

Chapter 2

A Vision for Mid-Century: Welcoming More People While Improving the Quality of Life for All

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# 2050 Regional Transportation Plan

*The 2050 RTP is built on an integrated set of public policies, strategies, and investments to maintain, manage, and improve the transportation system so it meets the diverse mobility needs of our changing region through 2050.*

The 2050 Regional Transportation Plan (RTP or the Plan) is the blueprint for keeping pace with the mobility and sustainability challenges in our growing region. Meeting our region's transportation needs requires a comprehensive plan that coordinates how we use land and how we get around. In short, the Plan develops an integrated, multimodal transportation system. This long-range Plan is built on a set of integrated public policies, strategies, and investments to maintain, manage, and improve the transportation system so it meets the diverse mobility needs of our changing region through 2050. The Plan's vision for transportation supports our region's comprehensive strategy to promote smarter, more sustainable growth.

## A New Mandate and New Opportunities for a Better Future: How We'll Get to Work and School, Shop, and Play

The 2050 RTP contains a robust transportation network, with a diversity of projects that will provide residents and visitors with a variety of travel choices. The regional transportation network, in conjunction with

how local jurisdictions develop land, will provide additional opportunities for walking, biking, getting to work, going to school, shopping, and playing. This Plan, more than previous ones, improves our region's public transit network. It provides more transit choices for today's and tomorrow's riders by improving the existing system and by introducing new access to more areas.

## Assembly Bill 32, Senate Bill 375, and the State's Goals for Reducing Greenhouse Gas Emissions

In 2006, the California Legislature passed and former Governor Arnold Schwarzenegger signed into law Assembly Bill 32 (AB 32), which requires California to lower statewide greenhouse gas emissions to 1990 levels by 2020. The bill directed the California Air Resources Board (CARB) to develop specific early actions to reduce greenhouse gas emissions, and to establish a scoping plan that identifies the best ways to reach the 2020 mandate. In 2008, Senate Bill 375 (SB 375) was signed into law. It supports the implementation of AB 32 by encouraging planning practices that create sustainable communities. SB 375 also charged CARB with setting regional targets for reducing greenhouse gas emissions by the years 2020 and 2035. Each of the California Metropolitan Planning Organizations (MPOs) also must prepare a Sustainable Communities Strategy (SCS) that demonstrates how their regions will meet their goals for reducing greenhouse gas emissions from automobiles and light trucks. Central to our region's SCS are explanations for how our region will grow while improving the quality of life.



## A Vision for Mid-Century: The 2050 RTP Vision

The Board of Directors for the San Diego Association of Governments (SANDAG) began developing the 2050 RTP by adopting a vision statement, goals, and policy objectives.

The vision describes a transportation system that:

- Supports a prosperous economy
- Promotes a healthy and safe environment, which includes climate change protection
- Provides a higher quality of life for all San Diego County residents

The transportation system should better link jobs, homes, and major activity centers by enabling more people to use transit, walk, and bike. The system also should efficiently transport goods. Overall, it should provide fast, convenient, and effective transportation choices for all people.

The 2050 RTP goals are structured into two overarching themes: Quality of Travel & Livability, and Sustainability. Quality of Travel & Livability relates to how the transportation system functions from the customers' perspective. Sustainability relates to making progress simultaneously in each of the Three "Es" (Social Equity, Healthy Environment, and Prosperous Economy) from a regional perspective. The SANDAG Board of Directors discussed these goals during the development of the 2050 RTP, and it considered them all related and equally important.

### Quality of Travel & Livability

**Mobility:** The transportation system should provide the general public and those who move goods with convenient travel options. The system also should operate in a way that maximizes productivity. It should reduce the

time it takes to travel and the costs associated with travel.

**Reliability:** The transportation system should be reliable. Travelers should expect relatively consistent travel times, from day to day, for the same trip and mode of transportation.

**System Preservation & Safety:** The transportation system should be well maintained to protect the public's investments in transportation. It also is critical to ensure a safe regional transportation system.

### Sustainability

Sustainability is defined in the Regional Comprehensive Plan as "simultaneously meeting our current economic, environmental, and community needs, while also ensuring that we aren't jeopardizing the ability of future generations to meet their needs." Social equity, a healthy environment, and a prosperous economy are described as the "Three Es" of sustainability.

**Social Equity:** The transportation system should be designed to provide an equitable level of transportation services to all segments of the population.

**Healthy Environment:** The transportation system should promote environmental sustainability and foster efficient development patterns that optimize travel, housing, and employment choices. The system should encourage growth away from rural areas and closer to existing and planned development.

**Prosperous Economy:** The transportation system should play a significant role in raising the region's standard of living.

Policy objectives that will help the region achieve the Plan's goals are shown in Table 2.1.

*The vision describes a transportation system that:*

*Supports a prosperous economy*

*Promotes a healthy and safe environment, which includes climate change protection*

*Provides a higher quality of life for all San Diego County residents*

## Measuring the Plan's Success

A number of performance measures are used to allow us to gauge our progress toward meeting the Plan's policy goals and objectives. Technical Appendix 3 includes the methodology for estimating these performance indicators. The performance of the Revenue Constrained Network is compared with 2008 conditions (which is the base year for the 2050 RTP and reflects the start of the 42-year period covered by the growth forecast), and with a future scenario that assumes projected increases in population and employment in 2050 but no additional expansion of the regional transportation network (a No Build alternative), as shown in Table 2.2. Due to differences in requirements, there are different base years for the RTP and the Environmental Impact Report (EIR). The 2005 base year for analysis of meeting the greenhouse gas reduction targets was set by CARB. The 2010 baseline year for the EIR is pursuant to California Environmental Quality

Act (CEQA) Guidelines, which state that the EIR must include a description of the environmental conditions at the time the notice of preparation (NOP) was published. The NOP was published in April 2010.

## The Plan vs. No Build

Compared with the 2050 No Build alternative, the Plan would result in a transportation network that improves travel conditions and air quality, while also promoting an equitable distribution of benefits.

With the implementation of the Plan, trips to work and to colleges and universities will be quicker and more efficient. A higher percentage of these trips will last no more than 30 minutes, even during peak periods of demand when most people are commuting. Seven out of ten trips are expected to take 30 minutes or less, whether driving alone or carpooling. About 14 percent of public transit trips to work and higher education will last 30 minutes or less, compared with only 8 percent under the No Build alternative.



The 2050 RTP includes a network that integrates many modes of transportation, with a mix of projects and a wide variety of transportation choices distributed across the region. This is expected to promote a substantial increase in carpooling, demands for public transit, and bicycling and walking for work trips both during peak hours and at other times.

Carpooling, expressed as a percentage of all modes of transportation used to get to work, would increase by 48 percent. The percentage of work trips made by walking, bicycling, and taking public transit would slightly more than double. Nearly one out of three commutes would be made using modes of transportation other than driving alone. By contrast, fewer than one out of five trips in the No Build alternative would turn away from driving alone. Vehicle miles per capita also would be reduced by 5 percent, while daily travel by transit would double.

The Plan's transportation investments will create an estimated 35,600 jobs each year over the course of the Plan, compared with 17,100 annual jobs under the No Build alternative. These jobs are projected to generate an additional gross regional product of \$4.4 billion annually, and increase payroll regionwide by \$1.8 billion annually. The Plan's transportation infrastructure also will help reduce congestion for autos, trucks, and public transit. The percentage of peak period auto travel occurring during congested periods is projected to drop from 27.7 percent under the No Build alternative to 17.2 percent under the Plan. Similarly, congested conditions for peak period transit travel are projected to drop by nearly half, from 9.1 percent in the No Build alternative to 5.1 percent under the Plan. The number of hours of delay per day for trucks also would cut in half, from 32,300 hours under the No

Build alternative to 16,000 hours with the implementation of the 2050 RTP.

Regional air quality also is expected to improve in the future. Cleaner fuels and new vehicle technologies will help reduce the majority of smog-forming pollutants.

The 2050 RTP contains the largest investment in bicycle and pedestrian infrastructure of any San Diego RTP to date. These investments would result in significant increases in bicycle and walking trips (a 120 percent increase, compared with the No Build scenario).

**Table 2.1 – 2050 RTP Goals and Policy Objectives**

Goal	Policy Objectives
<p><b>Mobility</b></p> <p>The transportation system should provide the general public and those who move goods with convenient travel options. The system also should operate in a way that maximizes productivity. It should reduce the time it takes to travel and the costs associated with travel.</p>	<p>Tailor transportation improvements to better connect people with jobs and other activities</p> <p>Provide convenient travel choices including transit, intercity and high speed trains, driving, ridesharing, walking, and biking</p> <p>Preserve and expand options for regional freight movement</p> <p>Increase the use of transit, ridesharing, walking and biking in major corridors and communities</p> <p>Provide transportation choices to better connect the San Diego region with Mexico, neighboring counties, and tribal nations</p>
<p><b>Reliability</b></p> <p>The transportation system should be reliable. Travelers should expect relatively consistent travel times, from day to day, for the same trip and mode of transportation.</p>	<p>Employ new technologies to make travel more reliable and convenient</p> <p>Manage the efficiency of the transportation system to improve traffic flow</p>
<p><b>System Preservation and Safety</b></p> <p>The transportation system should be well maintained to protect the public’s investments in transportation. It also is critical to ensure a safe regional transportation system.</p>	<p>Keep the region’s transportation system in a good state of repair</p> <p>Reduce bottlenecks and increase safety by improving operations</p> <p>Improve emergency preparedness within the regional transportation system</p>
<p><b>Social Equity</b></p> <p>The transportation system should be designed to provide an equitable level of transportation services to all segments of the population.</p>	<p>Create equitable transportation opportunities for all populations regardless of age, ability, race, ethnicity, or income</p> <p>Ensure access to jobs, services, and recreation for populations with fewer transportation choices</p>
<p><b>Healthy Environment</b></p> <p>The transportation system should promote environmental sustainability and foster efficient development patterns that optimize travel, housing, and employment choices. The system should encourage growth away from rural areas and closer to existing and planned development.</p>	<p>Develop transportation improvements that respect and enhance the environment</p> <p>Reduce greenhouse gas emission from vehicles and continue to improve air quality in the region</p> <p>Make transportation investments that result in healthy and sustainable communities</p>
<p><b>Prosperous Economy</b></p> <p>The transportation system should play a significant role in raising the region’s standard of living.</p>	<p>Maximize the economic benefits of transportation investments</p> <p>Enhance the goods movement system to support economic prosperity</p>

**Table 2.2 – 2050 RTP Comparison of Regional Performance Measures**

Performance Measures		Existing (2008)	No Build (2050)	Revenue Constrained (2050)
<b>System Preservation and Safety</b>				
1.	Percentage of transportation investments toward maintenance and rehabilitation	N/A	N/A	29%
2.	Percentage of transportation investments toward operational improvements			
<b>Mobility</b>				
3.	Average work trip travel time (in minutes)	26	28	28
4.	Average work trip travel speed by mode (In m.p.h.)			
	Drive alone	34	28	31
	Carpool	35	30	32
	Transit	10	10	13
5.	Percentage of work and higher education trips accessible within 30 minutes in peak periods, by mode			
	Drive alone	73%	68%	70%
	Carpool	74%	69%	72%
	Transit	7%	8%	14%
6.	Percentage of non work-related trips accessible within 15 minutes, by mode			
	Drive alone	71%	67%	67%
	Carpool	72%	68%	68%
	Transit	4%	4%	8%
7.	Out-of-pocket user costs per trip	\$2.06	\$2.24	\$2.28
<b>Prosperous Economy</b>				
8.	Benefit/Cost Ratio*	N/A	N/A	2.1
9.	Economic impacts*			
	Job impacts (average number per year)	N/A	17,100	35,600
	Output impacts (gross regional product in millions - average amount per year)	N/A	\$2,000	\$4,400
	Payroll impacts (in millions - average amount per year)	N/A	\$900	\$1,800

**Table 2.2 – 2050 RTP Comparison of Regional Performance Measures (Continued)**

Performance Measures		Existing (2008)	No Build (2050)	Revenue Constrained (2050)
<b>Reliability</b>				
10.	Congested Vehicle Miles of Travel (VMT)			
	Percentage of total auto travel in congested conditions (peak periods)	13.4%	27.7%	17.2%
	Percentage of total auto travel in congested conditions (all day)	6.3%	17.9%	10.8%
	Percentage of total transit travel in congested conditions (peak periods)	5.2%	9.1%	5.1%
	Percentage of total transit travel in congested conditions (all day)	4.8%	8.2%	4.8%
11.	Daily vehicle delay per capita (minutes)	3	9	5
12.	Daily truck hours of delay	5,900	32,300	16,000
<b>Healthy Environment</b>				
13.	Smog-forming pollutants for all vehicle types (daily pounds per capita)*	0.08	0.02	0.02
14.	Systemwide VMT (all day) for all vehicle types per capita	25.64	26.69	25.23
15.	Transit passenger miles (all day) per capita	0.48	0.39	0.83
16.	Percent of peak period trips within 1/2 mile of a transit stop	75%	71%	76%
17.	Percent of daily trips within 1/2 mile of a transit stop	78%	73%	78%
18.	Work trip mode share (peak periods)			
	Drive alone	80.8%	82.5%	68.9%
	Carpool	11.0%	10.3%	15.3%
	Transit	5.8%	4.9%	11.0%
	Bike/Walk	2.4%	2.3%	4.8%
<b>Healthy Environment</b>				
19.	Total bike and walk trips	510,000	610,000	1,340,000
20.	CO <sub>2</sub> emissions for all vehicle types (daily pounds per capita)	28.0	19.9	18.8

**Table 2.2 – 2050 RTP Comparison of Regional Performance Measures (Continued)**

Performance Measures		Existing (2008)	No Build (2050)	Revenue Constrained (2050)
<b>Social Equity</b>				
21.	Percentage of work trips accessible within 30 minutes during peak periods by mode			
	Low income Community of Concern			
	Drive alone	79%	71%	74%
	Carpool	80%	72%	75%
	Transit	15%	15%	23%
	Non-low income population			
	Drive alone	72%	67%	69%
	Carpool	73%	69%	71%
	Transit	5%	5%	11%
	Minority Community of Concern			
	Drive alone	75%	70%	72%
	Carpool	76%	71%	74%
	Transit	9%	10%	17%
	Non-minority population			
	Drive alone	72%	66%	68%
	Carpool	73%	68%	70%
	Transit	5%	6%	11%
22.	Percentage of homes within 1/2 mile of a transit stop			
	Low income Community of Concern	93%	90%	91%
	Non-low income population	59%	56%	60%
	Minority Community of Concern	81%	78%	80%
	Non-minority population	55%	54%	57%
23.	Distribution of RTP expenditures per capita			
	Low income Community of Concern	N/A	\$6,100	\$18,500
	Non-low income population	N/A	\$6,100	\$14,700
	Minority Community of Concern	N/A	\$6,100	\$16,300
	Non-minority population	N/A	\$6,000	\$15,100

\* Notes:

8: The No Build Alternative is the base case against which the Revenue Constrained Scenario is compared.

9: Economic impacts for entire RTP investments (2010-2050). For economic impacts by phasing periods, see Table TA 3.1 in Technical Appendix 3.

13: Values based on 2050 SANDAG Transportation Model outputs using 2040 Emission Factors from 2007 EMFAC. No emission factors are available for 2050. Smog-forming pollutants include ROG and NOx.

## Social Equity

The 2050 RTP strives to improve mobility and transportation choices for everyone in the region. The Plan's performance measures contain a number of metrics to assess how well improvements are distributed in low income and minority communities (also known as LIM communities), and in communities with limited mobility and little civic or community engagement by residents. The Plan projected the extent to which it would shorten travel times and improve access to transit stops, schools, healthcare, the San Diego International Airport (SDIA), and parks or beaches. A detailed analysis in Chapter 4 describes how the Plan promotes equity and environmental justice throughout our region.

SANDAG analyzed the 2050 RTP to determine whether it conforms with requirements of Title VI of the Civil Rights Act or other applicable social equity laws. These laws require that the benefits and burdens of projects detailed in the Plan be distributed equitably between the LIM and non-LIM populations. SANDAG studied specifically whether the Plan (compared with the No Build alternative) would offer LIM and non-LIM populations the same level of benefits.



SANDAG concluded that there would be no difference in average travel times between the two populations. However, LIM populations would receive slightly greater improvements in their commute to and from work, compared with non-LIM populations. SANDAG measures these improvements according to the percentage of work trips that take 30 minutes or less during periods of peak congestion. The Plan also would result in a higher percentage of households situated within a half-mile of a transit stop for both LIM and non-LIM populations.

SANDAG also examined how well the 2050 RTP would distribute proposed expenditures. The Plan would result in larger investments per capita for low income populations, compared with non-low income populations. However, the rate of increase in per capita expenditures is projected to be higher for non-minority populations (104 percent) than for minority populations (101 percent). Overall, the Plan would result in a higher rate of growth in investments per capita for LIM populations, compared to non-LIM populations.

The data for all social equity performance measures show that the Plan will not create a statistically significant disparity between LIM and non-LIM populations. Although the analyses show slightly more improvement for non-LIM populations in some areas, they also show more improvement for LIM populations in other areas. Overall, the Plan distributes its benefits equitably. The Plan is designed to allocate investments and distribute projects widely, to ensure that both benefits and burdens are equitably distributed among all populations in the region.

## SB 375: Regional Targets for Reducing Greenhouse Gas Emissions

To comply with SB 375, the 2050 RTP must include a Sustainable Communities Strategy. This strategy guides the San Diego region toward meeting the state’s regional targets for reducing greenhouse gas emissions from cars and light trucks. The state’s targets for the San Diego region are a 7 percent reduction, per capita, in greenhouse gas emissions from automobiles and light trucks by 2020 (compared with a 2005 baseline); and a 13 percent reduction by 2035. These targets were set by the CARB on September 23, 2010. The 2050 RTP for the San Diego region would result in greenhouse gas emission reductions that exceed the state’s targets for 2020 and meet them for 2035. It would result in a 14 percent reduction in emissions by 2020, and a 13 percent reduction by 2035. This achievement is at the core of the Plan’s bold vision for a more sustainable region.

## Current Conditions vs. The Plan

The Plan is expected to significantly improve the quality of life in the region, compared with the No Build alternative and compared with current conditions. Air quality will improve, and on a per capita basis greenhouse gas emissions will fall and less transportation fuel will be consumed. More than half the region will be maintained as open space and there will be more housing and transportation choices for current and future residents.

Implementing the Plan also will result in dramatic shifts in how we get to work, and how long it will take. By 2050, the percentage of commutes in which people drive alone during peak periods will fall from 81 percent to 69 percent. Also by that year, 15 percent of commuters will carpool, compared with 11 percent in 2008. The percentage of commuters who use public transit will nearly double, from 6 percent in 2008 to 11 percent in 2050. Meanwhile, the percentage of

*Implementing the Plan also will result in dramatic shifts in how we get to work, and how long it will take.*



commuters who bicycle or walk to work will double, from 2.4 percent to 4.8 percent. These shifts in how we will get to work during peak periods may seem small, but they can significantly reduce congestion and make travel faster.

## Monitoring Performance

The success of the 2050 RTP will be measured through a system that tracks how well our transportation system is functioning. Also, it will identify opportunities for near-term improvements, and provide the ability to better identify and prioritize transportation projects by tracking and evaluating their impact on travel over time. By tracking these impacts, the system will help the region refine how individual transportation projects are selected and funded. By continually

monitoring how well the Plan is progressing, SANDAG can ensure that investments support regional policies. The California Department of Transportation (Caltrans), the North County Transit District, the Metropolitan Transit System, cities around the region, the county, and other agencies already collect significant amounts of data related to how well transportation systems are performing. Caltrans and local jurisdictions, for example, regularly collect data on the volume of traffic on roadways. Meanwhile, data on average daily traffic regionwide and on transit ridership (which includes individual route reports, on-time performance, and other information) are available online through the SANDAG Web site.



The biggest challenge of monitoring the performance of a transportation system is to evaluate a wide range of data and regularly report how the system is performing — in a way that is easy to understand for decision-makers and the general public.

### Automating Our Systems

In cooperation with U.C. Berkeley, Caltrans has developed a Performance Measurement System (PeMS) that uses urban freeway data. This program provides ongoing data on freeway volumes and speeds that can be displayed graphically and exported to other monitoring applications. For several years, SANDAG has worked with Caltrans and U.C. Berkeley to extend the capabilities of PeMS. Efforts have included the addition of historical San Diego data and the development of a ramp metering interface. The interface provides the ability to analyze, monitor, and report ramp metering volumes.

Planned improvements to PeMS were recently initiated by SANDAG in coordination with Caltrans, regional transit agencies, and local jurisdictions. These enhancements will allow PeMS to measure the performance of multiple modes of transportation throughout the San Diego region. An improved PeMS will supplement the SANDAG Performance Monitoring Program by gathering, tracking, and analyzing real-time transit and arterial

data. It also will support ongoing efforts by SANDAG to help transportation operators manage the transportation network using real-time data.

### A Plan for Improved Mobility

The 2050 RTP is developed around five primary components: a Sustainable Communities Strategy, Social Equity and Environmental Justice, Systems Development, Systems Management, and Demand Management. Each component has a unique yet interdependent role in creating a sustainable transportation system that improves mobility, reduces greenhouse gases, and increases travel choices for everyone in the San Diego region through 2050. The following chapters highlight the projects, programs, and strategies included in the Plan that address each component.

