

Our Region. Our Future.



2050 Regional Transportation Plan





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2050 Regional Transportation Plan

October 2011



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Chapter 1

Executive Summary

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2050 Regional Transportation Plan

The 2050 RTP is the blueprint for a regional transportation system that further enhances our quality of life, promotes sustainability, and offers more mobility options for people and goods.

San Diegans love where they live. From the terrific weather to the stunning natural landscapes of the coast, inland valleys, mountains, and desert, our region has a lot to offer. But sometimes it can be tough to get around. Commutes often are congested, and many people have limited access to public transit. Residents want an improved transportation system.

The 2050 Regional Transportation Plan (RTP or the Plan) is the blueprint for a regional transportation system that further enhances our quality of life, promotes sustainability, and offers more mobility options for people and goods. Looking 40 years ahead, another 1.25 million residents will live in our region. We will create half a million new jobs and build nearly 400,000 new homes. The Plan envisions most of these new jobs and homes situated in environmentally sustainable communities that are more conducive to walking and bicycling. They also will have more access to public transit.



How can our transportation system support our economy and promote more sustainable growth in an equitable and healthy environment? How will we get around for work, school, shopping, healthcare, and recreation? Imagine new north-south and east-west light rail lines that provide convenient access to job centers in

Chula Vista, downtown San Diego, Kearny Mesa, Mission Valley, UTC, Sorrento Mesa, and Mira Mesa; or taking the Trolley or SPINTER to our universities; or catching the new SPINTER Express between Oceanside and Escondido. Carpoolers, high-tech buses, and solo drivers who pay a fee share new express lanes on our major freeways. More children walk or bike to school. More people work from home a few days a week.

Read on. Building on our current transportation system with funding anticipated over the next 40 years, the 2050 RTP outlines projects for transit, rail and bus services, express or managed lanes, highways, local streets, bicycling, and walking. The result will be an integrated, multimodal transportation system by mid-century.

The Chapters in this document, including the Sustainable Communities Strategy (SCS) in Chapter 3 and all of the appendices, constitute the Plan.

A New Mandate, a Better Future

The vision for our region's future has evolved, changing from one that pictured steady expansion to the east, to one that placed a greater value on protecting open space, to one that now focuses on a compact urban core where more people live and use fewer resources. Local governments have been working toward this vision for decades.

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 network for public transit. It provides more transit choices for today's and tomorrow's riders, by improving the existing system and by introducing new access to other areas.

In 2006, Assembly Bill 32 (AB 32) was signed into law. It requires California to lower statewide greenhouse gas emissions to 1990 levels by 2020. Passed in 2008, Senate Bill 375 (SB 375) supports the implementation of AB 32 by encouraging planning practices that create sustainable communities. SB 375 also charged the California Air Resources Board (CARB) with setting regional targets for reducing greenhouse gas emissions by 2020 and by 2035. It also calls for California Metropolitan Planning Organizations (MPOs), such as the San Diego Association of Governments (SANDAG), also must prepare a SCS. The SCS must show how the region will meet its goals for reducing greenhouse gas emissions from automobiles and light trucks.

The 2050 RTP and its SCS show that our region will meet or exceed these targets by using land in ways that make developments more compact, conserving open space, and investing in a transportation network that gives residents alternatives to driving alone.

A Vision for Mid-Century

The vision for the 2050 RTP describes a transportation system that:

- Supports a prosperous economy; promotes a healthy and safe environment, including climate change protection; and provides a higher quality of life for all San Diego County residents
- Better links jobs, homes, and major activity centers by enabling more people to use transit and to walk and bike; efficiently transports goods; and provides fast,

convenient, and effective transportation options for all people

A Strategy for More Sustainable Communities

The 2050 RTP and its SCS seek to guide the San Diego region toward a more sustainable future by integrating land use, housing, and transportation planning to create communities that are more sustainable, walkable, transit-oriented, and compact. Planning for future patterns of density, how people get around, and how land is used is really driven by one goal: creating great places to live, work, and play. The path toward living more sustainably is clear: focus housing and job growth in urbanized areas where there is existing and planned transportation infrastructure, protect sensitive habitat and open space, invest in a transportation network that provides residents and workers with transportation options that reduce greenhouse gas emissions, and implement the Plan through incentives and collaboration.

Although SB 375 went into effect recently, the building blocks of the SCS have formed the foundation of transportation planning in the San Diego region for many years. This planning effort is now focused more sharply on promoting sustainability as our region strives to meet new requirements mandated by SB 375. The building blocks of the SCS include:

- A land use pattern that accommodates our region's future employment and housing needs, and protects sensitive habitats and resource areas
- A transportation network of public transit, managed lanes and highways, local streets, and bikeways and walkways built and maintained with reasonably expected funding

The 2050 RTP and its SCS seek to guide the San Diego region toward a more sustainable future by integrating land use, housing, and transportation planning to create communities that are more sustainable, walkable, transit-oriented, and compact.

Achieving social equity in the development of a comprehensive transportation system is a major regional goal.

- Managing demands on the transportation system (also known as Transportation Demand Management, or TDM) in ways that reduce or eliminate traffic congestion during peak periods of demand
- Managing the transportation system (also known as Transportation System Management, or TSM) through measures that maximize the efficiency of the transportation network
- Innovative pricing policies and other measures designed to reduce vehicle miles traveled and traffic congestion during peak periods of demand

Ensuring Social Equity on the Road to Sustainability

Roads, freeways, public transit, and other transportation infrastructure can significantly influence the quality of life for a region's residents by shaping access to housing, jobs, services, and recreational opportunities. Achieving social equity in the development of a comprehensive transportation system is a major regional goal. It requires making investments that provide all residents – regardless of age, race, color, national origin, income, or physical ability – with opportunities to work, shop, study, be healthy, and play.

Without proper planning and development, transportation systems can degrade the quality of life in communities. The construction of roads, freeways, and rail-transit systems has sometimes placed burdens on many lower income and minority communities. At times, new transportation projects have physically divided communities, resulting in long-lasting social and economic costs. It is important to understand the impacts of transportation investments on our most vulnerable communities in order to better plan for the future.

Promoting social equity and environmental justice in transportation planning requires involvement from a wide variety of communities and stakeholders. To continue improving transportation planning, SANDAG conducted a significantly more robust, regionwide environmental justice analysis for the 2050 RTP. From the beginning, it engaged affected communities in the planning process. SANDAG incorporated their issues and concerns into the design and decision-making process, as well as in the definition of affected communities and the development of indicators to measure the performance of the transportation system. These efforts ensured that low income and minority communities will share in the benefits of transportation investments without bearing a disproportionate burden from the system. The 2050 RTP includes metrics and performance measures to assess how well the Plan's improvements are distributed in these communities (Chapter 4, Social Equity: Title VI and Environmental Justice).

Paying for the Vision

The Plan is based on current and reasonably available financial resources projected out to 2050. These resources are applied to the estimated capital, operating, maintenance, and rehabilitation costs of the region's transportation system through 2050. Total revenues estimated for the 2050 RTP are about \$213.8 billion (escalated to the year that dollars are expended), including future California High Speed Rail funds. Local funds make up 55 percent of the total revenue, with state and federal funds providing 28 percent and 17 percent, respectively. Revenues are phased in by decade. Projects that are listed in the initial years of the 2050 RTP are the same as those that are either already programmed in the five-year Regional Transportation Improvement Program (RTIP) through FY 2015, or are anticipated to be included in

future near-term updates of the RTIP. The RTIP is a multi-billion, five-year capital listing of all major highway, arterial, transit, bikeway, and *TransNet* Program projects.

Offering More Travel Choices

Over the past several decades our region has made substantial investments in Trolley, COASTER, SPRINTER, and local bus networks, in addition to investing in our regional highway system. As our region continues to grow, the 2050 RTP considers several new developments. They include the requirement to reduce greenhouse gas emissions; our region's aging population; increasing patterns of infill and redevelopment in the western third of the region; and the growing emphasis on walking, bicycling, and other forms of active transportation on public health.

The Plan envisions an ambitious and far-reaching transit network that significantly expands the role that transit plays in meeting our region's needs for mobility. The goal is to create the kind of public transit infrastructure and services offered by "world-class" transit systems.

The Plan's network for public transit is strengthened by reinforcing and upgrading existing transit services in key urban corridors, and by pursuing new transit projects in the most urbanized areas of our region with a broad combination of transit modes (Figure 1.1).

These improvements include:

- Double tracking the coastal rail corridor to enable more frequent and reliable service on the COASTER and Amtrak
- Double tracking the SPRINTER rail lines to increase the frequency of service and add limited-stop express services

- Enhancements to the existing Trolley system, including a tunnel in downtown San Diego, to increase the frequency of service and add limited-stop, commuter express services
- Adding new Trolley and Bus Rapid Transit (BRT) lines to provide high-quality regional transit connections along high-demand corridors
- Developing a system of high-speed Rapid Bus services in key arterial corridors to supplement local bus services
- Creating a system of high-frequency services on many of the existing local bus routes in urban core areas
- Reintroducing streetcar and/or shuttle/circulator services to improve mobility within downtown areas

The 2050 RTP also assumes the development of the California High Speed Rail corridor, which will link San Diego to Northern California via the Inland Empire.

As shown in Figure 1.1, new Trolley/SPRINTER lines would connect to more communities. Among the improvements:

- SPRINTER service would be extended to south Escondido
- A north-south Trolley corridor would be developed along the I-805 corridor that would connect University City, Kearny Mesa, Mission Valley, Mid-City, southeastern San Diego, National City, Chula Vista, and San Ysidro
- Intersecting this I-805 Trolley corridor would be three new east-west Trolley lines between University City and Mira Mesa, from Pacific Beach to East County via Kearny Mesa and Mission Valley, and from downtown San Diego to San Diego State

The Plan envisions an ambitious and far-reaching transit network that significantly expands the role that transit plays in meeting our region's needs for mobility.

The Goods Movement Strategy of the 2050 RTP considers the growing importance of freight and goods movement to our region's economic prosperity, and it seeks to balance regional and national freight priorities.

University (SDSU) via the Mid-City communities

BRT services would complement the regional Trolley/SPRINTER services by providing regional connections along the I-15 corridor between Escondido and downtown San Diego via Kearny Mesa and Mid-City; the SR 52 corridor between East County and Kearny Mesa/University City; and the south I-805 corridor between Otay Mesa/Otay Ranch and downtown San Diego, as well as between Otay Mesa/Otay Ranch/San Ysidro and Kearny Mesa/University City.

Often the biggest impediment to using transit is the challenge of getting to and from a transit stop or station. Potential steps to promote Safe Routes to Transit include first-mile/last-mile solutions. These can include enhanced pedestrian crosswalks near transit stations, bicycle lanes that connect to transit and bike parking at transit stations, feeder-distributor bus/shuttle routes, car sharing/station cars, and ridesharing.

There are additional plans to offer travelers station amenities, real-time scheduling information, comfortable vehicles, and Wi-Fi connections.

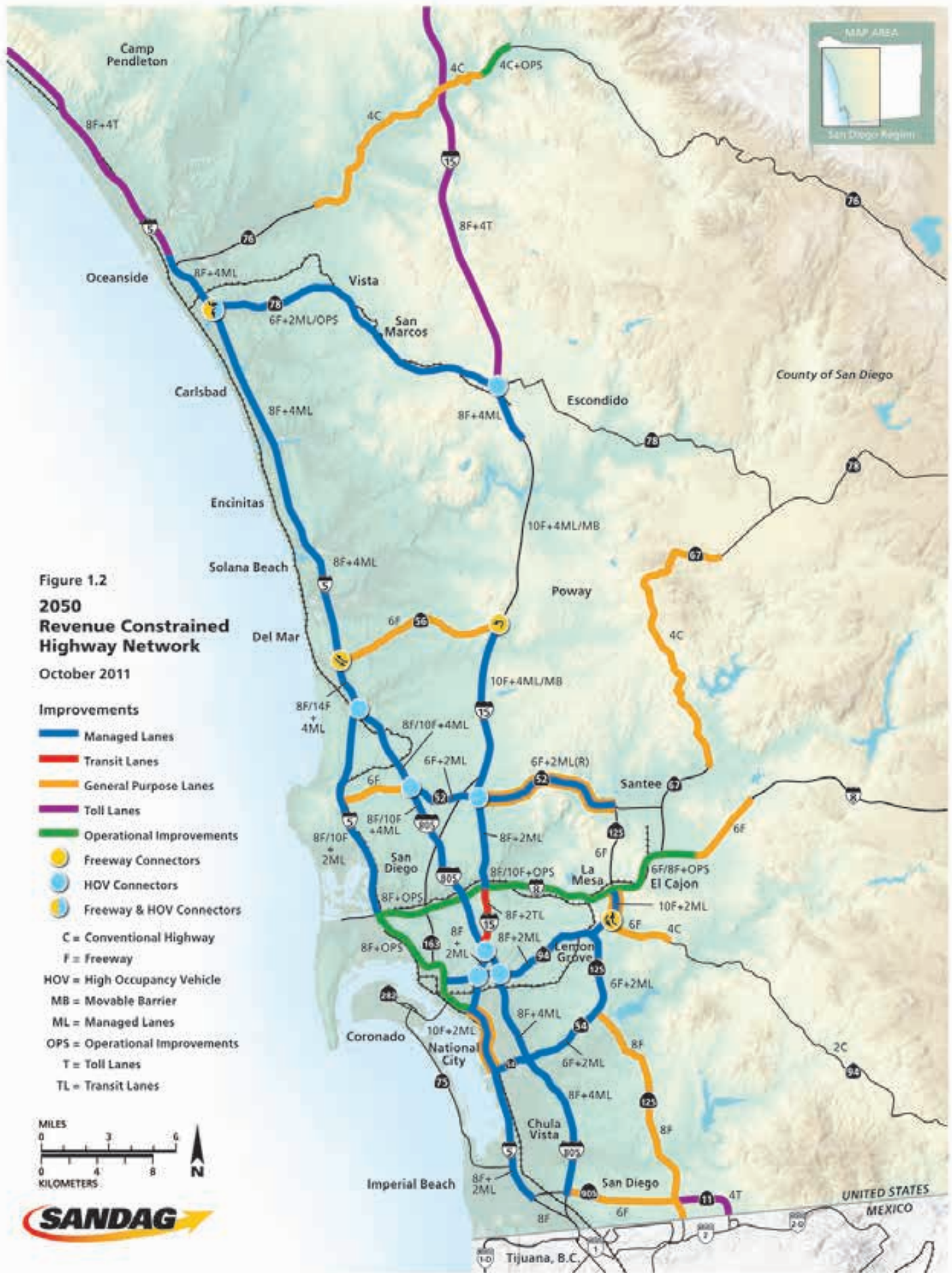
In recent RTPs, the region's vision for a flexible highway system has been refined. This system serves multiple purposes and different types of travel. It accommodates buses and other transit vehicles, automobiles, the movement of freight, and bicycles. Most of the highway improvements included in the 2050 RTP offer new express or managed lanes that support carpooling, vanpooling, and BRT services. Express lanes also accommodate fee-paying patrons (similar to the FasTrak® system, in which fees support transit services along the I-15 corridor). Figure 1.2 illustrates the Plan's highway network.

The 2050 RTP also recognizes that the smooth flow of traffic on local streets and on arterials is needed to improve mobility on highways and regional arterial networks. This is especially true where public transit and other alternatives are not as feasible as they are in our region's urban areas.

Regional facilities and services connect to larger transportation systems beyond the San Diego region's boundaries (freeways and rail networks in other parts of the state and nation), as well as to local systems of streets, roads, and transit services in our communities.

Freight also is moved on the regional transportation network, and it requires good access and connectivity to local logistics centers and terminals to ensure the efficient movement of goods onto and off the network. The Goods Movement Strategy of the 2050 RTP considers the growing importance of freight and goods movement to our region's economic prosperity, and it seeks to balance regional and national freight priorities (Chapter 6, Systems Development). Although the majority of goods are moved by truck, the San Diego region relies on air cargo, maritime, pipeline and rail systems, intermodal centers, and international border crossings.





Making bicycling and walking viable options for everyday travel can increase mobility, reduce greenhouse gases, and improve public health.

The Plan also includes a multimodal strategy to improve airport access for cars, shuttles, trucks, and other surface transportation. The goal is to maximize the efficiency and effectiveness of existing and planned aviation facilities by using all the transportation infrastructure available.

Making bicycling and walking viable options for everyday travel can increase mobility, reduce greenhouse gases, and improve public health. Implementing the Regional Bicycle Plan (Riding to 2050, The San Diego Regional Bicycle Plan) and the bicycle and pedestrian master plans of local jurisdictions will help in this effort. The 2050 RTP also includes the Safe Routes to School Strategy, which supports communities and schools that promote walking and bicycling to school (see Chapter 6, Systems Development).

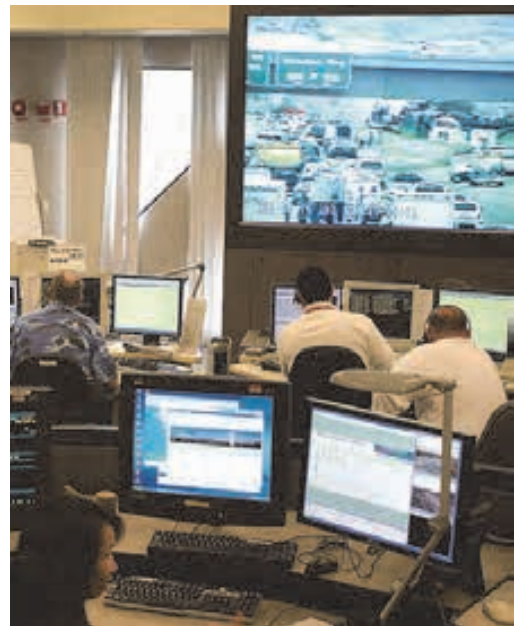
Planning in the San Diego region has traditionally been considered as bounded by San Diego County. However, over the years, our perceived borders have expanded. San Diego County has increasingly close ties to its neighboring counties, and to the Republic of Mexico. This challenges us to think of our region as extending beyond our borders. We also are home to 17 tribal governments, each of which is a sovereign nation within our region. Our region's distinct characteristics present a variety of opportunities and challenges for coordinating transportation planning along our interregional and binational borders.

Making Better Use of What We Have

Reducing traffic congestion, travel times, and air pollution depend on effectively managing the region's transportation system. Known as Transportation Systems Management, or TSM, the effort is a core component of the 2050 RTP and its SCS. Its goal is to smooth the flow of traffic on streets and highways,

eliminate bottlenecks, and enhance public transit. TSM investments in the 2050 RTP enhance today's transportation network and ensure that future improvements realize their full potential.

Successful management of the transportation system depends on implementing several techniques and incorporating advanced technologies. On-ramp lights that meter the flow of traffic onto freeways, timing traffic signals on key arterial and local streets, tracking public transit vehicles, and keeping travelers informed with message signs on roadways and updates on the Web and telephone all help keep traffic flowing. Transportation planners also are exploring new strategies that employ cutting-edge technology, such as wireless sensors and detection.



Incentives for the Path Less Traveled

The transportation system in the San Diego region faces many challenges. In the past, steady population growth; the dispersion of homes, jobs, schools, and services; increased interregional commuting; and the expanded

movement of goods all have led to mounting congestion on our roadways. These trends challenged our ability to keep pace with growing travel demands and to operate a reliable transportation system.

Improvements to transportation infrastructure require many years and significant resources to complete. However, managing the demand for various forms of transportation, also known as Transportation Demand Management, or TDM, can provide flexible and cost-effective solutions. Typical TDM programs include ridesharing initiatives such as carpooling, vanpooling, and buspooling; promoting alternative work schedules and teleworking; and promoting bicycling, walking, and the use of public transit. These programs reduce the overall amount of travel, making more efficient use of our existing roadways and maximizing the movement of people and goods.

A Public Plan, With Public Input

SANDAG implemented a comprehensive public outreach and involvement program to support the development of the 2050 RTP and its SCS. The 2050 RTP Public Involvement Plan is based on the SANDAG Public Participation Plan, which was adopted by the SANDAG Board of Directors in 2009.

The 2050 RTP Public Involvement Plan outlined specific activities for communicating with the public throughout the development of the RTP and its SCS. SANDAG prepared the Public Involvement Plan with input from the general public, the Regional Planning Stakeholders Working Group (SWG), the Policy Advisory Committees, and the Board of Directors. Parallel to this effort, a tribal consultation work plan was developed.

To engage low income and minority communities early in the planning process, SANDAG established a mini-grant program to focus the SWG directly on their concerns in a timely and meaningful way, and to provide resources so community collaboratives could reach out to their constituents throughout the process.

The goals, strategies, and tactics outlined in the Public Involvement Plan and provided in Chapter 9 and Technical Appendix 6 have guided outreach efforts. These efforts have built awareness of the regional transportation planning process, and identified opportunities for stakeholders to shape our region's future.

Built with contributions for a wide range of stakeholders and a broad cross section of the public, the 2050 RTP sets a course for how our region can be a healthier, more livable, and more equitable place to live. How we move from place to place – to work, to shop, and to play – shapes much of our quality of life. Let's implement this Plan for a San Diego region where that quality remains high.

Efforts have built awareness of the regional transportation planning process, and identified opportunities for stakeholders to shape our region's future.



Chapter 2

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

Chapter Contents

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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
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.	Tailor transportation improvements to better connect people with jobs and other activities
	Provide convenient travel choices including transit, intercity and high speed trains, driving, ridesharing, walking, and biking
	Preserve and expand options for regional freight movement
	Increase the use of transit, ridesharing, walking and biking in major corridors and communities
	Provide transportation choices to better connect the San Diego region with Mexico, neighboring counties, and tribal nations
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.	Employ new technologies to make travel more reliable and convenient
	Manage the efficiency of the transportation system to improve traffic flow
System Preservation and 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.	Keep the region's transportation system in a good state of repair
	Reduce bottlenecks and increase safety by improving operations
	Improve emergency preparedness within the regional transportation system
Social Equity	
The transportation system should be designed to provide an equitable level of transportation services to all segments of the population.	Create equitable transportation opportunities for all populations regardless of age, ability, race, ethnicity, or income
	Ensure access to jobs, services, and recreation for populations with fewer transportation choices
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.	Develop transportation improvements that respect and enhance the environment
	Reduce greenhouse gas emission from vehicles and continue to improve air quality in the region
	Make transportation investments that result in healthy and sustainable communities
Prosperous Economy	
The transportation system should play a significant role in raising the region's standard of living.	Maximize the economic benefits of transportation investments
	Enhance the goods movement system to support economic prosperity

Table 2.2 – 2050 RTP Comparison of Regional Performance Measures

Performance Measures		Existing (2008)	No Build (2050)	Revenue Constrained (2050)
System Preservation and Safety				
1.	Percentage of transportation investments toward maintenance and rehabilitation	N/A	N/A	29%
2.	Percentage of transportation investments toward operational improvements			
Mobility				
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
Prosperous Economy				
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)
	Reliability			
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
	Healthy Environment			
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%
	Healthy Environment			
19.	Total bike and walk trips	510,000	610,000	1,340,000
20.	CO ₂ 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)
Social Equity				
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.

Chapter 3

Forging a Path Toward More Sustainable Living: A Sustainable Communities Strategy

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2050 Regional Transportation Plan

Achieving sustainability will require living and working in ways that protect and sustain our region's vital social, environmental, and economic resources.

The 2050 Regional Transportation Plan (RTP) and its Sustainable Communities Strategy (SCS) seek to guide the San Diego region toward a more sustainable future by integrating land use, housing, and transportation planning to create communities that are more sustainable, walkable, transit oriented, and compact. Planning for future patterns of density, how people get around, and how land is used is really driven by one goal: creating great places to live, work, and play.

Senate Bill 375 (SB 375), which went into effect in 2009, added statutes to the California Government Code to encourage planning practices that create sustainable communities. It calls for each metropolitan planning organization to prepare an SCS as an integrated element of the Regional Transportation Plan. This new element shows how integrated land use and transportation planning can lead to lower greenhouse gas (GHG) emissions from autos and light trucks.

Government Code sections are referenced throughout the SCS to show how the region is meeting the requirements of SB 375. In addition, Appendix D includes a matrix that specifies the page number of the SCS or other sections of the 2050 RTP where each of the requirements of SB 375 can be found.

A Sustainable Strategy for the San Diego Region

"Each metropolitan planning organization shall prepare a sustainable communities strategy." (Government Code Section 65080(b)(2)(B))

Achieving sustainability will require living and working in ways that protect and sustain our region's vital social, environmental, and economic resources.



The strategy for the San Diego region is to use existing and reasonably expected funding to achieve our region's transportation and housing needs, while also respecting, and enhancing our natural resources.

The path toward living more sustainably is clear: focus housing and job growth in urbanized areas where there is existing and planned transportation infrastructure, protect sensitive habitat and open space, invest in a transportation network that provides residents and workers with transportation options that reduce GHG emissions, and implement the plan through incentives and collaboration.

Although SB 375 went into effect recently, the building blocks of the SCS have formed the foundation of transportation planning in the San Diego region for many years. For example, regional habitat planning efforts began in the 1990s. The Regional Comprehensive Plan (RCP), which integrates transportation, land use and housing planning

to create a more sustainable region, was adopted by SANDAG in 2004.

The RCP was built on the principles of sustainability and smart growth. Sustainability is defined in the RCP 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.” A prosperous economy, a healthy environment, and social equity are described as the “Three Es” of sustainability.

The RCP set forth our regional vision which is being furthered through the 2050 RTP and its SCS. That vision is:

“To preserve and enhance the San Diego region’s unique features – its vibrant and culturally-diverse communities, its beaches, deserts, mountains, lagoons, bluffs, canyons, and its international setting – and promote sustainability, economic prosperity, and an outstanding quality of life for everyone.”

The 2050 RTP and its SCS build on these ongoing planning efforts, with the added focus on reducing GHG emissions as the region strives to meet new requirements mandated by SB 375.

“Prior to adopting a sustainable communities strategy, the metropolitan planning organization shall quantify the reduction in greenhouse gas emissions projected to be achieved by the sustainable communities strategy.” (Government Code Section 65080(b)(2)(H))

As part of its mandate under SB 375, in 2010, the California Air Resources Board (CARB) set specific targets for reducing GHG emissions for cars and light trucks for each of the state’s regions from a 2005 base year. The GHG targets set for the San Diego region call for a

7 percent per capita reduction by 2020, and a 13 percent per capita reduction by 2035.

As shown in Table 3.1 our region will meet or exceed these targets by, among other means, using land in ways that make developments more compact, conserving open space, and investing in a transportation network that gives residents transportation options.

It is important to note that the 2050 RTP addresses GHG and vehicle miles traveled from a broader range of vehicles – such as public transit buses, heavy duty trucks, and school buses – than those addressed in SB 375. This chapter focuses only on the requirements of SB 375 which call for GHG reductions for the specific vehicle classes, cars and light trucks. Other performance metrics related to GHG emissions are addressed in the balance of the 2050 RTP chapters where appropriate. A further discussion of how the targets are met and the relationship to VMT and GHG emissions is provided later in this chapter in the Meeting Targets for Lowering GHG Emissions section.

The 2050 RTP horizon year extends well beyond the target years of 2020 and 2035 outlined in SB 375. So what happens beyond 2035? While growth will continue in the region, after the urbanized areas have been developed according to current local general plans, development could gradually move toward more remote areas where fewer transportation options are available if local plans are not changed. The growth forecast shows this happening simply because most local general plans have a horizon year prior to 2050. Although, it is expected that local plans will be updated and revised between now and 2050 to reflect more development in the urbanized areas of the region, based on current plans, the projected growth beyond 2040 would likely result in an increased demand for driving. The results now shown

Sustainability is defined in the RCP 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.”

Table 3.1 – 2050 RTP – Results of Greenhouse Gas Emissions and Vehicle Miles Traveled Reductions

Average Weekday Per Capita CO2 and VMT Reductions for Cars and Light Trucks from 2005			
Target Year	CARB Target	GHG	VMT
2020	7%	14%	12%
2035	13%	13%	10%
2050	N/A	10%	7%

Source: SANDAG and CARB

Thousands of residents, community leaders, academics, business leaders, elected officials, and representatives from underrepresented groups have participated in the development of the 2050 RTP and its SCS.

for 2050 are best estimates based on historical and current empirical observations in the region and do not reflect future attitude changes about transportation and where people will choose to live and work as a result of significant investments in transportation options.

In addition, the GHG modeling for 2050 uses emission factors for the year 2040 (EMFAC 2007 includes emissions factors through 2040 only) and assumes no technological improvements to vehicles or fuels in the final ten years of the plan (This is due to the lack of accepted published data beyond 2040).

In accordance with SB 375, the building blocks of the SCS include:

- A land use pattern that accommodates our region's future employment and housing needs, and protects sensitive habitats and resource areas
- A transportation network of public transit, managed lanes and highways, local streets, bikeways and walkways built and maintained with reasonably expected funding
- Managing demands on our transportation system (also known as Transportation Demand Management or TDM) in ways that reduce or eliminate traffic congestion during peak periods of demand

- Managing our transportation system (also known as Transportation System Management, or TSM) through measures that maximize the efficiency of the transportation network
- Innovative pricing policies and other measures designed to reduce vehicle miles traveled and traffic congestion during peak periods of demand

The key difference between past and current regional planning efforts is a sharper focus on reducing GHG emissions from cars and light trucks. For these vehicles, the state has developed a three-tiered approach to reducing GHG emissions. In addition to the regional land use policies and transportation investments contained in the 2050 RTP, the state has enacted laws to increase vehicle fuel efficiency and to increase the use of alternative, lower carbon transportation fuels. SANDAG, and other regional stakeholders, are supporting infrastructure planning for alternative fuels, which is addressed later in this chapter.

SCS Public Involvement Activities

"The metropolitan planning organization shall conduct at least two informational meetings in each county within the region for members of the board of supervisors and city councils on the sustainable communities strategy." (Government Code Section 65080(b)(2)(E))

Involving the public in the development of the SCS was a major priority in the San Diego region. On October 8, 2010, SANDAG conducted an informational meeting on the SCS at the SANDAG Board of Directors meeting. Pursuant to Government Code Section 65080(b)(2)(E), only one informational meeting is required if it is attended by the county board of supervisors and city councilmembers who represented a majority of the cities with a majority of the population in the incorporated areas of the county. The minutes and attendance by jurisdiction for this meeting can be found in Technical Appendix 6, entitled 2050 RTP and SCS Public Outreach Program. These documents show that the meeting was attended by all jurisdictions within San Diego County. SANDAG has exceeded the statutory requirement by holding discussions concerning the SCS at several other public meetings of the Board of Directors since October 2010. The documentation from these meetings also is included in Technical Appendix 6.

“Each metropolitan planning organization shall adopt a public participation plan, for development of the sustainable communities strategy.” (Government Code Section 65080(b)(2)(F))

Through an extensive public outreach program, thousands of residents, community leaders, academics, business leaders, elected officials, and representatives from underrepresented groups have participated in the development of the 2050 RTP and its SCS. The 2050 RTP Public Involvement Plan (PIP) established a process and outlined specific activities for communicating with, and obtaining input from, the public throughout the RTP development process. The PIP is based on the SANDAG Public Participation Plan adopted by the Board of Directors on December 18, 2009.



SANDAG’s efforts to involve the public in the development of the 2050 RTP and its SCS have been tracked and recorded to chronicle the large number, and wide range of activities organized and held by SANDAG. This record shows that SANDAG exceeded the public involvement requirements, including informational meetings mandated by SB 375 and federal regulations. The details of these activities are included in Chapter 9 and Technical Appendix 6.

Drawing a Closer Connection to How Land Is Used, and How We Get Around: the Land Use and Transportation Connection

For some time, SANDAG has been drawing an increasingly closer connection between how land is used, and how we get around. Since the late 1990s, the principles that guide our vision for the future have deepened and matured. The cities and County of San Diego have begun to integrate local and regional plans for accommodating the region’s growing population, preserving open space, and reducing GHG emissions. This holistic approach to planning is referred to as “smart growth.”

The Regional Comprehensive Plan sets forth a regional strategy to promote smarter growth, focusing on locating higher density and mixed-use development close to existing, and planned transportation infrastructure.

Acting individually and collectively, local jurisdictions have taken and are continuing to take significant steps to protect the environment. These include creating plans for conserving valuable natural habitats, better protecting watersheds, conserving energy, and reducing reliance on petroleum.

Some of the region's largest initiatives to protect natural habitats include the Multiple Species Conservation Program (MSCP) and the Multiple Habitat Conservation Program (MHCP). Adopted in 1997 and 2003, respectively, the MSCP and MHCP span the region. Collectively, these initiatives establish a "greenprint" for the region.

The Regional Comprehensive Plan (RCP), adopted by the SANDAG Board of Directors in 2004, serves as a blueprint for the region's future growth and development. It sets forth a regional strategy to promote smarter growth, focusing on locating higher density and mixed-use development close to existing, and planned transportation infrastructure. This strategy focuses particularly on elevating the role of public transit in people's daily lives. The RCP is based upon three themes:

- Improving the connections between land use and transportation plans by using smart growth principles
- Using land use and transportation plans to guide decisions about environmental and public facility investments
- Focusing on collaboration and incentives to achieve regional goals and objectives

The RCP and RTP planning processes are iterative, each informing the other. Upon adoption of this RTP, SANDAG will begin work to update the RCP to reflect its SCS.

Shortly after the adoption of the 2004 RCP, SANDAG worked closely with the 18 cities

and the County of San Diego to develop the regional Smart Growth Concept Map (accepted in 2006, and updated in 2008). This map illustrates where smart growth development exists or could occur in our region. The map was used to prioritize transportation investments in the 2030 RTP, and to identify locations for *TransNet* Smart Growth Incentive Program funding. It also has been used by local jurisdictions as a tool for local plan updates and the development of specific plans that locate more housing and employment near transit stations and along major (high frequency) bus routes. Many of these land use plan changes have occurred over the past five or six years and some are still in progress. These plan changes are reflected in the land use pattern of the SCS. The Smart Growth Concept Map is included in Technical Appendix 9 entitled, Additional SCS Background Material. Because the Smart Growth Concept Map has not been updated since 2008, it does not include some of the concepts and recommended actions that are contained in the 2050 RTP and its SCS. Therefore, SANDAG plans to update the map to reflect the changes that have been made to local land use plans (and are contained in the SCS), and the regional transportation network after the adoption of the 2050 RTP.



A Sustainable Land Use Pattern

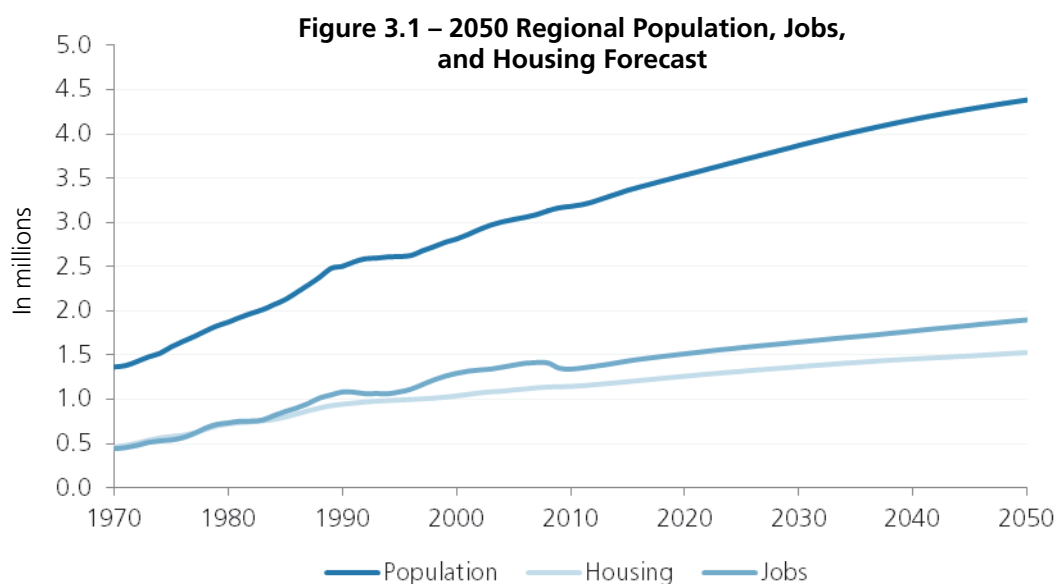
“Each metropolitan planning organization shall prepare a sustainable communities strategy, subject to the requirements of Part 450 of Title 23 of, and Part 93 of Title 40 of, the Code of Federal Regulations, including the requirement to utilize the most recent planning assumptions considering local general plans, and other factors.” (Government Code Section 65080(2)(B))

“Identify the general location of uses, residential densities, and building intensities within the region.” (Government Code Section 65080(b)(2)(B)(i))

In 2008, the San Diego region included about 3.1 million people, 1.1 million homes, and 1.5 million jobs. Most of the homes and jobs are located within the western third of the region, and in areas served by public transit. The 2050 Regional Growth Forecast projects that the region will grow by another 1.25 million people by 2050. Nearly 400,000 new homes and 500,000 new jobs will be added during this time frame (Figure 3.1). The base year for the 2050 RTP is 2008, the year

the data collection effort began to prepare the regional growth forecast (2008-2050). The San Diego region has made great strides in planning for more compact, higher density, and walkable development located near transit and in the incorporated areas of the region already served by water, sewer, and other public facilities. Evidence of the region’s success can be found in the 2050 Regional Growth Forecast, which is the foundation of the SCS land use pattern. The SCS land use pattern accommodates 79 percent of all housing and 86 percent of all jobs within the Urban Area Transit Strategy Study Area where the greatest investments in public transit are being made (see Urban Area Transit Strategy Study Area Map in Technical Appendix 7). About 80 percent of new housing in the region will be attached multifamily. The SCS land use pattern also protects and preserves about 1.3 million acres of land, more than half the region’s land area. These open space lands include habitat conservation areas, parks, steep slopes, floodplains, and wetlands. This information is documented in Table 3.2.

The 2050 Regional Growth Forecast projects that the region will grow by another 1.25 million people by 2050. Nearly 400,000 new homes and 500,000 new jobs will be added during this time frame.



Source: SANDAG 2050 Regional Growth Forecast

Table 3.2 – 2050 Regional Growth Forecast Projections

	2008 to 2050 Change					
	2008	2020	2035	2050	Numeric	Percent
Total Population	3,131,552	3,535,000	4,026,131	4,384,867	1,253,315	40%
Household Population	3,033,985	3,405,068	3,873,175	4,210,591	1,176,606	39%
Group Quarters Population	97,567	129,932	152,956	174,276	76,709	79%
Jobs	1,501,080	1,619,615	1,813,372	2,003,038	501,958	33%
Civilian Jobs	1,411,811	1,515,346	1,709,103	1,898,769	486,958	34%
Military Jobs	89,269	104,269	104,269	104,269	15,000	17%
Total Housing Units	1,140,654	1,262,488	1,417,520	1,529,090	388,436	34%
Single Family	692,382	728,566	755,477	761,699	69,317	10%
Multiple Family	405,023	493,243	624,419	732,832	327,809	81%
Mobile Homes	43,249	40,679	37,624	34,559	-8,690	-20%
Households	1,074,896	1,200,966	1,357,084	1,467,026	392,130	36%
Vacancy Rate	5.8%	4.9%	4.3%	4.1%	0.0	-29%
Household Size	2.82	2.84	2.85	2.87	0.05	2%
Total Acres	2,727,197	2,727,197	2,727,197	2,727,197	0	0%
Residential	335,895	403,440	544,868	634,498	298,603	89%
Employment	88,177	91,286	95,610	99,905	11,728	13%
Parks and Constrained Lands	1,539,657	1,540,164	1,540,966	1,541,314	1,656	0%
Vacant Land	386,266	327,972	209,005	136,183	-250,083	-65%
Distribution of Projected Housing Growth						
	2008	2020	2035	2050	Percent of Regional Change 2008-2050	Numeric Regional Change 2008-2050
Region	1,140,654	1,262,488	1,417,520	1,529,090	100%	388,436
Urban Area Transit Strategy	900,342	989,075	1,108,835	1,205,613	79%	305,271
Distribution of Projected Job Growth						
	2008	2020	2035	2050	Percent of Regional Change 2008-2050	Numeric Regional Change 2008-2050
Region	1,501,080	1,619,615	1,813,372	2,003,038	100%	501,958
Urban Area Transit Strategy	1,301,242	1,394,320	1,554,630	1,712,639	82%	411,397

Note: The 2050 Regional Growth Forecast represents a combination of economic and demographic projects, existing land use plans and policies, as well as potential land use plan changes that may occur in the region between 2030 and 2050 (data shown in italics). In general, growth between 2008 and 2030 is based on adopted land use plans and policies, and growth between 2030 and 2050 includes alternatives that may, in some cases, reach beyond existing adopted plans.

Source: SANDAG 2050 Regional Growth Forecast



2050 Regional Growth Forecast and Establishing the SCS Land Use Pattern

Our region's 2050 Regional Growth Forecast is the foundation of the SCS land use pattern, and it was used to plan the 2050 RTP transportation network. This forecast extends to 2050, allowing our region to incorporate all transportation projects and programs that voters approved in the *TransNet* Ordinance.

The Ordinance authorizes a half-cent sales tax, and the 40-year extension (2008 to 2048) was approved by San Diego region voters in 2004 to help pay for important transportation improvements in the region. The growth forecast is based on economic and demographic projections out to 2050, existing local land use plans and policies, and reasonably anticipated changes to local plans and policies. It estimates how much and where future growth is likely to occur, and it serves as the land use pattern for the SCS.

The 2050 Regional Growth Forecast was the result of a collaborative effort among demographers, planners, and policy makers. A multi-step process was followed that involved the input and review of a wide range of local, regional, and subject-area experts.

The first step in the forecast process was to develop growth projections for the region's population, jobs, housing, and other

demographic and economic characteristics. These projections were developed using the Demographic and Economic Forecasting Model (DEFM). DEFM uses demographic assumptions including age and ethnicity-specific birth rates, death rates, and migration trends (domestic and international). It also uses economic assumptions including labor force participation, labor productivity, and unemployment rates. Input, assumptions, and results from DEFM were reviewed twice by a panel of subject-area experts, including representatives from local universities, economic and workforce development agencies, resource providers, public sector partners, and key industries. The panel represented several areas of expertise ranging from economic and demographic trends to housing and resource issues. Further details about DEFM can be found in the 2050 Regional Growth Forecast Process and Model Documentation in Technical Appendices 2 and 15, respectively.

These regionwide projections were then used to develop neighborhood level growth forecasts that distributed population, housing, and employment growth projections among the 19 jurisdictions. The neighborhood level growth forecasts also considered local land use data, which was developed through



extensive collaboration between SANDAG and the region's 18 cities and the County of San Diego, as well as with other land use agencies such as tribal governments and the Department of Defense. The local land use data incorporated information on existing development, general plans, constraints to development (e.g., flood plains, steep slopes, habitat preserves, historic districts, building height restrictions, and zoning), and permitted projects in the development pipeline.

SANDAG has prepared maps that identify the general location of land uses in the region. The maps also show residential densities and commercial development types (Figures 3.2, 3.3, and 3.4 for 2020, 2035, and 2050, respectively). The maps for 2020 and 2035 also are provided at a subregional level in Appendix D.

Neighborhood level growth forecasts take into consideration a neighborhood's proximity to existing job centers (along with travel time estimates and information on local commuting choices) as well as historical development patterns. How land in a neighborhood is used today, how it's

expected to be developed, how close the neighborhood is to job centers, and historical patterns of land use all offer clues to how a neighborhood is expected to grow.

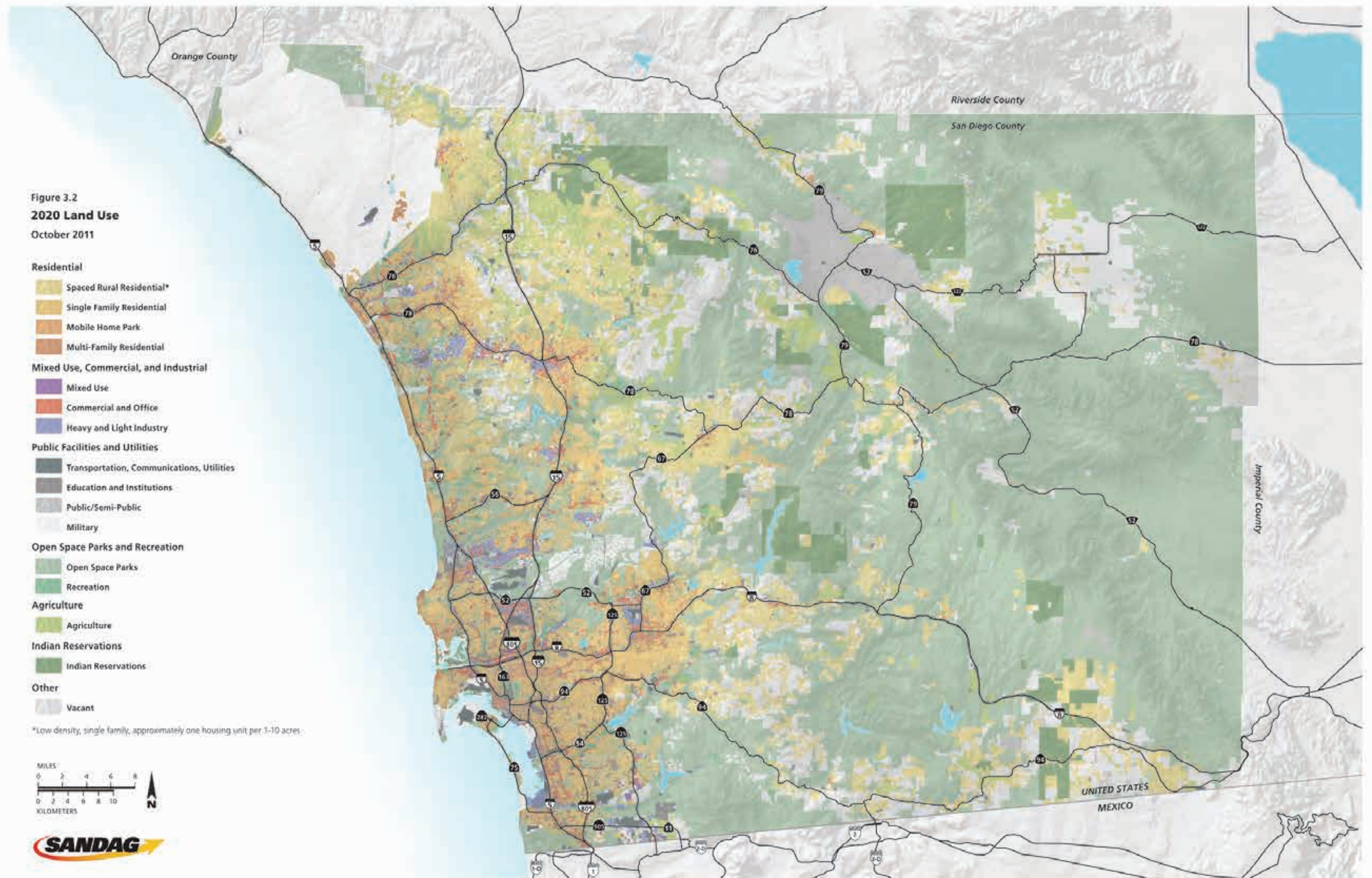
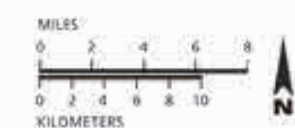
For the last step, each jurisdiction's staff reviewed model results. The final forecast was adjusted based on local feedback to ensure that the most current land use information and assumptions including types of use, densities, and intensities were correctly identified and included. In addition to working with local jurisdiction staff, SANDAG conducted workshops and made presentations to city councils and the County Board of Supervisors to obtain input on the land use assumptions used in the subregional forecast. This latest growth forecast looks out 40 years to 2050. This is further into the future than any previous forecast and extends two years beyond the life of the *TransNet* Extension Ordinance.

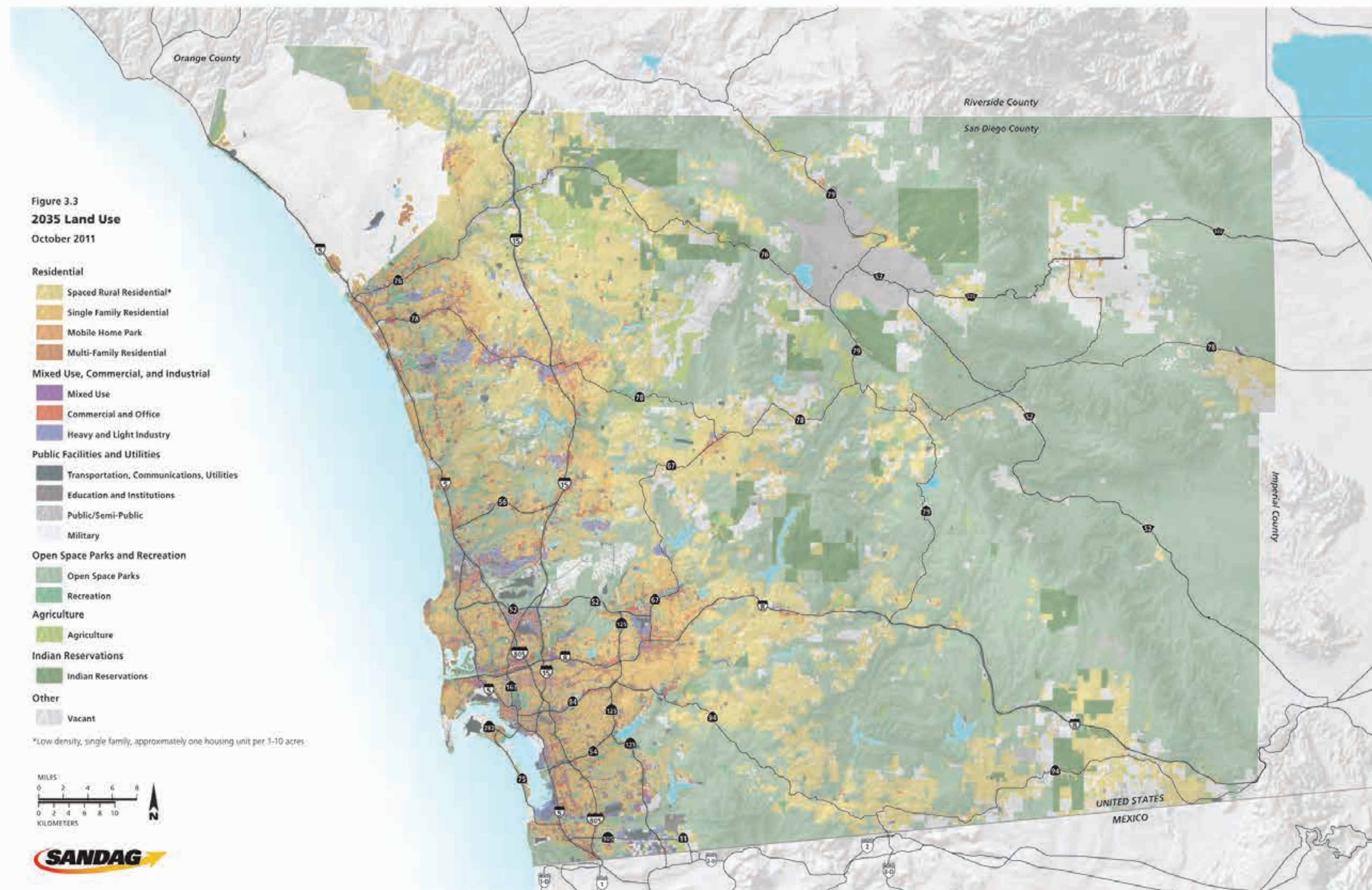


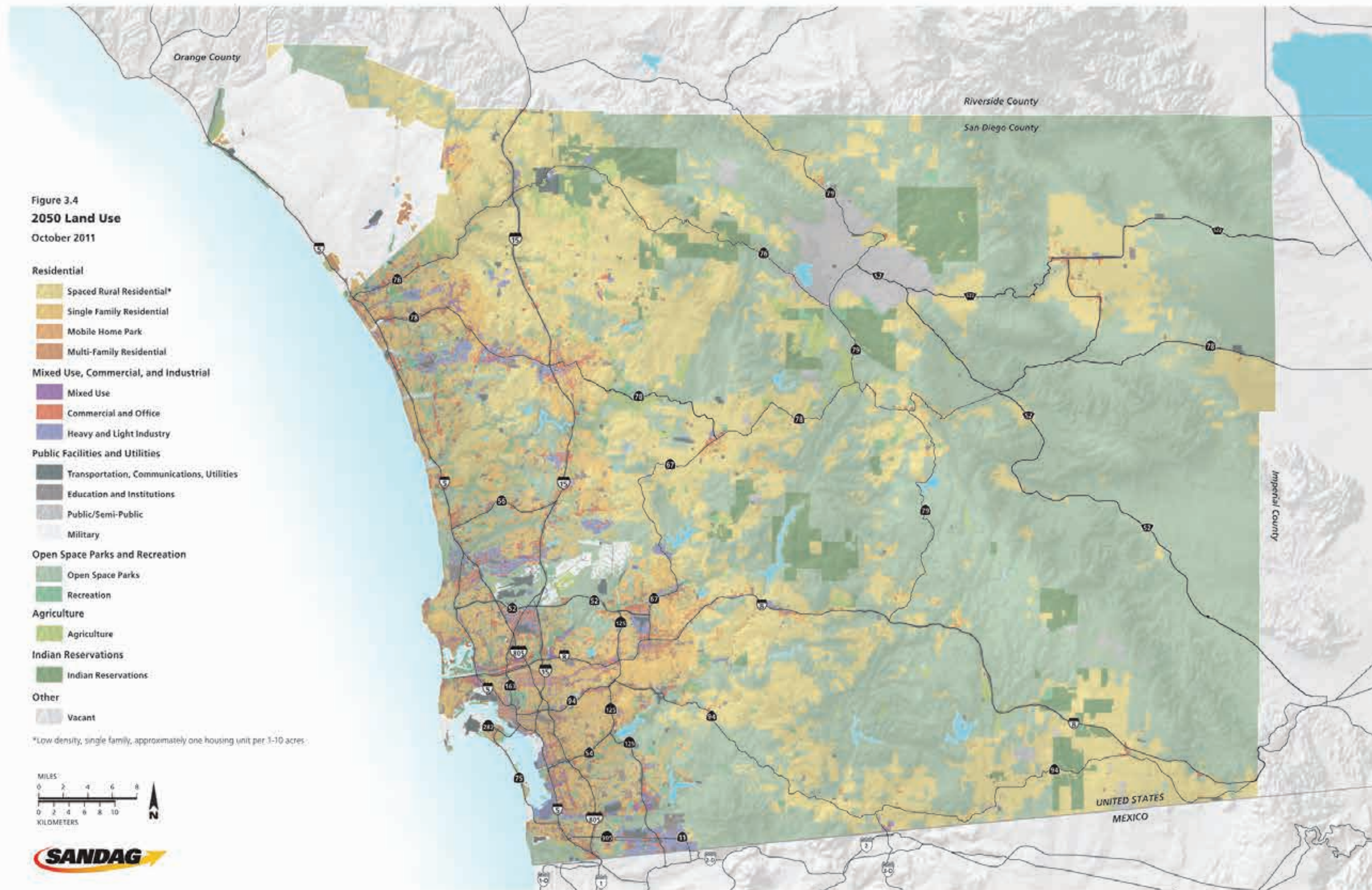
Figure 3.2
2020 Land Use
 October 2011

- Residential**
- Spaced Rural Residential*
 - Single Family Residential
 - Mobile Home Park
 - Multi-Family Residential
- Mixed Use, Commercial, and Industrial**
- Mixed Use
 - Commercial and Office
 - Heavy and Light Industry
- Public Facilities and Utilities**
- Transportation, Communications, Utilities
 - Education and Institutions
 - Public/Semi-Public
 - Military
- Open Space Parks and Recreation**
- Open Space Parks
 - Recreation
- Agriculture**
- Agriculture
- Indian Reservations**
- Indian Reservations
- Other**
- Vacant

*Low density, single family, approximately one housing unit per 3-10 acres.







During the past ten years, development patterns and local plans have aligned more closely with the goals and objectives of the RCP, which include focusing more on urban infill and redevelopment and improving accessibility to jobs, housing, education and recreation opportunities. Thus, the SCS land use pattern for the San Diego region contributes to reducing GHG emissions, meeting our GHG targets, and reducing VMT.

Figures 3.5, 3.6, and 3.7 depict the 2050 Regional Growth Forecast and SCS land use pattern by showing population densities of the region (persons per by acre) in 2020, 2035, and 2050, respectively. Together the maps show that population growth will be concentrated in the western third of the region and along major transportation corridors. The maps also show the extensive system of habitat areas, open space, and parkland that the region is preserving for the future. These natural resources are described in more detail later in this chapter.

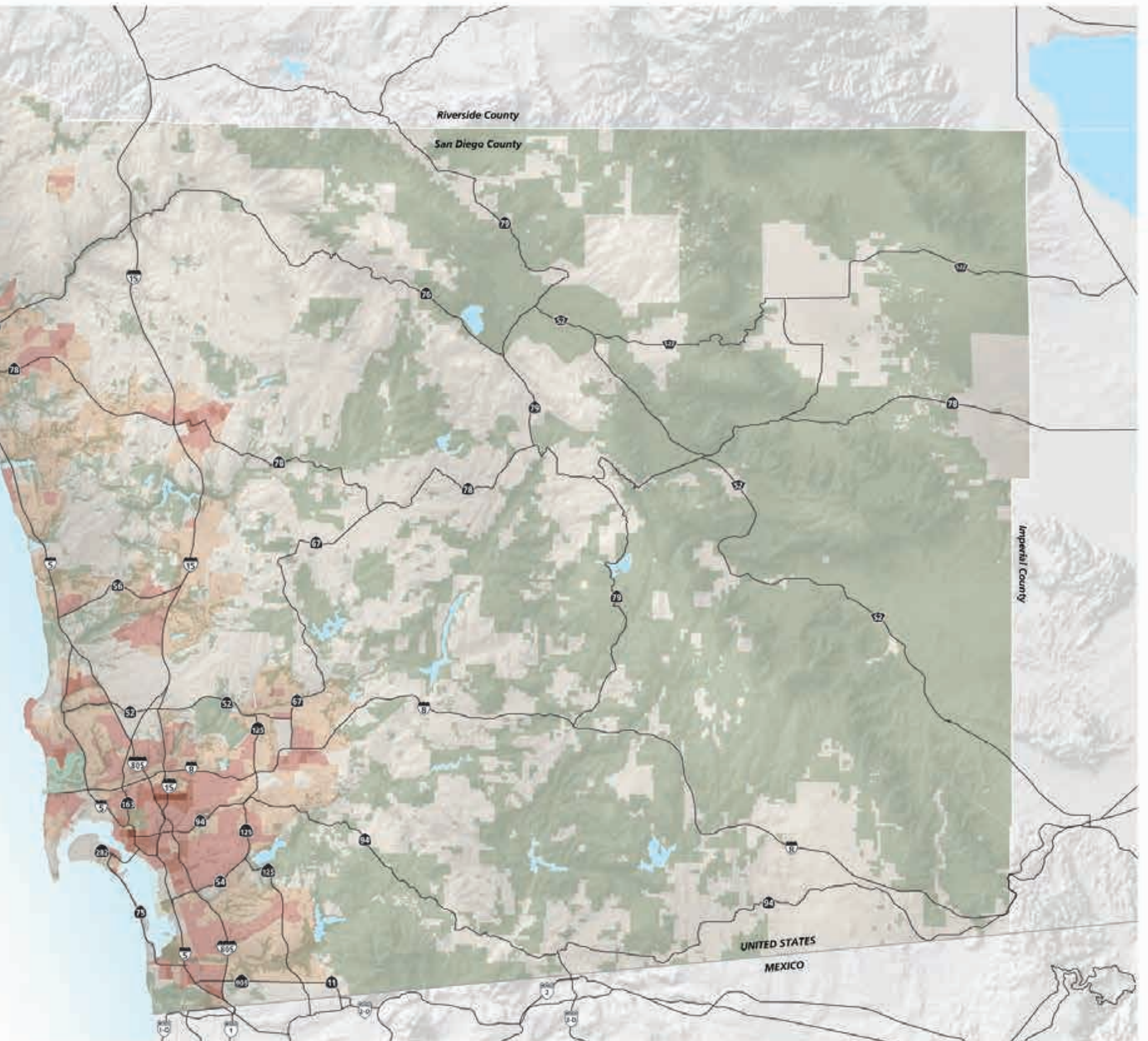
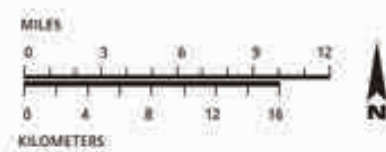
Table 3.2 provides detailed numerical information about the 2050 Regional Growth Forecast, which shows the projected changes in population, housing, and employment between 2008 (the base year), 2020, 2035, and 2050. It shows a breakdown of how many acres are planned for residential, employment, parks and preserved open spaces.

The SCS land use pattern for the San Diego region contributes to reducing GHG emissions, meeting our GHG targets and reducing VMT.



Figure 3.5
2020 Population Density
 October 2011

Persons per Acre



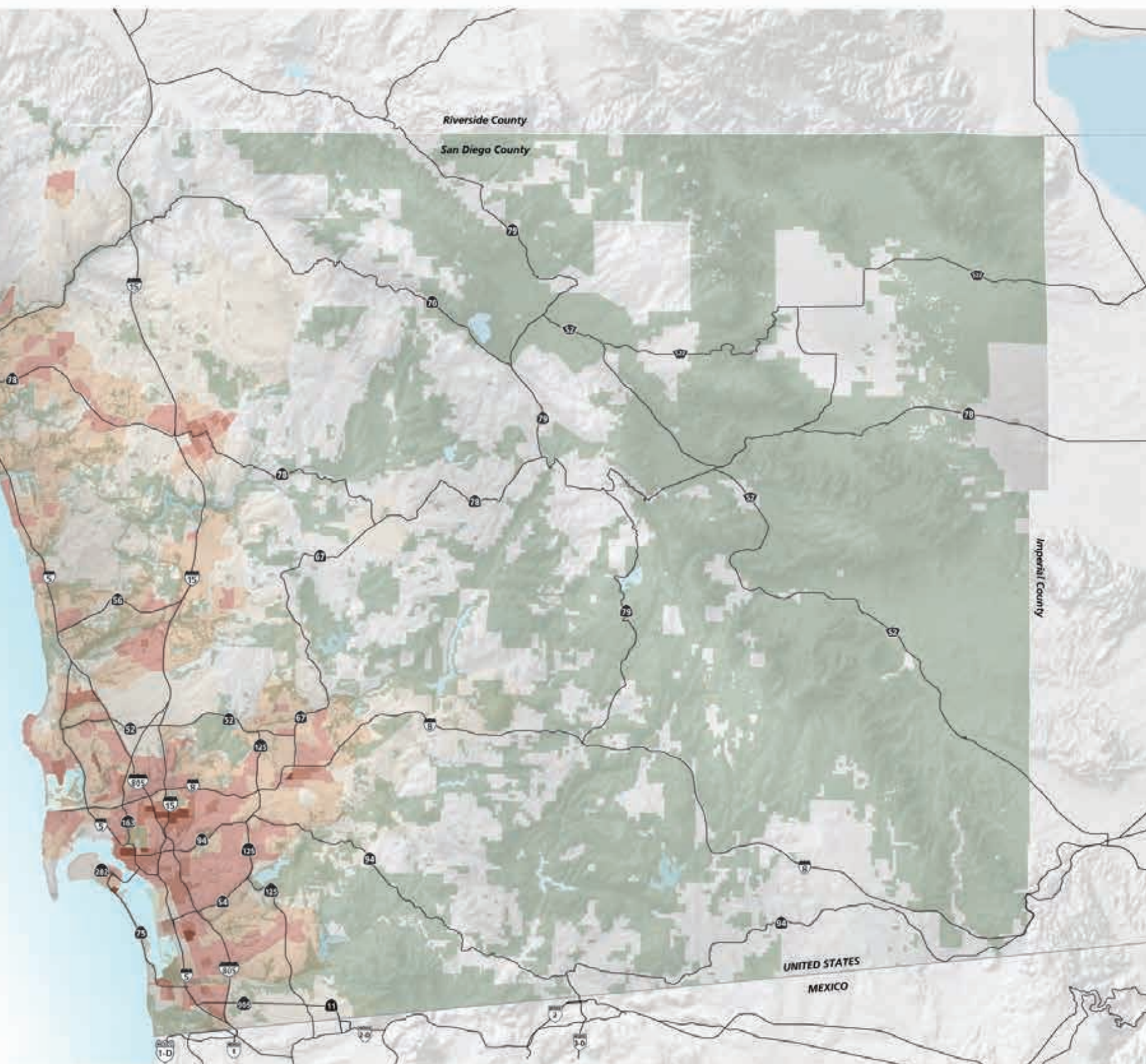


Figure 3.7
2050 Population Density
 October 2011

Persons per Acre

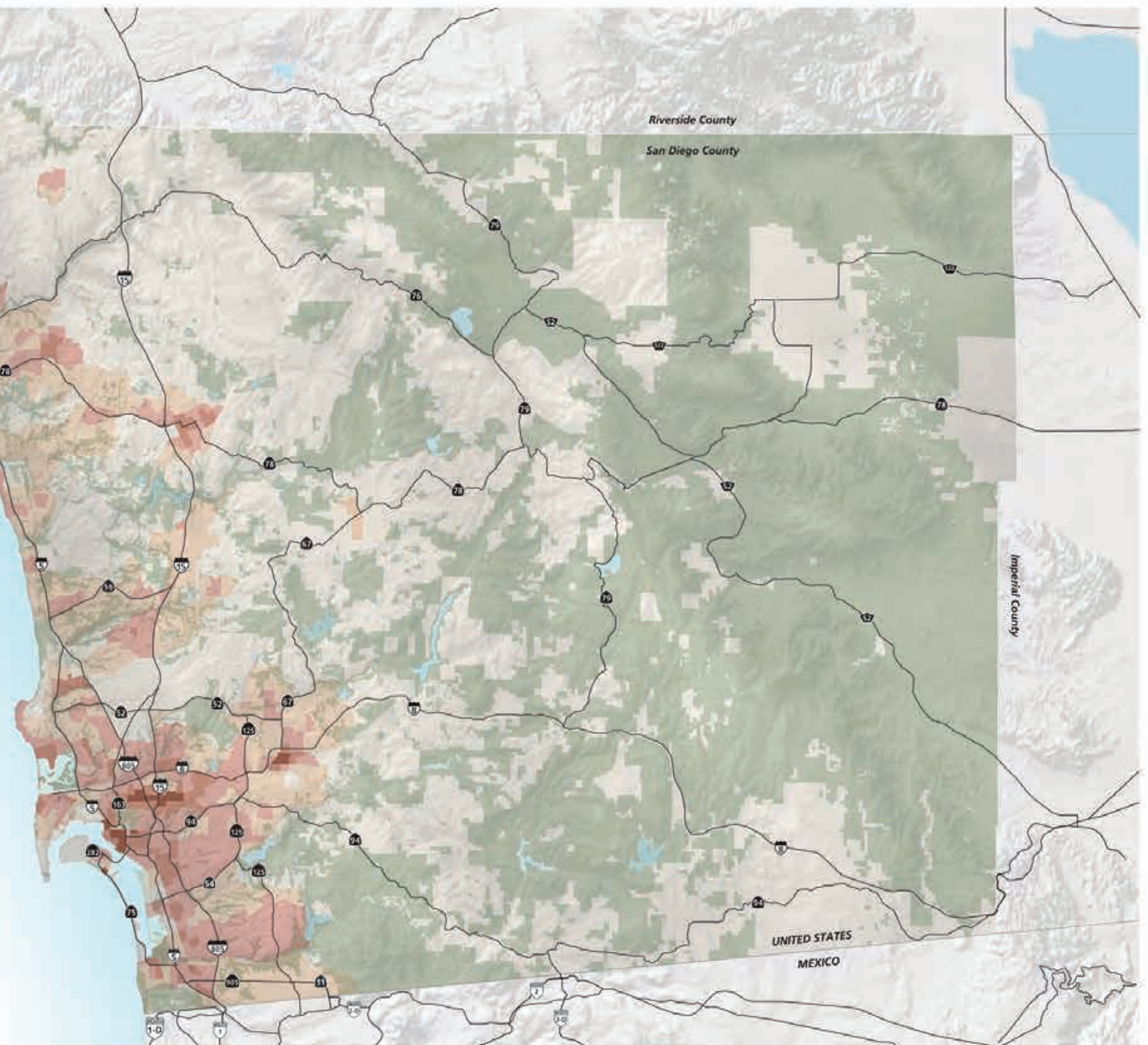
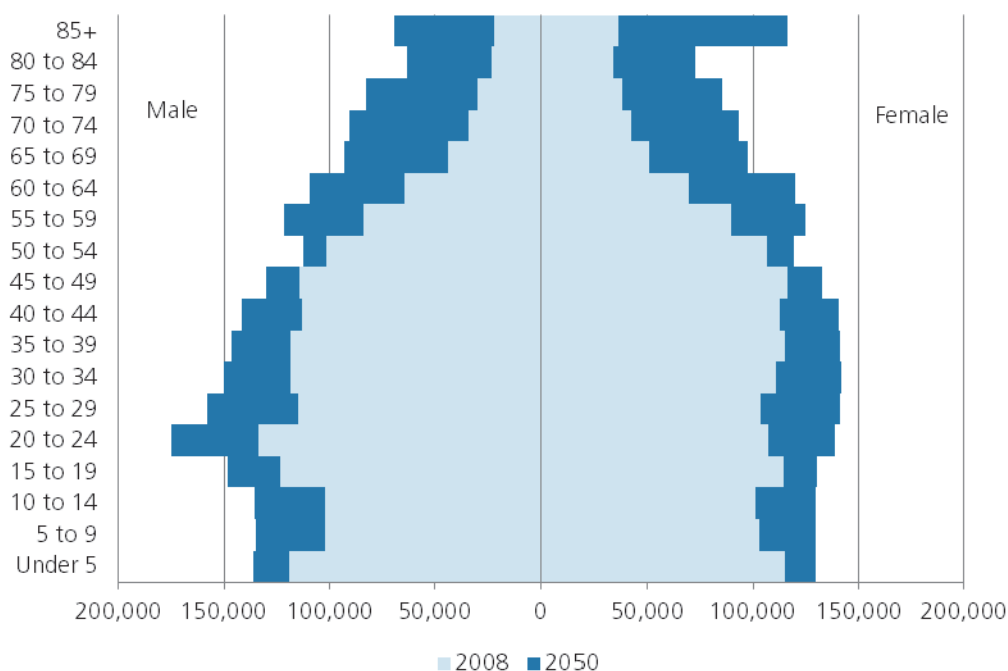


Figure 3.8 shows the aging of the region's population between 2008 and 2050. The number of people aged 65 and older is expected to increase by 143 percent. The number of people older than 85 is projected to increase by 214 percent. The aging of the population is a significant demographic trend, and the 2050 RTP/SCS places more attention on transportation for seniors, people with limited means, and individuals with disabilities. These specialized services are coordinated with transit services. The 2050 RTP/SCS includes an expansion of the Senior Mini-Grant program and other specialized transportation grant programs to meet this need.

Figure 3.9 shows that the number of homes located within one half-mile of public transit services will increase from 45 percent in 2008 to 64 percent in 2050. This increase is based on new transit services, detailed in Chapter 6 and also on the fact that approximately

80 percent of new growth will be in the urban areas. Figure 3.10 shows the changes in housing capacity that have occurred over time in the SANDAG growth forecasts. The projected increase in housing capacity is dramatic for areas with densities between 20 and 39.9 dwelling units per acre and 40-plus dwelling units per acre. The increases reflect extensive work by local jurisdictions to update general and specific plans to accommodate future growth and development in the urbanized areas of the region where existing and planned public transit is located.

**Figure 3.8 – Population by Age
2008 and 2050**

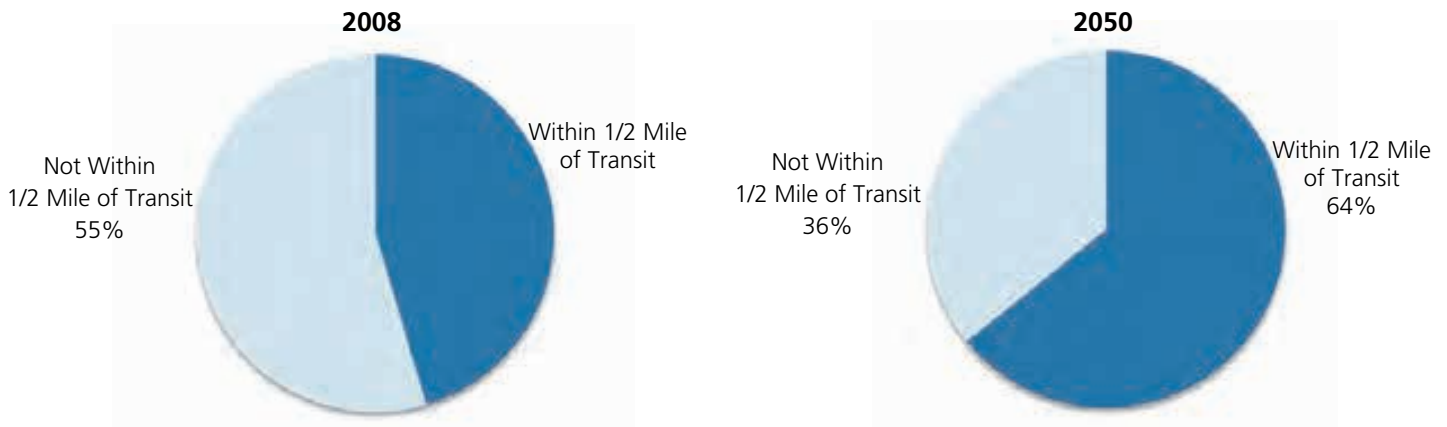


Source: SANDAG 2050 Regional Growth Forecast

Figures 3.11 through 3.13 (employment density) and Figures 3.14 through 3.16 (housing density) show that most growth in housing and employment is expected to occur in incorporated cities in the western third of the region in the years 2020, 2035, and 2050, respectively. The California Transportation Commission's Regional Transportation Plan Guidelines (Guidelines) provide that density and clustering of land uses are "typically

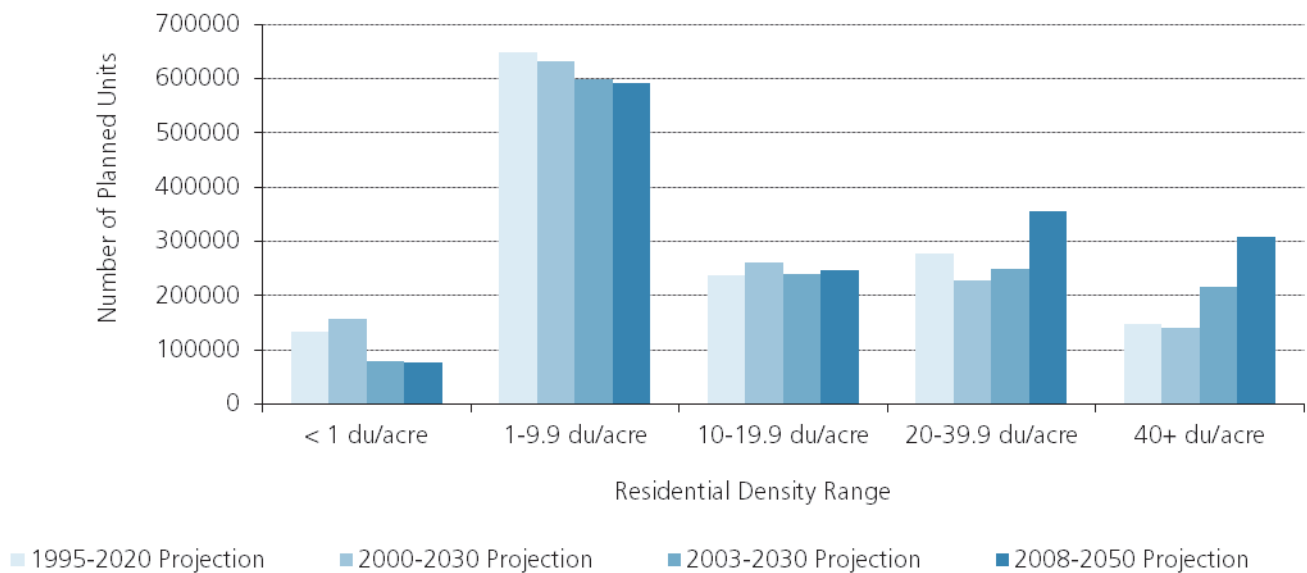
measured by the number of dwelling units, shops, and/or employees per acre or square mile, floor area ratio (FAR), and other similar measures." (Guidelines, p. 134) In order to identify intensity for non-residential land uses, SANDAG has relied upon the best available information, which is employment density or jobs per acre.

Figure 3.9 – Housing Near Public Transit



Source: SANDAG 2050 Regional Growth Forecast

**Figure 3.10 – Housing Capacity
(Number of Existing Plus Additional Housing Units Planned)**



Source: SANDAG Regional Growth Forecasts

Figure 3.11
2020 Employment Density
 October 2011

Jobs per Acre

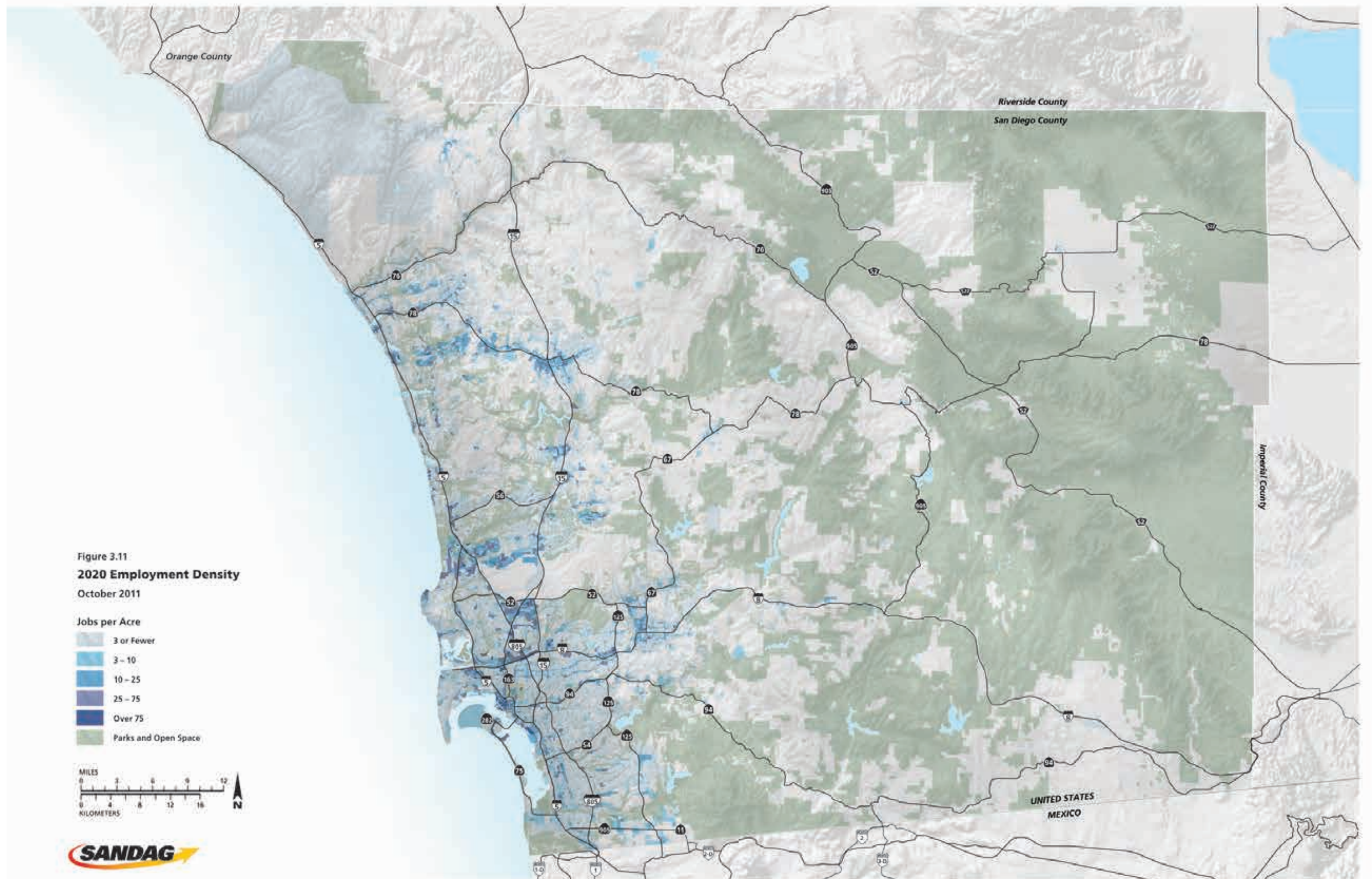


Figure 3.12
2035 Employment Density
 October 2011

Jobs per Acre

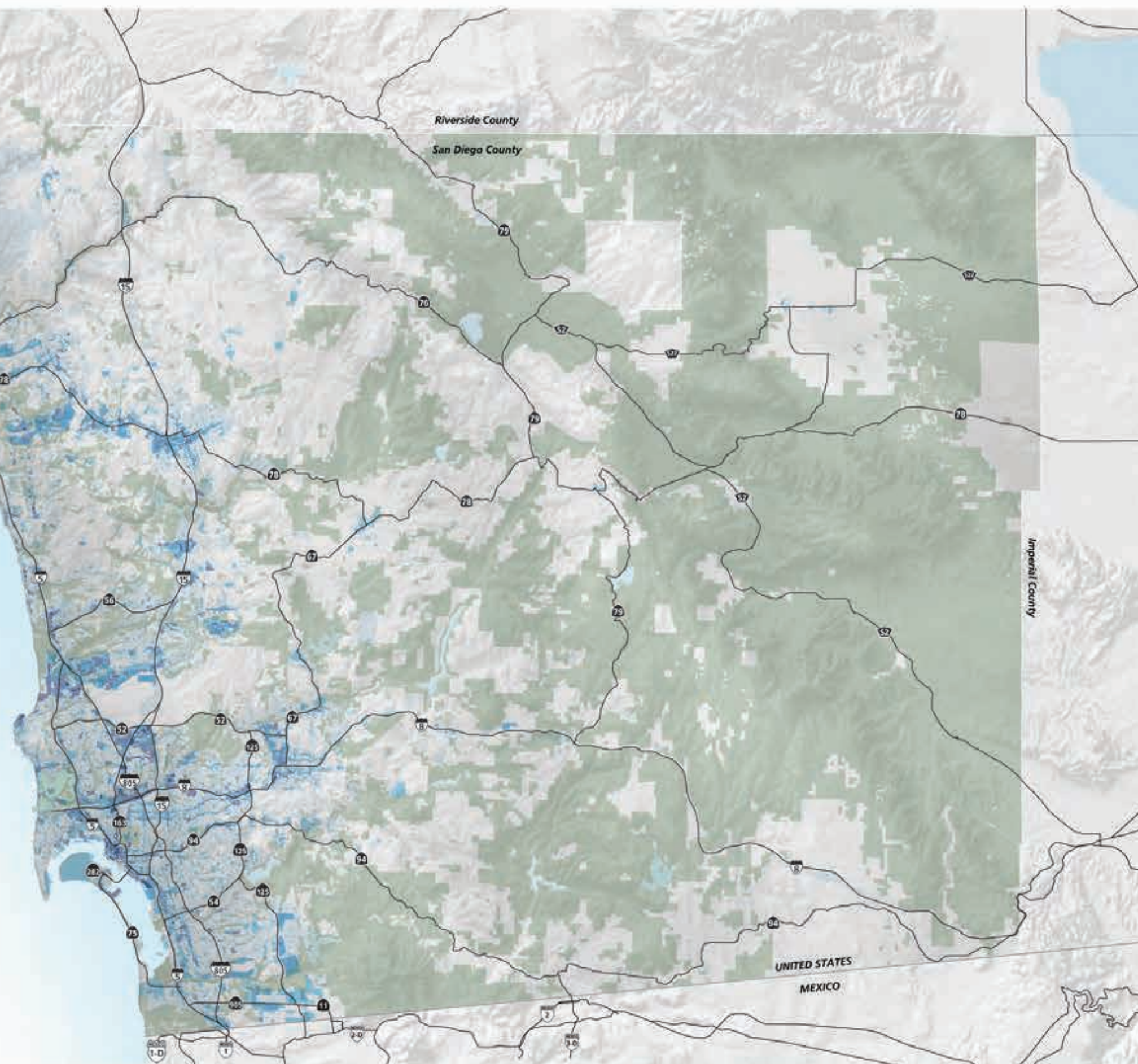
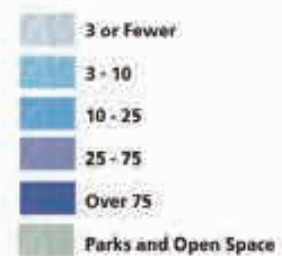


Figure 3.13
2050 Employment Density
October 2011

Jobs per Acre

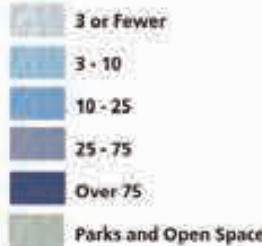


Figure 3.14
2020 Housing Density
October 2011

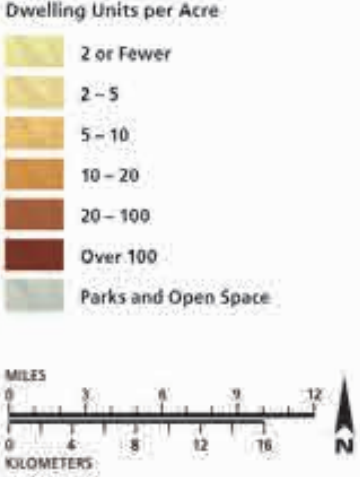


Figure 3.15
2035 Housing Density
 October 2011

Dwelling Units per Acre

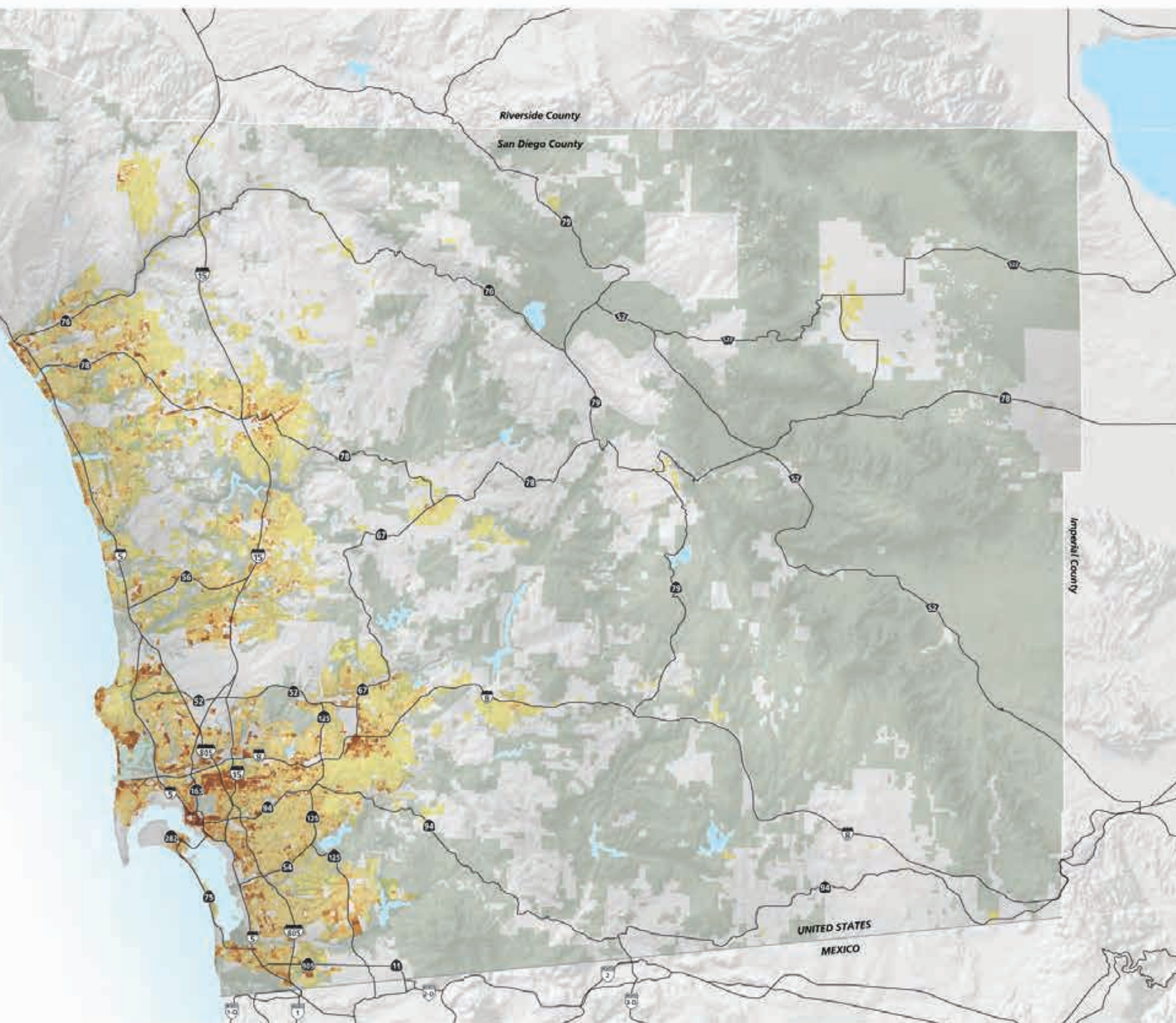
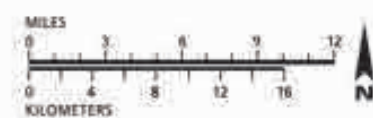
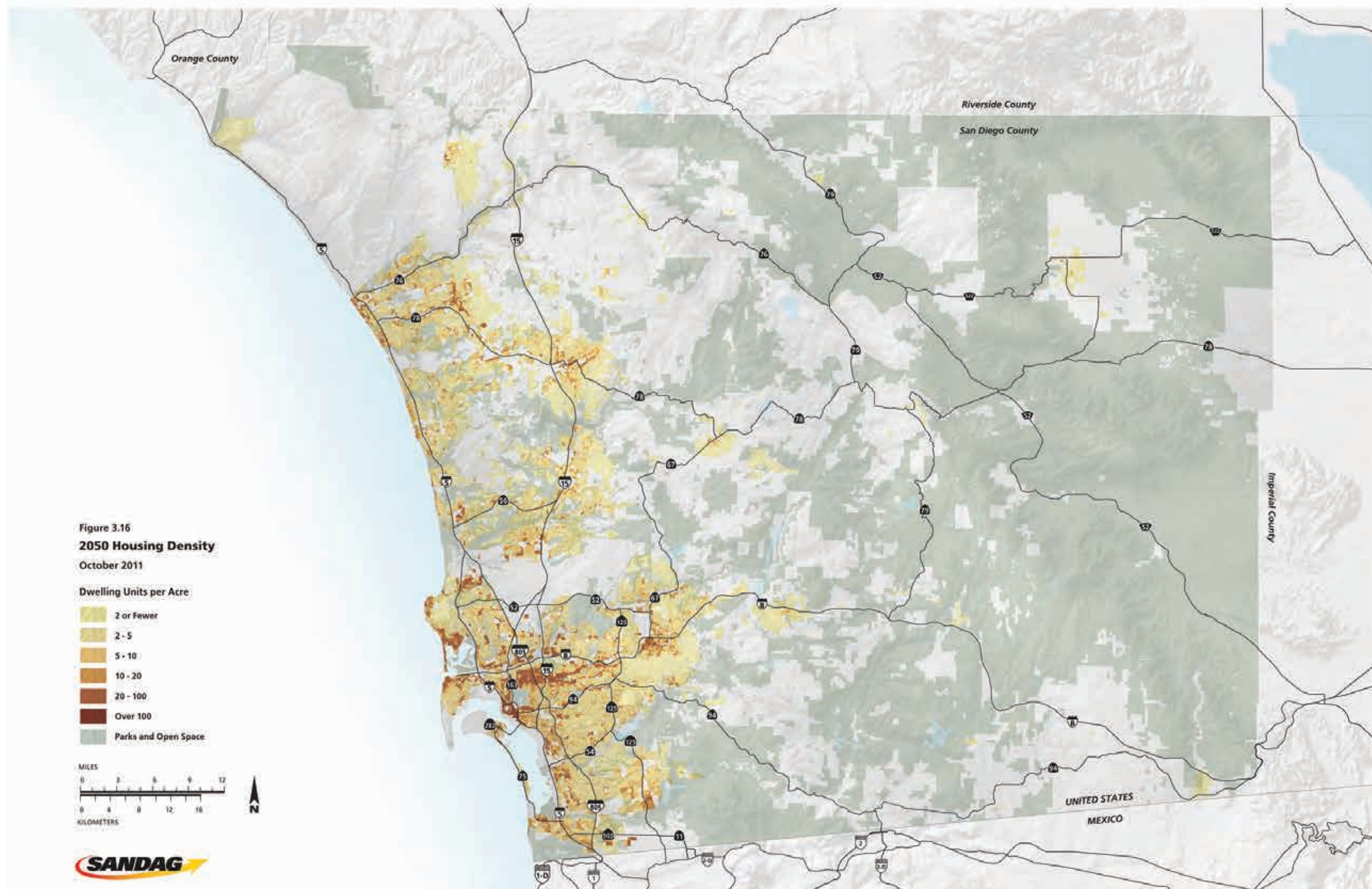


Figure 3.16
2050 Housing Density
 October 2011

Dwelling Units per Acre



Welcoming Everyone Who Chooses to Live Here: Housing the Region's Projected Growth in Population

"Identify areas within the region sufficient to house all the population of the region, including all economic segments of the population, over the course of the planning period of the regional transportation plan taking into account net migration into the region, population growth, household formation and employment growth." (Government Code Section 65080(b)(2)(B)(ii))

The SCS land use pattern accommodates the estimated 388,000 new homes that will be needed regionwide over the next 40 years to serve a projected growth in population of 1.25 million people.

After the 2030 RTP and 2030 Regional Growth Forecast were adopted, changes to local general plans resulted in a significant increase in residential capacity regionwide. The 2030 Regional Growth Forecast projected a shortfall of nearly 100,000 homes by the year 2030 (which was addressed by projecting significant interregional commuting between San Diego County and Riverside, Orange, and Imperial Counties, as well as Baja California, Mexico). But the 2050 Regional Growth Forecast and SCS land use pattern contain sufficient residential capacity (more than 435,000 housing units) to accommodate the region's projected growth in population of 1.25 million people. The 2050 Regional Growth Forecast and SCS estimate that interregional commuting will be minimal, driven only by the proximity of neighboring regions to some job centers, and personal choices. It is estimated that an additional 15,000 households will include residents who commute into the region for work. Nearly half of these households will be located in Baja

California, Mexico and much of the remainder will be in Riverside County.

The SCS land use pattern addresses the needs of all economic segments of the population. About 84 percent of the projected 388,000 new homes to be built by 2050 will be attached, multifamily units – with a planned capacity of more than 225,000 units at 30 or greater dwelling units per acre, and almost 75,000 units with a housing density of 20 to 29 dwelling units per acre. This capacity for planned housing development, particularly for multifamily development, will help the region accommodate the projected housing needs for residents of all income levels.

Accommodating the Eight-year Regional Housing Needs Assessment

"Identify areas within the region sufficient to house an 8-year projection of the regional housing need for the region." (Government Code Section 65080(b)(2)(B)(iii))

"Consider the state housing goals." (Government Code Section 65080(b)(2)(B)(vi))

The SCS land use pattern accommodates the estimated 388,000 new homes that will be needed regionwide over the next 40 years to serve a projected growth in population of 1.25 million people.



SANDAG is required by state law to complete a Regional Housing Needs Assessment (RHNA) in consultation with the California Department of Housing and Community Development (HCD), in order to determine the region's housing needs in four income categories – very low, low, moderate, and above moderate. This process occurs before each housing element cycle, which SB 375 changed from a five-year to an eight-year cycle.

In the past, the RHNA was completed separately from the RTP. SB 375 now links the RHNA and RTP processes to better integrate housing, land use, and transportation planning. Integrating both processes helps ensure that the state's housing goals are met.

The San Diego region received its RHNA Determination from the California Department of Housing and Community Development for the fifth housing element cycle (2013-2020), as shown in Table 3.3, following consultation with SANDAG.

SANDAG worked with the local jurisdictions to identify RHNA allocation options that meet the four goals of housing element law as described below. The reports including background information regarding the RHNA are included in Appendix D.

1. Increasing the housing supply and the mix of housing types, tenure, and affordability

in all cities and counties within the region in an equitable manner, which shall result in all jurisdictions receiving an allocation of units for low- and very low-income households.

It allocates RHNA numbers in all four income categories to each of the region's 19 jurisdictions, thus addressing the objective of promoting socioeconomic equity throughout the region. Table 3.4 demonstrates the mix of housing types planned for in the region by jurisdiction and subregion in four density categories.

2. Promoting infill development and socioeconomic equity, the protection of environmental and agricultural resources, and the encouragement of efficient development patterns.

It utilizes the forecasted pattern of development from the 2050 Regional Growth Forecast, which incorporates policies in local plans that call for higher density housing to be concentrated in urbanized areas adjacent to transit and that protect environmental and agricultural resources. It also demonstrates that the region's local land use plans have significantly increased the region's multifamily housing capacity and ability to accommodate the housing needs of all income levels during the next housing element cycle and out to the horizon year of the 2050 RTP. Table 3.4

Table 3.3 – RHNA Determination by Income Category January 1, 2010 – December 31, 2011 (RHNA Projection Period)

Income Categories	%	Units
Very Low	22.5%	36,450
Low	17.1%	27,700
Moderate	18.9%	30,610
Above Moderate	41.5%	67,220
Total	100 %	161,980

Source: California Department of Housing and Community Development (HCD)

demonstrates the significant housing capacity, particularly in the 20 dwelling units per acre or greater density range, for which local jurisdictions have planned in the future.

3. Promoting an improved intraregional relationship between jobs and housing.

It promotes an intraregional relationship between jobs and housing because the 2050 Regional Growth Forecast distributes housing and employment growth at a jurisdiction level using a model that considers proximity to job centers, travel times, and commuting choices, as well as land use plans. Figure 3.23: 2050 Transit Network and Higher Density Land Uses, shows the relationship of higher density land uses (residential, employment, and mixed use) to planned high quality transit corridors in the 2050 RTP/SCS. This map also is included in Chapter 3 of the 2050 RTP/SCS.

4. Allocating a lower proportion of housing need to an income category when a jurisdiction already has a disproportionately high share of households in that income category, as compared with the most recent decennial United States census.

It also moves toward improving the current distribution of lower-income households in the region to reduce over-concentration. Appendix D includes a comparison of the RHNA very low and low income allocations considered during the RHNA process and the regional (40 percent) and jurisdiction percentages of existing lower income households based on U.S. Census data (Column (a)). Column (c) is the RHNA allocation of lower income housing by jurisdiction as a percentage of their total RHNA. It shows that the RHNA moves most jurisdictions closer to the regional percentage of lower income households with the exception of the city of Del Mar and the

Unincorporated area of the County. The small size of Del Mar (population just over 4,000) and the rural nature and lack of infrastructure in the Unincorporated area of the County resulted in RHNA allocations with a lower percentage of lower income housing than the regional percentage of lower income households.

The RHNA also moves toward improving the current distribution of lower income households in the region. This is shown in Appendix D, (RHNA Report Table 4).

The RHNA Plan allocates the RHNA Determination by jurisdiction. Based on the RHNA Plan each jurisdiction will need to identify adequate sites to address its RHNA allocations in the four income categories when updating its housing element. Housing elements are due no later than 18 months after the SANDAG Board adopts the 2050 RTP, or April 27, 2013.

Table 3.4 shows that the region has more than enough housing capacity in a variety of density ranges to accommodate the RHNA allocations as well as the population projections to 2050. This table provides housing capacity information based on the 2050 Regional Growth Forecast for the City of San Diego, the Unincorporated County, and each city grouped by subregion. In addition to housing capacity based on local general plans, the housing capacity in the 2050 growth forecast includes projected changes to adopted general plans in some jurisdictions. This “stretch” or “visionary” capacity was based on input from the local jurisdictions and partner agencies for the period of 2035 to 2050 (beyond the time period for the RHNA). Local land use inputs for the 2035 to 2050 period include draft plan updates, rezoning, future redevelopment (based on existing plans), mixed-use development at transit stations, and redevelopment within Smart

The region has more than enough housing capacity in a variety of density ranges to accommodate the RHNA allocations as well as the population projections to 2050.

Growth Opportunity Areas shown on the Smart Growth Concept Map (See Technical Appendix 9).

SB 375 requires consistency between the RHNA and SCS – that is, that the SCS land use pattern can accommodate the RHNA Determination for the fifth housing element cycle.

Any changes to land use plans or zoning that occur during the updates of housing elements by local jurisdictions as a result of the RHNA will be reflected in the next regional growth forecast and RTP. This will ensure that land use changes resulting from the RHNA and the

housing element process will be considered in future updates of these two key planning documents. The goal is to ensure consistency between future land use and transportation plans through an iterative process.



Table 3.4 – 2050 Growth Forecast Estimated Housing Capacity By Jurisdiction and Subregion

	Dwelling Units Per Acre				
	<10	10-19	20-29	30+	Total
City of San Diego	10,671	22,084	51,266	149,784	233,805
Unincorporated	53,938	5,314	1,179	5,223	65,654
North County Coastal	8,655	3,961	3,654	4,415	20,685
Carlsbad	3,968	1,528	885	720	7,101
Del Mar	31	28	10	2	71
Encinitas	1,578	838	899	394	3,709
Oceanside	2,992	1,528	1,452	3,299	9,271
Solana Beach	86	39	408	0	533
North County Inland	7,230	2,672	3,146	15,773	28,821
Escondido	2,543	783	493	3,550	7,369
Poway	1,563	13	0	353	1,929
San Marcos	2,292	944	2,049	882	6,167
Vista	832	932	604	10,988	13,356
East County	2,181	2,476	1,337	22,940	28,934
El Cajon	-772	1,352	504	12,721	13,805
La Mesa	231	220	159	7,862	8,472
Lemon Grove	135	176	190	1,220	1,721
Santee	2,587	728	484	1,137	4,936
South Bay	4,373	8,586	14,155	30,158	57,272
Chula Vista	4,189	7,347	9,354	13,738	34,628
Coronado	12	6	148	122	288
Imperial Beach	5	745	378	1,406	2,534
National City	167	488	4,275	14,892	19,822
Total	87,048	45,093	74,737	228,293	435,171

Source: SANDAG 2050 Regional Growth Forecast

Protecting Resource Areas and Farmland: A key element of the Sustainable Communities Strategy

“Gather and consider the best practically available scientific information regarding resource areas and farmland in the region.” (Government Code Section 65080(b)(2)(B)(v))

San Diegans share a strong attachment to the region’s open spaces. When asked what they like most about the San Diego region, natives and newcomers alike consistently cite the enviable climate, beaches, bays, urban canyons, local mountains, and deserts.

In addition to identifying areas where development is projected to occur, the SCS land use pattern identifies protected parklands and open space, natural resource areas, and farmland in the region. These parklands and open space, natural resource areas, and farmland were identified using the best practically available scientific information. This includes the SANDAG Land Information System database, SANDAG Conserved Lands database, San Diego Geographic Information Source (SanGIS) database, Multiple Species

Conservation Program (MSCP), and the North County Multiple Habitat Conservation Program (MHCP).

Of the 2.7 million acres within the San Diego region, about half (50.6 percent) have been conserved as parks or open space (see Table 3.5). These acres are included in the SCS land use pattern. These lands range from public use parks, such as Mission Bay and Anza Borrego State Park, to rural open space such as the Otay Mountain Wilderness Area and U.S. Forest Service Lands. These areas do not include military areas such as Camp Pendleton and Marine Corps Air Station Miramar, which contain undeveloped land that is not accessible to the public and not considered conserved as open space. Figures 3.14 through 3.16 (housing density) show the location of these parks and open space lands.

The natural environment in the San Diego region includes three general geographic areas: the coast, the mountains, and the desert. Most people live and work in the western portion of the region. Although nearly 24 percent of the western portion of the region is not in its original natural state (about 19 percent is developed, 4 percent is in

The SCS land use pattern identifies protected parklands and open space, natural resource areas, and farmland in the region.



Table 3.5 – Park Land and Open Space in the San Diego Region

Ownership	Type	Acreage
Public	Designated Park	996,170
	Public Open Space	278,673
Private	Conserved Lands	92,013
Total:		1,366,828

Source: SANDAG 2050 Regional Growth Forecast and SANDAG Conserved Lands Database

agricultural production and 1 percent is disturbed habitat), the remaining 76 percent is made up of natural habitats. Of these, 30 percent are covered by chaparral, 8 percent by coastal sage scrub, 5 percent by grasslands, and 33 percent by other types of vegetation (including those found in dunes, marshes, oak and eucalyptus woodlands, riparian scrub, and coniferous forests), as shown in Figure 3.17 (San Diego Regional Generalized Vegetation).

Protecting the Region's Natural Habitats

The San Diego region has conserved natural habitats for the last two decades. Regional planners have focused considerable effort on four habitat conservation plans (HCP): the Multiple Species Conservation Program (MSCP) South, finalized in 1998; the Multiple Habitat Conservation Program (MHCP), finalized in 2003; the North County MSCP, anticipated for completion in 2012; and the East County MSCP, which is expected to begin after the North County MSCP is adopted. The SCS land use pattern incorporates finalized habitat plans as well as the conservation of other sensitive resource lands such as steep slopes, wetlands, and floodplains as reflected in plans by local jurisdictions. These local and regional plans shown on Figure 3.18 ensure the conservation of plant and animal species, and natural habitats through low density zoning, conservation easements, and land purchases.

Six jurisdictions (the cities of Carlsbad, Chula Vista, La Mesa, Poway, San Diego, and the southern portion of the County of San Diego), have approved habitat conservation plans and signed implementing agreements that collectively cover 20 percent of our region. Seven jurisdictions (the cities of Encinitas, Escondido, Oceanside, San Marcos, Santee, Vista, and the northern portion of the County of San Diego) are working on agreements that cover another 73 percent of our region.

Seven jurisdictions (the cities of Coronado, Del Mar, El Cajon, Imperial Beach, Lemon Grove, National City, and Solana Beach), which collectively cover slightly more than 1 percent of our region, are not pursuing agreements because they have limited natural habitats within their boundaries. The remaining 6 percent of our region is military land conserved by Integrated Natural Resource Management Plans, which are developed under voluntary, cooperative agreements among a Department of Defense installation, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game.

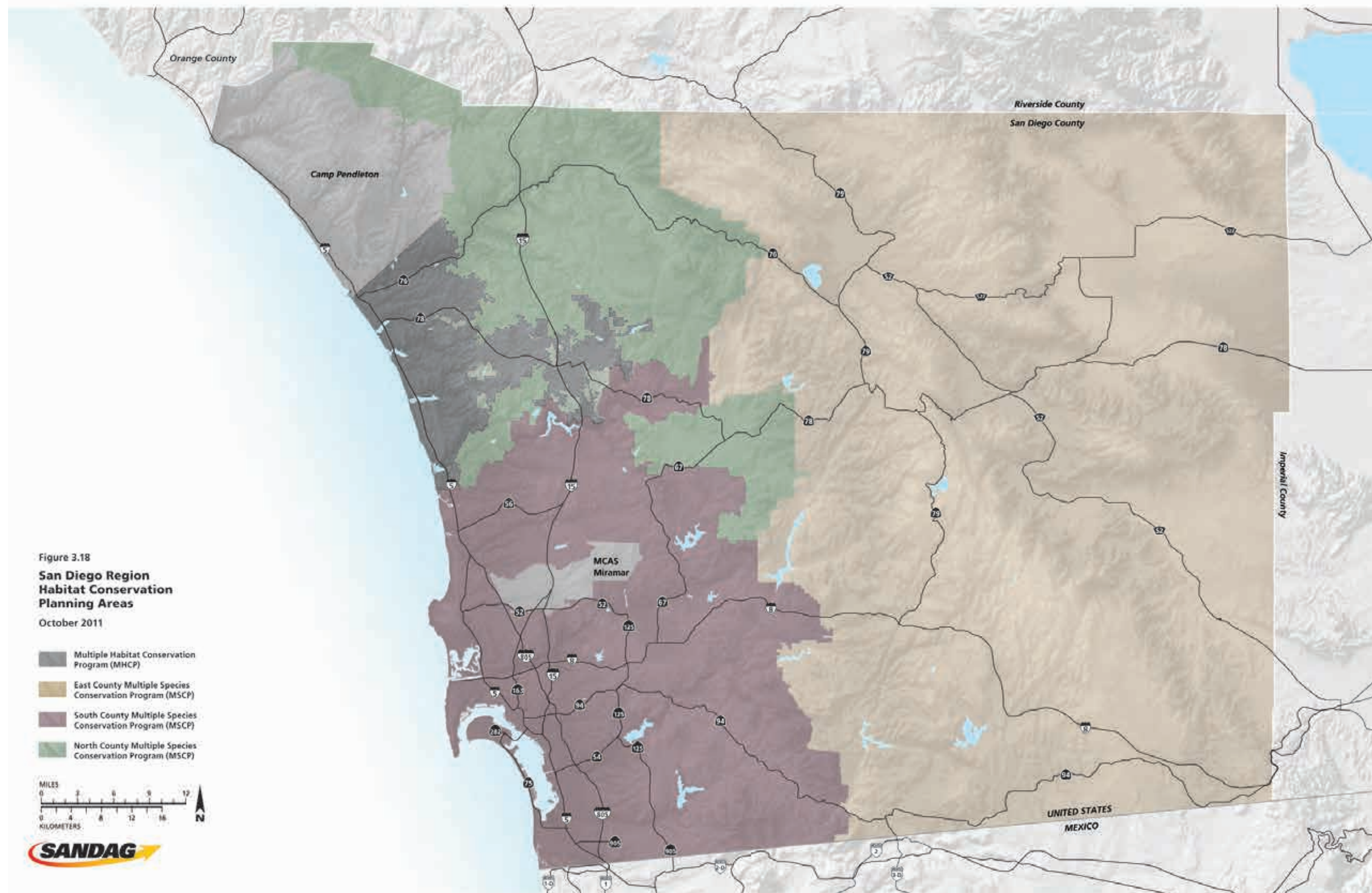
As part of the SANDAG participation in planning for the conservation of regional habitats, SANDAG developed a database of conserved lands in 2010 (SANDAG Conserved Lands database, 2010). This database, which is regularly updated and available to the public, serves as the basis for monitoring habitat conservation (<http://www.sandag.org/resourcemaps>).

Figure 3.17
**San Diego Region
 Generalized Vegetation**
 October 2011



Data Source: AECOM 2011.





Conserved habitat lands and land proposed for habitat conservation totals 61 percent of the region, as shown in Figures 3.19 and 3.20. This includes lands in each of the habitat conservation areas (Figure 3.18). It is anticipated that all conserved lands would be protected by the year 2030 in accordance with the approved conservation plans and signed implementing agreements. Figure 3.21 illustrates wetlands in our San Diego region.

The regional habitat conservation plans in the San Diego region are designed to provide an umbrella of protection for multiple species by conserving their habitats and the linkages that allow them to travel between habitats. The HCPs were designed under the State’s Natural Communities Conservation Planning program. Even though the umbrella protection was afforded to most species and habitats, additional protections are required to cover species not included in the regional habitat plans (e.g., Tidewater goby (*Eucyclogobius newberryi*)). These additional protections also are needed while experts continue to study whether the habitat plans adequately protect species (e.g., Hermes copper butterfly (*Lycaena thornei*)). In most cases, the distribution and abundance of these species are unknown. While conservation, management, and monitoring efforts provided under the regional HCPs are expected to help these species, additional regulatory protections exist for them. An analysis of project impacts to all biological resources is still required under the California Environmental Quality Act (CEQA) for sensitive species, sensitive habitat (including wetlands), and wildlife movement.

Federal or state permits also may be required under the Clean Water Act, the California Fish and Game Code, and/or the Porter-Cologne Water Quality Act based upon the project-specific impact analysis. In addition, local jurisdictions may have their own mitigation

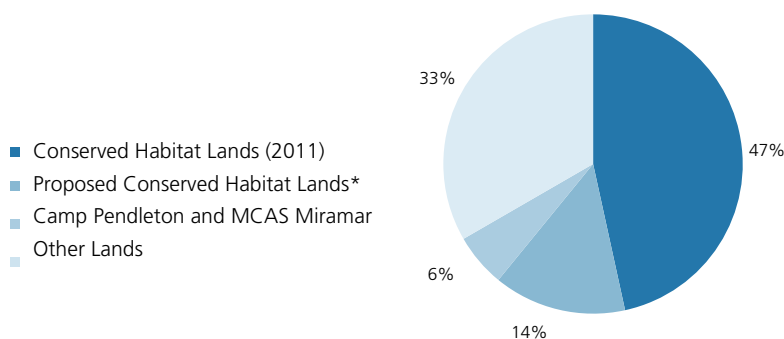
requirement for species (also known as species-specific mitigation) that are not included in the HCPs. Regional HCPs, therefore, provide an umbrella of protection through regional habitat conservation without taking away existing protection by other local, state, or federal regulations.

TransNet Environmental Mitigation Program

“The metropolitan planning organization shall consider financial incentives for cities and counties that have resource areas or farmland.” (Government Code Section 65080(b)(4)(C))

In 1987, San Diego County voters approved *TransNet*, a half-cent sales tax to fund a variety of transportation improvements throughout the region. The initial 20-year, \$3.3 billion program expired in 2008. However, in November 2004, 67 percent of the region’s voters supported the extension of *TransNet* for another 40 years to 2048. The extension is expected to generate an additional \$14 billion for highway, transit, and local road projects, as well as other transportation improvements.

Figure 3.19 – Land Conserved



* Lands in North and East County Multiple Species Conservation Plan (MSCP) are in the planning process and not adopted.

The Environmental Mitigation Program (EMP) was created as part of the *TransNet* Extension Ordinance, and it goes beyond traditional mitigation programs. (“Mitigation” is the effort to compensate for the loss of native habitat – which is disturbed by new development – through the preservation and/or restoration of another native habitat. Mitigation occurs after all methods to avoid and/or minimize impacts have been exhausted.)

SANDAG employs the EMP to help fill the mitigation needs resulting from major transportation infrastructure improvement projects and programs identified in the RTP.

SANDAG intends to satisfy the mitigation requirements for these projects comprehensively, rather than on a project by project basis, to maximize opportunities for acquiring land early and restoring habitats. In turn, this funding enables SANDAG to help implement regional habitat conservation plans by targeting key acquisition areas for conservation, management and monitoring. As of September 2011, about 1,393 acres have been acquired using EMP funds.

Additional Protection for Rare, Threatened, Endangered, and CEQA-Sensitive Species

CEQA Guidelines Appendix G requires an evaluation of the potential impacts to sensitive species, sensitive habitats, wetlands including riparian habitats, wildlife movement and migration, and the impacts to adopted regional habitat conservation plans. This includes the Natural Communities Conservation Plan and other local policies and plans for biological conservation. Prior to the development of any native habitat in the San Diego region, a biological impact assessment is required by all local jurisdictions subject to the CEQA. The purpose of the assessment is to determine consistency with the regional

HCPs and assess any impacts to species and habitats not covered by these plans. This includes wetland resources such as U.S. waters.

Protecting the Region’s Farmlands

The Farmland Mapping and Monitoring Program (FMMP), administered by the Division of Land Resource Protection at the California Department of Conservation, produces maps and statistical data to analyze impacts to California’s agricultural resources. To characterize existing and potential farmland, agricultural lands are rated according to soil quality and irrigation status. FMMP maps are updated every two years using aerial photographs, a geographic information system, public review, and field reconnaissance. Lands important for agriculture are placed in one of four categories of productivity established by the United States Department of Agriculture (USDA). These lands are evaluated according to the specific qualities of the soil, slope of the land, degree of wetness, flooding hazards and other factors. The FMMP identifies about 223,000 acres of land as “Important Agricultural Lands,” as shown in Figure 3.22 and described in Table 3.6.

These lands also are reflected in the SCS land use pattern, and they are not threatened because of low-density zoning, or the purchase of land for conservation easements. In the SCS land use pattern, 95 percent of the region’s existing agricultural land is expected to remain available for agriculture. Thirty-three percent of the region’s agricultural land is planned for agricultural use only, and 62 percent is planned as low-density, rural residential land that allows and often encourages agricultural use. Figure 3.22 includes agricultural preserves such as the San Pasqual Valley in the City of San Diego and areas under Williamson Act contracts. The California Land Conservation Act

commonly referred to as the Williamson Act enables local governments to enter into contracts with private landowners to restrict specific parcels of land to agricultural or related open space use.

Considering Mineral Resource Areas

The California State Mining and Geology Board has designated some lands to be areas of statewide or regional significance for construction aggregate resources. Aggregate materials include sand, gravel, and crushed stone. They are key ingredients in concrete and asphalt, as well as for constructing and maintaining the physical framework of buildings and infrastructure. According to the California Geologic Survey, aggregate supply sources in the San Diego region have dropped from 48 mines in 1980 to 27 mines in 1995. The number of significant and active mines has since declined to only 16. The California Geologic Survey projects a 40 percent shortfall in the statewide supply of aggregate material needed to meet demand over the next 50 years and an 83 percent shortfall in the region's supply of aggregate material. As supplies decrease, importing aggregate from other regions or countries will increase.

SANDAG, in cooperation with Caltrans District 11, completed the San Diego Region Aggregate Supply Study in January 2011 to examine the supply issues related to aggregate. (The study is available at www.sandag.org/aggregate.) The purpose of the study was to provide background information, as well as the tools necessary to begin developing a framework to address future projected shortfalls of this important resource. The California Department of Conservation classifies lands into four Mineral Resource Zones (MRZs). MRZ-1 includes areas where no significant mineral deposits are present, or where there is little likelihood they are present. MRZ-2 includes areas where

geologic information indicates that significant mineral deposits are present, or where there is a high likelihood they are present. MRZ-3 includes areas that contain mineral deposits, but where their significance to the region or state cannot be evaluated because detailed data is lacking. MRZ-4 includes areas where geologic information does not rule out the presence or absence of mineral resources. Areas with the greatest potential for aggregate sources (MRZ-2 classified) are largely designated in local general plans as Military, Open Space and Industrial, and have been considered as such in the SCS land use pattern. Information contained in the San Diego Region Aggregate Study will be used by planners to help manage the region's aggregate resources.

