exists between the desire for pedestrian uses and market realities. In some cases the commercial uses that cities or developers are interested in attracting cannot afford the high rents in these districts. In other cases, municipal desires for tax revenue may encourage certain uses or a mix of uses that interferes with creating the best mix of uses (pedestrian-oriented and transit friendly) for a TOD.

For residential units, high rents and sale prices in some TOD areas mean that units are more likely to be occupied by more affluent households with multiple cars and not by those who are transit dependent. Indeed, a recent LA Times article claimed that residents of many TOD projects in the region do not use transit. This creates an ongoing tension for transit agencies, planners, and city council members who want TODs to provide a resource for those who need it, to boost transit ridership,

and lessen automobile use. At the same time, the introduction of high density development in a neighborhood without a simultaneous modal change from driving to walking, biking, or riding transit is likely to increase traffic congestion in the immediate area, a concern raised by many critics of high-density projects. Thus a tension arises between the short term impact of TODs, which may indeed generate more vehicular traffic in their localized areas because of the increased density, and their anticipated long-term impact which will hopefully reduce the regional VMT by giving more people good access to a well-coordinated and improved transit system.

Another important tension emerges around parking requirements for TODs. It is difficult to strike the right balance between providing enough parking for residential and commercial tenants and customers who own cars and/or access the area by car, while accounting for those who access the site by rail and encouraging more people to do so. Too much parking might prompt people to drive when they could just as easily ride the train, whereas too little parking may frustrate residential and commercial tenants. The parking paradox poses a number of difficult dilemmas for planners and cities. Municipal decisions about residential parking requirements may contribute to how quickly new and existing residents choose transit use over car use. At the same time, some developers are concerned about the marketability of their project if it does not have the “right amount” of parking.

The decision of whether to provide development incentives or to impose development fees and other requirements represents a delicate balance with market forces in a given station area. Finding the right balance between “carrots and sticks” is important for cities. Incentives such as density bonuses, higher FARs and building heights, and decreases in parking requirements allow developers to improve the profitability



of their developments. Certain development fees and requirements such as for affordable housing or open space can give cities important amenities but may also serve as disincentives for development.

Building around transit stops and along transit corridors faces four types of challenges in Southern California: 1) *Procedural/Planning challenges* that impede the process of development causing, tension, delays, and money include the difficulties of coordination among the multiple parties involved and the complexity of building joint development and infill projects; 2) *Economic/Market challenges* include the high cost of land and construction, and certain ill-conceived ordinances that make developments more expensive or reduce the developable square footage of a site; 3) *Cultural/Perceptual challenges* relate to the negative attitudes held by various communities towards higher densities; 4) *Physical/Environmental challenges* include the noise from the trains and the technical difficulties of building very close to a transit line.

Addressing the Challenges

At this time in the region's history a lot seems to work in favor of development around transit: A willingness from the part of municipalities to encourage TODs, a regional vision that strives to focus development around strategic points, an enabling policy environment that favors and funds TODs, a changing mindset from the part of developers who discover an increasing market for TOD projects, and pressing environmental and transportation concerns in the region which are prompting some to desire alternative living conditions. Still certain challenges and tensions remain and the following suggestions respond directly to them.

Plan stations near people and activities

Good planning for TODs begins with the planning of the transportation line. A good location is the most important attractor to and motivation for building at a particular site. Therefore, choosing a good station location is crucial to stimulating development. As the failure of the Blue Line to stimulate development poignantly shows, stations should be located at or in close proximity to the "front door" of communities, near other urban amenities and existing nodes and hubs of activity, such as schools, parks, and retail.

Pre-plan for TODs

The Gold Line example shows that municipalities that preplan for TODs in anticipation of a transit line are in a better position to attract developers and projects in their jurisdiction. The development of transit overlay zones that extend $\frac{1}{2}$ mile around transit stations and have defined guidelines and incentives for TODs can be extremely helpful to a) ensure that a city's vision and goals will be followed; b) minimize uncertainty for developers, letting them know beforehand

what to expect from the city and what the city expects from them; and c) streamline the development process thus reducing time costs.

Educate and involve the public

Extensive education of the public about the potential benefits of TODs is especially important during this transitional period where transit use is not yet part of the region’s culture. While community meetings are important venues for developers to learn about and respond to community concerns, it is necessary to begin the public conversation early. Ideally, a shared community vision can be formulated prior to the designation of a transit-oriented district as part of proactive public sector planning in anticipation of a rail line. Municipalities should also compile an inventory of “best practices” as good examples of high-density developments that make a smooth transition to the existing urban fabric. Finally, TODs are more likely to be welcomed if they increase the kinds of housing options available. Well-designed and centrally located TOD projects with smaller but more affordable units (condos, apartments, and lofts) can be appealing to those who are currently excluded from the single-family housing market.

Develop strong public/private partnerships

TODs provide opportunities for joint development agreements and cost-sharing projects (such as parking structures, public plazas, etc.). The development of strong partnerships between municipalities, transportation agencies, and MPOs on the one hand, and the private sector on the other, can help reduce the cost of TOD projects and also ensure desirable amenities. The cost for developers can be reduced if cities streamline the development processes of TODs allowing developers to build “by right” if they comply with all requirements of a transit overlay zone. Cities may also consider exploring the idea of a “Global EIR” that could apply to all projects within the TOD overlay

zone which comply with the requirements of the zone. Cities can also underwrite the cost of environmental mitigation of contaminated sites, identify empty or underutilized sites and help convert them to developable lots.



Achieve better coordination among different public entities

Frequently the involvement of different public agencies and actors with different requirements, goals, expectations, and levels of authority, frustrates TOD projects and stymies opportunities for regional thinking. For this reason the establishment of a *Corridor Coordinating Council* as a Joint Powers Authority consisting of high-level representatives from all different public sector agencies involved in corridor development can help establish a corridor-level TOD vision and set goals that promote successful projects.

Find the right balance between “carrots and “sticks”

Development fees and other requirements can bring desirable amenities to a jurisdiction (e.g. open space) but if they prove too burdensome they may scare developers away. It is very important that cities constantly monitor the balance between incentives and requirements (the carrots and sticks of development) weighing the condition of the economy and other market forces, the development potential and desirability of the site for developers, as well as whether a developer owns the land or only has an option to it.

Actively recruit pedestrian-oriented, transit-friendly uses

The ideal of a transit village with pedestrian-oriented and transit-friendly uses, neighborhood retail, galleries, drug stores, bakeries, and coffee shops generating foot traffic cannot be realized if such commercial tenants do not have the financial means to rent space in new developments. Developers, who are always interested in maximizing profit, are likely to opt for larger commercial tenants (banks, furniture stores, warehouses, etc.). Therefore, the public sector should play a crucial role in identifying and attracting desirable commercial tenants. In certain cases, cities may consider offering tax incentives or even rent subsidies (for the first few years) to help create a critical mass of desirable pedestrian-oriented tenants.

Find a solution to the parking dilemma

Cities can follow a number of approaches to address the parking dilemma for TOD projects that would include a) decoupling parking from residential development and giving residents the option of purchasing a unit with or without parking; b) developing maximum parking standards for TODs; c) exploring the potential for shared

parking; and d) allowing developers to satisfy parking requirements by leasing parking spaces in adjacent structures.

Make transit more appealing

The last recommendation is also the most important. Part of the appeal of TODs for cities is the expectation that they will help switch many motorists to transit riders. This, however, will not take place if transit is inconvenient. Buses and trains should be reliable, safe, affordable, and convenient in linking points of origin to destinations. Good multimodal linkages should connect transit stops to the neighboring areas. To incentivize ridership, cities and developers may consider offering free weekend rail passes and monthly passes at reduced cost as well as free shuttle rides connecting stations to neighborhoods.

Conclusion

By concentrating development in selected areas near transportation corridors, expanding the supply of housing, and offering convenient transit as a modal choice, TODs have the potential to help reduce traffic congestion, improve environmental quality, and enhance housing supply and affordability in the region. Such developments cannot of course happen overnight as it takes time for people’s preferences and behavior to change and for a transit system to mature. Thus, quick assessment of the effectiveness of recent TOD projects in reducing congestion or boosting transit ridership seem to be rather premature. While TODs are certainly not a panacea for the region’s problems they are, nevertheless, an indispensable component of an overall strategy to address its chronic traffic challenges and also accommodate growth in ways that preserve its long-term sustainability.



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CA 43438



octa
YOUR WHEELS

480

BUS
PARKING

The total transit boardings in the region in 2006 reached 737 million, a record high since 1990.

Transportation

Journey to Work: Mode Choices

Why is this important?

Single-occupant vehicle use accounts for the highest level of land consumption among all transportation modes. It also generates the highest level of environmental, economic and social impacts. Increasing the use of alternative modes to work (e.g., carpool, transit, etc.) is critical to accommodate future growth with less environmental, economic and social impacts.

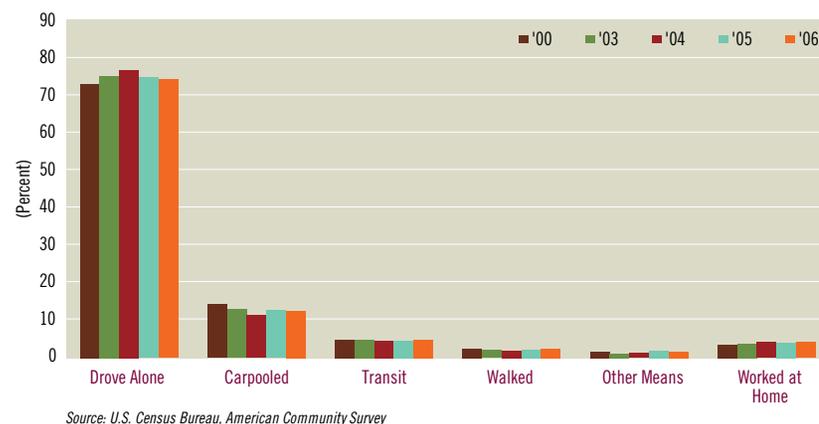
How are we doing?

Between 2004 and 2006, the share of drive-alone commuting in the region decreased for two consecutive years from 76.7 percent to 74.1 percent, a 2.6 percent drop reversing the trend of steady increases between 2000 and 2004 (Figure 58). During the same period, the share of alternative



modes for commuting increased from 23.3 percent to 25.9 percent, reversing the trend of a steady decline between 2000 and 2004. Alternative modes encompass all modes except drive alone, including, for example, carpool, transit, walking, biking and work at home. This was similar to the trend at the national level though the magnitude of decrease in drive-alone share was larger in the SCAG region (Figure 59). The sharp rise of gasoline prices seemed to contribute to these reversals in the region and the rest of the nation (as further discussed in the Highway Use and Congestion Section below).

Figure 58
Mode Choice to Work
(Workers 16 Years and Over)

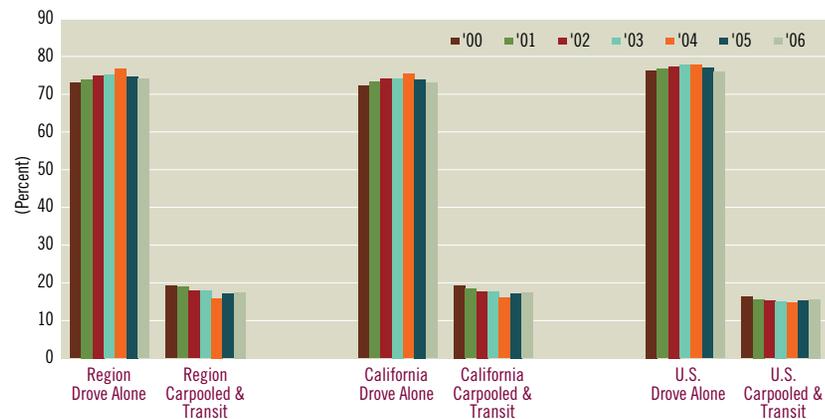


It should be noted that the region's carpool share of commuting, though rising from 11.4 percent to 12.6 percent between 2004 and 2006, was still well below the 2000 level at 14.3 percent. Nevertheless, among the nine largest metropolitan regions in 2006, the SCAG region continued to achieve the highest share (12.6 percent) of workers who car-pooled to work followed by the Dallas region (12 percent).¹ The SCAG region has had the highest carpool share since 1990. Among those who

carpooled, most (close to 80 percent) were in a 2-person carpool, and the remaining 20 percent were in 3-or-more-person carpools.

Figure 59

Mode Choice to Work - Drive Alone, Carpool, and Transit
(Workers 16 Years and Over)



Source: U.S. Census Bureau, American Community Survey

Within the region, carpool share of commuting increased in every county between 2004 and 2006. The Inland Empire led the region in carpool share in 2006 with Riverside County achieving the highest at 16.7 percent (a 2.6 percent increase from 2004) and San Bernardino at 14.2 percent.² In 2006, the SCAG region maintained the most extensive High-Occupancy Vehicle Lane (HOV) system, accounting for more than 20 percent of the total HOV lane miles in the nation.

Between 2004 and 2006, the transit share of commuting in the region increased from 4.5 percent to 4.9 percent, the highest since 2000. In addition, 4.2 percent of workers in the region worked at home instead of commuting to a workplace, though about the same as in 2004 also the highest since 2000.

Journey to Work: Travel Time

Why is this important?

Though the share of work trips among total trips has been declining, work trips continue to generate disproportionately higher impacts on the regional transportation system. Work trips tend to take longer than other daily trips. In addition, commute hours are generally the period with the most traffic congestion. Accordingly, transportation investments are still influenced significantly by the nature of work trips. Finally, the choice of residential location is partly determined by the location of work and the associated journey to work.

How are we doing?

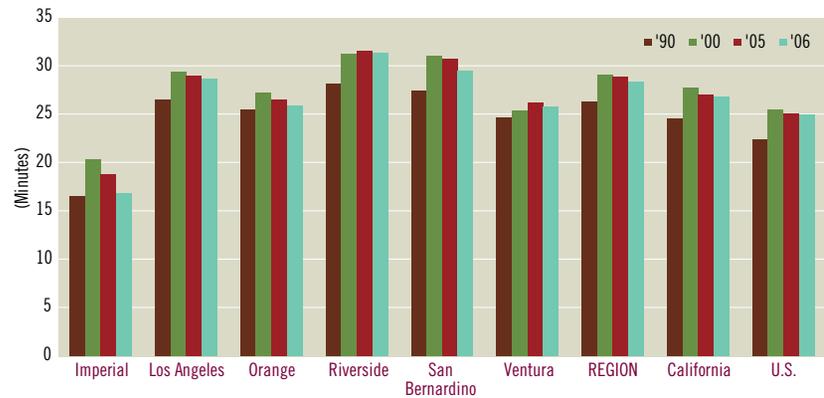
Between 2005 and 2006, average travel time to work in the region declined very slightly from 28.9 minutes to 28.4 minutes though it continued to be higher than the state (27 minutes) and national (25 minutes) averages. Within the region, average travel time fell slightly in every county. In 2006, workers in Riverside County continued to have the highest average travel time to work in the region at 31 minutes followed



by San Bernardino County just below 30 minutes, while Imperial had the lowest at 17 minutes (Figure 60).

Figure 60

Average Travel Time to Work



Source: U.S. Census Bureau, 2000 Census, 2005 and 2006 American Community Survey

Transit Use and Performance

Why is this important?

Use of public transit helps to improve congestion and air quality and decrease energy consumption. Reliable and safe transit services are essential for many residents to participate in economic, social and cultural life in Southern California. Annual transit boardings measures transit use at the system level, while transit trips per capita provides a measure of transit use at the individual level.

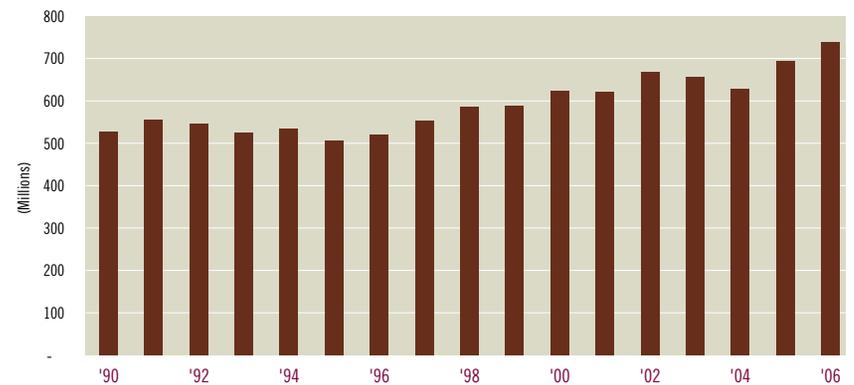
How are we doing?

Total transit boardings in the region in FY 2006 (from July 2005 to June 2006) increased by 44 million (6 percent) to a record high of 737 million since 1990 (Figure 61). This was primarily due to the continuing growth

of the Los Angeles County Metro transit system ridership. It was also facilitated by the surge in gasoline prices that resulted in some shift from private auto to transit use. The Metro system accounts for about two-thirds of the regional total in transit boardings. During FY 2006, the Metro transit system (including bus and rail) achieved an increase of 38 million (7 percent) to reach total boardings of 493 million.

Figure 61

Transit Boardings - All Major Operators

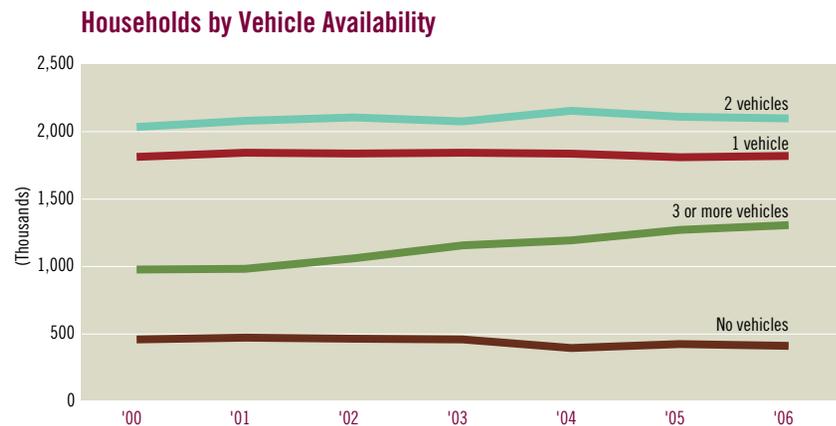


Source: National Transit Database and SCAG including preliminary estimates for 2006 data



The increase in transit boardings took place despite a reduction in the transit dependent households (i.e. households without a car) in the region. Between 2000 and 2006, the number of households without a car decreased from 459,859 (10.1 percent) to 411,824 (7.3 percent) (Figure 62 and 63). This is consistent with the trend at the state and national levels.

Figure 62

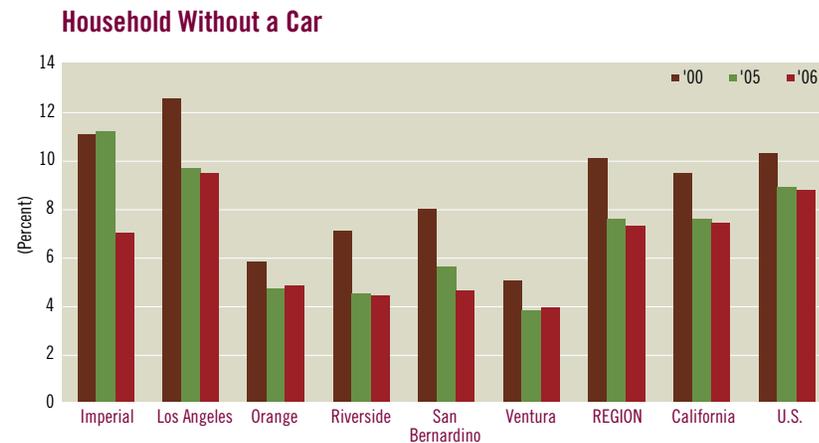


Source: U.S. Census Bureau, American Community Survey



Within the region, every county saw its share of transit dependent households decreasing from 2000 to 2006. Los Angeles County continued to have the highest share of households without a car at 9.5 percent while Ventura the lowest at only 3.9 percent.

Figure 63



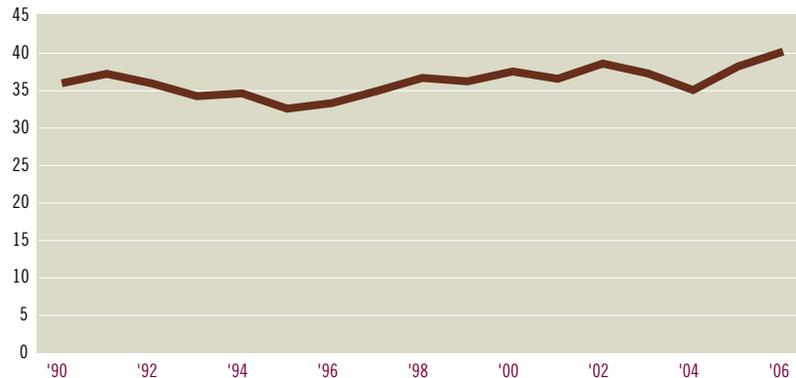
Source: U.S. Census Bureau, 2000 Census, 2005 and 2006 American Community Survey

In addition to the Los Angeles County Metro system, a few other transit systems also experienced boarding increases. For example, total boardings of the Orange County Transportation Authority transit system rose from 66 to 69 million (4 percent) between FY 2005 and FY 2006. In addition, Metrolink also accomplished a 9 percent gain for the second consecutive year to reach 11.7 million boardings in 2006.

Between 2005 and 2006, since transit boardings in the region increased at a much faster rate than the population, transit trips per capita increased from 37 in FY 2005 to 40 in FY 2006, which was the highest since 1990 (Figure 64). Nevertheless, transit use accounted for only about 2 percent of all trips in the region. Major barriers to further transit system development and higher transit use include an

auto-oriented urban structure, inadequate level of service and a lack of geographic coverage (or insufficient destinations).³

Figure 64
Transit Boardings Per Capita



Source: California Department of Finance, National Transit Database

Highway Use and Congestion

Why is this important?

Highway congestion causes delays affecting personal mobility and goods movement and results in increased economic and social costs. In addition, congestion impacts the region's air quality. The number of vehicle miles traveled (VMT) indicates the overall level of highway and automobile usage, and is directly related to mobile source emissions.

How are we doing?

For at least the past two decades, Southern California has been consistently experiencing very high levels of congestion. Contributing factors include large population and physical extent of the region, rapid population growth, high automobile dependence, low levels of transit

usage, and a maturing regional highway system with limited options for expansion.

Larger metropolitan regions generally have higher levels of congestion than smaller metropolitan regions. The SCAG region has also consistently been growing faster than the rest of the nation. The dispersed development patterns with imbalanced jobs and housing in the region result in transit services less effective and continued reliance on private automobiles. Currently, less than two percent of the total person trips use transit. Among the nine largest metropolitan regions in the nation, Southern California had one of the highest dependence on automobiles despite of having the lowest per capita income. The region's highway system is a maturing system with limited options for expansion. This is particularly true for southern Los Angeles County and Orange County. For example, 95 percent of the Orange County's planned arterial network has already been built.⁴

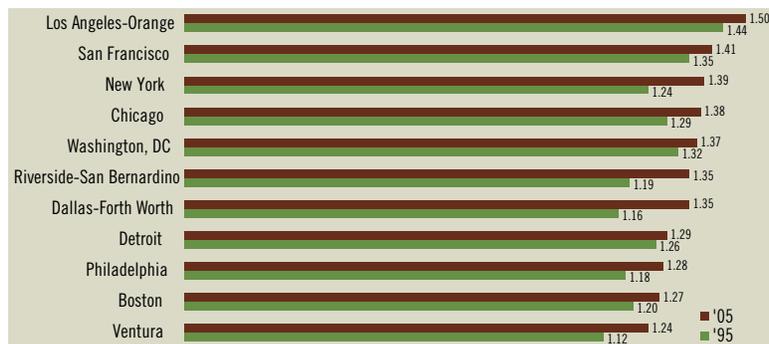
As a major gateway for international trade, the region's highways carry some of the highest truck volumes and share some of the most congested bottlenecks for trucks in the nation.⁵ For example, I-710, which feeds trucks directly to and from the ports, and the I-605 and SR 91, carry as much as 40,000 trucks on an average weekday.

The SCAG region (particularly Los Angeles and Orange counties) regularly ranks as the most congested metropolitan region in the nation.⁶ Congestion level is measured by indicators such as travel time index or annual delay per traveler. For example, in 2005, a traveler in Los Angeles/Orange counties during the peak period spent 50 percent more time than if traveling at free-flow speed. At 1.5 in 2005, Los Angeles/Orange counties had the highest travel time index among the nation's metropolitan areas (Figure 65). The San Francisco Bay Area had the second highest at 1.41. Riverside/San Bernardino counties ranked 6th

highest with an index of 1.35 in 2005. Ventura County, with a travel time index of 1.24, ranked 27th among all metropolitan areas and second among medium-sized metropolitan areas. Nationally, congestion has grown in every metropolitan area regardless of size but has been most severe within the largest metropolitan areas.

Figure 65

Peak Period Travel Time Index*
(by Metropolitan Area)



* Travel time index is the ratio of peak period travel time to free flow travel time.
Source: Texas Transportation Institute

Though Los Angeles/Orange counties had the nation's highest congestion level, their travel time index increased little between 1995 and 2005, while other metropolitan areas generally experienced much larger increases in congestion levels. During this period, the travel time index in Los Angeles/Orange counties rose very slightly from 1.44 to 1.5, while it increased from 1.24 to 1.39 in New York and from 1.16 to 1.35 in Dallas. Significant investment in transit (e.g., the Red Line and light rails) and HOV system since 1990 contributed to the slower increase in congestion level in Los Angeles and Orange counties. The travel time index in Riverside/San Bernardino counties increased from 1.19 to 1.35 during the 10-year period.

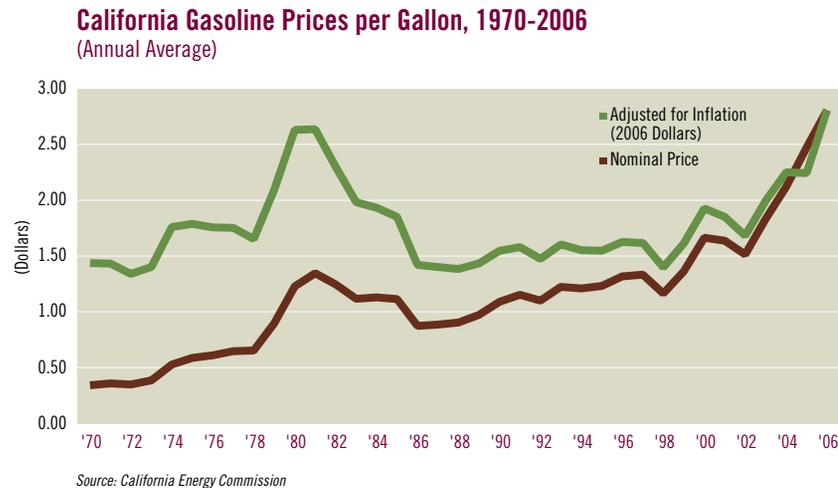
In 2005, a traveler in Los Angeles/Orange counties during the peak period experienced a total delay of 72 hours, the highest among all metropolitan areas (see Figure 135 page 151). For Riverside/San Bernardino counties, the total delay for a peak period traveler was 49 hours, the 6th highest, and 39 hours for Ventura County. Close to half of the delay resulted from incidents. Total cost incurred due to congestion in the SCAG region was over \$10.5 billion in 2005, significantly higher than any other metropolitan region (see Figure 136 page 152).

Gasoline price is an important factor influencing the amount of vehicle travel and the associated fuel consumption. Between 1970 and 2006, annual average gasoline (nominal) prices increased from 35 cents to \$2.80 per gallon (Figure 66). With inflation adjustment based on 2006



dollars, real gasoline prices doubled from \$1.40 to \$2.80 during the same period. During the 36-year period, real gasoline prices generally stayed below \$2 per gallon (and mostly fluctuated around \$1.50) with the exception of two periods: the last energy crisis in the late 1970s and early 1980s and the recent price run-up since 2002. Real gasoline prices were below \$1.70 per gallon in 2002 but have been increasing about 15 percent per year reaching \$2.8 in 2006. This surge continued into 2007 reaching a new high of \$3.20 (2007 dollars) per gallon in mid 2007 before declining somewhat to around \$2.90 per gallon in fall 2007. Gasoline price changes are correlated with the world prices of crude oil, because crude oil represents a large percentage of the final price of gasoline.

Figure 66



An average gasoline price at \$2.80 in 2006 was the highest between 1970 and 2006 and began to have some impacts on the commuters' mode choices and total vehicle miles traveled. From 2004 to 2006, there was a notable decline in the region's drive-alone commuting from 76.7 percent to

74.1 percent, reversing the trend of a steady increase between 2000 and 2004. During the same period, the share of alternative modes for commuting increased from 23.3 percent to 25.9 percent, reversing the trend of a steady decline.

In addition, between 2005 and 2006, total VMT grew slightly about 0.8 percent, lower than either the population growth (1.2 percent) or job growth (2.2 percent)(Figure 67). Total VMT in 2006 was about the same level as in 2004. It should be noted that historically, the rate of VMT growth was much higher than that of population growth. Finally, VMT per household in the region actually declined for two consecutive years between 2004 and 2006 (Figure 68).



Figure 67

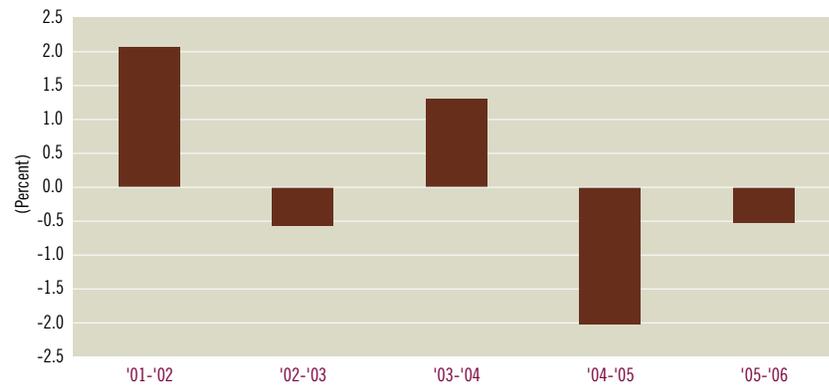
Growth of Vehicle Miles Traveled (VMT) vs. Population
(2000 as the Base Year = 100)



Source: California Department of Transportation

Figure 68

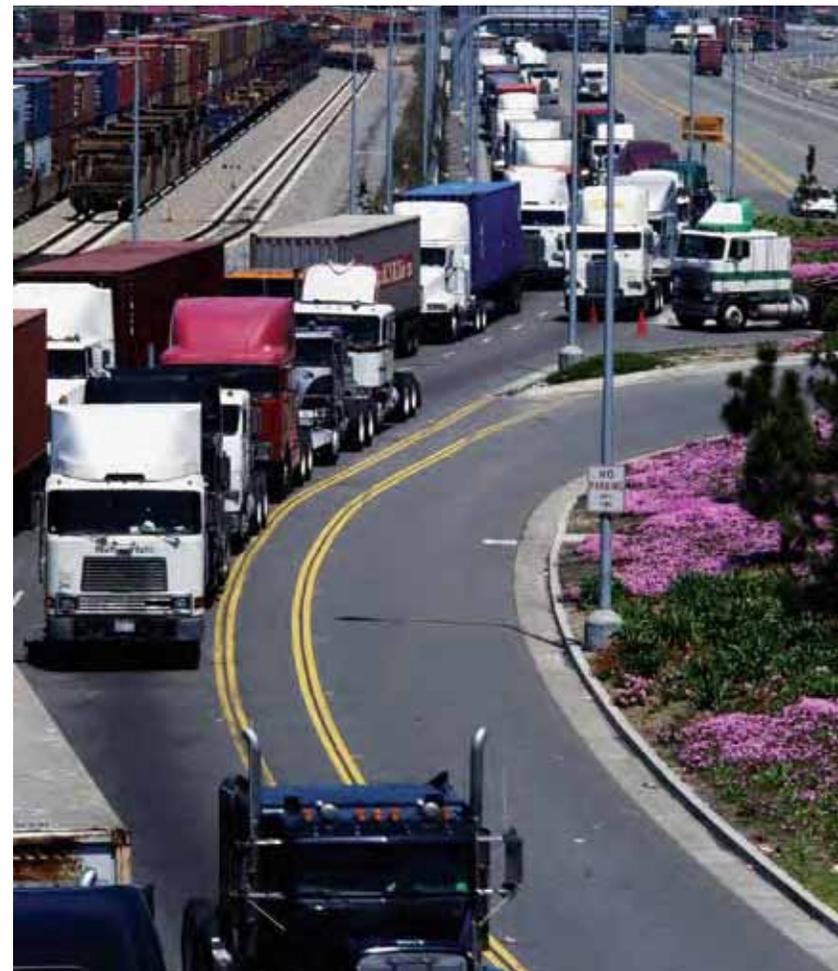
Vehicle Miles Traveled (VMT) per Household
(Percent Change)



Source: California Department of Finance and Department of Transportation

Impacts of Truck Through-Traffic on Congestion in the Region

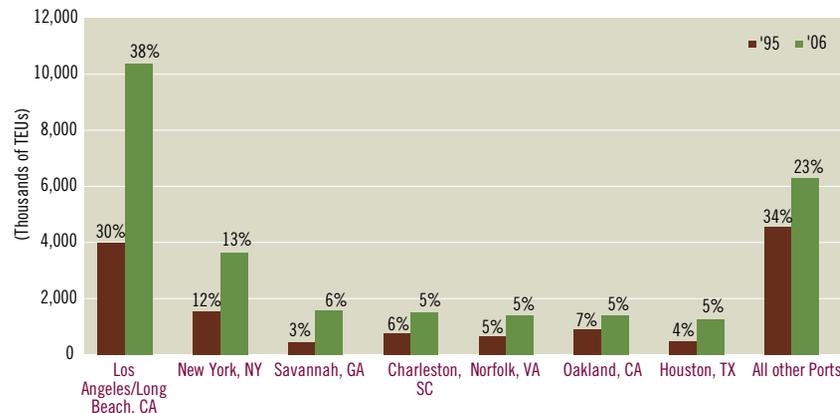
The SCAG region has the largest container port complex in the nation. During the past 10 years, the San Pedro Ports of Long Beach/Los Angeles have further increased their dominance. Port-related international container traffic has achieved double-digit growth yearly for more than a decade. Between 1995 and 2006, total number of international



(loaded) container traffic at the twin ports increased from about 4 million to 10.4 million TEUs (twenty-foot equivalent unit), the highest in the nation. The share of the region's container traffic also expanded from 30 percent to 38 percent of the national total during the same period. Ports of New York and Savannah (Georgia) ranked second and third, with only 13 percent and 6 percent share respectively in 2006 (Figure 69).

Figure 69

Port International (Loaded) Container Traffic
(Thousands of TEUs and Share of the National Total)

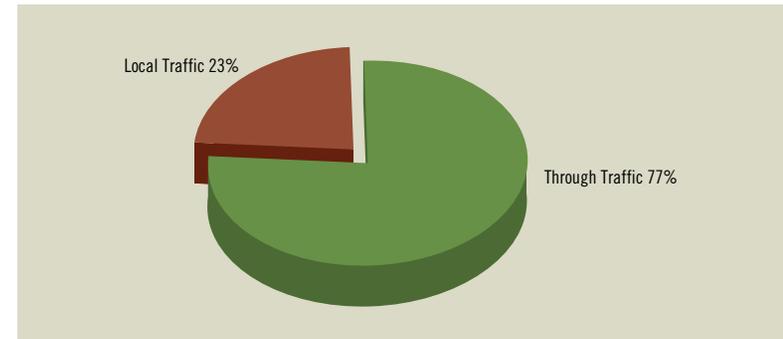


Source: Port Import/Export Report Service

Among the port container-related freight traffic in the region, about 77 percent were estimated to be through traffic, i.e. with final destinations outside the region (Figure 70).⁷ Among the metropolitan areas in the nation, the SCAG region ranked first in terms of the value of outbound shipments originating within a metropolitan region.⁸ The Chicago region ranked second but with only 60 percent of the value of outbound shipments when compared to the SCAG region.

Figure 70

Port Container-Related Freight Traffic in the SCAG Region



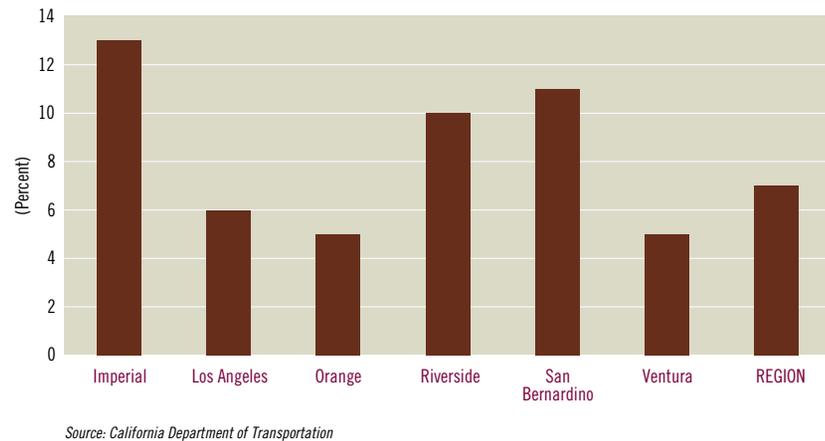
Source: Estimates based on the Draft Multi-County Goods Movement Action Plan

In 2006, truck traffic accounted for 7 percent of the total VMT in the region. However, truck VMT share varied among counties (Figure 71). Specifically, the three inland counties had significantly higher truck VMT share than the coastal counties, ranging from 10 percent



in Riverside County to 13 percent in Imperial County. For the three coastal counties, truck VMT shares were between 5 and 6 percent. Trucks are much larger, heavier and accelerate more slowly than passenger vehicles, and thus have much greater impacts on traffic flows than passenger vehicles. On a flat terrain, a heavy duty truck could be equivalent to 2.5 passenger vehicles in its impact on the capacity. As trucks travel up a grade, their speeds decrease and impacts on congestion become even more severe. *Consequently, the truck VMT share statistics underestimate their actual impacts on traffic congestion in the region.*

Figure 71
Truck VMT Share, 2006



Due to the significant increase in international trade, truck VMT has also been growing at a much faster rate than passenger VMT. Between 2000 and 2006, truck VMT grew 14 percent, doubling the rate of passenger VMT growth at 7 percent (Figure 72). By 2035, total truck VMT in the region are estimated to almost double the current level.

Figure 72
VMT Growth - Passenger vs. Truck, 2000-2006



Though two-thirds of the truck VMT take place during the off-peak period, there are various freeway segments in the region that carry heavy truck volumes during the peak periods (i.e., from 6 to 9 a.m. and 4 to 7 p.m.). Due to the location of the San Pedro port complex, those segments are located in the central part of the regional transportation system, and tend to generate disproportionate impacts than otherwise. For example, the I-710, SR-60, and I-15 freeways are heavily impacted by trucks now and will become even more congested in the future. The SR-60 Corridor between I-710 and I-15 is one of the most heavily used freeways by trucks engaged in inter- and intra-regional goods movement, serving both port and domestic traffic. I-15 is the primary freight corridor between Los Angeles and the states to the north and east.⁹

In the region, the most significant goods movement patterns are east-west within Los Angeles County. The spin-off patterns include, for example, travel to and through Riverside and San Bernardino counties and other points eastward. The second most significant goods move-

ment patterns are north-south within Los Angeles County between the ports and intermodal yards and warehouse distribution centers.¹⁰

Highway Fatalities

Why is it important?

Highway accidents are the leading cause of death for people between the ages of 4 and 33.¹¹ Highway fatalities at 42,642 deaths in 2006 nationally accounted for about 95 percent of transportation-related deaths. Highway accidents and other incidents also accounted for more than 40 percent of the total annual delay of the region's highway system.

How are we doing?

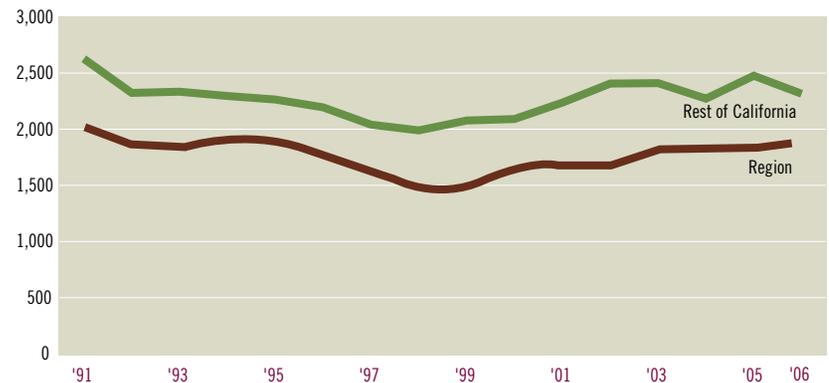
In 2006, motor vehicle crashes in the region resulted in 1,881 fatalities (about 5 deaths per day), a slight increase (3 percent) from 2005



(Figure 73). For the rest of California, total number of highway fatalities of 2,316 in 2006 represented a 6 percent reduction from 2005. At the national level, total number of highway fatalities fell slightly from 43,200 deaths in 2005 to 42,642 deaths in 2006, about a 1.3 percent decrease.¹²

Figure 73

Highway Accident Fatalities

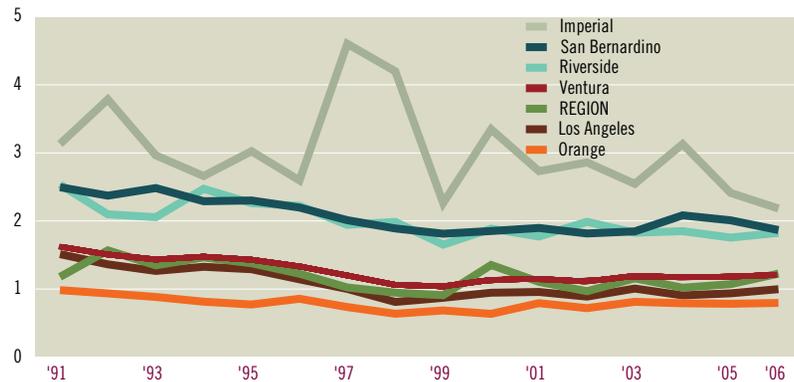


Source: California Highway Patrol with 2006 preliminary data

Within the region, Imperial County reduced its highway fatality rate noticeably in 2006. Between 2005 and 2006, highway fatality rate also decreased in San Bernardino County while the remaining four counties experienced slight increases (Figure 74). In 2006, the region's highway accident fatality rate at 1.21 persons per 100 million vehicle miles traveled was higher than the national average for urban areas (0.94 persons per 100 million vehicle miles traveled). The highway fatality rate in the region in 2006, though about the same as in 2005, was the highest since reaching its lowest level in 1998. However, the fatality rate in 2006 was about 25 percent below the 1991 level (1.62 persons per 100 million vehicle miles).

Figure 74

Highway Accident Fatalities
(Per 100 Million Vehicle Miles Traveled)



Source: California Highway Patrol with 2006 preliminary data and California Department of Transportation

Airports

Why is this important?

Air transportation is vitally important to the regional economy of Southern California. Because of its geographical location, Southern California relies heavily on air transportation services to access and interconnect with domestic and foreign markets. For example, airborne exports accounted for almost 46 percent of the total value of commodity exports out of the Los Angeles Customs District (LACD) in 2006.¹³ Adequate aviation capacity and quality services are essential to the tourism, business, and trade sectors of the regional economy.

How are we doing?

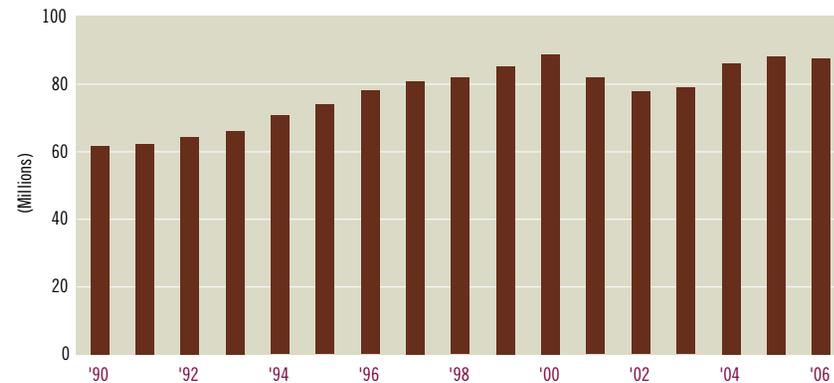
Total air passengers in the region in 2006 experienced a very slight decrease of 0.6 million (0.7 percent) reaching 87.7 million. This was the first decline since 2002. Contributing factors included higher air fares

due to a sharp rise in fuel prices as well as reductions in the number of flights. Total air passengers in 2006 was still somewhat below the 2000 (pre-September 11) record level of 89 million (Figure 75).

Among the 87.7 million passengers, about 70.6 million (or 80 percent) were domestic while 17.1 million (or 20 percent) were international. At Los Angeles International (LAX), the share of international passenger traffic has been increasing from 25.8 percent in 2000 to 27.7 percent in 2006.

Figure 75

Air Passenger Traffic at Major Regional Airports

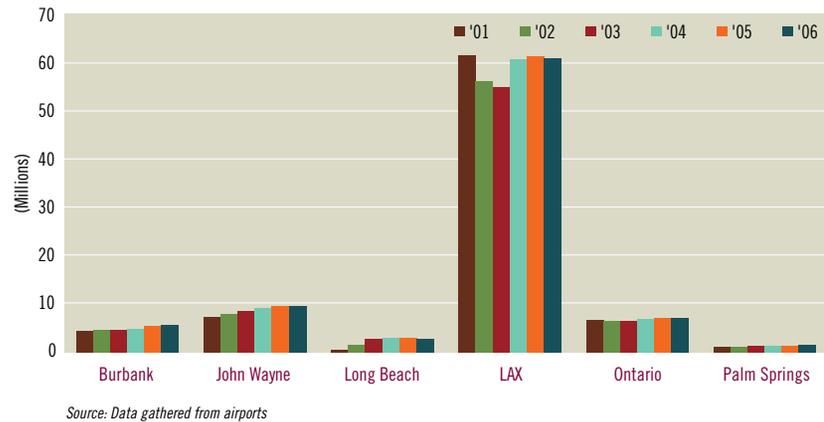


Source: Data gathered from airports

Within in the region, almost every major airport maintained the same passenger level in 2006 as in 2005 except Long Beach which experienced a 9-percent loss (Figure 76). Between 2000 and 2006, the share of LAX in total air passengers in the region decreased from 76 percent to just below 70 percent.

Figure 76

Air Passenger Traffic by Airport



Total air cargo in the region’s airports reached over 2.8 million tons in 2006, a very slight decline (1.5 percent) from the 2005 level and was still a little below the 2000 record level (Figure 77). Between 1970 and 2000, air cargo in the region grew at a rate of 5.4 percent annually. About three-quarters of the region’s air cargo traffic went through LAX while close to 20 percent passed through the Ontario International Airport. Ontario Airport is the west coast hub of all UPS air cargo operations and is also a major distribution center for FedEx. The remaining

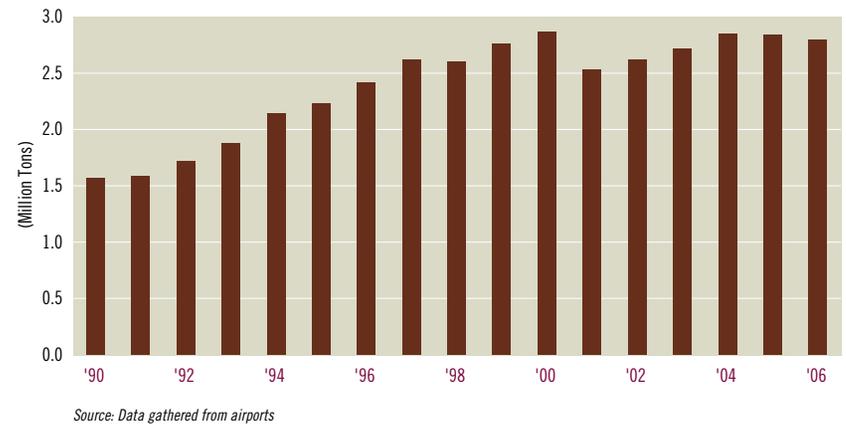


5 percent was spread among four other airports: Bob Hope (Burbank), Long Beach, John Wayne and Palmdale.

LAX was the nation’s second busiest international air freight gateway by value of shipment behind only John F. Kennedy Airport in New York. The major markets for freight moving through LAX are South Korea, Japan, and Taiwan. Some of the major commodities exported through LAX are vegetables, fruits, and nuts; clothing; computer equipment; and medical equipment, while the leading imports are apparel, computer equipment, audio and video media, and office machinery.¹⁴ LAX is one of only three major freight gateways in the nation that handles more exports than imports in value terms. By 2030, total air cargo in the region is projected to reach 8.7 million tons, more than triple its 2006 level.¹⁵

Figure 77

Air Cargo in the Region’s Six Largest Airports



In 2006, among the ten largest airports in the world, LAX ranked 5th in passenger traffic, behind Atlanta, Chicago, London and Tokyo (see Figure 137 page 152). LAX also ranked 10th in total cargo volumes in



2006, surpassed by Shanghai, Louisville and Singapore since 2005 (see Figure 138 page 152).

Ports

Why is this important?

Almost 85 percent of the imports coming through the Los Angeles Customs District (LACD) arrive at the region's ports.¹⁶ Continuing to provide a world-class port infrastructure is critical to sustaining a growing and prosperous regional economy.

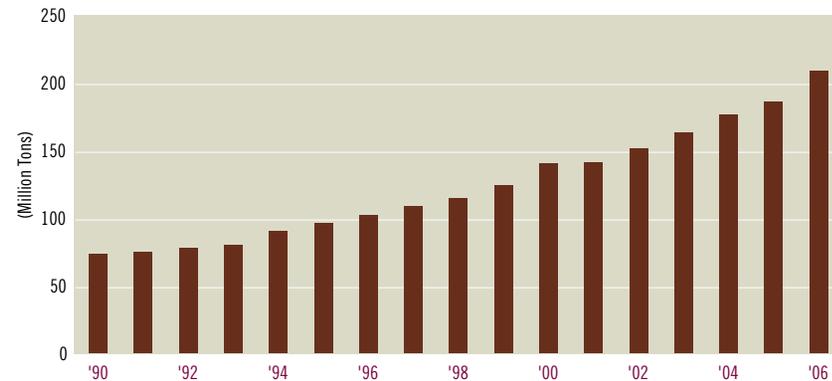
How are we doing?

Total traffic at the Ports of Los Angeles and Long Beach increased from 187 million tons in 2005 to 210.4 million tons in 2006, a 12.5 percent increase, higher than the 5.2 percent increase during the previous period (Figure 78). *In 2006, the Los Angeles/Long Beach port complex*

ranked fifth in the world in container traffic (15.8 million TEUs handled including empty containers) following Singapore (24.8 million), Hong Kong (23.2 million), Shanghai (21.7 million) and Shenzhen, China (18.5 million).¹⁷ By 2020, total container traffic at the twin-ports is projected to more than double their 2006 level, reaching 36 million TEUs.¹⁸ In 2006, the twin-ports also maintained their dominant role among West Coast ports, attracting 58.3 percent of the total traffic.

Figure 78

Port Cargo at Los Angeles and Long Beach



Source: Los Angeles Economic Development Corporation

Activities at the ports have been identified as the largest source of air pollution in the region, a condition that will increase over time as port traffic increases. Port-related pollution has posed serious public health impacts on local communities and the entire South Coast Air Basin. For instance, a substantial contributor to air pollution is the low-grade diesel fuel used by ships. In December 2005, the California Air Resources Board (ARB) instituted a requirement for the use of higher-grade, less polluting diesel fuel within 24 miles of the California coast. In November 2006, the governing boards of the Ports of Los Angeles and Long Beach approved the \$2 billion Clean Air Action Plan. The

plan aims to reduce port-related pollution from vessels, trains, trucks, and terminal operating equipment by 45 percent over the next 5 years by requiring, among other measures, the use of electric shore power and clean fuels and accelerating the conversion to a cleaner truck fleet.

Between 2005 and 2006, traffic at Port Hueneme decreased very slightly by 0.7 percent, from 4.6 to 4.57 million tons, following a 14 percent increase during the previous period. Only about 8 percent of the cargo shipments at Port Hueneme were through containers. Handling about 220,000 metric tons of automobiles, the port is one of the load centers for the import and export of automobiles.

The Southern California Survey 2007: Continuities, Changes, and More Diversified Opinions about Quality of Life

Kim Haselhoff, Ph.D. and Paul Ong, Ph.D.

Public attitudes and opinions are important in the policy realm. In order to develop sound legislation and policy, leaders need to understand what people value and what concerns they may have. To better address these questions the UCLA Lewis Center for Regional Policy Studies instituted the Southern California Survey (SCS) in 2005. The survey, now in its third year and final year, is designed to gather the views and opinions of Southern California residents on critical public policy issues in this region. This essay presents findings from the most recently completed survey of Southern California residents (those living in the counties of Los Angeles, Orange, Riverside, San Bernardino, and Ventura), as well as some comparisons to previous years. Basic information about the survey is included in the box below and details of the survey can be found at: <http://lewis.spsr.ucla.edu/special/socalsurvey/index.cfm>. Imperial County, though not part of the SCS samples, is part of the Southern California Association of Governments (SCAG) region which also includes the five counties mentioned above.



About the Survey

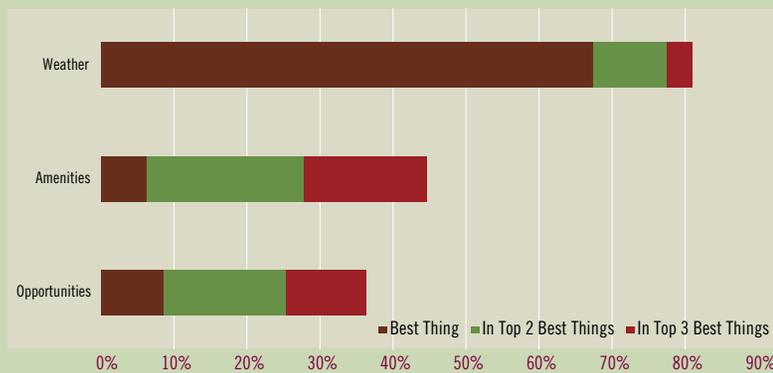
The 2007 Southern California Public Opinion Survey is supported by the UCLA Ralph and Goldy Lewis Center for Regional Policy Studies and is designed to gather the views and opinions of Southern California residents on critical public policy issues in this region.

The Survey was conducted in English and Spanish during the months of February, March, April and May 2007 using random digit dialing, and the data were collected by The Social Science Research Center at California State University, Fullerton. There are 1502 completed surveys for the five counties: Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The sample is divided proportionally by county household population. The characteristics of the sample by age, ethnicity, income, education and nativity are roughly consistent with the 2005 American Community Survey, though SCS respondents do tend to be slightly older. There is a sampling error of +/- 2.5 percent at the 95 percent confidence level for the full sample. (Sampling error may be larger for subpopulations)

While this essay does identify problems in the region, it should be noted that Southern California is an attractive place to live. Over three-quarters of survey respondents believe the weather is the best thing about the region, but others also mentioned amenities (such as outdoor recreation, cultural amenities, entertainment, restaurants/food, and shopping), (45%), and opportunities, including educational and economic opportunities, among others (36%), (see Figure 1). Two thirds of survey respondents also believe that things are going somewhat well or very well in the region as far as quality of life is concerned (see

Figure 2). In addition, 66 percent of respondents believe things will stay the same or get better in the next twelve months, versus only 31 percent who believe things will get worse. Residents in Ventura County are most satisfied with quality of life, with 76 percent of residents believing things are going somewhat or very well. Residents of San Bernardino County are least satisfied, though 60 percent still say things are going very well or somewhat well.

Figure 1: Top Three Best Things About Living in Southern California

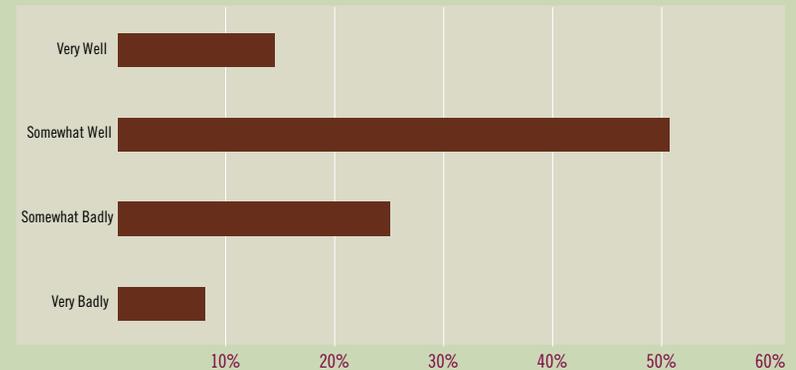


Source: Lewis Center for Regional Policy Studies, UCLA, Southern California Survey 2007, N=1502

Data from the 2007 Los Angeles Riots 15th Anniversary Resident Follow Up Survey conducted by the Leavey Center for the Study of Los Angeles (Guerra, et al, 2007) indicate that residents of Los Angeles are generally optimistic about the city as well, though not quite as positive as southern California residents in general. In Los Angeles, 51 percent believe that things in the city are going in the right direction, or staying the same, and 39 percent say they are going in the wrong direction. Interestingly, the Los Angeles survey also found that naturalized citizens were most optimistic, as 58 percent feel things are going in the right direction or staying the same, versus 48 percent of U.S. born residents, and 52 percent of non-citizens. On the other side, 46 percent

of native born Angelenos feel things are going in the wrong direction, versus 31 percent of non-natives (naturalized and non-citizens). The SCS did not find such significant differences in opinion among these groups on the quality of life questions, though non-citizens do appear slightly more positive than others. Finally, as for financial security, 69 percent of southern California residents report feeling financially secure, and 19% said they felt very secure, which is about the same as last year. Despite these positives, however, residents do have some serious concerns about life in the region. One challenge in improving the quality of life in Southern California is to continue to find innovative solutions for the major problems identified by residents in the survey.

Figure 2: How are things going in Southern California?



Source: Lewis Center for Regional Policy Studies, UCLA, Southern California Survey 2007, N=1502

In 2007 Southern Californians rated the top problems in the region as:

- Immigration
- Transportation
- Crime
- Economy

-
- Education
 - Pollution/Environment

Immigration has emerged as the top problem in the region, outranking even the usual traffic and transportation concerns (though not by much). The region has been the primary gateway for immigration, both legal and illegal, for several decades, but clearly the national debate has put this issue firmly on the radar over the past year. The economy, crime, and education made the top problems list again this year, as did the environment, though it was bumped from third place down to sixth place on the list. Air quality is undoubtedly a concern this year as it was last year, but perhaps has been overshadowed by the national focus on immigration.

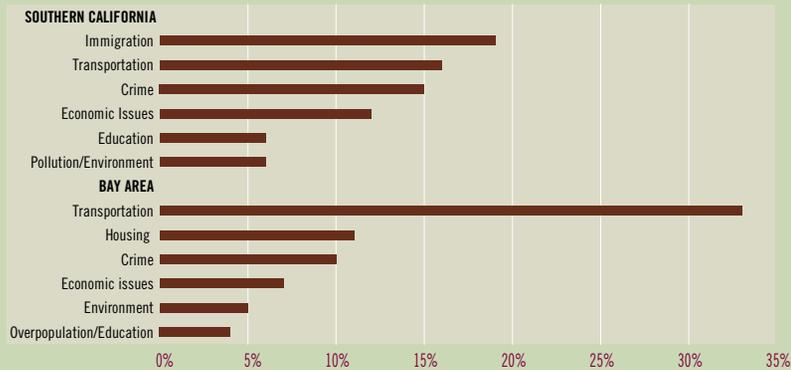


The Southern California Survey (SCS) also looked at local government performance in the region and found that a majority of Southern California residents have some degree of confidence in their local government, although they have less confidence in local government's ability to solve the problems that most affect them.

Overview of Region's Most Important Problems

Figure 3 displays the top six problems in Southern California, as well as the top six problems in the Bay Area, for comparison (Bay Area Council, 2007). Immigration, transportation, crime, the economy, education and the environment are the top six problems cited by Southern California Survey respondents. Many of these problems are related to life in a large metropolitan area, so it is not surprising that the Bay Area shares some of the same concerns (the Bay Area is the second largest metropolitan region in the state following Southern California). Transportation is a top concern in both regions, though it ranks more highly in the Bay Area. Housing is still a top concern in the Bay Area, as it was last year, but in Southern California it has not made the top problems list since 2005. The economy, crime, and education continue to be high on the list in both regions. We also looked at the top problem by county in Southern California and immigration was the top concern in Ventura, Riverside, San Bernardino, and Orange counties, though it tied with transportation for the top spot in Orange County. Crime was the top concern in Los Angeles County. Figure 4 displays the top problems in the region by all three responses (respondents were asked to name the top three problems in the region).

Figure 3: Top Problems in Southern California and the Bay Area



Source: Lewis Center for Regional Policy Studies, UCLA, Southern California Survey 2007, N=1502; Bay Area Poll

Figure 4: Top Problems by First, Second and Third Response

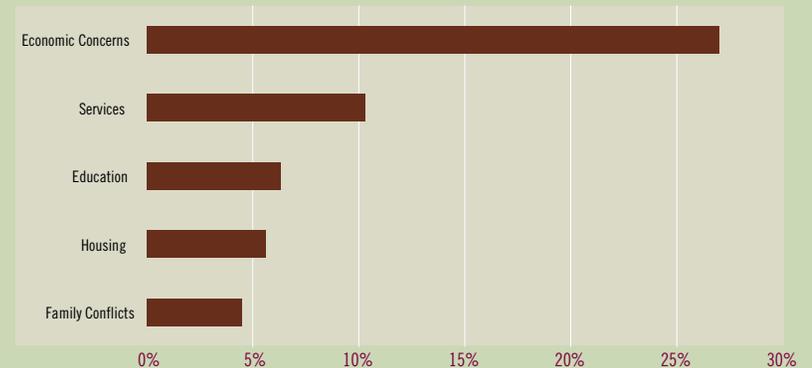


Source: Lewis Center for Regional Policy Studies, UCLA, Southern California Survey 2007, N=1502

The SCS also asked respondents about the top problems facing his or her own family today (see Figure 5). The greatest concern for families is economic issues, including jobs, finances, debt, cost of living, and retirement, among others. Services are the second top problem. This category included any government or social services, but health care was the primary concern here. Education, including paying for college,

was the third top problem. Finally, housing costs, and family conflicts, including having enough time for family, were also big concerns.

Figure 5: Top Problems in Your Family



Source: Lewis Center for Regional Policy Studies, UCLA, Southern California Survey 2007, N=1502



Perception of Problems by Demographic Groups

A breakdown of the top three problems according to ethnicity, education, age, and income indicates much more variation in opinion than last year when almost everyone agreed that transportation was the top problem. This year immigration was the top concern among older, White respondents, while crime was the top concern for other ethnic groups and younger respondents, as well as lower income respondents (perhaps reflecting areas where these groups live). Transportation was the top concern only among the highest income earners, and across all levels of education. We do see a good deal of consistency in the third most important problem (not shown in the graph), which almost all agreed to be economic concerns. Economic concerns were also the top problem noted for families across all demographic groups. The top problem as indicated by demographic group (and county) is displayed in Figure 6.



Figure 6: Most Important Problem by Demographic Groups/County

		Most Important Problem		
		Immigration	Crime	Transportation
By Ethnicity	White	✓		
	Latino		✓	
	Other		✓	
By Education	High School or Less			✓
	Some College			✓
	BA or Higher			✓
By Age	18 - 35		✓	
	35 - 54	✓		
	55+	✓		
By HH Income	Less than \$50,000		✓	
	\$50,000 - \$100,000	✓		✓ (tie)
	\$100,000+			✓
By County	Los Angeles		✓	
	Orange	✓		✓ (tie)
	Riverside	✓		
	San Bernardino	✓		
	Ventura	✓		

Source: Lewis Center for Regional Policy Studies, UCLA, Southern California Survey 2007, N=1502

Background on Top Six Problems

The following section provides a brief overview of the top problems identified by residents so the reader has a basic understanding of the more objective challenges facing the public and local government.

Immigration

The Southern California region is home to over 5 million foreign-born residents (2005 American Community Survey) and has been a primary gateway for immigration throughout the late twentieth century to the present day. In Los Angeles County 36 percent of the population is foreign born. As the immigrant population grows nationally, California is actually seeing fewer immigrant arrivals. According to one source, the number declined by 10 percent in the 1990s and by 30 percent in Los Angeles County (Rodriguez, 2007).



Estimates of the number of illegal immigrants in the U.S. vary widely. As of 2003, the US Citizenship and Immigration Services put the number at 7 million, growing at rate of 500,000 annually, while the Pew Hispanic Center estimates that the number is closer 12 million today, based on the Current Population Survey (Knickerbocker, 2006). Although estimation methods vary, the Public Policy Institute of California claims that the number of illegal immigrants coming to the U.S. is higher than ever, outnumbering legal immigrants for the first time (Johnson, 2006). California is home to more illegal immigrants than any other state in the nation, an estimated 2.4 million, although Arizona has become the primary border crossing area in the past few years, and now has a higher percentage of illegal immigrants per capita (ibid).

The recent congressional debates over immigration have fueled concerns about immigration throughout the state and the nation. The debate has also put immigration at the forefront of Southern California concerns. While the issue was in the top ten problems in 2005, it moved up to the number five spot last year, and the number one spot this year. The

latest attempt at immigration reform, which was highly controversial, ended in June when the bill failed to make it out of the Senate.

Transportation

Transportation is still a major concern in the region. Although various responses related to transportation were offered, by far the most common response to the question about the region's most important problem was traffic. Although Southern California does not have the highest average commute times in the U.S., it does rank in the top ten for large cities (population 250,000 or greater). The 2005 ACS ranks Riverside (city, not county) as having the fourth longest commute, and Los Angeles the sixth longest commute (U.S. Census Bureau, 2005). The region also stands out for the level of congestion. The Texas Transportation Institute recently released their latest report, based on 2005 data, which indicated, "Los Angeles and Orange counties have retained their infamous reputation as the worst region in the nation for traffic delay" according to the Los Angeles Times. Motorists in these counties spend an average of 72 extra hours in rush hour traffic according to the report. Traffic in the Inland Empire is worsening as well, with motorists there averaging 49 extra hours stuck in traffic at peak times. Some experts claim that even these statistics underestimate the severity of congestion in the region (Rabin and Weikel, 2007).

Crime

According to the California Department of Justice, violent crime has actually been declining since the early-1990s. The violent crime rate decreased considerably in each of the five Southern California counties between the peak year 1992 and 2006, dropping by almost half. Property crimes also decreased by almost one-third in the region between 1996 and 2006. The juvenile felony arrest rate in the region in 2003 was only



about 43 percent of its 1990 level (California Department of Justice, 2007). So overall the concern with crime seems to belie the statistics.

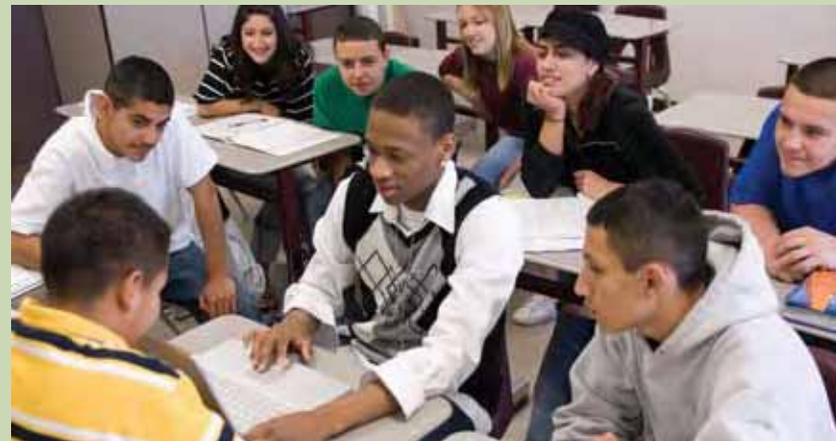
The Economy

The economy is again the fourth most important problem in the region, down from the second most important concern two years ago. However, it is by far the highest concern within families in the region. The State of California Employment Development Department Labor Market statistics indicate that the annual average unemployment rate remained virtually the same (averaging a fairly low 4.7 percent) in all five southern California counties from January-February 2006 to January-February 2007. The rate is higher for certain groups and communities though, and there is some concern that many of the jobs most available in the region are service jobs and jobs in the informal economy, both of which are lower paying and provide few or no benefits or security. However another reason for the large number of responses in this category had to do with both the high cost of living in the region, and rising energy costs. The U.S. Energy Information Administration website confirms

that residential electricity prices have been rising steadily over the past few years (both nationally, and in the Pacific region), as have retail gasoline prices (although with more price fluctuations along the way). California ranks in the top ten in a comparison of retail energy costs by state, and these costs increased about 7 percent from February 2006 to February 2007 (Data Center Knowledge).

Education

Education is a statewide problem as well as a local one. A recent PPIC survey on the state of education in California found that 80 percent of Californians believe the quality of education in the state is at least somewhat of a problem, and 52 percent consider it a big problem, which is virtually unchanged from a similar survey in 2000 (Public Policy Institute of California, 2007). However PPIC also found that statewide, “the number of residents ranking education and schools as the most important issue facing California has fallen to its lowest point in three years” (ibid). They suggest that perhaps frustration with education in the state has led to a disengagement from the issue. Education statistics vary widely throughout the southern California region, and throughout





each county, depending on the school district. In Los Angeles County there have been improvements over the past several years, yet the United Way reports that less than one third of 3rd graders scored at or above the national average for reading in 2005. Only 60 percent of high school students will graduate with a diploma, compared to 72 percent for the state and 90 percent for the nation. Education has been a top issue on the SCS for each of the past three years.

Pollution/Environment

Although this year the environment placed sixth in the top problems ranking, in last year's SCS the environment ranked third. In that survey, about 60 percent of responses indicated pollution, or more specifically air pollution, as the greatest concern. A separate question later in the 2006 survey asked respondents about the most important environmental issue facing Southern California today. Over 50 percent rated air pollution as the most important environmental issue, with water pollution a distant second, at 9 percent. In some ways air quality in California in general has greatly improved over the past two decades. Several dangerous air pollutants that were at harmful levels twenty years ago no longer exceed health-based standards (California

Air Resources Board). However, air quality continues to merit serious concern. As noted in the other guest essay in this report, SCAG is seeking declaration of a state and federal emergency to address the region's air quality. The major culprit is PM_{2.5} pollution, but standards for other particulate matter and for ozone continue to be revised. Earlier this year the Air Resources Board released a study estimating 5,400 premature deaths per year due to PM_{2.5} in the South Coast Air Basin, which is completely within the SCAG region. While pollution did not make the top five list of concerns on the survey this year, it is likely that the furor over immigration simply stole attention away from the issue as last year's survey confirms that residents are worried about pollution levels in the region.

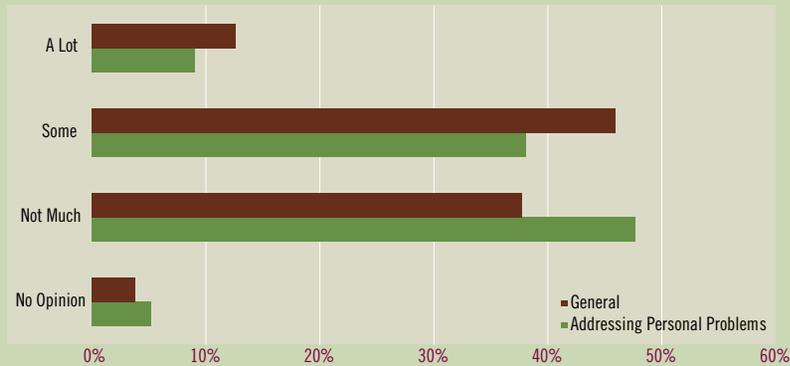
Confidence in Southern California Local Government

We should point out that perceptions of local government can differ greatly, as local governance is a fairly complex and fragmented system. Southern California's system of local government is broken up among several counties, almost two hundred cities, and numerous special districts. While California's local government structure is less complex than others nationwide the overlapping responsibilities can make it difficult at times to know who is in charge on any particular issue. However, it is useful to know how residents perceive their local government and how they feel about its performance on the region's problems.

For the last three years the SCS asked residents about their level of confidence in "your local government." Figure 7 displays the results for 2007. The two questions were about general confidence and confidence in local government's ability to solve the problems that most affect your own household or family. Southern California residents tend to have higher levels of general confidence in local government than

in its ability to solve problems that affect them personally. About 58 percent of respondents have at least some confidence (some or a lot) in local government generally, as opposed to the 47 percent who report some degree of confidence in solving problems that affect them. These figures are very similar to what we found in both the 2005 and 2006 SCS, although we do see a slightly higher percentage of respondents indicating “not much” general confidence in 2007 than we found in 2005 (see figure 8).

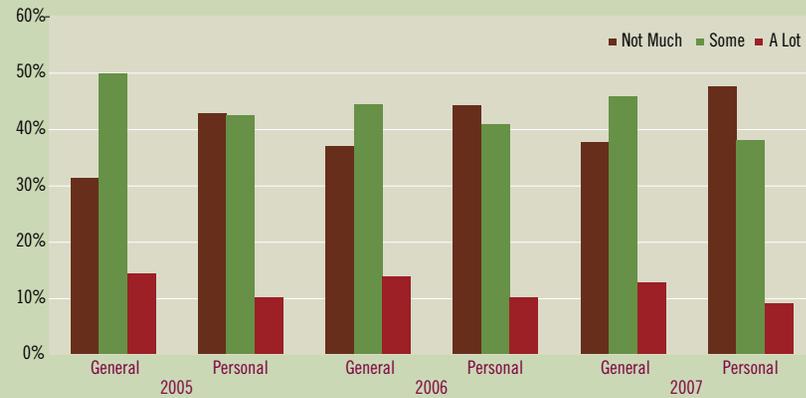
Figure 7: Confidence in Local Government



Source: Lewis Center for Regional Policy Studies, UCLA, Southern California Survey 2007, N=1502



Figure 8: Confidence in Local Government, 2005-2007



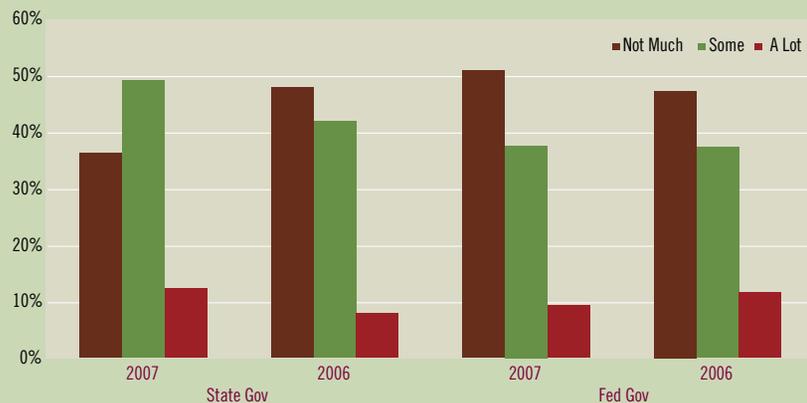
Source: Lewis Center for Regional Policy Studies, UCLA, Southern California Survey, 2005-2007

For comparison, Figure 9 illustrates the level of confidence in the state and federal government in 2006 and 2007 (these questions were not asked in 2005). While last year there was more confidence in local government than in the state and federal government, this year ratings of state government improved significantly, and were slightly higher than local government confidence ratings. Ratings of the federal government fell slightly. Last year 48 percent reported “not much” confidence in state government, while this year that number was down to 36 percent. Those reporting “not much” confidence in the federal government basically held steady, rising just slightly from 47 percent last year to 51 percent this year (still within the margin of error). Overall 62 percent have at least some confidence in state government while only 47 percent have at least some confidence in the federal government.

To compare confidence levels among demographic groups and in different areas in the region we calculated confidence scores for each respondent based on the responses to both of the confidence questions. The maximum score was 4, the minimum was -2. The average

confidence score overall was 0.52. While in previous years we did see some differences in confidence scores by group, this year there was little significant variation. The only significant difference in confidence scores was by region. While Los Angeles county residents had the lowest average confidence scores (.31), Coastal (Ventura, Orange counties) regions had the highest scores (.62). The Inland Empire (Riverside, San Bernardino counties) score was .44, similar to last year. Overall scores have been dropping over the past two years, particularly in the Inland Empire, where confidence scores dropped significantly last year but held steady this year. Los Angeles county scores were also lower this year than the last two years (down from .52 to .31).

Figure 9: Confidence in State and Federal Government, 2006-2007



Source: Lewis Center for Regional Policy Studies, UCLA, Southern California Survey, 2006-2007

Local Government Performance on the Issues

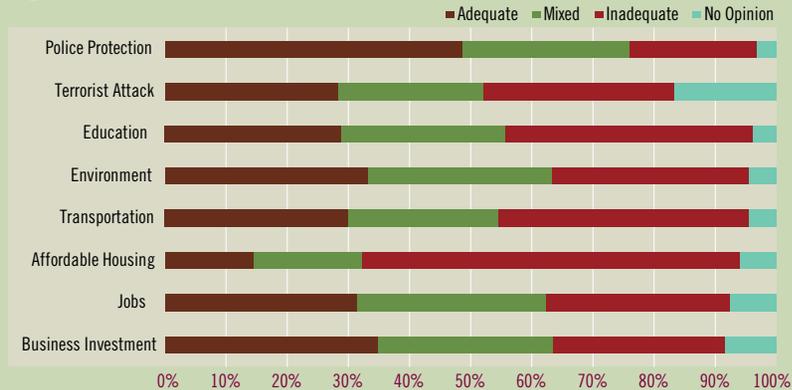
The survey also asked respondents whether the performance of Southern California’s elected officials in several different issue areas has been generally inadequate, mixed, or adequate. Residents are most satisfied with elected officials’ performance on police protection, with almost 50 percent of respondents indicating that local government is doing an

adequate job here. There was also relative satisfaction with protecting the environment, keeping and attracting jobs, and keeping attracting business investment in the region; over 60 percent of respondents indicated that performance on these issues was adequate or mixed. Respondents were slightly less satisfied with performance on improving transportation and education, and preparing for a terrorist attack, and very dissatisfied with performance in providing affordable housing in the region. Over 60% of respondents report elected official’s performance on affordable housing as “inadequate” (see figure 10). In the Los Angeles Riots 15th Anniversary Resident Follow Up Survey, city respondents were asked to rate the issue areas (using a six point scale), as opposed to their elected official’s performance on the issues, but Angelenos were similarly most displeased with the cost and availability of housing. Air quality was also a big concern in the city (the SCS asked about the environment). On the



positive side, city residents were also fairly satisfied with public safety and jobs/economy, similar to responses regionally.

Figure 10: Government Performance, 2007

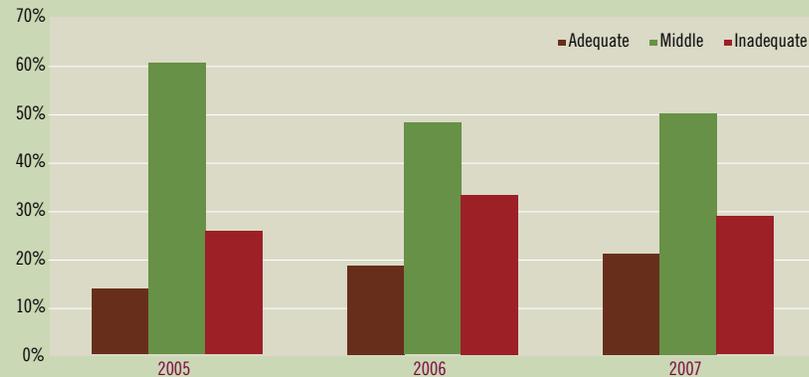


Source: Lewis Center for Regional Policy Studies, UCLA, Southern California Survey 2007, N=1502

For an overall indicator of local government performance we created a score based on responses to each of the performance questions. Each adequate response received a “1” and each “inadequate” response received a “-1”. (The mixed response did not receive a score). Then we subtracted the “inadequate” scores from the “adequate” scores. If a respondent answered “adequate” on all eight issues areas their net score would be an 8. Conversely, if they responded “inadequate” on all eight issues areas their net score would be a -8. Although almost half of responses (50 percent) are in the “middle” range of -2 to 2, we still see a higher percentage of “inadequate” scores than “adequate” scores. However the scores are slightly better than they have been the last two years. In 2005 fourteen percent of scores were in the “adequate” range. In 2006 that number was up slightly to 18 percent, and this year, 21 percent. However the most significant change is the increase in intensity of opinion from 2005, when 60 percent of responses fell into

the middle range. In 2006 and 2007 middle range responses dropped to 50 percent, and we see a corresponding increase in “adequate” and “inadequate” responses (see Figure 11).

Figure 11: Net Performance Scores, 2005-2007



Source: Lewis Center for Regional Policy Studies, UCLA, Southern California Survey, 2005-2007

Government Performance Ratings by Demographic Groups

Opinions on government performance tend to vary by demographics and geography. The differences here are generally slight, as most respondents choose the “middle” category. However there are some significant differences among groups in terms of who is most satisfied with government performance. Those with the lowest levels of education and the lowest incomes tend to give more “adequate” ratings than those in the higher categories. Younger residents are also more satisfied with government performance than older residents. As for ethnicity, Latinos are more satisfied with elected officials than are whites and other ethnic groups. Regionally Los Angeles residents are least satisfied with government performance, while those in the coastal counties are most satisfied. Responses within groups show little change from last year, although we do see a very slight decrease in the percentage of



“inadequate” responses almost across the board, with more significant decreases here among those in the “other” ethnic category, those in the Inland Empire, and those with the highest education levels. This change contrasts with the increase in inadequate ratings we observed among all demographic groups from 2005 to 2006. In a few cases inadequate ratings had risen over ten percent.

The overall picture here is that the majority of respondents, regardless of demographic group, offered an ambivalent response to the questions about government performance, indicating that most residents continue to lack strong opinions one way or the other. However the number of middle range responses continues to be lower than in 2005, indicating stronger feelings about local government performance in 2006 and 2007 than we found in 2005.

Discussion

Public opinion data provide a useful guide to policymakers as they attempt to address the public’s concerns and priorities. However it is

important to note that to some extent these opinions are influenced by factors out of the control of elected officials. The media is one example. Almost three decades of research have confirmed that the media does shape public opinion. For example, Page, et al, (1987), found that different news sources have different effects, with news commentators having a strong positive impact on policy preferences. Entman, (1989), found that the media influences political preferences by affecting what people think about. Agenda setting is a key outcome of media influence, reflecting the increase in perceived importance of any issue extensively covered by the media. More current research continues to refine what we know about who is most influenced by media and how news coverage affects beliefs and preferences.

Research clearly supports the premise that media coverage may increase concern where little is warranted, while diverting attention from issues that need to be addressed. We see this on two levels in this data. The concern with crime has been high on every SCS since 2005, despite a continuing drop in the crime rate, particularly in the past ten years. Without minimizing the level of crime in some areas, which may very well be a significant concern for residents, this does seem to be one issue that tends to be blown out of proportion by the media. Immigration is an issue which has recently received a lot of attention from the media and political leaders. While immigration certainly impacts the region a great deal as a result of the large number of immigrants who live here and enter the country here, it seems likely that the national debates and media coverage on immigration reform have elevated concern more than any specific issue that involves immigration locally. On the other hand, the air quality crisis in the region is a serious health threat that should be one of the foremost concerns for residents. While the region is known for poor air quality, it seems that new information on various particulate matter and the links to health have not been widely

publicized, which would help generate support for stricter air quality standards. So not only do public opinion polls tell policymakers what problems residents want them to address, it also tells policymakers what key problems are not on the minds of residents, but probably should be.

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Energy use, air quality, climate change and water supply issues are interrelated and must be addressed together.

The Environment

Air Quality

Why is this important?

Good air quality is vital for the health of residents, nature and the economy. Human health effects of air pollution can range from lung irritation to cancer and premature death. Ecological effects include damage to crops and contamination of waters. Degradation in human and ecological health often adversely impacts economic well-being.

How are we doing?

The SCAG region includes four air basins: South Coast, Mojave Desert, Salton Sea and South Central Coast (Ventura County portion) (see Map on next page). An air basin generally has similar meteorological and geographical conditions throughout. Despite the improvements for the past three decades, almost the entire region still has not met the federal standards for ozone.¹ In addition, the most populous South Coast Air Basin with 16.5 million population has not met the federal standards for PM_{2.5}.

Since 1980, the region has accomplished significant improvements in its air quality particularly with respect to carbon monoxide (CO) and ozone. For example, the number of days exceeding the federal 8-hour CO standards in the South Coast Air Basin was reduced from 63 days in 1980 to zero days in 2006, and the SCAG region is now a CO attainment area. In addition, the number of days exceeding the federal 8-hour ozone standards in the South Coast Air Basin was reduced from 206 days in 1980 to 86 days in 2006. Even in the Inland Empire, emission levels have been reduced by almost half during the last decade. *Despite the significant improvements, the South Coast Air Basin still has some of the worst air quality in the nation. Specifically, the South Coast has the highest concentration of ozone and PM_{2.5} in the nation.*

In addition, improvements to ozone and PM_{2.5} have shown signs of leveling off over the past few years. Furthermore, the region and the state have faced significant challenges in developing and implementing plans to meet the attainment deadlines for ozone and PM_{2.5}.

While control efforts in the past three decades gave relatively more emphasis first to carbon monoxide and then ozone, recent studies have confirmed the severe health impacts of air pollution, particularly for PM_{2.5} as further discussed below and in the essay on air quality and health in this report. The enhanced understanding of health impacts has also changed the basis of assessment of air quality in the region.

Air quality trends are affected by emissions as well as meteorology (weather) and terrain. In particular, meteorology causes year-to-year changes in air quality trends that can mask the impacts of emissions. However, long-term trends are closely related to the changes in emission levels.



Air Basins in the SCAG Region





PM_{2.5}

PM_{2.5} is particulate matter with a diameter of 2.5 micrometers (um) or smaller. The diameter of a human hair is about 60 micrometers. PM_{2.5} is a subgroup of finer particles within the classification of PM₁₀, particulate matter with a diameter of 10 micrometers (um) or smaller. Exposure to particulate matter aggravates a number of respiratory illnesses and may even cause early death. PM_{2.5} poses increased health risks because it can penetrate deeper in the lung than PM₁₀ and contain substances that are particularly harmful to human health. Both long-term and short-term exposure can have adverse health impacts.

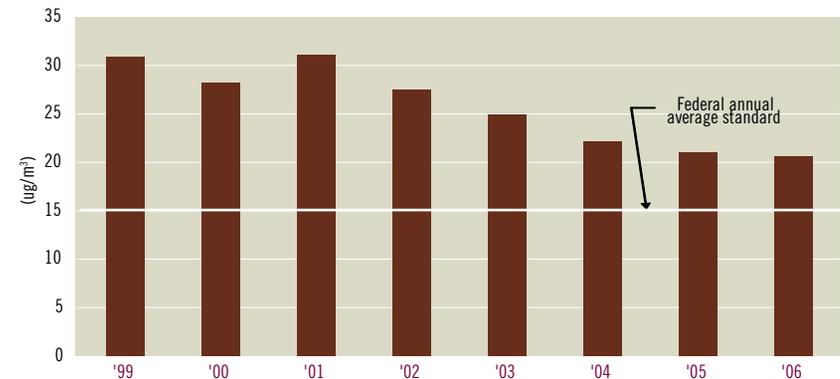
Though the U.S. EPA established PM_{2.5} standards in 1997, non-attainment designations for areas did not become effective until 2005. Within the SCAG region, only the South Coast Air Basin was designated as a

non-attainment area with 2014 as the required attainment year. Within the state, San Joaquin Valley is the only other federally designated non-attainment area for PM_{2.5}. The State Implementation Plan (SIP) for PM_{2.5} is due to U.S. EPA in April 2008 but was submitted earlier in fall 2007 along with the ozone SIP because many of the control strategies that reduce PM_{2.5} precursor emissions are also needed to help attain the 8-hour ozone standard. State non-attainment designation for PM_{2.5} is more encompassing and includes, in addition to the South Coast, the Western Mojave Desert Air Basin and Ventura County.

In 2006, the annual average PM_{2.5} concentration in the South Coast Air Basin was 20.6 ug/m³, a slight decrease from that in the previous year (21ug/m³) but continuing to significantly exceed the federal standards of 15 ug/m³ (Figure 79). Specifically, 11 of the 18 monitoring stations in the basin showed exceedance, with the Mira Loma area in Riverside County having the highest concentration. Since 2004, improvement to PM_{2.5} has shown signs of leveling off.

Figure 79

PM_{2.5} Pollution in the South Coast Air Basin (Annual Average Concentration)

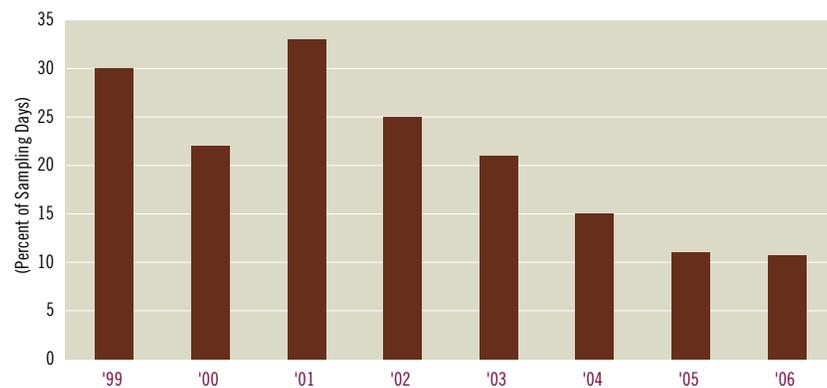


Source: South Coast Air Quality Management District

Effective December 17, 2006, the U.S. EPA revised the federal 24-hour $PM_{2.5}$ standard to be much more stringent, from $65 \mu\text{g}/\text{m}^3$ to $35 \mu\text{g}/\text{m}^3$. In 2006, the South Coast Air Basin exceeded the (new) federal 24-hour standard for $PM_{2.5}$ on 11 percent of sampling days, though it did not have any exceedance as to the federal 24-hour standard for PM_{10} (Figure 80). This is partly because $PM_{2.5}$ particles being smaller than PM_{10} particles are more difficult to control. It is expected that the U.S. EPA will designate the new 24-hour $PM_{2.5}$ non-attainment areas by November 2009 with the attainment year by approximately 2020.

Figure 80

$PM_{2.5}$ Pollution in the South Coast Air Basin
(Percent of Sampling Days Exceeding the New Federal 24-hour Standard of $35 \mu\text{g}/\text{m}^3$)

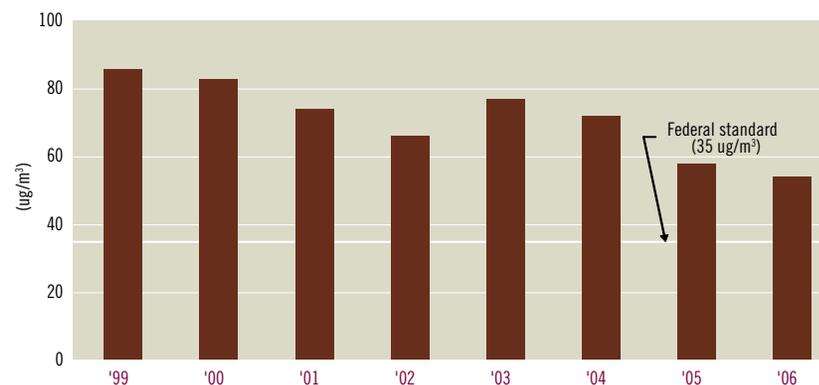


Source: South Coast Air Quality Management District

In 2006, the maximum 24-hour $PM_{2.5}$ concentration in the South Coast Air Basin at $54 \mu\text{g}/\text{m}^3$ also well exceeded the new federal standard of $35 \mu\text{g}/\text{m}^3$. Since 1999, there has been generally a downward trend in reducing the maximum 24-hour $PM_{2.5}$ concentration in the South Coast Air Basin (Figure 81).

Figure 81

$PM_{2.5}$ Pollution in the South Coast Air Basin
(98 Percentile of 24-hour Concentration)



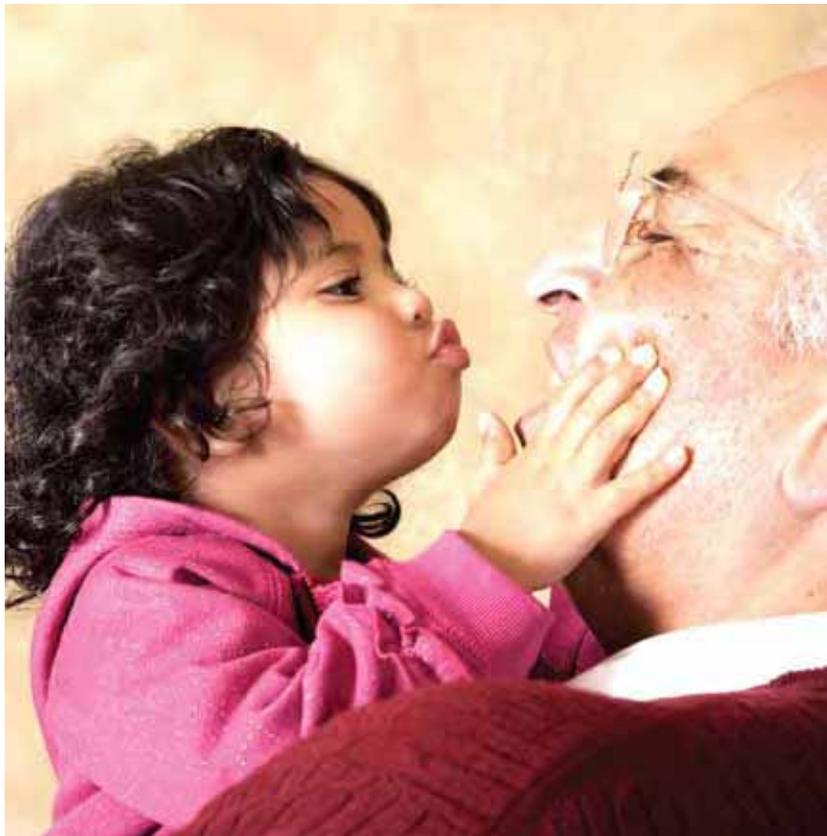
Source: South Coast Air Quality Management District

On an annual basis, directly emitted $PM_{2.5}$ emissions contribute approximately 40 percent of the ambient $PM_{2.5}$ in the South Coast Air Basin, while 60 percent is formed secondarily. Among the directly emitted $PM_{2.5}$ emissions, about 55 percent are from areawide sources, while 33



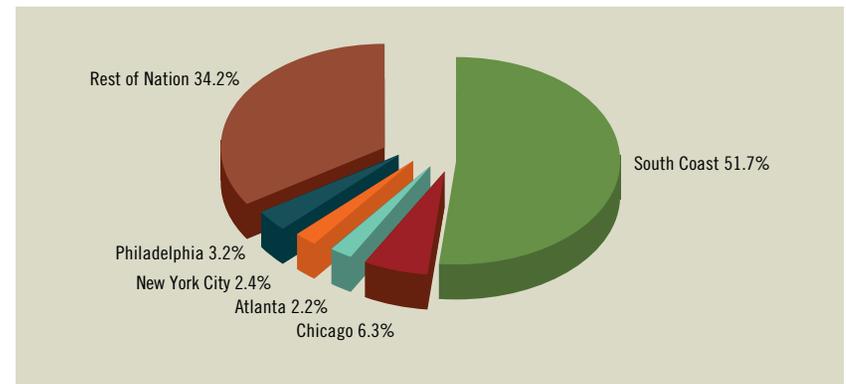
percent are from mobile sources and another 12 percent are from stationary sources. Attainment of the federal health-based PM_{2.5} standard would demand significant reductions in PM_{2.5} components within the next seven years. The PM_{2.5} attainment strategy focused primarily on reductions of NO_x, SO_x, directly emitted PM_{2.5}, supplemented with additional VOC reductions that can be feasibly achieved by 2014. NO_x and SO_x emissions are both products of fuel combustion.

PM_{2.5} is responsible for most of the serious health effects known from exposure to ambient air pollutants. It should be noted that the South Coast Air



Basin has a disproportionate share of PM_{2.5} exposure and hence suffered disproportionate impacts. Specifically, the South Coast has almost 52 percent share of the nation in population-weighted exposures to PM_{2.5} above the national annual average standard (Figure 82). Accordingly, residents in the South Coast suffer extraordinary health impacts including an estimated 5,400 premature deaths annually as contained in Figure 83.² In comparison, highway accidents resulted in 1,881 deaths and there were 1,460 homicides in the region in 2006.

Figure 82
PM_{2.5} Pollution
South Coast Air Basin Disproportionate Exposure



* Population-weighted exposures above the national annual average standard based on 2000-02 AIRS data
Source: South Coast Air Quality Management District

Exposure to PM_{2.5} pollution can shorten life by about 14 years for people who die prematurely. In addition, there is a 15 percent increase in the risk of overall premature death for each 10 ug/m³ increase in PM_{2.5} annual concentration. The groups most vulnerable to the PM_{2.5} pollutant include infants and children, the elderly, and those with pre-existing heart or lung disease.

Figure 83

**PM_{2.5} Pollution – Annual Health Impacts
South Coast Air Basin**

- 5,400 premature deaths
- 140,000 children with asthma and lower respiratory symptoms
- 980,000 lost work days
- 80% of emissions are under the state or federal jurisdictions and not within local control

Source: California Air Resources Board

On the other hand, about 80 percent of the emission sources for PM_{2.5} are within the jurisdiction of state ARB (regarding e.g., on-road/off-road vehicles, motor vehicle fuels, and consumer products) or federal EPA (regarding e.g., vehicle emission standard, airplanes, ships and trains). Specifically, to achieve PM_{2.5} attainment in 2014, about 56 percent of the emission reductions needed is within the state ARB jurisdiction while another 24 percent are within the federal EPA jurisdiction. *To have any reasonable expectation of meeting the PM_{2.5} attainment deadline by 2014, the pace of improvement for PM_{2.5} must accelerate under the federal and state jurisdictions.*

PM₁₀

Three air basins in the region have been designated as non-attainment areas for PM₁₀: the South Coast, Salton Sea and Mojave Desert. It should be noted that, effective December 17, 2006, the U.S. EPA revoked the PM₁₀ annual standard but retained the 24-hour standard.

In 2006, the number of days exceeding the federal 24-hour standard (150 ug/m³) for PM₁₀ increased slightly from 0 to 2.8 days in the Mojave Desert Air Basin, and from 8.5 days to 12.5 days in the Salton Sea Air Basin (Figure 84). The number of days with an unhealthy level of PM₁₀ describes the chronic extent of PM₁₀ pollution. *Between 2004 and 2006, the South Coast Air Basin did not experience any exceedance based on the federal 24-hour standard.*

Figure 84

**PM₁₀ Pollution
(Days Exceeding Federal 24-hour Standard)**

Air Basin	'04	'05	'06
Mojave Desert	1.9	0	2.8
Salton Sea	7.8	8.5	12.5
South Coast	0	0	0

Source: California Air Resources Board

California state standards for PM₁₀ are much more stringent than federal standards due to greater consideration given to the potential health impacts. Specifically, the state annual average standard for PM₁₀ of 20 ug/m³ is only 40 percent of the (revoked) federal standard of 50 ug/m³. In 2006, both the Salton Sea and South Coast continued to significantly exceed the state annual average standards. In addition, the state 24-hour standard for PM₁₀ of 50 ug/m³ is only a third of the federal standard of 150 ug/m³. In 2006, both the Salton Sea and South Coast air basins exceeded the state PM₁₀ 24-hour standard on 241 days.³



Ozone

Beginning in June 2005, the national 1-hour ozone standard was revoked and replaced by a new 8-hour ozone standard that is more health protective. The new ozone standard is more stringent than the old standard but allows longer timeframe for attainment until 2023 for the South Coast. Currently, all four air basins in the region are designated as non-attainment areas for 8-hour ozone.⁴

Ozone is a colorless and poisonous gas. Ground level ozone is a major component of urban and regional smog. Ozone is a strong irritant, which can reduce lung function and aggravate asthma as well as lung disease. Repeated short-term ozone exposure may harm children's developing lungs and lead to reduced lung function in adulthood. In adults, ozone exposure may accelerate the natural decline in lung function as part of the normal aging process.

In 2006, ozone pollution worsened slightly in the South Coast Air Basin and Ventura County but improved in the Mojave Desert and Salton Sea

air basins. In the most populous and polluted South Coast Air Basin, the number of days exceeding the federal 8-hour ozone standard increased slightly from 84 days in 2005 to 86 days in 2006, still the second lowest since 1976 (Figure 85). However, since 1998 ozone improvements have shown signs of leveling off.

Between 2005 and 2006, the maximum 8-hour ozone concentration in the South Coast Air Basin decreased very slightly from 0.145 ppm (parts per million parts of air) to 0.142 ppm, about half of the 1985 level.⁵ The number of days for health advisories also decreased from 11 to 10 days between 2005 and 2006.⁶

Between 2005 and 2006, Ventura County also increased the number of days exceeding the federal 8-hour standard, from 12 to 22 days. However, during the same period, both the Mojave Desert and the Salton Sea air basins experienced reductions in the number of days exceeding the federal 8-hour standard, from 55 to 50 days and 43 to 32 days



respectively. Within the region, the Central San Bernardino Mountain area surpassed the federal 8-hour ozone standard for a total of 59 days in 2006 followed by the Perris Valley (53 days) and Banning Airport area (44 days) both in Riverside County, and Santa Clarita Valley (40 days).

Figure 85

Ozone Pollution in Non-attainment Air Basins
(Number of Days Exceeding Federal Eight-Hour Standard)



* Ventura County is part of the South Central Coast Air Basin
Source: California Air Resources Board and South Coast Air Quality Management District

Emissions of ozone precursors including NO_x and ROG in the South Coast Air Basin are generally following a downward trend. For example, total emissions of NO_x were reduced from over 1,700 tons/day in 1975 to about 950 tons/day in 2005. This is primarily due to the reductions from on-road mobile sources as well as stationary sources. The reductions from on-road mobile sources were due to the more stringent vehicle emission standards and as newer, less-polluting vehicles become a larger share of the fleet. The reductions of NO_x emissions from stationary sources (e.g., electric utilities) are primarily due to increased use of natural gas as the principal fuel for power plants, and control rules that limit NO_x emissions.

In 2005, more than 90 percent of the total NO_x emissions in the South Coast Air Basin came from mobile sources. For example, heavy duty trucks were responsible for 320 tons/day of NO_x, a third of the total NO_x emissions in the South Coast Air Basin and more than half of the NO_x emissions from on-road mobile sources. As to “other mobile sources”, major NO_x contributors are off-road combustion equipment, ships and trains. The NO_x emissions from off-road combustion equipment have been decreasing and offset the increases from ships.

Despite the large reductions of NO_x for the past three decades, significant reductions above and beyond those already achieved are still needed to meet the federal ozone standards by 2024 and PM_{2.5} standards by 2014. Specifically, NO_x reductions primarily based on mobile source control strategies are essential for both ozone and PM_{2.5} attainment.

Carbon Monoxide

In December 2002, the South Coast Air Basin met federal attainment standards for CO (with no violation in 2001 and the one day allowable exceeding the federal standard in 2002). *The basin continued to have no violations for CO from 2003 to 2006.* During the past two decades, peak 8-hour CO levels in the South Coast Air Basin decreased from 28 ppm in 1985 to 6.4 ppm in 2006 (in south central Los Angeles County).⁷

On June 11, 2007, the U.S. EPA redesignated the South Coast Air Basin as an attainment area for CO along with the maintenance plan. Other basins in the region were redesignated as attainment areas earlier. Reductions from motor vehicle control programs are expected to continue the downward trend in ambient CO concentrations.

Water Resources

Total Water Use

Why is this important?

Water is essential to human life. It is one of the most precious resources in Southern California. With the continuing increase of population in the region, ensuring reliable water resources to meet demand and maintaining water quality are vital goals for all of Southern California. In addition, how water is used would also impact the health and sustainability of the regional ecosystem.

How are we doing?

For more than 100 years, Southern California has had to import water to support its ever increasing population. The region is an arid to semi-arid environment with low annual precipitation. *Currently, imported water accounts for about 70 to 75 percent of the regional water supply.* The remaining 25 to 30 percent comes from local surface and ground water and from reclaimed water sources.⁸

Imported water includes water from the Colorado River via the Colorado River Aqueduct, the State Water Project via the California Aqueduct, and the eastern Owens Valley/Mono Basin in the Sierra Nevada via the Los Angeles Aqueduct. *It is important to note that available water from all three imported sources may be reduced in the future as other users and uses place greater demands on these sources.* For example, environmental and water quality needs in the Delta and Owens River/Mono Basin systems affect import water supply quantity, quality and reliability. In addition, the Colorado River basin has experienced a five-year drought that is unprecedented in recorded history, while total water demand in its basin continues to rise because of population and economic growth. The Colorado River Water that could experience

further sustained droughts is perhaps the most critical and uncertain element of the water resource planning in Southern California.

In addition, the region also needs to assess and plan for impacts of global climate change (as further discussed in the Energy Section), as well as the cost of replacing aging infrastructure. *Some of the most significant impacts from global climate change will be on water resources, impacts that are of special concern to the SCAG region where water scarcity and quality are already of great concern.*

Within the SCAG region, the Metropolitan Water District (MWD) is the largest urban water supplier. Its service area includes about 15.4 million residents in the region (Figure 86). In recent years, MWD has provided about half of the municipal, industrial and agricultural water used in its service area.



Figure 86

Population within Water District Service Area

	MWD	Non-MWD
Imperial	0.0%	100.0%
Los Angeles	91.6%	8.4%
Orange	100.0%	0.0%
Riverside	72.3%	27.7%
San Bernardino	40.9%	59.1%
Ventura	72.6%	27.4%
REGION	84.4%	15.6%

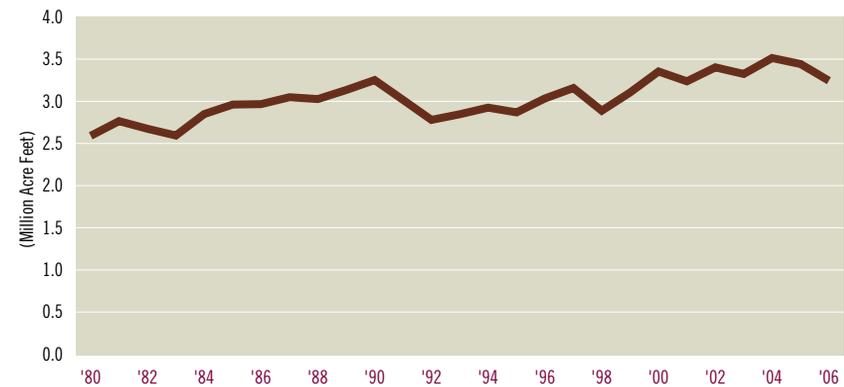
Source: Metropolitan Water District



In 2006, total water consumption within the MWD service area in the SCAG region was about 3.24 million acre-feet, a 6 percent decrease from 2005. The 2006 level was almost the same as that in 1990 (a dry year), despite an increase of almost 3 million (23 percent) residents (Figure 87). Total water consumption did not experience significant increases for several years in the mid-1990s due to the recession, wet weather, conservation efforts, and lingering drought impacts. Of total consumption, only 6.8 percent was for agricultural purposes and the rest was for urban (municipal and industrial) uses.

Figure 87

Total Water Consumption*
(Metropolitan Water District Service Area)



*Within the SCAG region. Total water consumption includes municipal/industrial and agricultural uses.
**One acre foot equals 325,851 gallons.
Source: Metropolitan Water District

In recent years, the region has developed an array of local projects to complement imported water supplies. They include, for example, surface water storage, groundwater storage and conjunctive use, conservation, water recycling, brackish water desalination, water transfer and storage, and infrastructure enhancements. Within the MWD service area, water conservation programs are estimated to conserve about

700,000 acre-feet of water in 2006, almost triple the 1990 level at 250,000 acre-feet. New water supply targets for Southern California through 2025 include 1.1 million acre-feet for conservation.⁹ In addition, water recycling, groundwater recovery and seawater desalination are integral and growing assets in the region’s diverse resource portfolio and help bring greater water supply reliability to Southern California. For example, Orange County Water District’s Groundwater Replenishment System, which takes highly treated sewer water that is currently released into the ocean and purifies it, is the largest water purification project of its kind.¹⁰

Per Capita Urban Water Use

Why is this important?

Water consumption per capita is important when looking at a city or county’s growth projections in order to maintain a safe yield per person and sustain community well-being.

How are we doing?

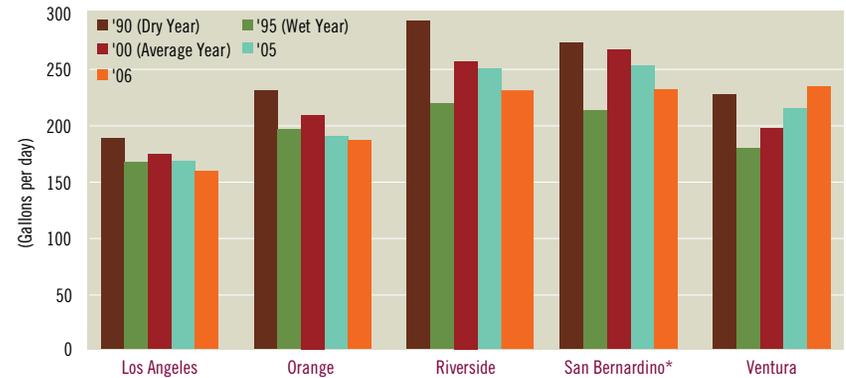
Urban water use includes residential, commercial, industrial, fire fighting and other uses. Hence, per capita urban water use consists of more than the amount of water used directly by an individual. Since 1991, per capita urban water use has generally been below the pre-drought levels. While 1990 was a dry year, 1995 was a wet year and 2000 represented an average year. In 2006, per capita urban water use declined from the 2000 level in each county in the region except for Ventura County (Figure 88).

An important factor contributing to the overall decline in per capita urban water consumption is the development of various conservation programs and practices. These include retrofitting with water efficient technology for showerheads and toilets and changing landscaping

practices toward drought-tolerant plants. In addition, implementation of new water rate structures has helped suppress growth in per capita water demand.

Figure 88

Per Capita Urban Water Consumption (Metropolitan Water District Service Area)



*San Bernardino's portion includes only 41% of the County's total population, significantly less than other counties.
Source: Metropolitan Water District

In Southern California, much of the variation in per capita water use among counties can be attributed to climate differences. Within the region, the Inland Empire counties continued to maintain higher per capita urban water consumption rates than coastal counties except for Ventura. For example, in 2006, per capita urban water consumption per day in San Bernardino and Riverside counties was 231 and 232 gallons respectively in contrast to 186 gallons in Orange County and 159 gallons in Los Angeles County. This partly reflects higher landscape water use due to warmer and dryer climate conditions. In addition, a single family unit has higher per capita water use than a multi-family unit. The Inland Empire and Ventura County have higher share (65 percent and

64 percent respectively) of detached single-family residential units than Los Angeles County (49 percent) or Orange County (51 percent).

Water Quality

Why is this important?

Good water quality is important to the well-being of human health, aquatic and terrestrial species, and the economy. The water quality of freshwater streams is affected by human activities and land use practices (such as land clearing and urbanization). Runoff from streams and rainfall flows into the ocean and impacts coastal water quality.

How are we doing?

The SCAG region straddles five Water Quality Control Board (WQCB) regions in the state: Los Angeles, Colorado River Basin, Santa Ana, San Diego and Lahontan. The Los Angeles Region encompasses all the coastal watersheds of Los Angeles and Ventura counties, along with portions of Kern and Santa Barbara counties. The Colorado River Basin Region includes all of Imperial County and portions of San Bernardino, Riverside, and San Diego counties. It covers California's most arid area. Despite its dry climate, the Region contains two water bodies of state and national significance: the Colorado River and the Salton Sea. The Santa Ana Region extends from the San Bernardino and San Gabriel mountains in the north and east to Newport Bay along the coast. The San Diego Region includes southern Orange County and stretches along 85 miles of scenic coastline from Laguna Beach to the Mexican Border and extends 50 miles inland to the crest of the coastal mountain range. Finally, the Lahontan Region includes portions of northern Los Angeles County and western San Bernardino County, and extends further north including the Sierra Nevada along the eastern border of California.

Urbanization is one of the important factors affecting water quality. Urban water runoff from roads and parking lots contain high level of contaminants which can flow directly into surface waters.¹¹ The pollutant loads in stormwater generally increase along with urbanization. Runoff and other problems are exacerbated by aging infrastructure. The general quality of groundwater in the region has been degraded as a result of land uses and water management practices. The coastal waters are impacted by, for example, wastewater discharges and non-point source runoff. Section 303(d) of the Clean Water Act requires the California State Water Resources Control Board to list impaired water bodies in the state and determine total maximum daily loads (TMDLs) of pollutants that are contributing excessively to these impaired waters.

Between 2002 and 2006, water quality improvements showed mixed results. While the Los Angeles and Lahontan WQCB regions saw significant improvements, water quality in the San Diego WQCB region deteriorated. The Colorado and Santa Ana WQCB regions generally maintained their water quality levels. The improvement in the Los Angeles WQCB region was due mostly to the reduction of impaired coastal shorelines as well as rivers/streams. San Diego WQCB region experienced an increase in impaired rivers/streams and bays and harbors. Impairment of beneficial uses often occur during long period of time and can require years to correct. In recent years, watershed planning efforts have become a more prevalent means of protecting water resources.

Beach Closure

Why is this important?

When the ocean waters off a beach contain high concentrations of certain bacteria, they become unsafe for swimming and other recreational uses. In 1999, the California Department of Health began monitoring



all beaches which have more than 50,000 annual visitors and have outflows from storm drains, rivers, or creeks. Closures or advisories are issued for beaches that fail to meet the state’s standards for various sources of bacterial pollution.

How are we doing?¹²

Between 2005 and 2006, the total number of beach closing/advisory days declined from 3,576 to 3,215 among beaches monitored in the region (Figure 89). However, they were greater than 2004 levels (2,860 days). The decrease of 10.1 percent of beach closing/advisory days in the region was less than that at the state level during the same period, from 5,496 to 4,644, or 16 percent.

In 2006, Los Angeles County experienced 2,072 beach closing/advisory days, following by Orange (975 beach closing/advisory days), San Diego (714 beach closing/advisory days), Santa Barbara (285 beach closing/ advisory days), and Ventura (168 beach closing/advisory days)

counties. Polluted urban stormwater runoff continues to be the largest source of pollution and the predominant cause across the state.

Between 2005 and 2006, the number of beach closing/advisory days in Los Angeles County decreased slightly from 2,213 to 2,072, a 6 percent decrease following the 51 percent increase during the previous period. About 95 percent of total beach closing/advisory days in the county in 2006 were due to elevated bacterial levels from unknown sources of contamination, and 3 percent were due to known sewage spills.

Orange County experienced a 5 percent increase from 929 to 975 beach closing/advisory days between 2005 and 2006, after a 33 percent decrease during the previous period. Similar to conditions in Los Angeles County, 91 percent of total beach closing/advisory days in Orange County were due to elevated bacterial levels from unknown sources. Ventura County also experienced a significant drop of 61 percent from 434 to 168 beach closing/advisory days between 2005 and 2006, after a 4 percent reduction during the previous period.

Figure 89

Total Number of Beach Closing/Advisory Days

	'04	'05	'06
Los Angeles	1,469	2,213	2,072
Orange	939	929	975
Ventura	452	434	168
REGION	2,860	3,576	3,215
Rest of California	1,125	1,920	1,429
California	3,985	5,496	4,644

Source: *Natural Resources Defense Council*

Solid Waste

Why is this important?

Disposing of waste in landfills is not only costly but, if not treated properly, could have dire impacts on the ecosystem and human health. For example, decomposition of waste in landfills releases methane into the atmosphere, a significant contributor to global warming. Hence, a sustainable society should minimize the amount of waste sent to landfills by reducing, recycling or reusing the waste generated as much as possible.

How are we doing?

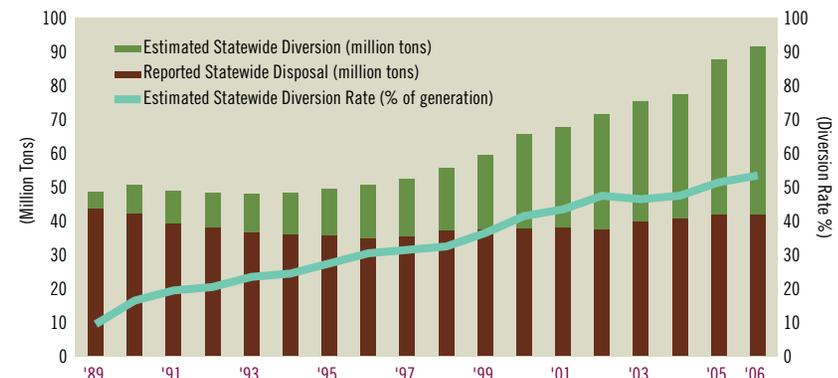
The 1989 California Integrated Waste Management Act set the goal of 50 percent diversion of each city and county's waste from landfill disposal by the year 2000. In 2006, only about 40 percent of the cities in the region met the 50 percent diversion goal. Diversion measures include waste prevented, waste re-used, waste recycled or waste composted.



Waste diversion programs such as curbside recycling pickups, green-waste collection, and municipal composting have steadily increased the diversion rate. *At the statewide level, the diversion rate – the share of amount diverted out of the total waste generated - increased from 10 percent in 1989 to 54 percent in 2006 (Figure 90).*¹³ Hence among the 92 million tons of waste generated in California in 2006, over 50 million tons were diverted. Among the total waste generated, about 30 percent was organic matter, 22 percent was construction and demolition materials and 21 percent was paper.¹⁴

Figure 90

Estimated Statewide Waste Tonnages and Rates

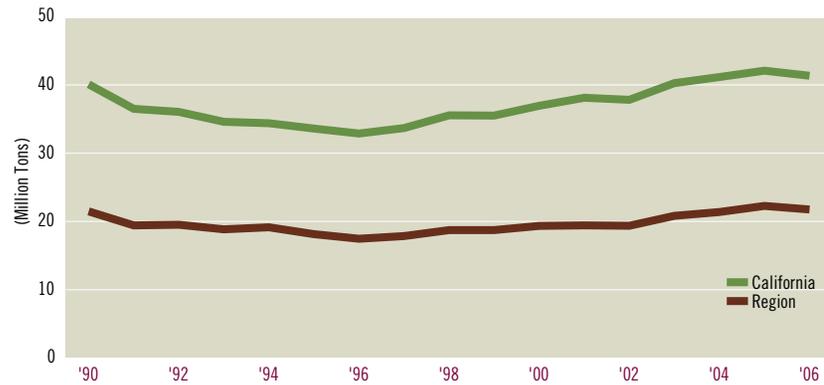


Source: California Integrated Waste Management Board

In 2006, the total amount of waste disposed to landfills in the region reached 21.8 million tons, a slight decrease of 0.5 million ton from 2005 (Figure 91). During the 1990s, waste sent to landfills in the region declined for several years, however, it has generally increased gradually since 1996. This is similar to the trend at the state level. Many landfills in the region are running out of capacity while environmental concerns make building new landfills or expanding existing landfills increasingly difficult.

Figure 91

Solid Waste Disposal at Landfills
(Million Tons)



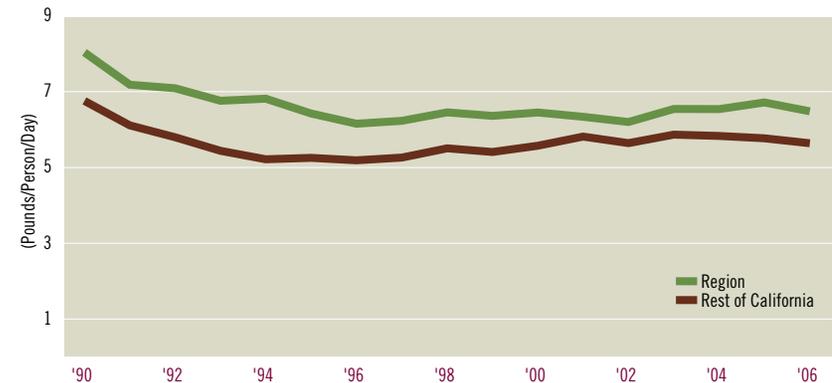
Source: California Integrated Waste Management Board



Since the passage of the Waste Management Act in 1989, the region began to make progress in reducing the amount sent to landfills on a per capita basis. In 1990, the region disposed about 8 pounds of solid waste per capita per day into the landfills, higher than that of the rest of the state of 6.8 pounds per capita per day. Various measures to implement the Act had reduced the per capita disposal rate in the region continuously to just over 6 pounds per day (or almost 25 percent) in 1996, the lowest level since 1990. Since 1996, per capita disposal rates fluctuated somewhat and began to increase after 2002 to about 6.5 pounds per day in 2006 (Figure 92).

Figure 92

Solid Waste Disposal in Landfills
(Pounds/Person/Day)



*Including residential and non-residential waste disposal
Source: California Integrated Waste Management Board

Energy

Why is this important?

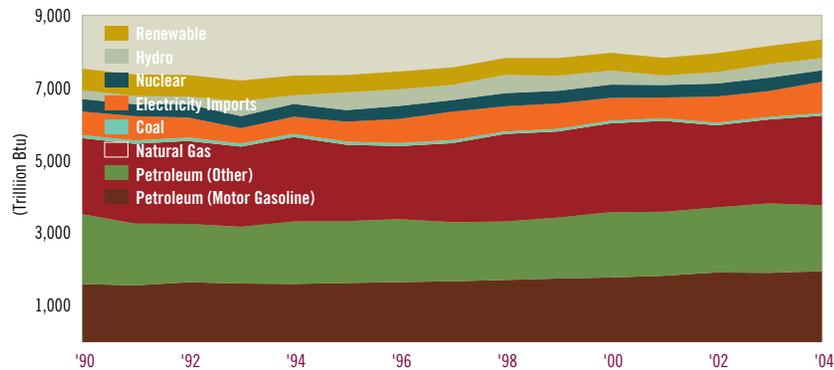
Energy is a critical input for production processes of the regional and national economy. In addition, it is essential for everyday life. Reliance on fossil fuels contributes significantly to regional air pollution and global climate change that would result in adverse impacts on many ecological systems, human health as well as the economy. Furthermore, strong dependence of foreign imports greatly reduces the reliability and security of this vital resource.

How are we doing?

Energy use in California is predominantly fossil fuel based (i.e. petroleum, natural gas and coal), accounting for about 86 percent of the total consumption (Figure 93). In addition, California obtains nearly two-thirds of its energy from outside its borders, including 63 percent of petroleum, 85 percent of natural gas and 22 percent of electricity uses (Figure 94).

Figure 93

California Energy Consumption Estimates by Source

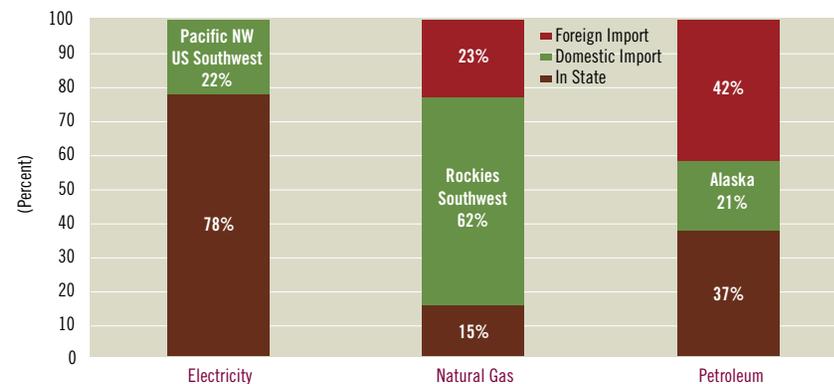


Source: Energy Information Administration, State Energy Data 2004

Based on the recent statewide inventory, petroleum accounted for about 45 percent of the total energy use, natural gas 30 percent and coal just below 1 percent.¹⁵ In addition, imported electricity (10 percent of the total energy use) was produced mainly by coal or natural gas. Other sources of energy include renewable (6.1 percent), nuclear (3.8 percent) and hydroelectric power (4.1 percent). As to the energy consumption by sectors in California, transportation sector is the largest user of 39 percent, followed by industrial sector of 24 percent. Commercial and residential sectors each used about 18.5 percent. For major energy sources such as petroleum and natural gas, the SCAG region accounts for about 45 percent of the total state use and is expected to have similar consumption patterns to that of the state in the shares of different energy sources.

Figure 94

California's Major Sources of Energy, 2006



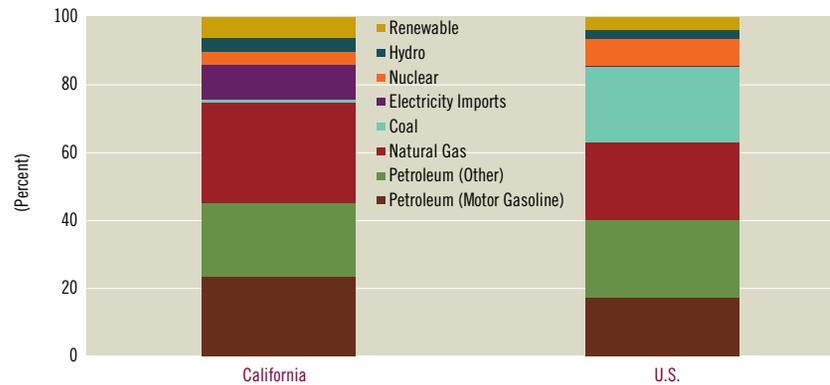
* Natural gas and petroleum data are for 2005
Source: California Energy Commission

At the national level, 86 percent of the total energy consumption is fossil-fuel based, the same proportion as that in California. However, compared with California, the nation relies much more on coal (22

percent vs. 0.8 percent) and less on natural gas (23 percent vs. 30 percent) and petroleum (40 percent vs. 45 percent) than California (Figure 95). In addition, within the non-fossil fuels, the nation relies more on nuclear (8.2 percent) than California (3.8 percent). California surpassed the national average in the use of renewable energy (6.1 percent vs. 3.6 percent).

Figure 95

Energy Consumption by Source, 2004



Source: Energy Information Administration

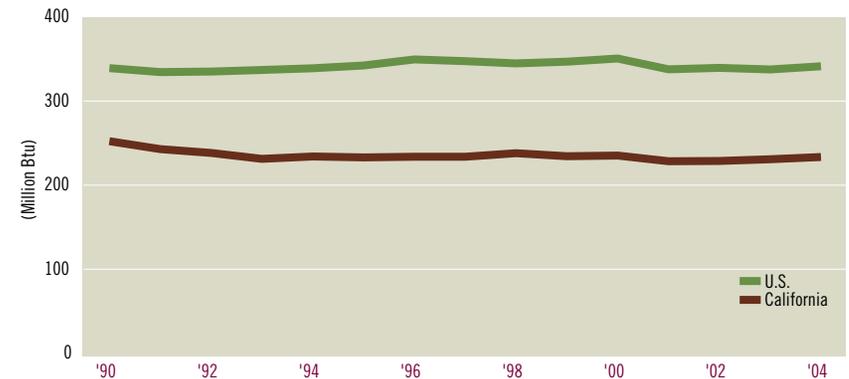
Energy use to support the national economy has become more efficient for the past few decades. For example, between 1970 and 2006, energy use per dollar of real Gross Domestic Product (GDP) was reduced by half.¹⁶ The reductions were due to efficiency improvements and structural changes in the economy to become more service-oriented.

When compared to the U.S., California uses less energy on a per capita basis. *Since 1993, California has consistently been at least 30 percent below the national average in per capita energy consumption (Figure 96). Among all states in the nation, California ranked 3rd lowest in per capita energy consumption, following Rhode Island and*

New York. Difference in climate and types of industry contributes to the lower energy consumption per capita in California as compared to the U.S. as a whole. Other factors include the higher energy efficiency appliance and building standards, and demand side management programs implemented in California. For example, energy-intensive manufacturing represents approximately 10 percent of the total economic output in California, compared to 22 percent for the U.S. In addition, when comparing within the same industry categories, California also uses less energy for a given level of output due to a more energy efficient production.

Figure 96

Per Capita Energy Consumption (Million Btu)



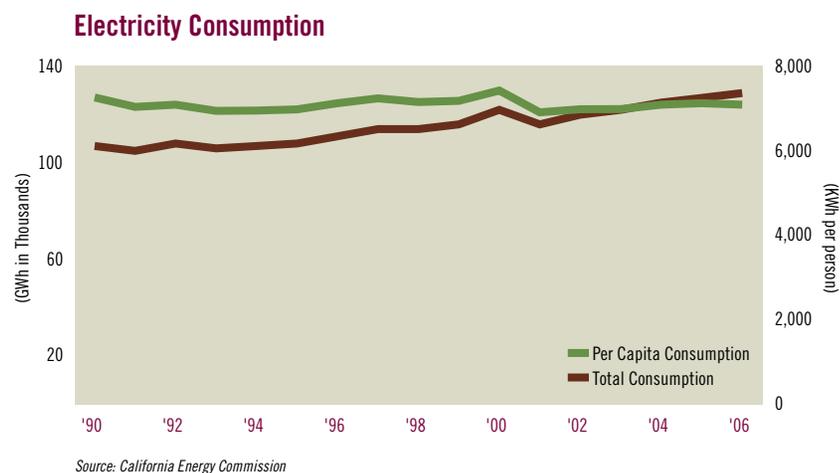
Source: Energy Information Administration and Bureau of Economic Analysis

Electricity Consumption

In 2006, the SCAG region consumed approximately 129,000 gigawatt-hours (GWh) of electricity, or 7,095 kilowatt-hours (kWh) per person. In the region, electricity consumption increased 15 percent during the 1990s. Total consumption declined in 2001 after the electricity crisis but since then has been increasing about 1.3 percent per year, roughly

keeping pace with the population growth. Hence per capita electricity consumption in the region is projected to remain relatively constant over the next 10 years, at about 7,100 kWh per person, somewhat below the state average of 7,500 kWh per person (Figure 97).

Figure 97

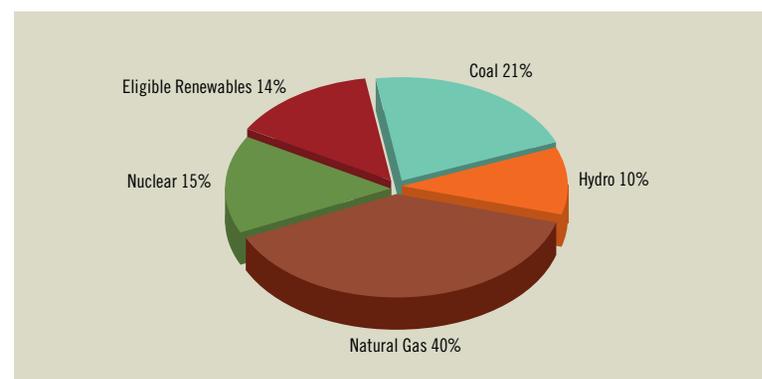


In 2006, fossil fuels accounted for 61 percent of the total sources for electricity generation in Southern California, including natural gas (40 percent) and coal (21 percent), while renewable accounted for 14 percent (Figure 98). Both Southern California Edison and Los Angeles Department of Water and Power (LADWP) are required to reach 20 percent using renewable energy. Between 2005 and 2006, the share of natural gas increased by 6 percentage points while the share of nuclear power decreased by 5 percentage points.

In the region, commercial was the largest user (39 percent) of electricity followed by residential (31 percent) and industrial (19 percent).

Figure 98

Electricity Generation by Source, 2006



*Based on the combined mix of Southern California Edison and Los Angeles DWP
Source: California Energy Commission, Southern California Edison, Los Angeles Department of Water and Power, July 2007

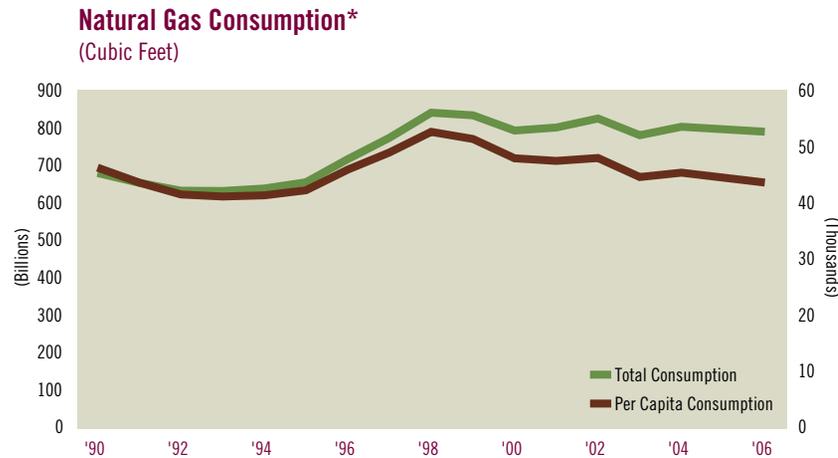
Natural Gas Consumption

Californians consumed about 6 million cubic feet per day (MMcfd) of natural gas in 2006, half of which were used in electric generation. Only 15 percent of the total natural gas consumption was produced in California. The remaining was imported from the Southwest (38 percent) and Rockies (24 percent) in the U.S. and from Canada (23 percent).

For natural gas use, the SCAG region is served by the Southern California Gas Company. A small portion of the region is served by a municipal gas utility, Long Beach Energy (part of the City of Long Beach). In 2006, the SCAG region consumed about 791 billion cubic feet of the natural gas excluding electricity generation use. Since 2000, the total non-electric generation use of natural gas in the region has been fluctuating slightly around 800-billion cubic feet level and is projected to remain relatively constant for the next ten years. As to the per capita consumption of natural gas in the region, it has been on a gradually de-

clining path since the peak of 53,000 cubic feet in 1998 reaching about 44,000 cubic feet in 2006 (Figure 99).

Figure 99



* Excluding the use for electricity generation
Source: California Energy Commission



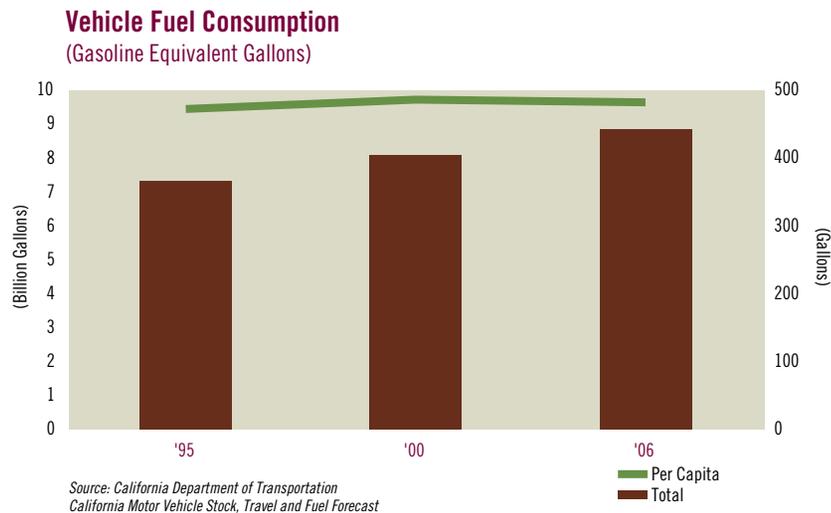
Vehicle Fuel Consumption

In 2006, more than 40 percent of the crude oil to California refineries came from foreign imports, exceeding for the second consecutive year the production from California (37 percent). The share of foreign imports has been increasing rapidly from below 10 percent in 1995 to over 40 percent in 2006. During the same period, production from California decreased from 50 percent to below 40 percent while imports from Alaska also decreased from 41 percent to 20 percent. Nationally, the U.S. became a net oil importer in 1970 and oil imports currently account for about 65 percent of the total consumption. In 2005, imports of fossil fuels was about \$250 billion, responsible for 35 percent of the national trade deficit (\$716 billion).¹⁷

In 2006, the region consumed about 8.9 billion gallons of vehicle fuels, an increase of about 22 percent from 1995 (Figure 100). However, per capita vehicle fuel consumption, though increasing slightly between 1995 and 2000 from 472 to 485 (gasoline equivalent) gallons, declined slightly to 481 (gasoline equivalent) gallons in 2006.



Figure 100



Impacts on Global Warming

The combustion of fossil fuels (petroleum, natural gas and coal) to release their energy creates carbon dioxide emissions (CO₂), the most significant greenhouse gas (GHG) that affects global climate change and specifically global warming. This is in addition to fossil fuels' impacts on regional air quality including PM_{2.5} and ozone pollution as described in the Air Quality Section. For example, burning of fossil fuels for mobile sources in the region is responsible for more than 85 percent of total NO_x emissions, a precursor of ozone pollution.

Climate change is the shift in the "average weather" that a given region experiences. Currently, the Earth is warming faster than at any time in the previous 1,000 years and eleven of the last 12 years (1995-2006) with the exception of 1995 ranked among the 12 warmest years on record since 1850. The global mean surface temperature has increased by 1.3°F for the past century. Human activities are altering the chemical composition of the Earth's atmosphere through the release and

build up of global greenhouse gas (GHG) emissions, predominantly (77 percent) CO₂, that absorb the heat. Global atmospheric GHG concentrations have increased markedly since 1750 and now far exceed pre-industrial values. Between 1970 and 2004, the GHG₁₈ emissions grew 70 percent from 28.7 to 49 Gigatonnes of CO₂ equivalent.

Global warming poses a serious threat to the economic well-being, public health and natural environment in Southern California and beyond. The potential adverse impacts of global warming include, among others, a reduction in the quantity and quality of water supply, a rise in sea levels, damage to marine and other ecosystems, and an increase in the incidences of infectious diseases.

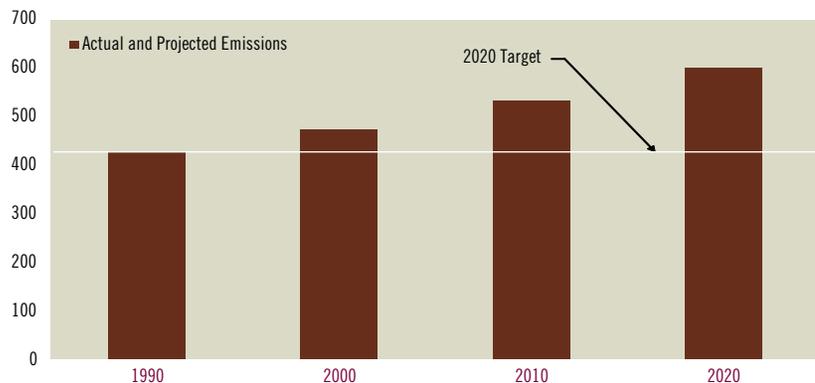
In 1990, California generated 426 million metric tons of CO₂ equivalent GHG emissions that increased to reach 473 million metric tons in 2000 and 493 million metric tons in 2004. It is projected to further increase to 600 million metric tons by 2020 (Figure 101). This California GHG emissions inventory excludes all international fuel uses, reporting them separately. Including these international emissions would



increase total emissions by 27 to 40 million metric tons of carbon dioxide–equivalent GHG emissions, depending on the year. CO₂ emissions generally track closely with trends in energy use, adjusting for changes in fuel mix and the relative carbon intensity of the various fuels.

When compared to the rest of the nation, as noted before, California has a relatively more energy-efficient economy. In addition, California economy’s energy consumption is also less carbon-intense. For example, California has relied much less on coal and more on natural gas than the rest of the nation. Coal is generally more harmful to the environment than natural gas due to the mercury, greater criteria pollutants (sulfur dioxides, etc) and greenhouse gases emitted. California’s choices have helped reduce carbon dioxide emissions. *Hence, in 2004, per capita GHG emissions in California (13.7 metric tons) were significantly lower than in the rest of the nation (24.5 metric tons) (Figure 102). Among all states in the nation, California ranked 3rd lowest in per capita CO₂ emissions, following Vermont and New York.*

Figure 101
California Climate Change Emission Baseline
 Million Metric Tons (CO₂ Equivalent)



Source: California Climate Action Team Report, March 2006

California is the most populous state with the largest state economy in the nation. Despite of its achievement in energy efficiency and less carbon intensive energy use, California is second only to Texas in the nation in term of total CO₂ emissions, and is the 16th largest source of climate change emissions in the world, exceeding most nations. The SCAG region, with close to half of the state’s population and economic activities, is a major contributor to the global warming problem and should also be a major contributor to its solution.

In 2006, state legislation Assembly Bill No. 32 (AB 32), the California Global Warming Solutions Act, passed into law requiring that by 2020 the statewide greenhouse gas emissions be reduced to the 1990 level. This would represent a total reduction of 174 million metric tons of (CO₂ equivalent) emissions.

Figure 102
Per Capita Greenhouse Gas Emissions
 (Metric Tons of Carbon Dioxide Equivalents, MTCO₂E)



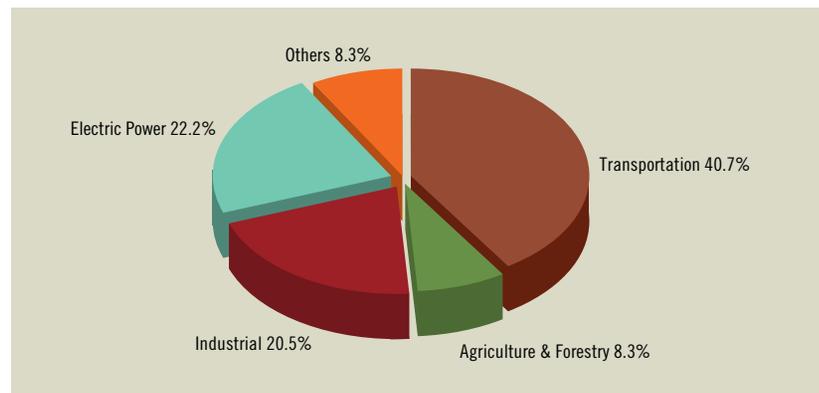
Source: California Energy Commission, U.S. Environmental Protection Agency, and Bureau of Economic Analysis

Among the climate change pollutants resulting from California’s economic activities, 81 percent are CO₂ emissions from fossil fuel combustion. In addition, non-fossil fuel sources produced 2.8 percent of

the total pollutants mainly due to cement production. Methane (CH₄) accounted for 5.7 percent of the total pollutants generated primarily from landfills, enteric fermentation and manure management. Nitrous Oxide (N₂O) accounted for another 6.8 percent largely due to mobile source combustion and agricultural soil management. Finally, other gases with high global warming potentials (GWP) accounted for the remaining 2.9 percent. These high GWP gases include use of substitutions of other gases (hydrofluorocarbons or HFCs) for ozone-depleting gases, electricity transmission and distribution (Sulfur Hexafluoride or SF₆), and semiconductor manufacturing (perfluorocarbons or PFCs and SF₆). It should be noted that the percentages of climate change pollutants associated with each gas were generally stable over the 1990 to 2004 period. However, high GWP gas percentages are rising somewhat.

Figure 103

Sources of California's Greenhouse Gas Emissions, 2004



* Includes electricity imports and excludes international bunker fuels
 Source: California Energy Commission

Among the different sectors in California, transportation is the largest source (40.7 percent) of climate change emissions followed by electricity production (22.2 percent) from both in-state and out-of-state sources (Figure 103). Electricity imported to California and the SCAG region from the Southwest has a significant percentage that is coal-based generation which has higher carbon intensity than in-state generation. The industrial sector was the third largest source at 20.5 percent.¹⁹ The SCAG region is likely to have a similar pattern as the state.

Figure 104

AB 32 Implementation - Air Resources Board

2007-01-01	ARB maintains statewide inventory
2007-06-30	List of discrete early actions
2008-01-01	Regulation for mandatory reporting of Emissions Adopt 1990 baseline/2020 target
2009-01-01	Scoping plan of reduction strategies
2010-01-01	Regulations to implement early actions
2011-01-01	Regulations to implement scoping plan

Source: California Air Resources Board

The overall schedule to implement AB 32 is shown in Figure 104. On June 21, 2007, the California ARB approved three discrete early actions measures which can be adopted as regulations and made enforceable no later than January 1, 2010. These discrete early action measures would reduce at least 13 million metric tons (CO₂ equivalent) emissions, about 7 percent of the total reductions needed by the 2020.

The discrete early action measures include the following:

1. **The Governor's Low Carbon Fuel Standard,**
2. **Increase methane capture from existing landfill, and,**
3. **Restrict the use of high global warming potential refrigerant for motor vehicle air conditioning.**

The Low Carbon Fuel Standard goal is to reduce the carbon intensity of California's passenger vehicle fuels by at least ten percent by 2020, cutting CO₂ equivalent greenhouse gas emissions by 10 to 20 million metric tons. Potential low carbon fuels include biodiesel, hydrogen, electricity, compressed natural gas, liquefied petroleum gas and biofuels. Transportation accounts for over 40 percent of the greenhouse gas emissions in California. Therefore, reductions of emissions from this source are vital. This is the single biggest stand-alone measure after the motor vehicle greenhouse gas standards the ARB has already adopted.

Methane generated by landfills, unless captured first by a gas recovery system, is emitted to the atmosphere and becomes a potent climate change emission. Currently, federal regulations require emission controls for larger landfills. However, there are no consistent state-wide standards for smaller and other uncontrolled landfills. Approximately 40 landfills are identified by the Integrated Waste Management Board as not having emissions controls. The requirement for installing emission control systems at smaller and uncontrolled landfills, and the improvement of collection efficiencies at controlled landfills would result in total reductions on the order of two to four million metric tons by 2020.

Hydrofluorocarbons or HFCs are a class of compound with high global warming potential of 1,300 relative to CO₂. Major applications of HFCs include refrigeration and air conditioning. Complete ban of HFC-134a due to its climate change impacts was instituted in Europe recently.

In October 2007, ARB approved additional discrete early action measures to reduce greenhouse gases from the trucking industry, greener ports, cement and semiconductor industries and consumer products. The new measures are projected to reduce about 3 million metric tons (CO₂ equivalent) of annual greenhouse emissions.

In addition to the discrete early action measures mentioned above, ARB also approved 35 additional emission reduction measures to reduce another 26 million metric tons (CO₂ equivalent) emissions by 2020. This group includes strategies such as cooler automobile paints, and forestry protocol that could be developed relatively quickly.

Reducing diesel PM as part of the State Implementation Plan (SIP) will also help meet the climate protection goals. Notably, the implementation of the one billion dollar bond to reduce goods movement-related emission is another key part of the diesel clean up strategy. The SIP, along with the AB 1493 vehicle climate change standards, will contribute additional reductions of 30 MMTCO₂.

Finally, the ARB is also in the process of developing a comprehensive Scoping Plan due in late 2008, which will outline a multifaceted approach to meet the 2020 reduction target defined by AB 32.

Air Quality and Health in the Greater Los Angeles Area: A Region in Crisis

Ed Avol

We are home to one of the world's most diverse populations, a veritable melting pot of cultures. We live in an area where our weather pattern is often described as "summer or not summer", where lifestyles of excess and poverty can be found within blocks of each other, and where winter is something "those folks back east" worry about. Our population and economy continue to grow in a region where almost half of the entire country's imports pass through our ports and over our roads and rail, where "freeways" and "rush hour" are increasingly oxymorons, and where – with a lot of hard work and determination – it will still take at least another decade to achieve federal air quality standards originally established almost 40 years ago to protect public health.

This year, local governments in the region (through the Southern California Association of Governments [SCAG]) passed a resolution asking that a state and federal emergency be declared to address the region's Air Quality/Health crisis¹. Was this action supported by the available evidence? If so, what can be done, and what are we doing about it? With the push for economic growth, increased infrastructural development, and expanded goods movement activities in Southern California, where does public health fit into the discussion?

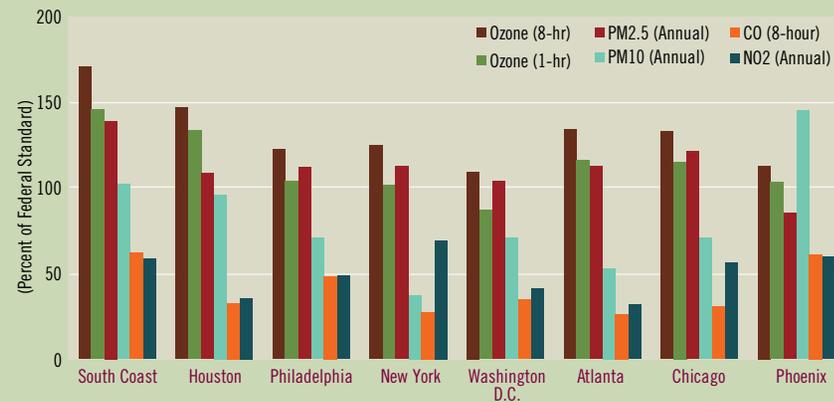
Understanding the Challenge

Southern California has been a perennial competitor for the dubious distinction of "poorest air quality in the nation". Ambient (outdoor) ozone and particulate levels have historically been among the highest in the country and continue to violate established National Ambient Air Quality Standards² (NAAQS) (See Figures 1 and 2). In the face of continued population growth, sprawling urbanization, increasing annual vehicle miles traveled, and expanding business activities, the regional air pollution regulatory control agencies (the State of California Air Resources Board [CARB] and the South Coast Air Quality

Management District [SCAQMD]) have worked hard to develop emissions reduction strategies to reduce outdoor levels of airborne contaminants. Downward trends in annual outdoor concentrations of

Figure 1

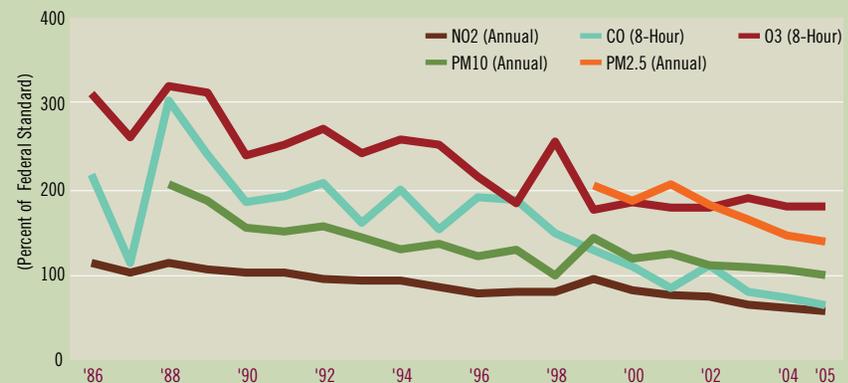
Maximum Pollutant Concentrations in the South Coast Air Basin Compared to Other U.S. Metro Areas, 2005



Source: South Coast Air Quality Management District

Figure 2

Maximum Pollutant Concentrations in the South Coast Air Basin



Source: South Coast Air Quality Management District and Air Resources Board, The California Almanac of Emissions and Air Quality - 2007 Edition

ozone (that clear photochemical gas that made LA smog a catchphrase) and particulate matter (microscopic pieces of dirt floating in the air each day) seem generally encouraging (see Figures 3 and 4). Recently, the steady annual improvement in air quality seems to have slowed, possibly due in part to decreasing effectiveness of control strategies, changes in regional meteorology, or increasing environmental pressures from a burgeoning population.

But even as we inch towards achieving the federal air standards developed to protect public health, the proverbial goal lines are moving. Recent reviews by the CARB and the US Environmental Protection Agency (EPA) have resulted in a tightening of both state and federal standards for oxides of nitrogen in California³ and for ozone and particulate matter in California and the US^{4,5, 6-7}. EPA is currently reviewing the federal oxides of nitrogen (NOx) standard, and the EPA Administrator is considering lowering the ozone standard, following a strong recommendation to do so from the EPA Clean Air Science Advisory Committee⁸. Under existing standards, compliance

Figure 3

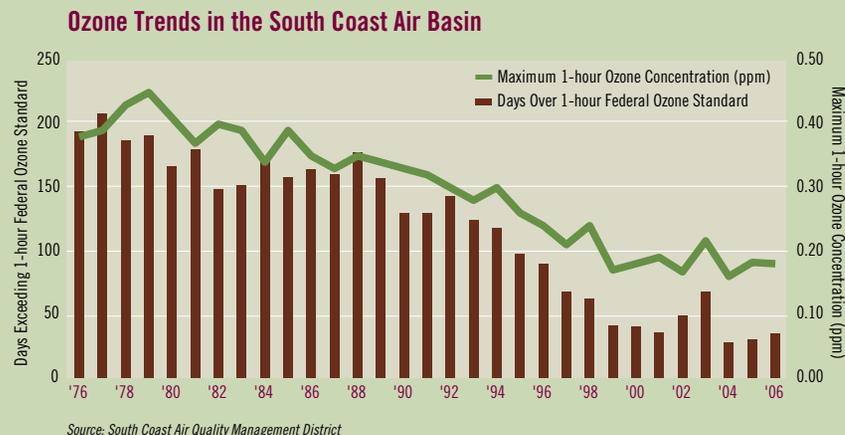
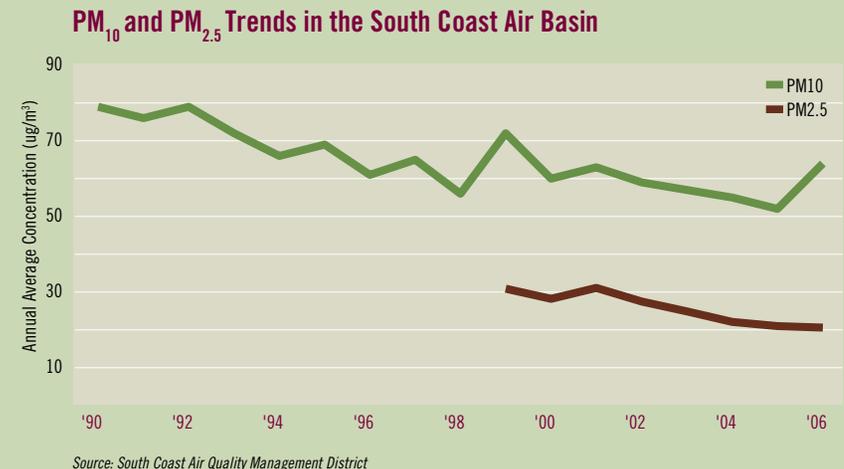


Figure 4



dates in the Southern California region (“compliance” being defined as having air to breathe in this Basin that meets the federal standards for acceptable air quality) are presently 2014 for particulate matter less than 2.5 microns in diameter (PM_{2.5}) and 2024 for ozone⁹. These far-off dates are both troubling and discouraging, and seem to represent a resigned acceptance of another decade or more of continued intentional exposure for millions of residents to unhealthy air.

So what does the current health data show? Is there truly a health crisis?

What the Health Data Show

Air quality standards are based on published scientific data relevant to the contaminant under review. Thousands of published articles have documented the health effects of the nationally-recognized “criteria” pollutants (ozone, particulate matter (PM), NOx, sulfur oxides (SOx), carbon monoxide, and lead). It is beyond the scope of this essay

to quantify the known information about the criteria pollutants. However, a brief summary of relevant recent health findings will demonstrate the current level of understanding regarding continued exposure to outdoor pollution.

Morbidity

In recent years, a growing body of research has become available relating both lung function level and growth rate to long-term air pollution exposure. Decreased lung growth rates, decreased lung function performance (the measurable ability to move air through the airways), and increased respiratory symptoms in children growing up in Southern California communities with higher levels of NO_x and PM have been reported¹⁰⁻¹³. Similar findings have been observed in other populations of children exposed to vehicle combustion exhaust (which contains both gases and particulates)^{14,15}. For children growing up in Southern California communities impacted by ambient ozone, studies have reported increased asthma¹⁶ and respiratory illnesses leading to more school absences, lost learning time, and considerable economic burden^{17,18}. The cumulative impact of these respiratory effects can be life-long degradation of health, since low lung function and symptoms are predictors of later-life respiratory disease and mortality¹⁹⁻²².

Additional health investigations have suggested that proximity to busy roadways and traffic (a key source of PM in Southern California) plays an important role in children's respiratory health development. Decreased lung function and increased risk for asthma are associated with living near busy roads^{23,24}. Busy roads and traffic have also been associated with increased risks for low birth weights, pre-term births, and even infant death²⁵⁻²⁷.

The recent interest in the effects of particulate exposure on human health has resulted in a number of studies linking long-term PM exposures to several cardiovascular (heart-related) endpoints²⁸⁻³⁰. Mechanistically, studies have demonstrated how ultra-fine particles (particles smaller than 100 nanometers, or 1/600th of the diameter of a human hair) emitted from incomplete combustion of engine fuels and lubricating oils can bypass the body's defensive mechanisms, gain entry to cells and tissues, and alter or disrupt normal cellular function³¹⁻³³.

Mortality

Hundreds of research studies have addressed the association between ambient air pollution and human mortality³⁴. Deaths in California³⁵⁻³⁷,



the United States³⁸⁻⁴¹, and across the world^{42,43} have been linked to air pollution exposure. CARB estimates that over 5400 premature deaths, 2400 hospitalizations, and almost a million lost work days are attributable each year to particulate pollution in the South Coast Air Basin (our regional area)⁴⁴. Concerns about the possible confounding effects of specific modeling approaches, temperature, or other pollutants have led to a number of sensitivity analyses⁴⁵⁻⁴⁷. Although the precise magnitude of the risk or identification of the specific particulate constituent responsible may remain open questions, there is a growing consensus that air pollution is making us sick and killing us.

But as the data moves us closer to a clearer understanding of air pollution exposure and its adverse health effects, are there counterbalancing societal pressures that explain, account for, or potentially justify these increased risks?

Urban Pressures Affecting the Air Quality/Health Connection

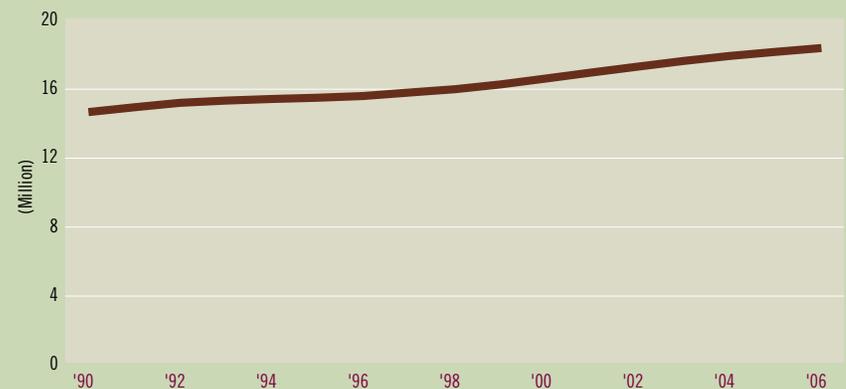
Many of us were not born in Southern California; we migrated here in search of opportunity, improved living conditions, and better lives. Southern California has its own connotation of lifestyle and perspective, and the allure of all that is available here has attracted millions who visit, vacation, or live, work, and raise their families here.

Steady increases in regional population have fueled dramatic regional changes, transitioning former agricultural areas into suburban communities, and converting dairy, grazing, and open land into large-footprint warehouses for redistribution of world imports (Figure 5). Population increases have also led to the need for more roads, more electrical power, more potable water, and more general services. Ultimately, this growth requires improved urban planning. As our communities have grown in number and size, we have become more

aware that the available land and resources are not inexhaustible; we need to make better informed choices about how we use the increasingly limited resources we have.

At this intersection of population growth and land use, there are also interactions with public health, the economy, business expansion, and priorities. As our communities and businesses expand, as our freeways and roadways more effectively connect us from one point to another, we increasingly have to make choices about how to use a given parcel of land or location. Where do we build the new schools needed to educate

Figure 5
Population in the SCAG Region



* SCAG Region includes Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties
Source: California Department of Finance

the next generation? What about recreational areas to encourage physical exercise and mental health? Where do we house current and newly-arriving residents? How do we balance the economic needs of a society juggling manufacturing, service, and agricultural components with “growing green” and maintaining a “healthy lifestyle”?

Regional Problems Require Regional Solutions

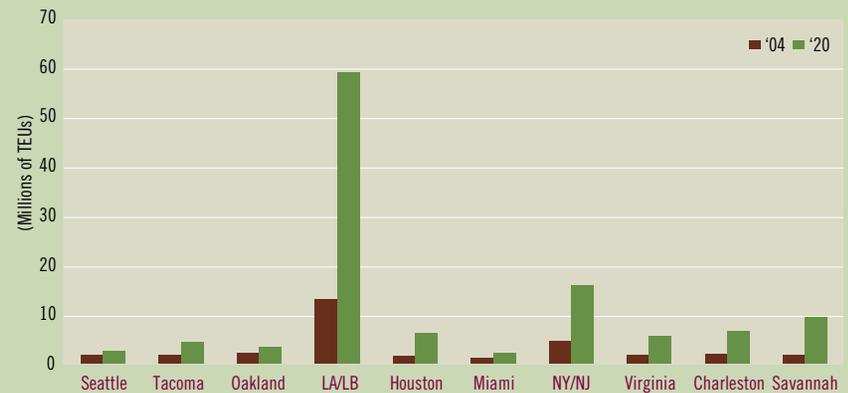
As a state, California has embraced and encouraged an expanded Goods Movement effort to accommodate international trade. The economic implications of such decisions are substantial, including a growing service sector economy, more jobs, and potentially lucrative funding opportunities. To achieve this Goods Movement vision, we are wrestling with the need for improved infrastructure – more cargo transfer terminals, more material re-distribution centers, more light and heavy duty vehicle-traveled freeways, more frequent and expanded rail operations, and more trucks. Each of these infrastructural expansions leads to more air pollution, unless we make some key critical choices very soon.

Local impacts are visual, visceral, and immediate. The communities of San Pedro, Wilmington, and Long Beach struggle with terminal expansion, increased hours of port operation, more trucks on the streets, more trains (and rail crossing delays), more noise and aesthetics issues, and more health concerns. The ports are wrestling with what they perceive as their mandate (“accommodate growth”) and what they accept as their civil obligation (doing their “fair share” to clean up the air). But air emissions, like the millions of cargo boxes passing through the ports, don’t stop at the port property’s edge; they continue to move across the region. Similarly, the impacts of port operations reverberate across the region to downstream re-distribution centers, to so-called inland ports, and to communities east, north, and south of the port complex.

The decisions we make not only affect us here, but also affect the country at large, because we are the conduit for almost half of the country’s imported cargo (see Figures 6 and 7). Our ports will almost surely continue to compete for larger portions of the national and

Figure 6

Volume of Trade to Major U.S. Ports



Source: U.S. Department of Transportation

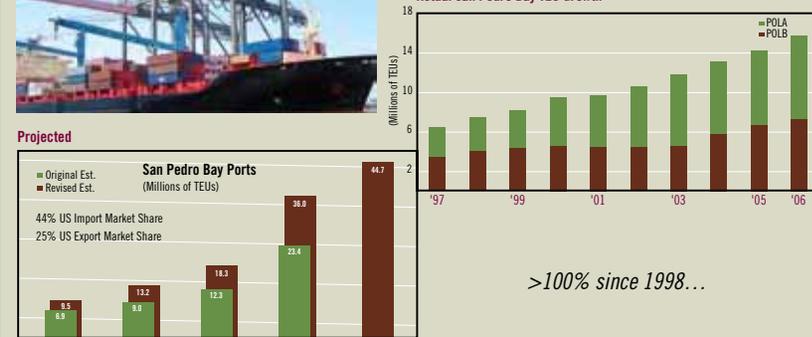
Figure 7

Recent and Projected Port Growth within the South Coast Air Basin Area



Container throughput is expected to triple in the next 15 to 20 years...

Actual San Pedro Bay TEU Growth



Source: POLA, POLB and ACTA

>100% since 1998...

international cargo transport pie. So while we grapple locally with the immediate impacts of increased infrastructural demands, and as the Goods Movement ramps up through our region, we need to be mindful that the entire country is betting that we will deliver.

So what must we do to preserve and protect the health of our communities, yet respect our national obligations and role in providing international goods to the nation? Must we sacrifice local health to ensure economic vitality for the country?

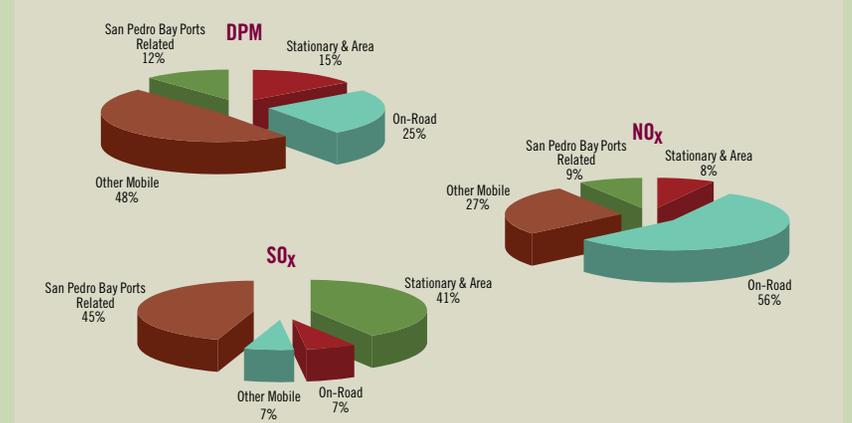
The answer should be a resounding NO. We must push ahead on aggressive emission reduction strategies and emphasize at every turn that the public's health must be a part of the discussion. There must be an acknowledgement that human health concerns are paramount, that we cannot accept the ways of the past to be the methods of the future.

Some encouraging signs suggest an awakening may be underway. The ports of Los Angeles and Long Beach have entered into an historic agreement, to work together on a far-reaching and evolving Clean Air Action Plan (CAAP)⁴⁸. The plan includes dozens of emission control measures, developed with the active participation of ports' staff and the regulatory air pollution control agencies (the local SCAQMD, the State's CARB, and the USEPA) and feedback from the community. An annual review of CAAP reduction strategies – both those that are working and not – and a continued ratcheting down of emissions are critical elements of the plan. Lease negotiations and port-wide tariffs to enforce emission reduction strategies will provide additional leverage for timely emissions reduction.

But the CAAP in its current form – or the CAAP, in any form – will not solve our regional air quality problems, even though port operations account for a substantial portion of daily regional pollution (Figure 8).

Figure 8

Port-Related Contributions for Diesel Particulate Matter (DPM) Nitrogen Oxides (NO_x) and Sulfur Oxides (SO_x) 2002



Mobile source pollution is our region's major air quality problem, and mobile sources are regulated by the State and Federal (not local or regional) governments. Inter-state or international transport (of goods, of people, and of pollution) fall under the jurisdiction of the federal government, or under multi-national control. So, state and federal agencies must do more, since their regulatory reach covers the vast majority of the pollution sources involved. Locally, we must continue to lobby for aggressive emission reduction strategies to accelerate the pace of cleanup.

What can we do locally to help? We begin in the ports of Long Beach and Los Angeles, collectively the largest source of air pollution in Southern California. In terms of mass emissions, ocean-going vessels contribute over half of the PM emissions in the port, 90% of the SO_x (which is involved in atmospheric chemical reactions leading to downwind formation of PM) and over one-third of the NO_x (which is

also important downwind, due to its involvement in chemical reactions leading to increased ozone and PM). Ships burn large amounts of relatively dirty, internationally purchased fuel, both in transit and in port. Regulatory control of ship emissions has been difficult, due to the international nature of ship operations and the cautious pace of activity (or inactivity) of port pollution control at the federal level.

Aggressive strategies to reduce the impurities in and amount of the fuels being consumed need to be pursued. Since January 2007, all ships visiting California ports are required to burn low-sulfur fuels in their auxiliary engines. The CAAP calls for the use of still-lower-sulfur fuels in the next several years. However, more could be done in a shorter period of time, by enforcing the use of 0.1% sulfur fuel in ship engines by 2010 (currently required by CARB by 2010 for ships' auxiliary engines only). Recently, a large terminal operator in the Los Angeles Port (Maersk) unilaterally changed to operating their ships on 0.2% fuel in the Los Angeles area, while others were still using fuel ten times dirtier and debating whether moves to cleaner fuel were feasible or safe. Progressive actions such as Maersk's needs to become the standard, rather than the rare example, for corporate operations to be welcomed in our region.

Electrification of port and rail operations and dramatically increased use of other clean-energy operations, rather than continued planned reliance on diesel-based engines and operations, needs to be expedited. Aggressive replacement of older, dirtier vehicles (from industrial trucks to commercial off-road bulldozers and yard equipment, to cars, buses, trains, and planes) needs to be emphasized. Getting older dirtier vehicles out of routine operations should be a high priority.

We need to move forward on alternative transportation modes for goods and people, to achieve both energy and emissions savings. New

technologies and modes of transport must be evaluated and piloted. Existing mass transit operations need to be optimized, expanded, and improved. Fleet rules for cars and trucks need to be updated and advanced to provide ever-cleaner options and access. The "hydrogen superhighway" or magnetic levitation may not be in our immediate future, but plug-in hybrids, liquefied natural gas (LNG) vehicles, enforcement of the best available engine control standards, and C-O-N-S-E-R-V-A-T-I-O-N are available now or in the very near future, and should be emphasized. Political inaction and inertia can no longer be tolerated.

Regional and state agencies have identified a number of possible emissions reduction measures and approaches. Their approaches are often promising, but the timing for enforcement and application has





often been viewed as “chaotically quick” by industry and “agonizingly slow” by the public. We need to move beyond the plodding sense of transitional change often ingrained in institutional operations and remember that pollution exposures are ongoing as we move ever so slowly along. Where health is an issue, we need to accelerate our actions.

Local government could and should take action to address air quality health impacts. General Plans could minimize land uses that increase air pollution-related health impacts from exposure to toxic air contaminants and particulates. Ever-enlightened approaches to land use and urban planning could be applied, because how we build our cities and infrastructure define how we will expend our resources in transit, operation, and production of services. Local governments need to plan for closer linkages in infrastructure - including on-dock rail for cargo transport, neighborhood schools for home-to-school commuting, shopping and business proximity to residential areas, and improved

telecommuting and video-conferencing for workers. Such planning will require more regional perspectives, which could be an important contribution of regional organizations such as SCAG (who are already involved in numerous demonstration projects).

But planners and plans will not be successful without public endorsement and support. We need to develop more effective public outreach about the goals, methods, sacrifices, and costs involved in pollution reduction. These efforts should involve multi-media campaigns to publicize the actions underway, the need for those actions, and the progress being made as a result of those actions. All avenues should be explored, from television and radio public service announcements to on-screen movie-theatre ads, to internet notices, to fact sheets circulated at parks, schools, doctors’ offices, and social organizations, to newspaper and magazine/journal articles. If we don’t provide the public with clear and persuasive evidence for proposed changes or the benefits of choosing them, proposed changes will neither be publicly supported nor politically made.

Parting Thoughts

Southern California is a showcase for many positive attributes...and for some not-so-positive ones, as well. Regional air pollution, and the actions we take to respond to it, represents a singular opportunity for demonstrating what can be done if we commit our considerable resources and will to the task.

In the face of steady population increases and ever-expanding residential growth, the slow but steady improvement in air quality in Southern California is testimony to regulatory agency determination, focus, and accomplishment. Recent health research, however, provides evidence for concern about long-term health effects of exposure to air

pollutants, including respiratory symptoms, low lung function, low birth weight, cardiovascular disease progression, and death. The exposures and resulting health effects are occurring now, from the air that we all breathe, in the communities we all live in.

Current federal air quality standards require compliance in 7 years for PM_{2.5} and 17 years for ozone. Waiting another 7 (or 17) years for this region to achieve air quality considered protective of public health effectively means the respiratory health of the current generation of children is being written off. That is a tragedy and should be justification enough for an emergency wake-up call, to apply all available technologies to clean up our air as quickly as possible.

If cleaning up the air we all breathe is more quickly achieved by declaring an emergency air quality/health crisis, then that declaration is justified, because the crisis exists now. We need to face these issues head-on, read the “handwriting on the wall” regarding the public health impacts of continued emissions, and mount an overwhelming and immediate effort to clean up our air. We do this for ourselves, for our children, and for our regional future...and we can no longer delay.

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Figures:

1. Maximum Pollutant Concentrations in the South Coast Air Basin Compared to Other U.S. Metro Areas, 2005 (courtesy of South Coast Air Quality Management District).
2. Maximum Pollutant Concentrations in the South Coast Air Basin (courtesy of the South Coast Air Quality Management District).
3. Ozone Trends in the South Coast Air Basin (courtesy of South Coast Air Quality Management District).
4. PM₁₀ and PM_{2.5} Trends in the South Coast Air Basin (courtesy of South Coast Air Quality Management District).
5. Population in the SCAG Region.
6. Volume of Trade to Major U.S. Ports (from U.S. Dept of Transportation data).
7. Recent and Projected Port Growth within the South Coast Air Basin Area (ports of Los Angeles and Long Beach).
8. Port-related Contributions for Diesel Particulate Matter (DPM), Nitrogen Oxides (NO_x), and Sulfur Oxides (SO_x) (courtesy of Port of Los Angeles).



Between 2003 and 2006, the region achieved steady progress in the math test scores for 7th grade.

Quality of Life

Education

Why is this important?

Student performance is measured through three indicators: 1) test scores for seventh grade, 2) high school dropout rates, and 3) college readiness measured by the percentage of high school graduates completing courses required for the University of California (UC) or California State University (CSU) entrance. High school dropouts are severely disadvantaged in competing for quality jobs. Finally, the educational attainment of the adult population reflects the labor force competitive level in the region.

How are we doing?

During the 2005/2006 school year, there were approximately 3.2 million public school students and 150,000 teachers from kindergarten to 12th grade (K-12). The student-teacher ratio was 21.5 in 2006, slightly higher than the state average at 21. Since 2000, total number of stu-

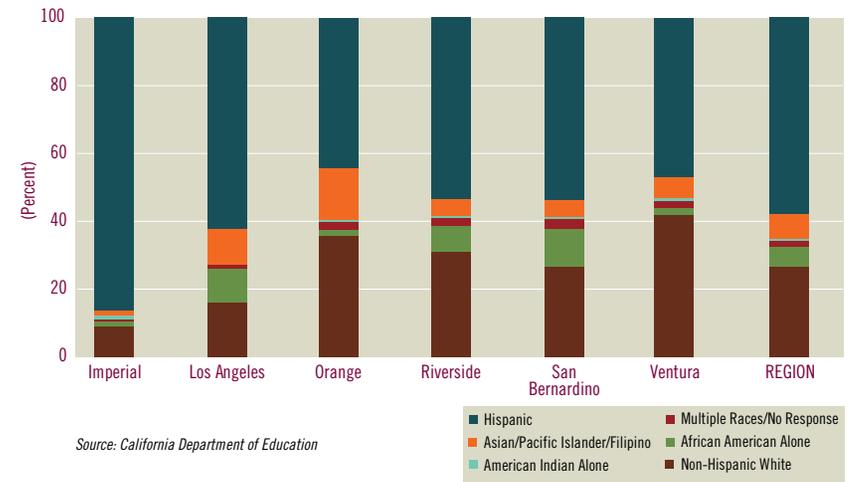


dents grew by 170,000 (5.6 percent), while the number of teachers rose by only about 4,000 (2.7 percent). The slower growth of teachers was primarily due to the state budget shortfall during 2002 and 2003 that led to teacher reductions. Hence, the student-teacher ratio increased slightly from 20.9 to 21.5 between 2000 and 2006.

Among the 3.2 million students in 2006, about 1.8 million (57 percent) were Hispanics, significantly higher than their share of the general population of 44 percent. In Imperial County, 86 percent of the K-12 students were of Hispanic origin. Non-Hispanic White students accounted for only 860,000 (27 percent), significantly lower than their share of the general population of 36 percent.

Figure 105

K-12 Students by Race/Ethnicity, 2005-2006



Test Scores

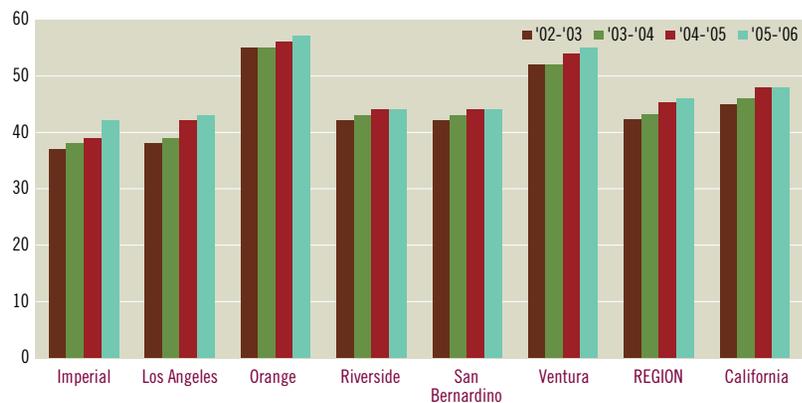
In 2006, the 7th graders in the region continued to perform below the national median in reading and math test scores except in Orange and

Ventura counties (Figures 106 and 107). Since 2000, the region's performance has tracked closely with that of the state.

Between 2003 and 2006, the region achieved steady progress in math test scores relative to the nation. During this period, the national percentile rank of the average student score in the region rose from 44 percentile to 48 percentile, and improvement took place in every county in the region.

Figure 106

Math Test Scores for 7th Grade
(National Percentile Rank of Average Student Score)

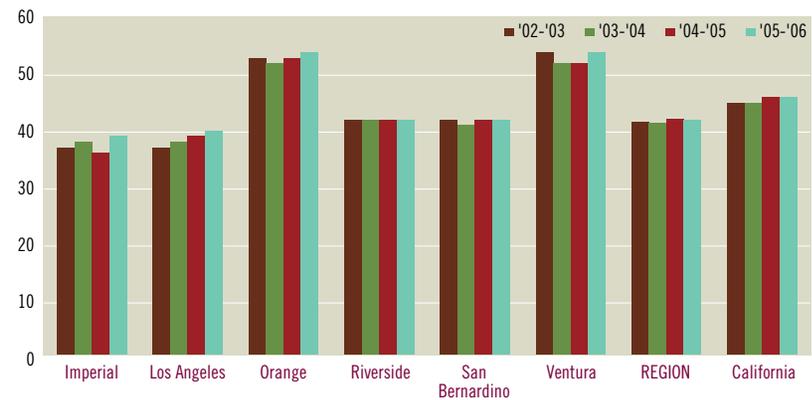


Source: California Department of Education

As to the reading test scores, only Los Angeles and Imperial counties achieved consistent improvements between 2003 and 2006. It should be noted that the share of English learners in these two counties also decreased during the same period. In 2006, the share of English learners in 7th grade ranged from about 17 percent in Ventura and San Bernardino counties to 38 percent in Imperial County (Figure 108).

Figure 107

Reading Test Scores for 7th Grade
(National Percentile Rank of Average Student Score)

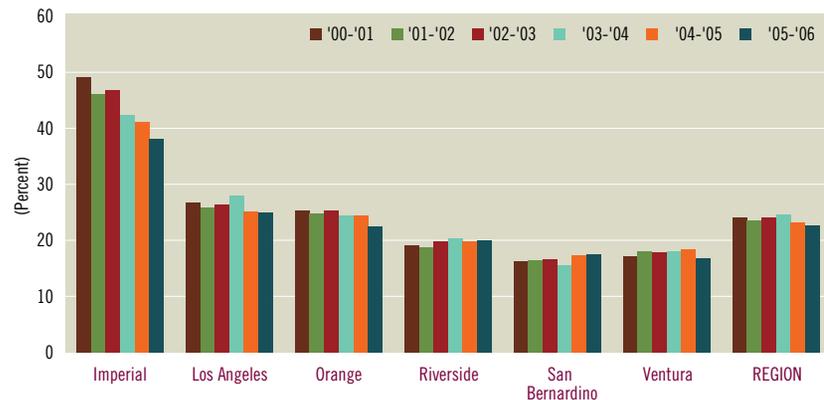


Source: California Department of Education



Figure 108

Share of English Learners in 7th Grade

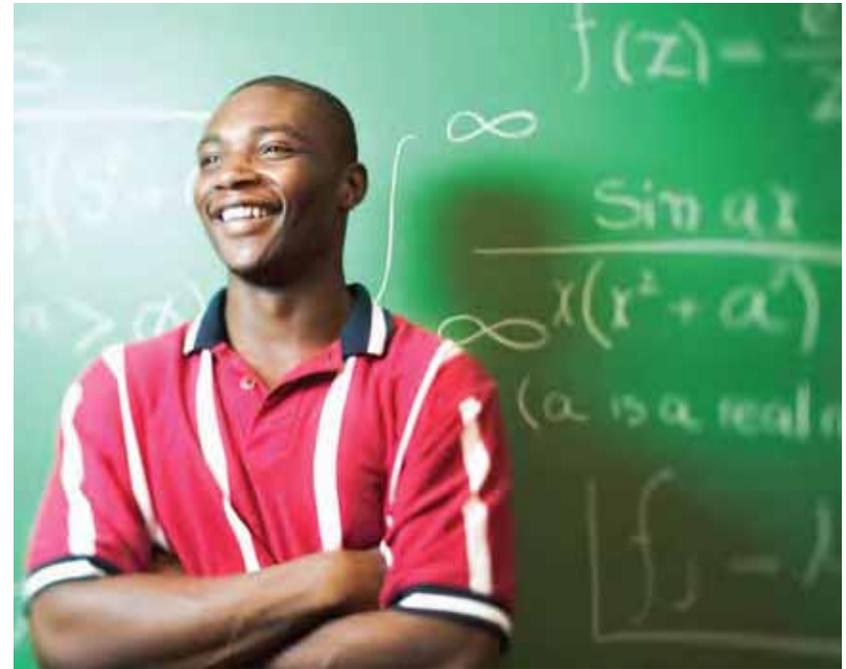


Source: California Department of Education

Test scores are affected by several factors including, for example, the proportion of students who are English learners, and the student/teacher ratio. Between 2000 and 2006, the total number of English learners from K-12 decreased in Los Angeles and Orange counties while increasing in the Inland Empire. Specifically, the number of English learners fell by 7 and 18 percent in Los Angeles and Orange counties respectively. During this period, the number of English learners in Riverside County rose by 19 percent while it grew by 25 percent in San Bernardino County. As to the student/teacher ratio, California continues to have the second highest in the nation, and ranked 44th in math at 4th and 8th grades, 48th in reading at 4th grade, and 49th in reading at 8th grade.¹

Dropout Rates

Between 2000 and 2006, the dropout rates for high schools in the region rose from 12.1 percent to 15.3 percent, and continued to be slightly higher than the state average at 14.9 percent (Figure 109). In 2006, both San



Bernardino (20.6 percent) and Los Angeles (17.5 percent) counties experienced significantly higher dropout rates than the state average.

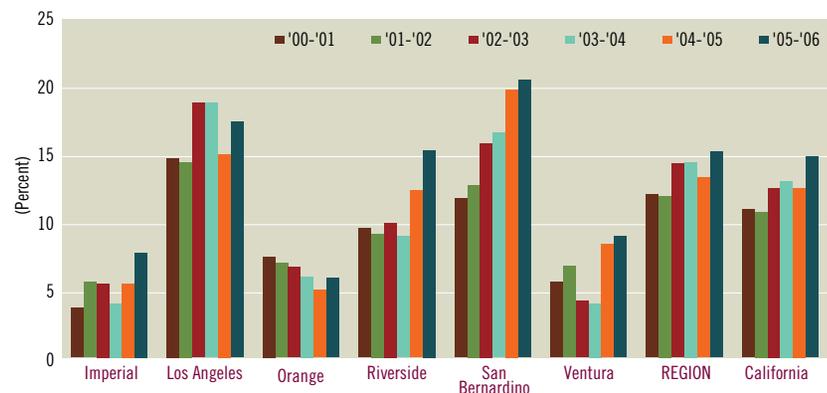
In 2006, every county in the region experienced higher dropout rate than in 2005. For San Bernardino County, its dropout rate increased continuously from about 12 percent during 2000-2001 school year to almost 21 percent during 2005-2006, the highest in the region. Between 2000 and 2006, dropout rates also increased significantly in Riverside County.

Within the region, Orange County achieved the lowest dropout rates in 2006 at about 6 percent, slightly higher than its 2005 level after four consecutive years of decline. It should be noted that in the 2002-2003

school year, the California Department of Education started using the National Center for Education Statistics dropout rate criteria.

Figure 109

Dropout Rates in Public High Schools



Source: California Department of Education

African American and Hispanic high school students across the region and the state, when compared with their White and Asian peers, had significantly higher dropout rates (Figure 110). For example, in 2006, the dropout rate for African American students in San Bernardino County reached 26.4 percent, and Hispanic students with 24.3 percent compared with 14.2 percent for non-Hispanic Whites and 9.2 percent for Asians.

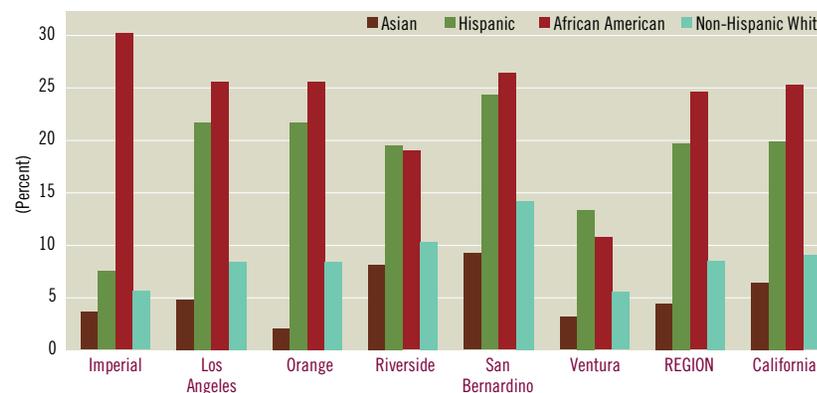
A recent national study found that socioeconomic status - based on parents' income and education, rather than race or ethnicity - is the key indicator of dropout.² Specifically, African American and Hispanic youth are no more likely to drop out of high school than their White or Asian peers of similar family income and education. The higher percentage of African American and Hispanic dropouts of high school is primarily because they are overrepresented in the lowest income

groups. Dropout rates also appear highly related to student achievement.³

As to approaches to prevent high school dropouts, the National Research Council finds no easy solutions.⁴ Key features of successful programs in reducing dropouts include, among others, an effective instructional program, early attention to low performance students, more personalized school and more parental involvement.⁵ Therefore, increase the number of school support staff, such as counselors, mentors, and social workers particularly in lower-income areas would contribute to reduce dropout rates.

Figure 110

Dropout Rates by Race/Ethnicity in Public High Schools, 2005/2006



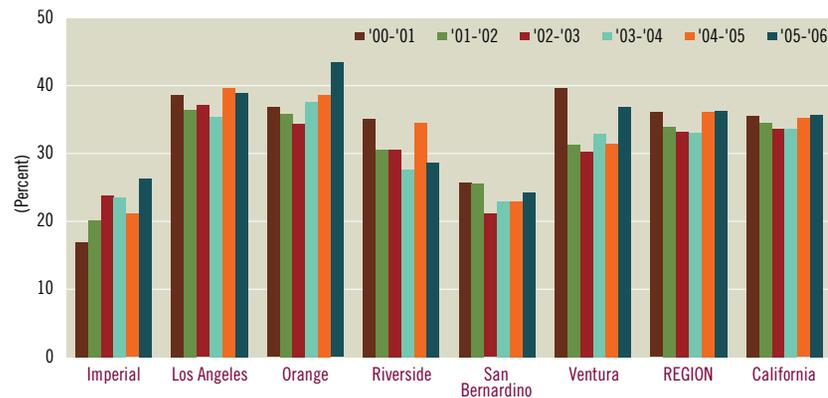
Source: California Department of Education

College Readiness

In 2006, only 36 percent of high school graduates completing courses required for University of California (UC) or California State University (CSU) entrance. When compared with 2000, there were little improvements in college readiness in 2006 at the regional level, though Orange

and Imperial counties made notable improvement. In 2006, with the exception of Orange County, every county in the region had less than 40 percent of high school graduates complete courses required for UC or CSU entrance (Figure 111).

Figure 111
High School Graduates Completing Courses Required for UC or CSU Entrance

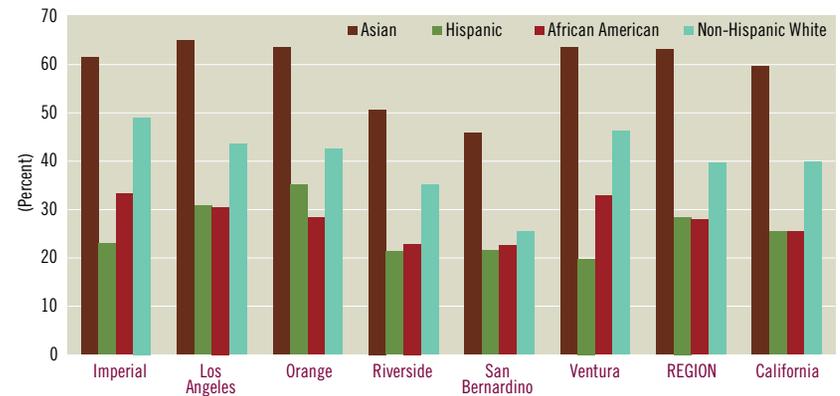


Source: California Department of Education

There were also similar patterns of racial and ethnic disparities in the region with respect to college readiness (Figure 112). In each of the six counties in the region, Asian students consistently achieved the highest percentage in completing courses required for UC or CSU entrance. For example, while 65 percent of Asian graduates in Riverside County completed courses required for UC or CSU entrance, only 44 percent of the non-Hispanic White students, approximately 30 percent of the African and Hispanic students accomplished the same. Among Hispanics, two-year community colleges are the most frequently used institutions of higher education.

When compared with other states, California has one of the lowest percentages of high school seniors enrolling in 4-year colleges.⁶ Factors contributing to this low performance include, among others, lack of college preparatory curriculum along with fewer adequately trained teachers and counselors.

Figure 112
High School Graduates Completing Courses Required for UC/CSU Entrance by Race/Ethnicity, 2005/2006



Source: California Department of Education

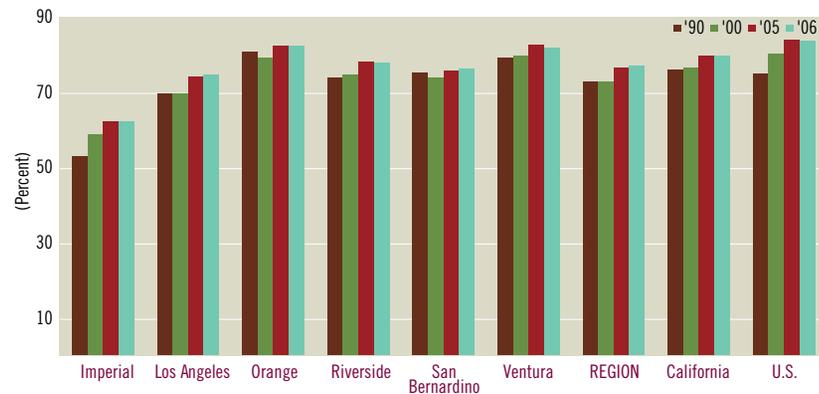
Educational Attainment

Between 2000 and 2006, there were noticeable improvements in educational attainment in the region consistent with national trends. The percentage of adults with at least a high school degree increased from 74 to 77 percent while the percentage of adults with at least a bachelor's degree increased from 25 to 27 percent (Figures 113 and 114). However, among the nine largest metropolitan regions, the SCAG region remained in last place in 2006 in the percentage of adults (77 percent) with at least a high school diploma (see Figure 132 page 150), and second to last for at least a bachelor's degree (27 percent) (see Figure 133 page 150). The

Washington DC region had the highest percentage of adults with at least a bachelor's degree (41 percent).

Figure 113

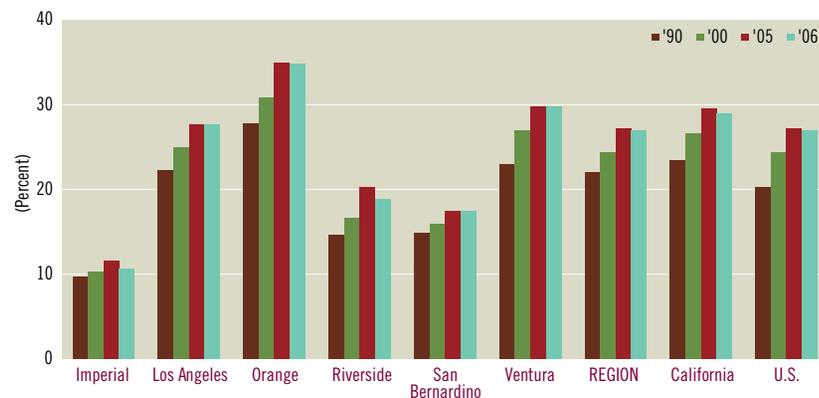
Educational Attainment
(Percent of Persons 25 Years and over with High School Diploma or Higher)



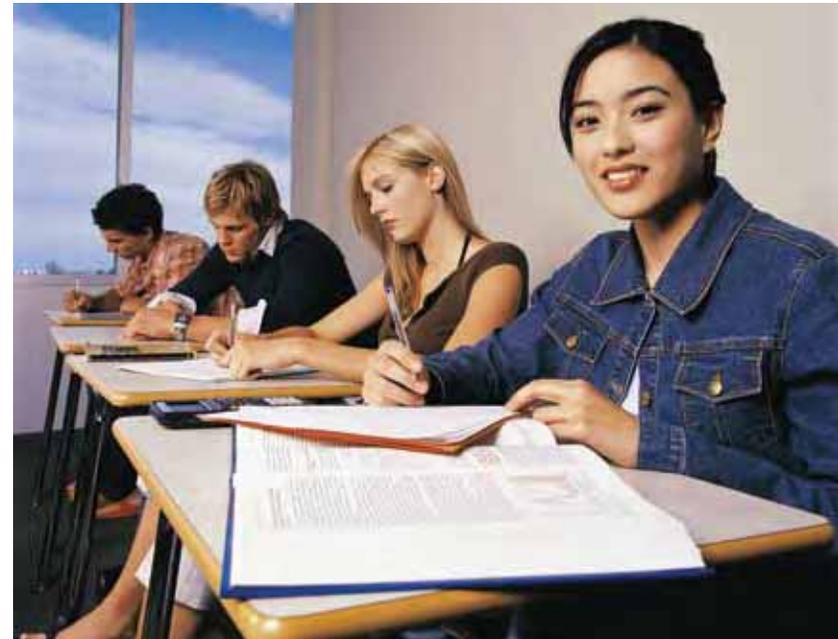
Source: U.S. Census Bureau, 1990 and 2000 Census, 2005 and 2006 American Community Survey

Figure 114

Educational Attainment
(Percent of Persons 25 Years and over with Bachelor's Degree or Higher)



Source: U.S. Census Bureau, 1990 and 2000 Census, 2005 and 2006 American Community Survey



Within the region, Orange County is the only county with educational attainment much higher than the state or national average. There are much greater disparities among counties with respect to the share of adults with at least a bachelor's degree than with at least a high school diploma.

Since 2000, the coastal counties have achieved more progress in educational attainment for at least a bachelor's degree than the inland counties. During this period, the coastal counties improved by 2.8 (Los Angeles) to 4 (Orange) percentage points as to the share of adults with at least a bachelor's degree, while the inland counties only increased by 0.3 (Imperial) to 2.3 (Riverside) percentage points. In 2006, Orange County continued to have the highest percentage of adults with at least a bachelor's degree (34.8 percent). However, less than 11 percent of adults in Imperial County achieved the same.

Public Safety

Why is this important?

Crime-related activities consume an enormous amount of valuable social and economic resources. The social costs are substantial if less quantifiable, including pain and suffering of crime victims and their families and weakening of community cohesion. The economic costs include loss of productivity due to death or disability resulting from crime, medical costs, and loss of property values in neighborhoods with high crime rates.

How are we doing?

Violent Crimes

The violent crime rates in the region peaked in 1992 and then began an extended decline to its lowest level in three decades. This is generally consistent with the trends at the state and national levels (Figure 115). In 2006, the violent crime rate in the region was less than 40 percent



of its 1992 level. In addition, the gap between the region and the state in violent crime rates has finally been closed, and the gap between the region and the nation has been significantly narrowed.

Figure 115

Violent Crimes (Per 100,000 Population)



Source: California Department of Justice, California Department of Finance, and FBI 2006 Uniform Crime Report (for U.S. only)

Factors contributing to the extended reductions of violent crime rates since 1992 in the region include, among others, higher rates of incarceration, increased resources toward law enforcement, and improvements in the economic conditions particularly the consistent reductions in unemployment rates.⁷ However, since the September 11 terrorist attack in 2001, local police departments have been squeezed by growing domestic security concerns at a time when federal agencies such as the FBI are focusing more on preventing terrorism than assisting local police fighting traditional crimes.⁸

In 2006, the violent crime rate in the region decreased slightly by 1.7 percent from 2005, after an 11-percent reduction during the previous period.

At the state and national levels, violent crime rate increased slightly by 1.2 percent and 1 percent respectively between 2005 and 2006.

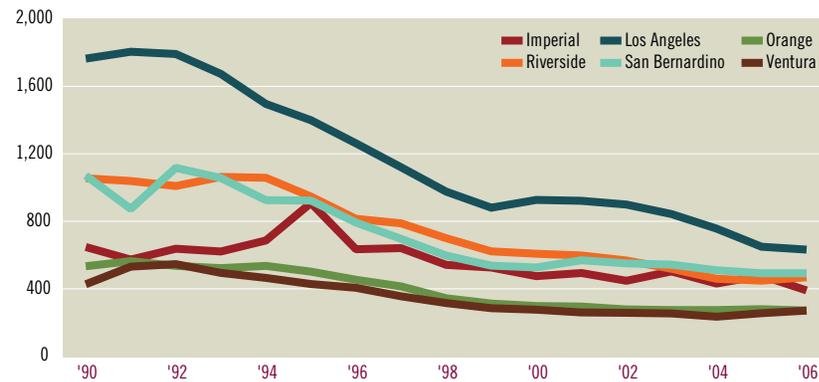
Violent crimes include four types: homicides, forcible rapes, robberies and aggravated assaults. In 2006, the region had a total of 95,592 violent crime incidents, a decline of 6 percent from 2005. Among them, 51,849 (or 54 percent) were aggravated assaults, 38,333 (40 percent) were robberies, 4,017 were forcible rapes (4 percent) and 1,393 (2 percent) were homicides. *From 2005 to 2006, though the total number of aggravated assaults and homicide decreased in the region, however, there were increases in robberies.* During this period, the number of robberies increased by 7 percent in the region consistent with the national trend and every county in the region experienced an increase. The number of homicides in the region, however, decreased by 5 percent to be below the 2004 level. Los Angeles County continued to account for almost three-quarters of all homicides in the region.

Within the region, Imperial County achieved the most significant reduction of 18 percent in its violent crimes rate, followed by Orange (-2.8 percent) and Los Angeles (-2.6 percent) counties (Figure 116). Almost three-quarters of the violent crimes took place in Los Angeles County.



Figure 116

Violent Crimes by County
(Per 100,000 Population)



Source: California Department of Justice

In 2006, the violent crime rate in the SCAG region at 520 (per 100,000 population) was only about 10 percent higher than the national average at 474 (per 100,000 population). However, within the region, the violent crime rates in Ventura and Orange counties were 40 percent below the national average in 2006, and only Los Angeles and San Bernardino counties experienced higher rates than the national average (see Figure 134 page 151).

Juvenile Felony Arrests

A juvenile felony offense is defined as a crime that is punishable by death or imprisonment for those aged 10 to 17. In 2006, the region had about 2.33 million juveniles, only a 0.6 percent increase from the previous year. Felonies include crimes such as murder, assault, rape, robbery, burglary, and serious drug offenses. Exposure to the criminal justice at an early age correlates with increased likelihood of criminal activity and incarceration in adulthood.

From 2005 to 2006, the juvenile felony arrest rate in the region increased by almost 5 percent. This was the third consecutive year of increase in contrast to the trend of continuous decline between 1990 and 2003. Nonetheless, the juvenile felony arrest rate in the region in 2006 was only 43 percent of its 1990 level. The state of California had similar performance trends of juvenile felony arrest rate, rising by 6 percent between 2005 and 2006 (Figure 117).

Figure 117

Juvenile Felony Arrests
(Per 100,000 Population Aged 10-17)



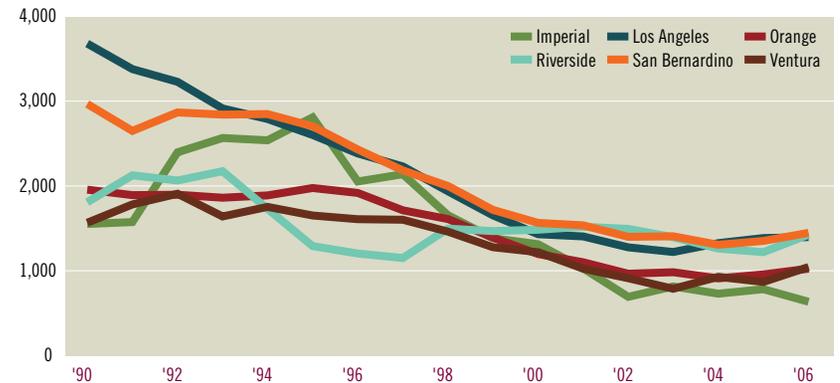
Source: California Department of Justice

Since 2000, the Inland Empire and Los Angeles County have experienced higher rates in juvenile felony arrest than the other three counties (Orange, Ventura and Imperial). Between 2005 and 2006, the juvenile felony arrest rate in Riverside County increased by 17 percent, while it increased by 7 percent in San Bernardino County but only 1 percent in Los Angeles County. Ventura County, though with relatively low level of juvenile arrest rate, saw a 20 percent increase in 2006 while Orange County increased by 7 percent. Only Imperial County enjoyed a 19 percent reduction (Figure 118).



Figure 118

Juvenile Felony Arrests by County
(Per 100,000 Population Aged 10-17)



Source: California Department of Justice

In 2006, the region had a total of 30,754 juvenile felony arrests, 5.3 percent more than that in 2005. Among them, 6,115 arrests (or 20 percent) were for burglary, 5,112 arrests (17 percent) for theft (including motor vehicles) and another 4,355 arrests (or 14 percent) for assault.

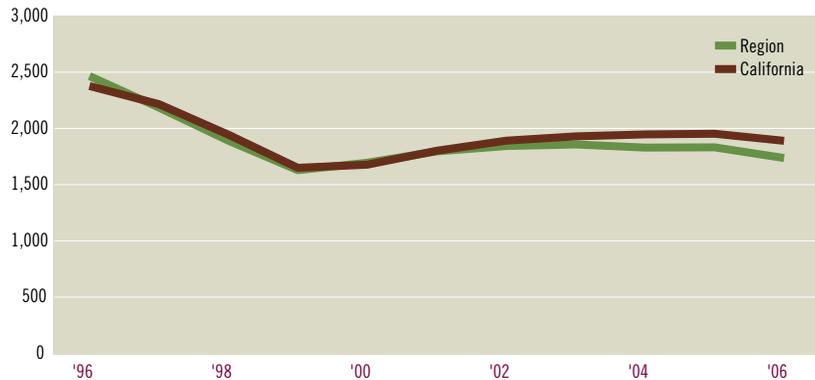
In addition, 2,794 arrests (or 9 percent) were for drug law violation. More than three quarters of the total juvenile arrests were males.

Property Crimes

In 2006, the property crime rate in the region decreased by 5 percent from 2005, just below its 2001 level. At the state level, property crime rate also declined slightly by 3 percent between 2005 and 2006 (Figure 119). Property crime rates in both the region and the state reached their lowest level in 1999 (since 1996) and then climbed up again until 2003. Since 2003, the property crime rate has generally been on a slightly downward path. In 2006, among the 319,355 property crime incidents, they were almost equally split among burglary, motor vehicle theft and larceny-theft-over \$400.

Figure 119

Property Crimes (Per 100,000 Population)



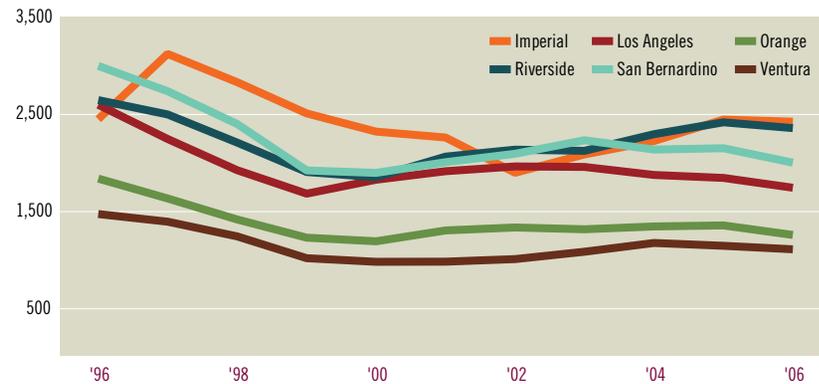
Source: California Department of Justice and California Department of Finance

Within the region, Ventura and Orange counties consistently have the lowest rates of property crimes in the region. Since 2004, Imperial and Riverside counties have had the highest rates of property crimes.

Between 2005 and 2006, every county achieved some reductions in its property crime rate. Specifically, San Bernardino and Orange counties achieved notable reductions of 7 percent respectively (Figure 120).

Figure 120

Property Crimes by County (Per 100,000 Population)



Source: California Department of Justice



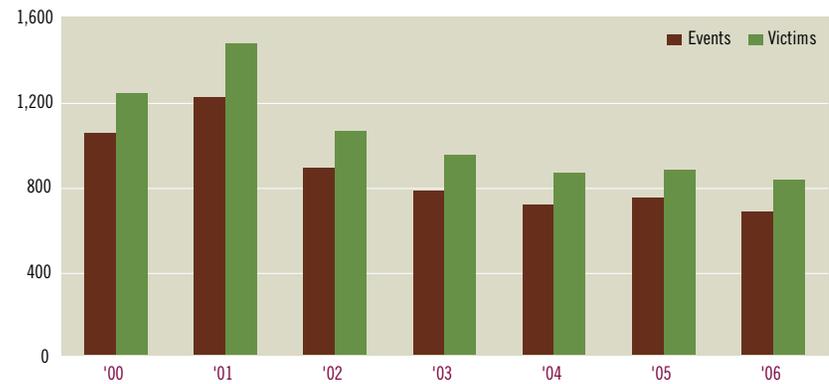
Hate Crimes

Between 2005 and 2006, the number of hate crime events and victims in the region decreased by 9 percent and 5 percent respectively, after a slight increase during the previous period (Figure 121). Hate crimes can be in the form of violent crimes (61 percent) or property crimes (30 percent).⁹ As to the motivations for hate crimes, statewide data indicated that about 67 percent of the victims in 2006 were due to race/ethnicity/national origin bias followed by about 19 percent for sexual orientation bias and 14 percent for religious bias. About 32 percent of the hate crimes events took place on highways/streets, another 29 percent around residences, 9 percent in schools/colleges, 8 percent in parking lots/garages and 5 percent in churches/synagogues/temples.

The year 2001 was the peak year in hate crimes in the last five years due primarily to the September 11 terrorist attacks. Within the region, Los Angeles County experienced disproportionately higher hate crime incidences. In 2006, about two-thirds of all hate crime events and victims were in Los Angeles County, nevertheless, a decline of almost 80 percent since 2000.

Figure 121

Hate Crime Activities



Source: California Department of Justice



In 2006, the total population in the nine largest metropolitan regions exceeded 91 million, about a third of the nation's population.

Metropolitan Regions

In order to fully assess the progress of Southern California, it is useful to compare the performance of the SCAG region with other large metropolitan regions in the nation. Currently, there are nine metropolitan regions in the nation with more than 5 million residents (Figure 122). They are also designated by the U.S. Census Bureau as Combined Statistical Areas (CSAs). Four are located in the Northeast (Boston, New York, Philadelphia, Washington, DC), two in the Midwest (Chicago and Detroit), one in the South (Dallas) and two in the West (San Francisco Bay Area and SCAG region). In 2006, only two had population exceeding 10 million, the New York region (22 million) and the SCAG region (18.4 million). Total population in the nine largest metropolitan regions exceeded 91 million in 2006, about a third of the nation's population.



Socio-Economic Indicators

Population

Between 2000 and 2006, among the nine largest metropolitan regions, the SCAG region achieved the largest population increase of almost 1.9 million people. Southern California also experienced the 2nd highest growth rate (11.3 percent) following Dallas (15.9 percent). In addition to the Dallas and the SCAG regions, only the Washington region achieved a growth rate higher than 5 percent. Specifically, during the six-year period, there were little population growth in the San Francisco Bay Area (1.9 percent) and the Detroit region (1 percent).

Figure 122

Population by Metropolitan Region (Thousands)

Rank	Metropolitan Region Name	2000	2006	2000/2006 Number	% Change
1	New York-Newark-Bridgeport, NY-NJ-CT-PA CSA	21,361.8	21,976.2	614.4	2.9%
2	SCAG REGION*	16,516.0	18,389.1	1,873.1	11.3%
3	Chicago-Naperville-Michigan City, IL-IN-WI CSA	9,312.3	9,725.3	413.0	4.4%
4	Washington-Baltimore-Northern Virginia, DC-MD-VA-WV CSA	7,572.6	8,211.2	638.6	8.4%
5	San Francisco-Oakland-Dan Jose, CA CSA	7,092.6	7,228.9	136.3	1.9%
6	Philadelphia-Camden-Vineland, PA-NJ-DE-MD CSA	6,207.2	6,382.7	175.5	2.8%
7	Boston-Worcester-Manchester, MA-RI-NH CSA	7,298.7	7,465.6	166.9	2.3%
8	Dallas-Fort Worth, TX CSA	5,488.0	6,359.8	871.8	15.9%
9	Detroit-Warren-Flint, MI CSA	5,357.5	5,410.0	52.5	1.0%
	Total	86,206.7	91,148.8	4,942.1	5.7%

*The SCAG region includes Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties. With the exception of Imperial, the other five counties belong to the Los Angeles-Riverside-Orange Combined Statistical Area (CSA).

Source: U.S. Census Bureau, 2000 Census and July 1, 2006 population estimates

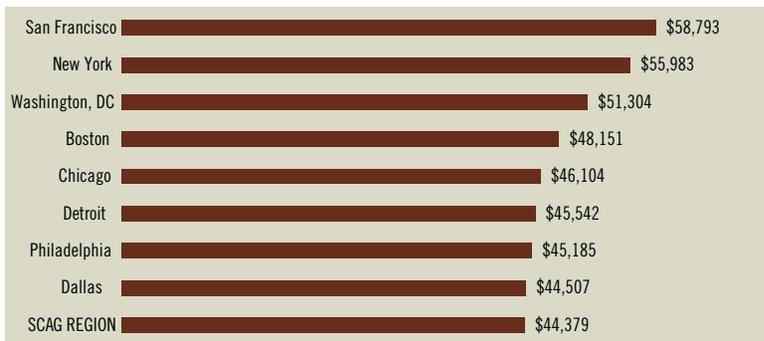
Average Wage per Job

The SCAG region ranked last in average wage per job at about \$44,379 among the nine largest metropolitan regions in 2005 (the most current year for which comparative data for metropolitan regions are available).



The San Francisco Bay Area managed to achieve the highest increase (2.7 percent) in 2005, and continued to have the highest average wage per job at approximately \$58,800 in 2005, followed by the New York region at about \$56,000.

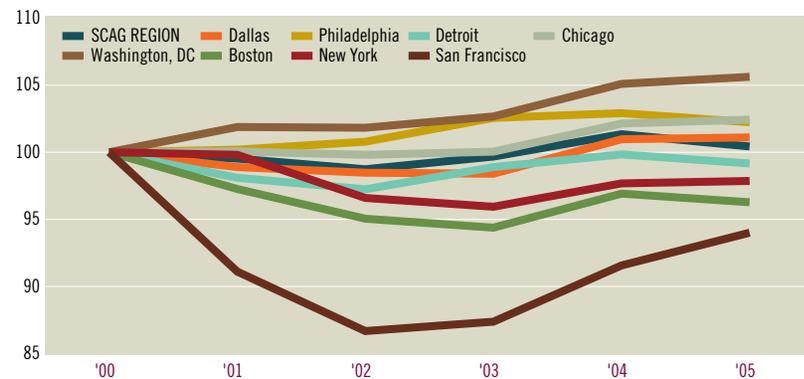
Figure 123
Average Wage Per Job by Metropolitan Region, 2005



Source: U.S. Bureau of Economic Analysis

In 2005, only five of the nine metropolitan regions achieved higher real average wage per job than their respective 2000 levels. Between 2000 and 2005, the Washington D.C. region had the best performance with an almost 6 percent increase, followed by the Chicago and Philadelphia regions. The SCAG region had an average performance with only a 0.4 percent increase. During this period, the San Francisco Bay Area lost the most ground with only 94 percent of its 2000 level in 2005.

Figure 124
Real Wage Payroll Per Job by Metropolitan Region
(2000 as the Base Year=100)



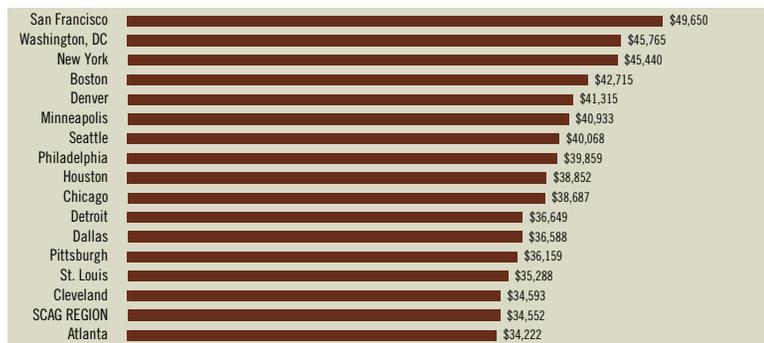
Source: U.S. Bureau of Economic Analysis

Income

Among the 17 largest metropolitan regions in the nation, the SCAG region ranked 16th in terms of per capita income in 2005 (the most current year for which comparative data for metropolitan regions are available), a slight improvement from the previous year when it ranked last. Over the past three decades, the SCAG region's per capita income ranking dropped from the 4th highest in 1970 to 7th highest in 1990, and 16th place in 2000.



Figure 125
Per Capita Income by Metropolitan Region, 2005

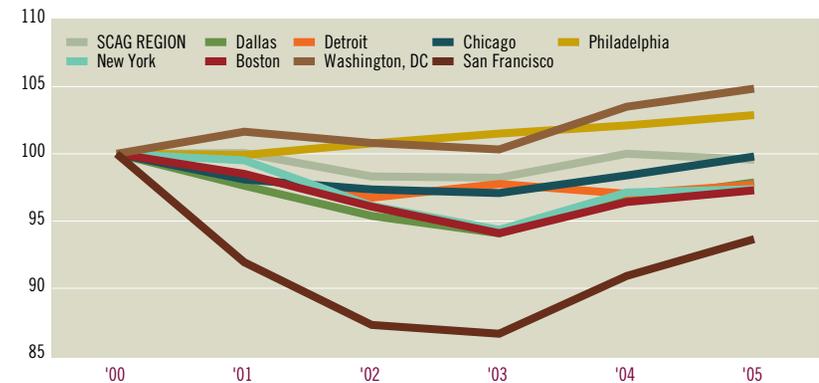


Source: U.S. Bureau of Economic Analysis

In 2005, only two of the nine metropolitan regions achieved higher real per capita income than their respective 2000 levels. Between 2000 and 2005, the Washington D.C. region accomplished the best performance with an almost 5 percent increase, followed by the Philadelphia region with a 3 percent improvement. The SCAG region had an average performance just below its 2000 level. During this period, the San Francisco Bay Area lost the most ground with only 94 percent of its 2000 level in 2005.

Figure 126

Real Per Capita Income by Metropolitan Region
 (2000 as the Base Year=100)



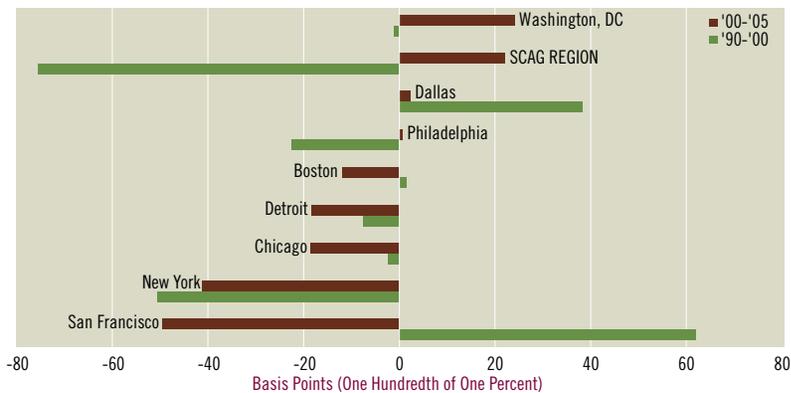
Source: U.S. Bureau of Economic Analysis

Between 2000 and 2005, the SCAG region performed at a better level in its growth of total personal income than the per capita personal income. During this period, SCAG region's share of the total personal income in the nation increased by 0.22 percent, exceeded only by the Washington DC region (0.24 percent). Among the nine largest metropolitan regions in the nation, five experienced declining shares during the five year period. The San Francisco Bay Area suffered the worse performance with a sharp decrease of almost 0.50 percent in its share,



while the New York region experienced a decline of 0.41 percent. However, during the 1990s, the SCAG region suffered the largest loss in its national share of 0.76 percent while the San Francisco Bay Area achieved the largest gain of 0.62 percent.

Figure 127
Change in Share of U.S. Personal Income by Metropolitan Region

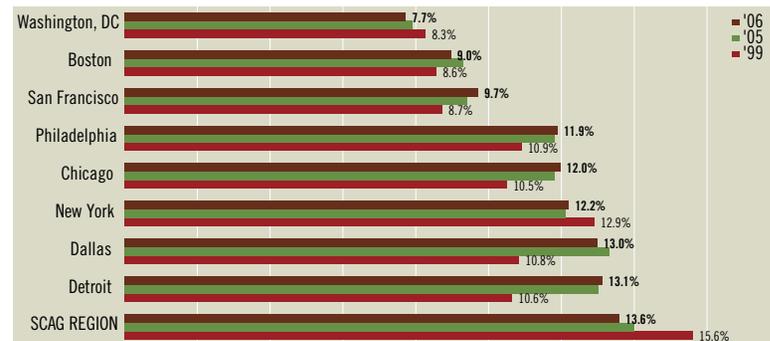


Source: U.S. Bureau of Economic Analysis

Poverty

In 2006, though the SCAG region continued to have the highest poverty rate among the nine largest metropolitan regions in the nation, the gaps were narrowed significantly. Since the 2000 Census, poverty rate in the SCAG region was reduced by almost 2 percentage points to 13.6 percent, while poverty rates in the Detroit and Dallas regions increased by more than 2 percentage points respectively to reach about 13 percent. The Washington DC region accomplished the lowest poverty rate of only 7.7 percent.

Figure 128
Persons in Poverty by Metropolitan Region



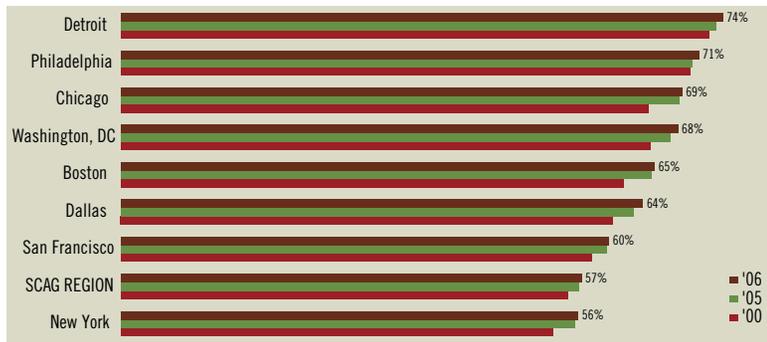
Source: U.S. Census Bureau, 2000 Census, 2005 and 2006 American Community Survey

Housing

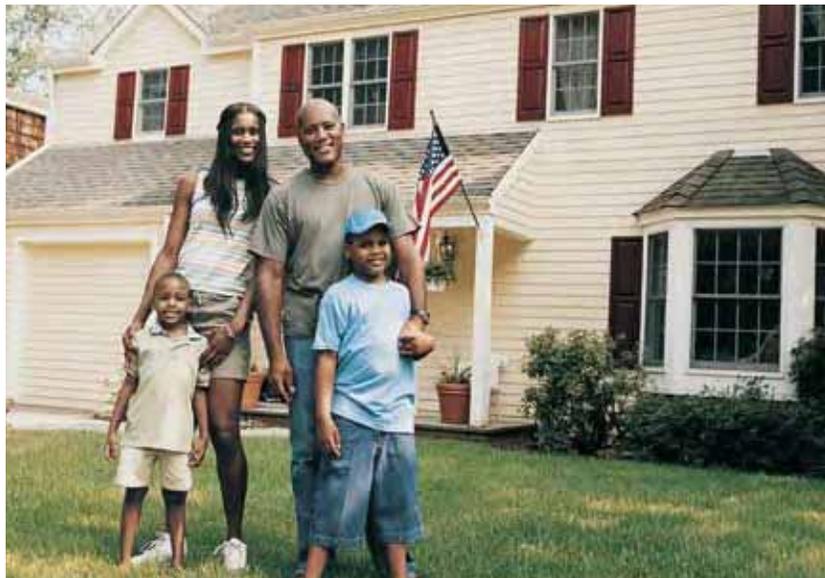
Between 2000 and 2006, homeownership in the SCAG region improved steadily to reach almost 57 percent, an increase of about 2 percentage points. However, during the same period, five of the other eight metropolitan regions achieved larger increases in homeownership rates than the SCAG region. Among the nine largest metropolitan regions in the nation, the SCAG region continued to have the second lowest

homeownership, just above the New York region (56 percent), while the Detroit region had the highest homeownership rate at 74 percent.

Figure 129
Homeownership by Metropolitan Region

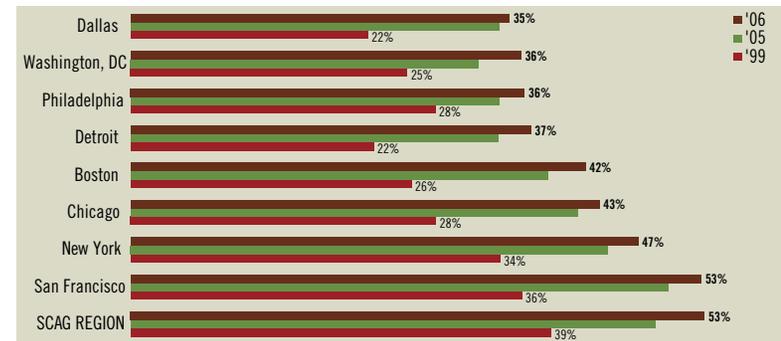


Source: U.S. Census Bureau, 2000 Census, 2005 and 2006 American Community Survey



In 2006, the SCAG region had the highest housing cost burden among the nine largest metropolitan regions in the nation, with 53 percent of its owner households paying 30 percent or more of their incomes on housing. The San Francisco Bay Area ranked a close second in housing cost burden. The Dallas region achieved the lowest housing cost burden for owner households.

Figure 130
Housing Cost Burden by Metropolitan Region
(Owner Households Paying 30 Percent or More of Household Income on Housing*)

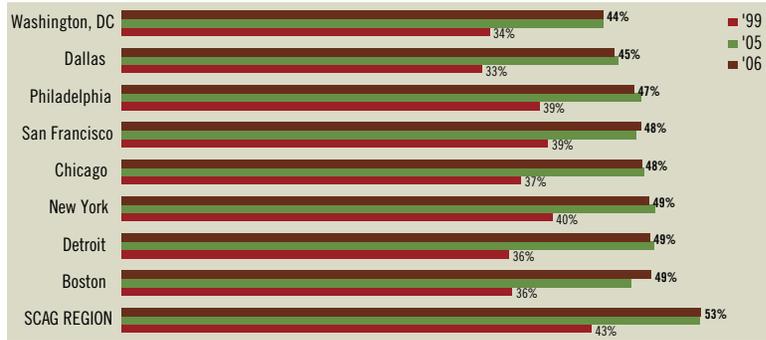


* Percentage share of all owner households with a mortgage
Source: U.S. Census Bureau, 2000 Census, 2005 and 2006 American Community Survey

Among the nine largest metropolitan regions in the nation, the SCAG region continued to have the highest share (53 percent) of rental households with monthly rent at or greater than 30 percent of household incomes. Following the SCAG region was the Boston region, with 49 percent of renters spending 30 percent or more of their incomes on rent. It should be noted that for most metropolitan regions rental cost burdens were at higher levels than the corresponding owner cost burdens.

Figure 131

Rental Cost Burden by Metropolitan Region
(Renters with Rent above 30 Percent of Household Income)



Source: U.S. Census Bureau, 2000 Census, 2005 and 2006 American Community Survey

Education

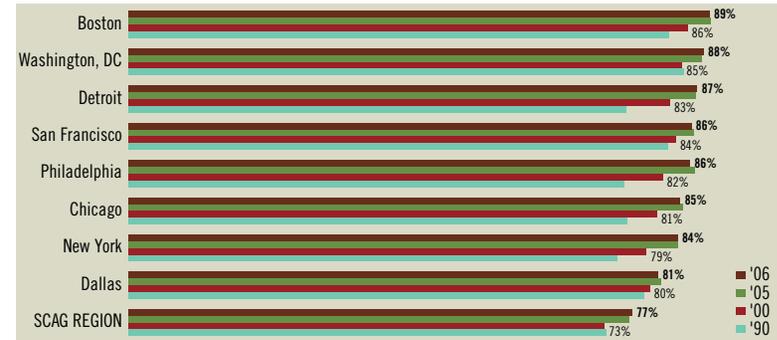
Between 2000 and 2006, there were noticeable improvements in educational attainment in the SCAG region consistent with national trends. During this period, the percentage of adults with at least a high school degree increased from 74 to 77 percent while the percentage of adults with at least a bachelor's degree increased from 25 to 27 percent. However, among the nine largest metropolitan regions, the SCAG region remained in last place in the percentage of adults (77 percent) with at least a high school diploma, and second to last



for at least a bachelor's degree (27 percent). The Washington DC region had the highest percentage of adults with at least a bachelor's degree (41 percent).

Figure 132

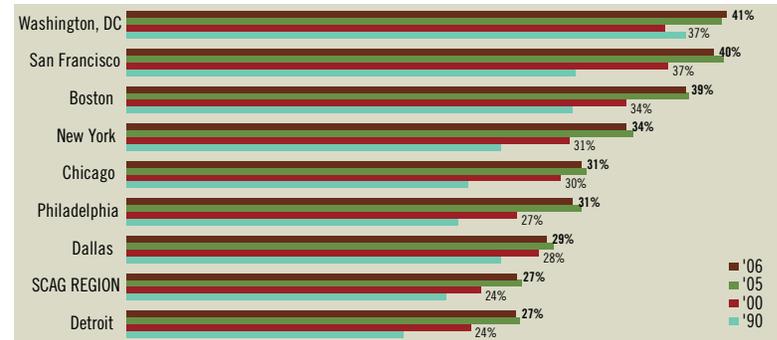
Educational Attainment by Metropolitan Region
(High School Diploma or Higher*)



*Percent of persons 25 years and over
Source: U.S. Census Bureau, 1990 and 2000 Census, 2005 and 2006 American Community Survey

Figure 133

Educational Attainment by Metropolitan Region
(Bachelor's Degree or Higher*)



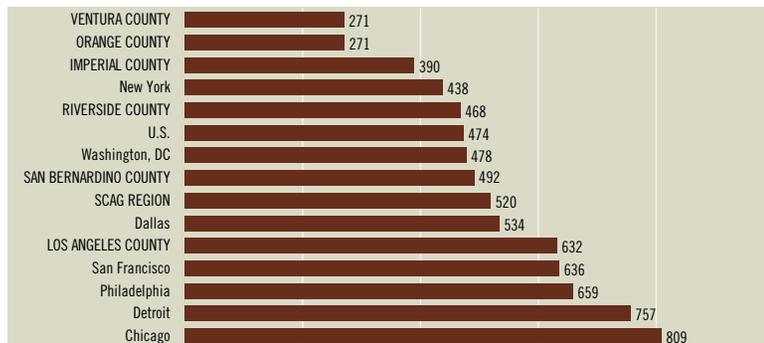
*Percent of persons 25 years and over
Source: U.S. Census Bureau, 1990 and 2000 Census, 2005 and 2006 American Community Survey

Crime

Violent crime rates in Los Angeles County dropped by almost a third between 2000 and 2006. Accordingly, during the same period, Los Angeles County improved from having the second highest to the fifth highest violent crime rate among the large metropolitan areas in the nation. Orange and Ventura counties consistently had the lowest violent crime rates among the large metropolitan areas.

Figure 134

Violent Crimes by Metropolitan Area, 2006 (Per 100,000 Population)



**Based on Metropolitan Statistical Area unless noted otherwise. Chicago data is based on Cook County data.
Source: FBI 2006 Uniform Crime Report, Illinois State Police 2006 Uniform Crime Report*

Transportation

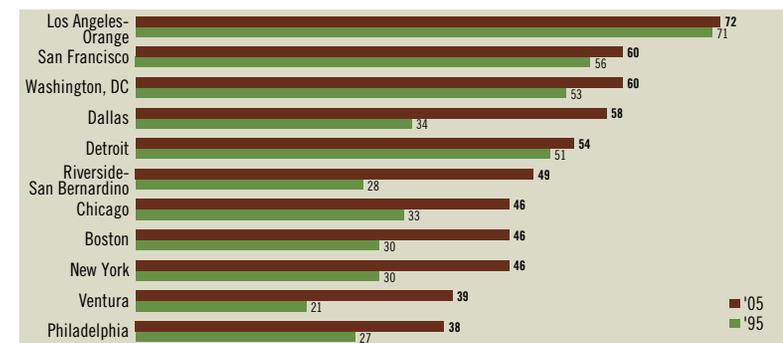
Highway Congestion

In 2005, a traveler in Los Angeles/Orange counties during the peak period experienced a total of 72 hours of delay, the highest among all metropolitan areas. For Riverside/San Bernardino counties, the corresponding delay was a total of 49 hours, the 6th highest, and 39 hours for Ventura County. Between 1995 and 2005, annual delay per traveler

changed little in Los Angeles/Orange counties while increasing more in other large metropolitan areas. During this period, annual delay per traveler increased significantly in Riverside/San Bernardino as well as in Ventura counties.

Figure 135

Annual Hours of Delay per Traveler by Metropolitan Area



Source: Texas Transportation Institute

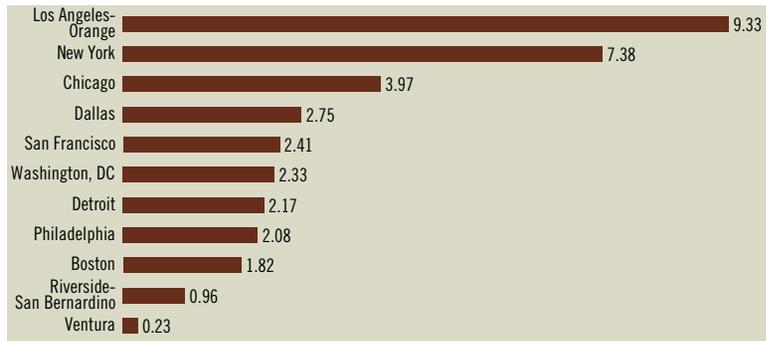




Total cost incurred due to congestion in the SCAG region was over \$10.5 billion in 2005, significantly higher than any other metropolitan area in the nation. Close to half of the delay resulted from incidents.

Figure 136

Total Congestion Cost by Metropolitan Region, 2005
(Billion Dollars)



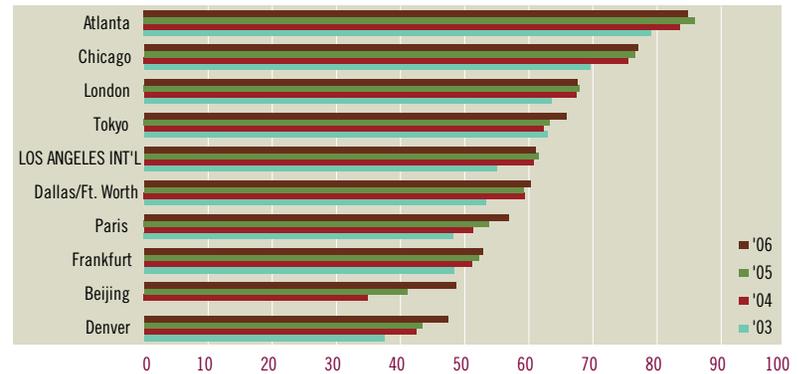
*Includes the costs from delay as well as additional fuels used.
Source: Texas Transportation Institute

Airports

In 2006, among the ten largest airports in the world, LAX ranked 5th in passenger traffic, behind Atlanta, Chicago, London and Tokyo.

Figure 137

Top 10 Passenger Airports in the World
(Total Passengers in Millions)

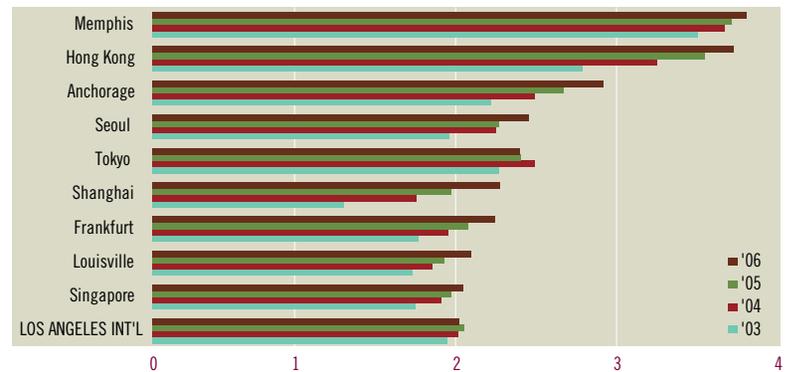


Source: Airports Council International

LAX also ranked 10th in total cargo volumes in 2006, surpassed by Shanghai, Louisville and Singapore since 2005.

Figure 138

Top 10 Cargo Airports in the World
(Cargo Volumes in Million Metric Tons)



2006 is based on preliminary data
Source: Airports Council International

Endnotes

Population

1. In addition to domestic migration, the other two components contributing to population growth are natural increases (births over deaths) and net foreign immigration. Between 1990 and 2006, natural increases and net foreign immigration generally had much smaller year-to-year variations than domestic migration. Hence, the variations in domestic migration largely determined the fluctuation of annual population growth in the region.
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3. California Department of Finance.
4. Ibid.
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6. Both the 2005 and 2006 State of the Region reports are available at <http://scag.ca.gov/publications>.
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9. Ramakrishnan, S. Kathick and Hans P. Johnson. 2005. *Second Generation Immigrants in California*, Public Policy Institute of California.
10. U.S. Census Bureau, *2006 American Community Survey*.
11. Southern California Association of Governments, 2008 RTP Draft Forecast.

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2. Council of Economic Advisers. April 2007. *Economic Indicators*.
3. Data on employment by sector discussed in this section are based on the Labor Market Information published by the California Employment Development Department.
4. The 2006 average payroll per job information is based on data from the *Quarter Census of Employment and Wages, California Employment Development Department*.
5. California Budget Project. 2007. *A Generation of Widening Inequality: the State of Working California, 1970-2006*.
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7. Southern California Association of Governments. *The State of the Region 2002*, p. 26, Figure 26, available: <http://www.scag.ca.gov/publications/>.
8. Southern California Association of Governments. *The State of the Region 2004*, p. 35-36, Figures 24 to 26, <http://www.scag.ca.gov/publications/>.
9. U.S. Census Bureau. 2007. *Income, Poverty and Health Insurance Coverage in the United State: 2006*. Current Population Reports.
10. Ibid.
11. U.S. Census Bureau, *American Community Survey, 2006*.

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12. All taxable sales data in this section are from the California State Board of Equalization.
 13. Data on direct international trade employment are from the *International Trade Trends and Impacts, the Los Angeles Region*, published by the Los Angeles Economic Development Corporation in 2006. Direct international trade employment includes activities related to moving commodities in and out of the customs district and does not include any manufacturing activities.

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2. Ventura County Civic Alliance. 2007. *2007 State of the Region Report*, p. 44.
3. Harvard Joint Center for Housing Studies. 2007. *The State of the Nation's Housing*.
4. The Housing Affordability Index for the general population used a more conservative approach, such as 20 percent down payment for a median-priced home. Beginning 2006, the California Association of Realtors discontinued the affordability index for the general population. For the first-time homebuyers, however, it assumes only 10 percent down payment and only 85 percent of the overall median price.
5. Harvard Joint Center for Housing Studies. 2007. *The State of the Nation's Housing*.
6. Ibid. Alt-A loans, which fall between prime and sub-prime loans, increased from 2.7 percent of originations in 2001 to 13.4 percent in 2006. These loans allow some combination of low documentation, slightly subpar credit scores, and features such as interest-only or payment options.
7. Press Telegram, April 2007 based on First American's Loan Performance.
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11. U.S. Bureau of Transportation Statistics. *Transportation Statistics Annual Report 2004*.
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 7. Ibid.
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 10. Orange County Business Council. 2007. *Orange County Community Indicators 2007*.
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 13. California Integrated Waste Management Board, available: <http://www.ciwmb.ca.gov/Landfills/tonnage/>.

The Environment

1. The U.S. Environmental Protection Agency (EPA), shortly after its creation in 1970, developed regulations targeting six “criteria” pollutants that adversely affect human health and welfare: ozone, particulate matter (PM), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead. Of these, the first three pollutants have exceeded federal health standards for many years, with various parts of the SCAG region showing moderate to extreme levels of pollution except for CO in the past few years. Because of their significance, this report focuses on the first three pollutants.

The CIWMB obtains disposal information from returns filed with the California State Board of Equalization by disposal facility (landfill) operators. The figures reflect the amount of waste that is

landfilled, or disposed of, in the SCAG region, as reported by each facility operator, rather than the total amount of waste generated in the region.

14. California Integrated Waste Management Board, 2004, *Statewide Waste Characterization Study*.
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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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