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Chapter 1
Our Region, Our Future
Our Region, Our Future
A vision of healthy and thriving communities

The San Diego Region: A Special Place at a Crossroads
Here’s a thought to get us started: we live in a place where people come to vacation, a place where they dream of living and find almost impossible to leave once they make it their home.

What draws people here? Certainly it’s the gorgeous weather year round, a spectacular coastline, big open spaces, first-class family entertainment, a fantastic metropolitan area, a booming biotech industry, and an enticing international border. Those things make us proud to show off our region to out-of-town family and friends. But it’s bedrock qualities like our strong economy, healthy neighborhoods, great schools, and top universities that make us grateful to live here.

Still, our region is at a crossroads. The same things that draw people here, to visit or stay, place pressures on our daily lives. Traffic can be challenging. Neighborhoods can be expensive and out of reach. Pick a summer day, any summer day, and it seems everyone is at the coast. The fact is, our region is growing. And while our

San Diego Forward: The Regional Plan serves as a blueprint for how our region will grow, and how SANDAG will invest in transportation infrastructure that will provide more choices.
population will continue to increase in the coming decades, we will have important choices to make – choices about how to grow, where to grow, and how to get around. We have big decisions to make to sustain the qualities we love most about the San Diego region.

This document, San Diego Forward: The Regional Plan (Regional Plan), serves as a blueprint for how our region will grow, and how SANDAG will invest in transportation infrastructure that will provide more choices, strengthen the economy, promote a healthy environment, and support thriving communities.

**An Opportunity to Shape Our Region**

Sustainability. Our Regional Plan will talk a lot about what that word means, not just the dictionary version but what it means for us.

This Regional Plan is built on input from people throughout our region, young and old and from neighborhoods big and small. The Regional Plan’s success will depend on the degree to which our region feels invested in its success – a sense of buy-in and ownership. It’s our region, after all. And our future. As we plan for the years ahead, it’s important to recognize that we live in a unique place that is interconnected with our neighbors. We are surrounded by tangible boundaries: the Pacific Ocean to the west, the mountains, Anza-Borrego Desert, and...
Imperial County’s agricultural fields to the east, the international border with Mexico to the south, and Camp Pendleton as well as Orange and Riverside counties to the north. But we don’t live in a vacuum, and we must coordinate with our regional and international neighbors.

Before us lie challenges and opportunities – to help guide the future growth of our region and build a transportation system that works for everyone, all in ways that protect our environment, support our economy, and maintain our quality of life.

This Regional Plan presents an opportunity to shape our region for the 21st century. Over the next three and a half decades, more than $200 billion will be invested in our region to create, maintain, and improve a balanced transportation network. Our Regional Plan does two main things to ensure that these tax dollars will be spent for the greatest public good: It provides a roadmap to grow and evolve, and it prioritizes 35 years of regional transportation projects to create a framework for much of the region’s transportation infrastructure. The transportation decisions detailed in the Regional Plan serve an overarching goal: create more transportation choices, which ultimately will lead to healthier communities, healthier people, and a healthier environment.

In addition, the Regional Plan has been organized to include several important required elements, starting out with the Policy Element included in this chapter. The required elements and locations where they can be found in the Regional Plan are described in Table 1.1 on page 4.
### Regional Plan Required Elements

<table>
<thead>
<tr>
<th>Element Name</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy Element</strong></td>
<td>• Describes the transportation issues in the region; identifies and quantifies regional needs expressed within both short and long-range planning horizons; and maintains internal consistency with the Financial Element and fund estimates.</td>
<td>Chapter 1</td>
</tr>
</tbody>
</table>
| **Sustainable Communities Strategy** | • Identifies the general location of uses, residential densities, and building intensities within the region.  
• Identifies areas within the region sufficient to house all the population of the region. Identifies areas within the region sufficient to house an eight-year projection of the regional housing need for the region.  
• Identifies a transportation network to serve the transportation needs of the region. Gathers and considers the best practically available scientific information regarding resource areas and farmland in the region. Considers state housing goals.  
• Sets forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the greenhouse gas emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the greenhouse gas emissions reduction targets approved by the California Air Resources Board.  
• Allows the regional transportation plan to comply with Section 176 of the federal Clean Air Act. | Chapter 2  |
| **Financial Element**              | • Summarizes costs to operate and maintain the current transportation system. Estimates costs and revenues to implement the projects identified in the Action Plan.  
• Provides an inventory of existing and potential transportation funding sources. Lists candidate projects if funding becomes available. Identifies potential funding shortfalls.  
• Identifies alternative policy directions that affect the funding of projects. | Chapter 3  |
| **Action Element**                 | • Describes short- and long-term activities and strategies that address regional transportation issues and needs.                                                                                      | Chapter 5  |
The Importance of Planning

We all know that having a plan for the future is a good idea. Over the years, SANDAG has coordinated regional efforts to address a large number of important issues. These include using land more wisely; building an efficient and more accessible transportation system; protecting the environment; improving public health; promoting a strong regional economy; better managing our access to energy; ensuring adequate housing for everyone; incorporating equity into the planning process; addressing pressing needs on tribal lands; and supporting a vibrant international border.

More recently, planning has focused sharply on how the region can offer people more transportation choices – including more options for biking, walking, and public transit. We’ve also focused on what we can do collectively to better reduce greenhouse gas emissions and better adapt to the effects of climate change. We’ve drawn stronger links between how we use land and how we get around, and achieved a better understanding for how our choices for both can improve or harm our health. We’re also working to make sure the region can benefit from emerging technologies that will make transportation more efficient. Finally, we’re ensuring that all groups, including low-income, minority, and senior populations, have the opportunity to be meaningfully involved in developing plans for the future.

Defining Smart Growth: Smart growth is a compact, efficient, and environmentally-sensitive pattern of development that provides people with additional travel, housing, and employment choices by focusing future growth away from rural areas and closer to existing and planned job centers and public facilities, while preserving open space and natural resources and making more efficient use of existing urban infrastructure. (Regional Comprehensive Plan, 2004)
As San Diegans, we all share the responsibility for shaping our region’s future. In a region as culturally and economically diverse as ours, crafting a plan for how best to grow and the smartest ways to get around isn’t easy. But it’s vital at a time when the challenges we face are being confronted by Americans across the nation. Among these are an increasing rate of obesity, which drives chronic illnesses such as heart disease, diabetes, cancer, and asthma. Other challenges in our region include a “silver tsunami” of aging citizens who will have significant needs, and a growing and dynamic young population of “millennials” with their own priorities and desires. These two generations have many overlapping interests, including an increasing desire for urban lifestyles and more options for getting around. These are just a few reasons why it’s important to plan for our future – locally, regionally, and across our borders.

Why “San Diego Forward: The Regional Plan”? The Regional Plan isn’t starting from scratch. In fact, it combines the region’s two most important existing planning documents: the Regional Comprehensive Plan (RCP), and the Regional Transportation Plan and its Sustainable Communities Strategy (RTP/SCS). The RCP, adopted in 2004, laid out key principles for managing
the region’s growth while preserving natural resources and limiting urban sprawl. The plan covered eight policy areas including urban form, transportation, housing, healthy environment, economic prosperity, public facilities, our borders, and social equity. These policy areas were addressed in the 2050 Regional Transportation Plan and its Sustainable Communities Strategy (2050 RTP/SCS) and are now fully integrated into the Regional Plan.

The RCP identified smart growth and sustainable development as important strategies to direct the region’s future growth toward compact, mixed-use development in urbanized communities that already have existing and planned infrastructure, and then connecting those communities with a variety of transportation choices. One of the early actions that followed the adoption of the RCP in 2004 was to develop a **Smart Growth Concept Map**. The **Concept Map** includes locations where local communities have identified existing, planned, and potential higher density mixed-use development near existing and planned public transit. This was accompanied by a **Smart Growth Tool Box**, which provided regional planners with tools and funding programs to help communities achieve these big picture goals at the local level. The Tool Box has been widely used since the adoption of the RCP, and it’s still in place today.
The 2050 RTP/SCS, adopted in 2011, took us beyond the vision of the RCP. It marked the first time that our regional transportation plan included a Sustainable Communities Strategy. The 2050 RTP/SCS provided a blueprint to improve mobility, preserve open space, and create vibrant and healthy communities—all of this with transportation choices designed to reduce greenhouse gas emissions and meet specific targets required by the state of California. These targets, described in more detail in Chapter 2: A Strategy for Sustainability, were set by California Air Resource Board following the passage of Senate Bill 375 (Steinberg, 2008) (SB 375). The 2050 RTP/SCS outlined policies, strategies, and investments to maintain, manage, and improve the region’s transportation system and meet the greenhouse gas reduction targets. An invigorated network of public transit options, based on a comprehensive transit analysis known as the Urban Area Transit Strategy, was a key part of the 2050 RTP/SCS. The 2050 RTP/SCS outlined key strategies for success: focus on housing and job growth in the region’s urbanized areas with existing and planned infrastructure; protecting sensitive habitat and open space; investing in a transportation network that gives people transportation options and reducing greenhouse gas emissions; addressing the housing needs of all economic segments of the population; and implementing the plan through incentives and collaboration. As discussed in Chapter 2, these strategies are carried over and incorporated into the Regional Plan.
SANDAG is required by law to update its Regional Transportation Plan every four years, and this document is the latest update. Although many aspects of the 2050 RTP/SCS built upon the Regional Comprehensive Plan from 2004, a goal was to ensure that the broader, more comprehensive character of the RCP was included in this next update.

As we’ve worked on this latest update, we’ve also continued to make progress on implementing actions included in the 2050 RTP/SCS. Planning for the region’s future is an ongoing enterprise, with work progressing on several fronts continuously as plans are developed, implemented, evaluated, and updated to reflect new realities.

The Regional Plan reflects a broad range of public discourse and community engagement. Numerous people, organizations, and groups contributed to the development of this new Regional Plan. Individuals from communities across the San Diego region, community-based organizations, elected officials, environmental groups, developers, business and health care professionals, and other stakeholders spent thousands of hours helping to shape this Regional Plan.

The merging of the RCP and the RTP/SCS into the Regional Plan is truly a leap forward in charting our course far into the 21st century.
Our Roadmap for San Diego Forward: The Regional Plan

All good plans begin with an overall vision and specific goals. What do we want to accomplish? Where do we want to be when our Regional Plan is fully realized? The goals of the Regional Plan are simple but ambitious: to provide innovative mobility choices and planning to support a sustainable and healthy region, a vibrant economy, and an outstanding quality of life for all.

The goals of the Regional Plan are simple but ambitious: to provide innovative mobility choices and planning to support a sustainable and healthy region, a vibrant economy, and an outstanding quality of life for all.

Easily enough said. But how do we get there? For the Regional Plan, policy objectives point the way. With broad participation from many individuals and stakeholders, we developed policy objectives that together serve as a roadmap to guide our journey toward achieving our goals and vision.\(^2\) We identified six general categories of policy objectives, and within each one, there are two to three specific policy objectives. Collectively, these provide us with a framework for the concrete steps that we need to take to implement our Regional Plan. These key actions are listed in Chapter 5: Ensuring Performance.
Policy objective categories

Effective planning requires a clear roadmap. Our vision, goals, and policy objectives are designed to keep us on course.

Here are the six general categories of policy objectives, each with its own set of specific objectives:

Habitat and Open Space Preservation
- Focus growth in areas that are already urbanized, allowing the region to set aside and restore more open space in our less developed areas.
- Protect and restore our region’s urban canyons, coastlines, beaches, and water resources.

Regional Economic Prosperity
- Invest in transportation projects that provide access for all communities to a variety of jobs with competitive wages.
- Build infrastructure that makes the movement of freight in our community more efficient and environmentally friendly.

Environmental Stewardship
- Make transportation investments that result in cleaner air, environmental protection, conservation, efficiency, and sustainable living.
- Support energy programs that promote sustainability.
Mobility Choices
- Provide safe, secure, healthy, affordable, and convenient travel choices between the places where people live, work, and play.
- Take advantage of new technologies to make the transportation system more efficient and accessible.

Partnerships/Collaboration
- Collaborate with Native American tribes, Mexico, military bases, neighboring counties, infrastructure providers, the private sector, and local communities to design a transportation system that connects to the megaregion and national network, works for everyone, and fosters a high quality of life for all.
- As we plan for our region, recognize the vital economic, environmental, cultural, and community linkages between the San Diego region and Baja California.

Healthy and Complete Communities
- Create great places for everyone to live, work, and play.
- Connect communities through a variety of transportation choices that promote healthy lifestyles, including walking and biking.
- Increase the supply and variety of housing types -- affordable for people of all ages and income levels in areas with frequent transit service and with access to a variety of services.
Recognizing the Connections in Our Regional Plan
So, those are the guiding principles that define our work and shape the character of this Regional Plan. As we developed these policy objectives, it became clear that the topics addressed in the Regional Plan – and in other big picture visions for our community’s future – are interrelated. We must make a concerted effort to craft policies and actions that support livable communities and healthy places with a variety of transportation choices. And we must avoid decisions that lead us toward “silos” that fail to recognize the interconnectedness of the many issues that influence this region.

We’re in this Together
As the region’s planning agency, SANDAG is uniquely positioned to bring together decision-makers from all areas of the region. The agency serves as the Metropolitan Planning Organization for our region, joining elected officials from all 18 cities and the County of San Diego as a regional council of governments. One of our primary responsibilities is regional transportation planning. We invest in public transit, highways, bicycle and pedestrian infrastructure, freight corridors, and technologies to better manage our regional transportation system and the everyday demands on it. We also provide financial incentives and offer grant programs to various jurisdictions and organizations. Through these activities, SANDAG influences policies for how local governments use land, protect the environment, and grow their economies.
SANDAG collaborates with a variety of partners. They include regional economic development corporations, chambers of commerce, environmental groups, health providers, community-based organizations, labor, law enforcement, partners in Baja California, tribal nations, the military, universities and community colleges, neighboring counties, the private sector, and other organizations and stakeholders.

Working together, we have developed a shared vision for mid-century. This vision brings together local plans for sustainable growth, and it provides a regional framework that promotes a strong economy, an efficient transportation system, a healthy environment, and thriving communities.

**Partners at Our Borders**

As we’ve mentioned, it’s critical that we coordinate planning with our neighbors outside our geographic boundaries. We live in a binational region that includes San Diego and Imperial counties, and the northern cities of Baja California. About 6.4 million people live today in this binational region, and that number is projected to grow to 10.6 million by 2040. It’s a place with diverse landscapes, politics, economies, languages, and cultures. Even so, we are linked socially and economically. People and goods flow across our borders in huge numbers every day.

The San Ysidro Port of Entry is one of the busiest land ports of entry in the world. It’s the region’s primary gateway for people who drive and walk across the border. Otay Mesa, our region’s main commercial port of entry, is one of the ten busiest land ports of entry in the country. It’s the busiest commercial crossing on the California/Baja California border.

How we grow impacts our neighbors just as our neighbors’ growth impacts us. Our collective growth, not only with Baja California but also with areas north and east of us, increases the demand for water, energy, housing, and roadways, and it places pressure on open space. Coordinated intergovernmental planning with our crossborder partners, neighboring counties, and tribal governments within the San Diego region helps promote collaborative solutions to protect our quality of life.

**Where and How We’ll Grow**

Our region is large and diverse, with 18 individual cities, unincorporated land governed by the County of San Diego, 18 sovereign tribal governments with jurisdiction over 19 Native American reservations, 3 major military bases, an international border with Mexico, and 3 major land ports of entry between San Diego and Baja California. Today, about 3.2 million people live here. Every year that number, as well as the number of jobs and homes, goes up. These increases reflect a growing economy and new opportunities.
Our region isn’t just growing, it’s growing in new ways. Figures 1.2 and 1.3 show that rather than expanding “out” as we have in the past, the SANDAG Regional Growth Forecast is projecting that we will grow “up,” creating more compact communities.

The Regional Growth Forecast is based upon the most recent land use planning assumptions from all 18 cities of the region and San Diego County. These planning assumptions are what SANDAG uses to develop the supporting transportation network.

Denser neighborhoods, particularly in the western third of the San Diego region, will offer housing, jobs, and services closer to one another – and importantly, closer to the regional transportation network. While the western areas will grow over time through more compact communities, more land in the eastern two-thirds of the region will be preserved as open space.

Now for some hard numbers: By 2050, our region’s population is projected to grow by nearly a million people. This growth will lead to about 489,000 more jobs and 330,000 more apartments, condos, houses, and other types of housing.
There are some other projections for 2050 that also will influence how we plan for the future:

- Most of the regional population growth will come from growing families that already live here today.

- Our population is aging. Nearly 20 percent of the population will be at least 65 by 2050. That’s compared with 12 percent today.

- We’ll grow more diverse. Nearly half of the region’s population will be Hispanic, more than 15 percent will be Asian, and about 4 percent will be African American.

- More than 82 percent of the growth in housing will be in apartment buildings, condo complexes, and other multifamily dwellings. That’s a dramatic change from the way the future looked back in 2000, when 48 percent of the land planned for housing in our region was earmarked for single-family homes.

- By 2050, 55 percent of the region will be preserved as open space and parks, habitat, or farmland— an accomplishment driven significantly by the projected shift to multifamily housing and compact development patterns across the region.
Here are a few concrete examples of how development is projected to shift toward urban areas and along key transportation corridors:

- National City’s general plan provides opportunities for more than 10,000 additional multifamily homes near the Blue Line Trolley and the planned Trolley line connecting San Ysidro and Carmel Valley via the Interstate 805 corridor.

- San Marcos has drafted specific plans for the San Marcos Creek and University districts, adding mixed-use developments near California State University San Marcos and the SPRINTER rail corridor.

- More than half of the regional growth in new housing will occur within the City of San Diego. Downtown San Diego will continue to see growth over the next few decades, and it’s also expected in the Barrio Logan, Golden Hill, and Uptown communities.

On the jobs front, today’s centers of employment will continue to expand:

- The University Towne Centre/Sorrento Valley/Torrey Mesa employment cluster will remain the largest job center in the region.

- Downtown San Diego will add another 30,000 jobs by 2050.
- The Otay Mesa border area will become a much larger job center, growing from about 15,000 jobs today to more than 45,000 by 2050.

- Chula Vista will add nearly 50,000 new jobs as the Chula Vista Bayfront, downtown investments, and new planned communities in eastern Chula Vista come online.

The Regional Growth Forecast projects that the San Diego region will continue to grow more sustainably – with more compact and efficient communities paired with a greater variety of transportation options and less sprawl – so that open space and habitat is preserved.

All this information raises two key questions regarding our regional economy in the coming years: Will we successfully invest in transportation to connect our population with an adequate supply of well-paying jobs? And, will we provide an adequate supply of housing that people can afford? More to come on these key questions in the next few chapters.

**The Importance of Housing**

Providing adequate housing for a growing number of people, from all income levels and at all stages of their lives, continues to be one of the major goals for our region. One way to do this is to provide more housing choices – more apartments, townhomes, condominiums, and single-family homes in all price ranges. These
homes need to be affordable to people of all income levels, and accessible to people of all ages and abilities. They should be located in our urban communities close to jobs and transit. That will help preserve our open spaces and rural areas, bolster our existing neighborhoods, and keep commutes manageable.

How much housing is built, what type is built, and where it gets built will impact our future. The Regional Housing Needs Assessment (RHNA), updated every eight years and last updated in 2011 as part of the 2050 RTP/SCS, helps provide the framework for the planning and construction of housing, particularly affordable housing, in our region. In Chapter 2, we’ll delve into more detail about housing.

It’s All About Choices

When we think about the future, most of us would prefer more choices over fewer choices. And we would like our range of choices to vary based upon the stages of our lives and our circumstances.

If we are young adults heading off to college, we may want a dorm room or an affordable apartment with lots of travel options to get to class – including safe routes for walking and biking. If we have young children, we may want a home that’s close to our children’s local school, and in a neighborhood that can support walking, riding a scooter, skateboarding, or biking. If we are empty nesters, we may prefer a condo in an urban area so we can get around easily and enjoy an art show, play, or other cultural event. If we’re embarking on a blended family experience, we may need a larger home and more alternative ways of getting around. If we are older, we may need assisted living choices with options for traveling to our medical appointments. If we’re facing health issues, we may need to build more physical activity into our daily schedules and have ready access to medical care.

The ways in which our communities are built can make a difference in the kinds of choices available to us. By designing communities that better integrate the connections between land use and transportation, we can create more opportunities for developing a wider variety of travel choices. And emerging technologies can help us optimize our choices by ultimately making it easier and more efficient to use alternative modes of travel.

The societal benefits of having access to a wider range of travel choices are numerous. We can spend less time in our cars and save gas money. We can reduce air pollution and maximize public health. And we can lower the amount of greenhouse gases we emit into the atmosphere.

In the coming chapters of this Regional Plan, we’ll talk about our Sustainable Communities Strategy and regional housing needs. We’ll review how our region grew in previous decades, and how new thinking about development, transportation, technology, and sustainability is paving the way for the future. We’ll outline how more compact development and a greater mix of land uses will create
more vibrant communities, while also supporting existing and new transportation projects. We’ll also review what it will take to pay for transportation improvements. Then we’ll discuss the benefits of charting this course for the future. Finally, we’ll review key actions that will propel us forward, and how we’ll keep track of our progress to ensure the Regional Plan’s success.

As Yogi Berra once said: “If you don’t know where you’re going, you’ll end up somewhere else.” As a region, thoughtful and effective planning for how we use land and invest in transportation will determine where we go in the future. Together, we can strive to achieve what we want for our future: a vibrant economy, innovative mobility, a healthy environment, and great communities. Do that, and we’ll create a region we’d love to show off to out-of-town family and friends. Most of all, it’ll be a great place to live.

Let’s work together to move San Diego Forward!
Endnotes

1 This Regional Plan includes the mandatory policy, action and financial elements, in addition to the SCS as identified in California Government Code Section 65080 and detailed in Appendix C: Sustainable Communities Strategy Documentation and Related Information. The Regional Plan also includes the elements required by numerous other policy documents and regulations such as the Regional Comprehensive Plan (RCP) and the Regional Housing Needs Assessment (RHNA). Given the interrelated nature of these requirements, they are integrated into various chapters of the Regional Plan.

2 SANDAG prepared the Public Involvement Plan with input from the general public, community based organizations, SANDAG Working Groups, SANDAG Policy Advisory Committees, and the SANDAG Board of Directors. The Public Involvement Plan, which includes a detailed description of the consultation and participation of interested parties, is included as Appendix F: Public Involvement Program. Additionally, several key policy white papers were developed to inform the Regional Plan and are included as Appendix Q: White Papers.

3 Appendix J: Regional Growth Forecast

4 Based on the best practically available scientific information regarding resource areas and farmland in the region as additionally shown in Appendix C.

5 “Open Space and Parks” include beach-passive (other sandy areas along the coastline with limited parking and access), open space park or preserve, and undevelopable natural area. “Farmland” includes Williamson Act Lands. “Habitat” includes SANDAG conserved lands.

6 The RHNA was developed as part of the 2050 Regional Transportation Plan and its Sustainable Communities Strategy, and can be found as Appendix L: Regional Housing Needs Assessment Plan.
Chapter 2
A Strategy for Sustainability
A Strategy for Sustainability
Smart growth and environmental protection through transportation choices

The Sustainable Communities Strategy
At the heart of this Plan is a Sustainable Communities Strategy (SCS) that charts a course toward lower greenhouse gas emissions related to cars and light trucks, and proposes other measures to make the San Diego region more environmentally sustainable. Why the focus on transportation? Because about a third of greenhouse gas emissions generated in this nation come from that sector alone.¹

Reducing greenhouse gas emissions is a major goal for the state of California, and the nation. Rising emissions, chiefly carbon dioxide from the burning of fossil fuels, are increasing average temperatures around the globe. And those emissions are leading to numerous changes, including rising sea levels and shifting weather patterns. In the southwestern United States, climate scientists project that the effects of climate change could include increasingly drier and warmer weather, among other consequences.
Confronting this challenge, California has moved aggressively to reduce statewide greenhouse gas emissions. In 2006, it became a national leader in taking action when the state Legislature passed Assembly Bill 32 (Nunez, 2006) (AB 32), which requires the state to reduce its greenhouse gas emissions to 1990 levels by 2020. Passage of this landmark bill was a recognition that states, especially one as large and economically powerful as California, have significant roles to play in our collective effort to reduce greenhouse gas emissions.

Following the passage of AB 32, California's Legislature passed the Sustainable Communities and Climate Protection Act of 2008 – one of several steps the state has taken to achieve the goals set by AB 32. Also known as Senate Bill 375 (Steinberg, 2008) (SB 375), the Sustainable Communities Act required the California Air Resources Board (ARB) to set regional targets for reducing greenhouse gas emissions from passenger vehicle use. In 2010, ARB established targets for 2020 and 2035 for each region in California governed by a Metropolitan Planning Organization (MPO). SANDAG is the MPO for the San Diego region. The SANDAG target, as set by ARB, is to reduce the region’s per capita emissions of greenhouse gases from cars and light trucks by 7 percent by 2020, compared with a 2005 baseline. By 2035, the target is a 13 percent per capita reduction. ARB has not set targets beyond 2035.

To achieve these targets, SANDAG and other MPOs have been required to develop an SCS, as an element of its Regional Transportation Plan (RTP). The SANDAG SCS must integrate plans for how we use our land with our plans for transportation, and show how future investments will reduce greenhouse gas emissions to meet the targets. In fact, the law added specific sections to the California Government Code, and throughout this chapter we’ve included references to those sections to show how we’re meeting the law. In addition, Appendix C: Sustainable Communities Strategy Documentation and Related Information includes a more detailed matrix that further documents how the Regional Plan meets the SB 375 requirements.

As shown in Figure 2.1 through implementation of the Regional Comprehensive Plan (RCP) and other planning efforts, our region has moved for years toward better integrating land use and transportation plans. But SB 375 prompted us to focus more directly on reducing greenhouse gas emissions. In 2011, the SANDAG Board of Directors adopted the region’s first SCS, the 2050 Regional Transportation Plan and its Sustainable Communities Strategy (2050 RTP/SCS) – which was also the first SCS produced in the state of California. This chapter lays out the updated SCS for the San Diego region.  

The SANDAG SCS must integrate plans for how we use our land with our plans for transportation, and show how future investments will reduce greenhouse gas emissions to meet the targets.

Government Code § 65080(b)(2)(B)
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.
Figure 2.1
2012 Population and Employment Densities with Transportation Network
April 2015

- Rail and Rapid Transit
- Local Bus
- Managed Lanes
- Highways
- Bicycle Network

Population Density
1 dot = 100 people

Employment Density
1 dot = 100 jobs
The Five Building Blocks of Our SCS

Consistent with our previous SCS, this updated version includes five building blocks, in accordance with SB 375, which are accompanied by strategies. They 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 overall efficiency of the transportation network.

- **Innovative pricing policies** and other measures designed to reduce the number of miles people travel in their vehicles, as well as traffic congestion during peak periods of demand.

The five strategies to move us toward sustainability

Reducing greenhouse gas emissions, given the potential consequences of climate change, will help build a more sustainable future globally. In the San Diego region, the path toward sustainability requires lowering these emissions locally, and also other strategies. The following section describes our path toward sustainability in five concrete strategies we can understand and build upon. Our SCS is organized around these five strategies.

- **Focus housing and job growth in urbanized areas where there is existing and planned transportation infrastructure.**

- **Protect the environment and help ensure the success of smart growth land use policies by preserving sensitive habitat, open space, and farmland.**

- **Invest in a transportation network that gives people transportation choices and reduces greenhouse gas emissions.**

- **Address the housing needs of all economic segments of the population.**

- **Implement the Regional Plan through incentives and collaboration.**
Heading Toward 2050 – A Quick Note about Transportation

In this chapter, we cover a wide range of topics. In the middle of the chapter, we lay out plans for the region’s future transportation network in quite a bit of detail, followed by a discussion on coordinated regional efforts to address climate change. But first, as a prelude, here is a set of principles that has guided the development of our future transportation network:

- The transportation network included in the Regional Plan must be based on financial constraints. Every family knows that it should live within its means, and it’s no different for the San Diego region. The SANDAG investment plan, which we also refer to as the “Revenue Constrained Transportation Network,” will be built with financial resources we reasonably expect to be available between now and 2050.

- A more efficient transportation network will be achieved through two key strategies: effectively managing the overall system (TSM), and effectively managing demands on the system (TDM). Innovative technologies will be integrated into both TSM and TDM. The result will be maximized efficiency in the transportation network, which ultimately can lower greenhouse gas emissions.4
• Managing parts of the network, such as adding Managed Lanes and transit-only lanes on our freeways, can encourage people to carpool and use public transit to bypass bottlenecks.

• The road toward a more sustainable San Diego region should include vehicles that use cleaner, alternative sources of energy. SANDAG can play an important role in promoting this transition.

Where We’ve Been and How We Got Here

To understand where we are today and effectively plan for our future, we need to know where we’ve been. Our region has continually grown, and the reasons are easy to understand. Our beautiful coastline, unique neighborhoods, strong economy, and big open spaces make our region an attractive place to live. In past decades, these and other attributes drew people to our region, and neighborhoods steadily expanded – mostly toward the east. But more recently, we’ve placed a greater value on protecting open space. Collectively, the long-term plans for our local cities and the County of San Diego now call for focusing new growth in the urbanized areas of the western portion of our region where more people already live. This will allow us to preserve more open space and make more efficient use of resources such as water, energy, and transportation facilities.

A history of sprawl

Efforts to create a more sustainable future began in the late 1960s and early 1970s, when Congress and the State of California passed sweeping federal and state environmental protection laws. Concerns here in San Diego had been rising over the environmental impacts of rapid growth and development. Our cities and suburbs had quickly expanded north and east as developers built tracts of single-family homes to meet the rising demand. Our city governments and the County, meanwhile, developed long-range plans that allowed the continued spread of suburban development into open land east of existing communities.

By the late 1980s, rapid suburban development was threatening remaining open space, with long commutes resulting in growing traffic congestion and air quality impacts. Voters responded by calling for the creation of a regional growth management review board, and approving the first local TransNet half-cent sales tax to fund regional transit, highway, and road improvements. These are responsibilities that SANDAG carries to this day.

An awakening to smart growth

During the 1990s, California expanded its commitment to environmental protection when the state Legislature enacted the Natural Community Conservation Planning (NCCP) Act. Local jurisdictions, collaborating with one another and with federal and state wildlife agencies, created plans to conserve natural habitats, better manage watersheds, and improve air quality. In the San Diego region, we adopted the Multiple Species Conservation Program (MSCP) in 1998 and Multiple Habitat Conservation Program (MHCP) in 2002. These landmark programs identify an
interconnected open space system from the U.S.-Mexico border to Riverside and Orange counties. The land designated by these planning efforts, along with land in federal and state parks and forests, has preserved more than 1.2 million acres for open space and habitat preservation. That's about half our region's total land area.  

By the year 2000, new challenges emerged as familiar ones persisted. Affordable housing grew harder to come by. Traffic, a consequence of growth and a strong economy, continued to worsen. We needed a refined vision for planning that recognized these new realities.

To address the need to accommodate growth in ways that protect our quality of life, the RCP, as we discussed in Chapter 1, was adopted in 2004. The RCP called for new growth and development to occur in urbanized areas, near existing public facilities and transportation infrastructure, and for following principles of smart growth and sustainable development. Its goals were to provide people with more housing and transportation choices in existing communities, while reducing pressure to develop new suburbs in rural parts of the region that didn’t have urban water and sewer service, or frequent transit service. The individual cities and the County – whose representatives make up the SANDAG Board of Directors that adopted the RCP – began to change their local long-range plans to reflect the land uses called for in the big picture outlined by the RCP.
This evolution illustrated in Figure 2.2, compares the region’s projected housing and job growth based upon local general plans in 1999 against plans in effect in 2013, as well as the growth forecasted in 2013 with an overlay of the transit projects planned in 2050. During the last 15 years, our jurisdictions have changed their land use plans significantly, resulting in development patterns that concentrate future growth in urbanized areas, reduce sprawl, and preserve more land for open space and natural habitats.

**New thinking on transportation and sustainability**

These were seismic shifts in thinking about how to grow, and with them came new perspectives about how our region should invest in public transit, roads and highways, and other transportation infrastructure. It was becoming clear that people needed more options for getting around than just the car. This is now the basis of the transportation network described later in this chapter.

In 2004, our region’s voters took another major step forward by approving an extension of the TransNet half-cent sales tax measure. This regional measure identified specific transportation projects that would give us more travel options. And as described in this chapter, the TransNet sales tax measure also provided various incentives. Significantly, it earmarked $850 million to preserve natural habitats, and it set aside nearly $600 million for smart growth and active transportation.

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**Defining Active Transportation**: Active transportation includes any method of travel that is human-powered, but most commonly refers to walking and bicycling.
transportation. For example, it identified $280 million in grants to local jurisdictions to promote new mixed-use developments in smart growth areas that combined affordable housing with stores and other commercial buildings – all near existing and planned public transit. It also set aside an additional $280 million in grants for local jurisdictions to plan and build infrastructure for walking and biking in our urbanized communities.

As new kinds of development patterns have emerged, we’ve adjusted our region’s long-range transportation plans. We’ve shifted our investment from single purpose highway lanes to Managed Lanes to support carpools, vanpools, and Rapid transit service – changes that serve all kinds of communities new and old, including long-established suburbs. We’ve added miles of new light rail lines to our transportation plans, including the Mid-Coast Trolley, which will connect the U.S.-Mexico border and Downtown San Diego with UC San Diego and University City, the region’s largest job center. We’ve also made investments in regional bikeways and other infrastructure for cycling to connect neighborhoods to job centers, schools, and public transit – including the new $200 million bicycle Early Action Program to build out the backbone of the system in 10 years. These new investments, along with our existing transportation infrastructure, will use new and emerging technologies to become more accessible and more efficient.

**Defining Mixed-Use:** The combining of commercial, office, and residential land uses to provide easy pedestrian access and reduce the public’s dependence on driving. It is often implemented in multi-story buildings containing businesses and retail stores on the lower floors, and homes on the upper floors.
A closer look at the five strategies toward sustainability in the SCS

Now let’s take a look at each of the five strategies of the SCS that will move us toward sustainability:

Focus housing and job growth in urbanized areas where there is existing and planned transportation infrastructure.

Local jurisdictions across the region have updated their land use plans, changing patterns of future development to provide more housing in cities, along existing transit corridors, and where projected job growth will be situated.8

As part of preparing this Regional Plan, we asked whether additional land use changes – beyond those already reflected in the general plans of our local jurisdictions – could further reduce greenhouse gas emissions.9 Working with our stakeholders, the public, and our elected officials, we developed three hypothetical land use scenarios. With an eye toward maximizing emissions reductions, each scenario had a different emphasis; the first, Scenario A, focused on second units and infill (such as “granny flats” on single-family parcels), the second, Scenario B, on transit-oriented development, and the third, Scenario C, on dense urban cores. (See Figure 2.3) Then we paired up each hypothetical scenario with the transportation network from the 2050 RTP/SCS, and studied whether they could lower emissions beyond those projected with the land uses in the Regional Growth Forecast.

**Figure 2.3**

**Hypothetical Land Use Scenarios**

**Scenario A: Second Units and Infill**
- Scenario A constrains future residential and employment growth to the west of the incorporated cities boundaries, and tests the impact of second units.

**Scenario B: Transit Oriented Development**
- Scenario B concentrates new housing and jobs around existing and future transit stations included in the 2050 RTP/SCS. New development consists primarily of urban/compact development.

**Scenario C: Multiple Dense Cores**
- Scenario C focuses future growth into four dense cores. New housing and jobs consist of urban/compact development concentrated in North County; Mid-County; the greater Downtown area; and South County / International Border.

**Government Code § 65080(b)(2)(B)**

Requires that the SCS be based on “the most recent planning assumptions considering local general plans and other factors.”
The results showed that changes already made to the general plans of the local jurisdictions throughout San Diego County – and already included in this Regional Plan – are projected to have a major impact on greenhouse gas emissions in the future. In other words, the growth projected in the Growth Forecast developed in 2013 will result in 30 percent less greenhouse gas emissions than the growth projected in the Growth Forecast prepared in 1999. The key difference between the two was the smart growth patterns that were adopted between these two growth forecasts.

So, given the previous changes to land use plans that would have on projected greenhouse gas emissions, the study went on to look at whether the even more drastic changes considered in the hypothetical scenarios provide even more benefits. The answer was yes. The three scenarios had the potential to continue to lower emissions in comparison to the forecast, but at a much slower pace – up to an additional 1 to 3 percent over the next 35 years. Scenarios B and C were projected to achieve the greatest reductions.

This exercise showed us that we are moving in the right direction. As our local jurisdictions continue to update their plans, they should be encouraged to continue to embrace smart growth and sustainable development, moving forward in the new direction that started with the RCP more than a decade ago.

Complementing this effort, our areas of higher density housing, job centers, and transportation access are shown on the Smart Growth Concept Map (see Chapter 1), which we developed as a tool to better coordinate our investments in transportation with the development of land. Transportation and planning professionals from all 18 cities and the County contributed to the development of this map, which identifies places with the potential to focus future growth and development close to jobs, public services, and existing and planned transit. Because smart growth isn’t a one-size fits all approach, the map includes seven distinct types of smart growth areas, from rural villages to town centers to Downtown San Diego.

As we discussed in Chapter 1, focusing new growth and development in the most urbanized areas of the region is a key strategy toward sustainability. At the same time, we recognize that much of the region has already been developed, both in an urban and suburban pattern. Part of the smart growth strategy is to provide a more efficient transportation system in established areas. New investments in our regional transportation network, discussed later in this chapter, are designed to give people everywhere, including urban as well as established suburban and rural areas, more choices for getting around.

Now for some numbers. In 2012, 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 Regional Growth Forecast (which is also known as the Series 13 Forecast), projects that the region will grow by almost 1 million people by 2050.
(see Figures 2.4, C.8, and C.9 in Appendix C). Nearly 330,000 new homes and 489,000 new jobs will be added during this time frame. (The base year for the Regional Plan is 2012, the year the data collection effort began to prepare the regional growth forecast. It projects changes expected to occur from 2012 to 2050.)

As pointed out above, our region has made great strides in planning for more compact, higher density, and walkable developments situated 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 Regional Growth Forecast, which is the foundation of the SCS land use pattern. The land use pattern accommodates 79 percent of all housing and 86 percent of all jobs within the portion of the region covered by the Urban Area Transit Strategy (UATS), where the greatest investments in public transit are focused (See Figure 2.4). Over 80 percent of new housing in the region will be attached multifamily. The 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, farmland, floodplains, and wetlands.10
Figure 2.4
2050 Housing and Employment Densities and Urban Area Transit Strategy Boundary
April 2015

- Urban Area Transit Strategy
- Housing Density: 1 dot = 100 people
- Employment Density: 1 dot = 100 jobs

Map Area
San Diego Region

Chapter 2 :: A Strategy for Sustainability
Protect the environment by preserving sensitive habitat, open space, and farmland

Complementing plans for how our urbanized areas will develop are plans for protecting parklands, open space, natural resource areas, and farmland. About half of our region’s 2.7 million acres have been preserved as open space and parks, habitat, or farmland. By 2050, 55 percent will be preserved, according to our forecast, which is based on local land use plans (see Appendix C Introduction, Appendix C Figure C.6 and Appendix J Figure J.3).

Our region is fortunate to have a local funding source for preserving natural habitats. When the region’s voters approved the extension of the TransNet half-cent sales tax back in 2004, their vote included a provision to fund the $850 million Environmental Mitigation Program (EMP). The primary purpose of the EMP is to purchase habitat as mitigation for future transportation projects. The program buys land early and in large parcels, saving money, and in the process restores and maintains preserved land.

In addition, the EMP provides funding, through a competitive incentive program, to acquire, manage, and monitor sensitive lands in habitat preservation planning areas (such as the MSCP and the MHCP discussed earlier in this chapter). This is done to help mitigate the environmental impacts of transportation projects.

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

Government Code § 65080(b)(4)(C)
The metropolitan planning organization shall consider financial incentives for cities and counties that have resource areas or farmland.
Over the years, we’ve established criteria for the incentive program to ensure that the region’s conservation priorities are being met. The program also includes funding for working landscapes, such as agricultural lands, if they also support wildlife.

One of the unique aspects of the EMP is that it provides an “economic benefit” incentive, which enables TransNet funding to be used to buy land that contributes to wildlife and habitat conservation. This funding is earmarked as milestones are achieved during certain transportation projects. Recognized nationally as a major success, the TransNet EMP program is unique to our region, and it provides a critical source of funding to protect open space and preserve natural habitats.

Invest in a transportation network that gives people transportation options and reduces greenhouse gas emissions

Our goal for a more sustainable future in San Diego is one in which fewer people have to drive alone, and more people have increased travel choices available to them. Those choices will include an ever-expanding, more accessible, and more convenient public transit system; carpooling; ridesharing; and more interconnected networks of biking and walking paths. These are just a few of many investments we’ll discuss later in this chapter. To see a visual overview of these investments, check out the following series of maps (Figures 2.5, 2.6, and 2.7), which are overlaid with data on projected population and employment.

New transportation investments will help us improve existing infrastructure with technology designed to help cut congestion and travel times. Strengthening our public transit system and other transportation choices where most of us live and work, meanwhile, will give us more options for getting around. Today, about a third of our region lives within a half mile of high-frequency public transit. By 2050, that number will jump to more than 60 percent, which is attributable to our local jurisdictions planning for more housing near transit stations and to our investments in more high frequency transit routes closer to existing and future housing. These changes will help reduce per capita greenhouse gases emitted in the region.

To maximize our transportation investments, particularly those in transit, we recognize that we need to pay close attention to the mix of land uses and the urban design in the immediate vicinity of existing and planned transit stations. To focus more sharply on implementing land uses that support our transit investments – such as existing transit stops and future transit stations – work is underway with a wide variety of stakeholders to develop a Regional Transit Oriented Development (TOD) Strategy. The strategy will focus on identifying tools, techniques, and actions for implementing and prioritizing transit oriented development in the areas identified on the Smart Growth Concept Map. Implementing the Regional TOD Strategy, once adopted, will be an important step toward carrying out our Regional Plan.
Figure 2.5
2050 Population and Employment Densities with Transit Network
April 2015

Population Density
1 dot = 100 people

Employment Density
1 dot = 100 jobs

[Map of San Diego region showing population and employment densities with transit network, including symbols for regional transit, local bus, intermodal transit center, and dot densities for population and employment.]

San Diego Forward: The Regional Plan
Figure 2.6
2050 Population and Employment Densities with Managed Lanes and Highway Network Improvements
April 2015

Population Density
1 dot = 100 people

Employment Density
1 dot = 100 jobs
Figure 2.7
2050 Population and Employment Densities with Regional Bicycle Network
April 2015

- Bicycle Network
- Population Density: 1 dot = 100 people
- Employment Density: 1 dot = 100 jobs

Map Area
San Diego Region

San Diego Forward: The Regional Plan
Equally important is placing a greater emphasis on the quality of our streets. For a number of years, a growing movement has been underway to convert our streets, over time, to roads that serve the needs of a broader range of users than primarily those who drive cars. This effort to create “complete streets” involves rethinking roadway design to better accommodate people walking and riding bicycles. The good news is that many of our local jurisdictions have adopted or are in the process of developing local complete streets policies consistent with Assembly Bill 1358 (Leno, 2008) (AB 1358) – The Complete Streets Act. In 2014, SANDAG adopted a Regional Complete Streets Policy\textsuperscript{14} for future improvements on SANDAG transportation infrastructure projects, a policy that is integrated into the Regional Plan.

In short, our transportation investments are not just about the transportation projects themselves. They’re also about the surrounding land uses that make our communities livable and vibrant, and the improvements to our streets to make them friendlier and safer for all users, including people who walk and bike.
Address the housing needs of all economic segments of the population

As we discussed in Chapter 1, providing adequate housing for a growing number of people, from all income levels and at all stages of their lives, continues to be one of the major goals for our region. The land use pattern of the Regional Plan is based on the Regional Growth Forecast, which in turn draws its information from the general plans of the region’s local jurisdictions. The Regional Growth Forecast serves as the basis of our SCS.

There are two specific laws pertaining to housing with which the Regional Plan must comply. First, SB 375 requires that areas be identified within the region sufficient to house the entire population of the region, including all economic segments of the population, over the course of the planning period. Second, we must complete a Regional Housing Needs Assessment (RHNA), in accordance with California Housing Element law. The assessment determines the region’s housing needs in four income categories – very low, low, moderate, and above moderate. The RHNA process occurs before each housing element cycle, which is required to occur every eight years by SB 375. In the past, the RHNA was completed every five years, and that process occurred separately from the RTP update. SB 375 now links the RHNA and RTP processes to better integrate housing, land use, and transportation planning, helping to ensure that the state’s housing goals are met.
Accommodating the Eight-Year Regional Housing Needs Assessment

In terms of housing, the SCS land use pattern addresses the needs of all economic segments of the population. Our projected land use pattern identifies areas within the region sufficient to meet the needs detailed in the RHNA for the fifth housing element cycle (2010 – 2020), and it accommodates the projected growth between now and 2050 (see Figures J.3, J.4, and J.5 in Appendix J). The SANDAG Regional Growth Forecast projects the need for 330,000 additional homes to serve the expected population growth of nearly one million people. The capacity for future housing in the region, which is based entirely on the capacity in the general plans of the local jurisdictions, currently contains enough capacity for nearly 395,000 new homes. Of these, about 169,000 units are projected to have a housing density of 30 or greater dwelling units per acre, and almost 62,000 units are projected to fall into a density range 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 San Diegans of all income levels.

The SCS land use pattern and RHNA allocation meet the state’s four housing goals – increasing the supply and mix of housing types, promoting infill development and efficient development patterns, promoting an improved relationship between jobs and housing, and creating economically balanced communities. In fact, about 82 percent of the projected new homes to be built by 2050 will be attached multifamily units – condominiums, townhomes, and apartments, and 80 percent of the new homes will be located within the UATS boundary where the greatest investments in public transit are being made (see Figure 2.4). This future, spelled out in local plans for growth, will increase the supply, mix, and affordability of housing regionwide.

The transition toward more multifamily homes throughout the region will benefit everyone. In particular, it will help young adults, single parents, and seniors whose incomes often aren’t enough to afford a single-family home in our high-priced market. Metropolitan areas around the nation are moving toward this kind of development. Surveys show that an increasing number of people prefer to live in denser, more walkable neighborhoods with access to a wide variety of stores and services, and, importantly, public transit. A larger number of multifamily homes situated near public transit options will offer people of all ages – and from all backgrounds, economic circumstances, and physical capabilities – lives enriched by more opportunities to work, shop, study, exercise, and play.
Implement the Regional Plan through Incentives and Collaboration

The course charted by the Regional Plan won’t be implemented by SANDAG alone. Achieving the Regional Plan’s vision and goals requires collaboration among local jurisdictions, Caltrans, transit operators, developers, and a wide range of interest groups, stakeholders, and organizations.

While some of the projects in the Regional Plan will be implemented through funding that SANDAG will receive from the state and federal governments, we also need to rely on incentives and collaboration. The Smart Growth Toolbox contains a set of powerful tools to help us realize our regional vision for a sustainable future. They include the Smart Growth Concept Map; smart growth design guidelines; smart growth visual simulations; guidelines for integrating TDM into the planning process; parking management tools; guidelines for planning and designing for pedestrians; a smart growth photo library; and competitive grant programs that provide incentive funds for planning and capital projects in smart growth areas and for active transportation projects. These tools were developed with contributions from people throughout the region and are included in Chapter 5: Ensuring Performance.

Government Code
§ 65080(b)(2)(K)
Neither a sustainable communities strategy nor an alternative planning strategy regulates the use of land, nor, except as provided by subparagraph (J), shall either one be subject to any state approval. Nothing in a sustainable community’s strategy shall be interpreted as superseding the exercise of land use authority of cities and counties within the region.
The Transportation Network – A System that Offers More Ways to Get Around

As we’ve discussed, a transportation system that offers more choices to get around empowers people to choose more sustainable ways to travel. And that improves air quality and the environment. And a transportation system that offers more choices improves the connections between businesses and their workers, customers, and partners – fueling the economy. This ultimately makes the system itself more functional, because more choices allow people and businesses to choose the best options for them – for the kinds of trips they’re making and the time of day they’re making them.

The SCS will help guide investments in our transportation system over the next 35 years. The Regional Plan outlines the investment of nearly $204 billion in year-of-expenditure dollars in local, state, and federal dollars to build a comprehensive, interconnected transportation system that provides choices.

All this investment will improve mobility for everyone, and give us more freedom by creating more travel choices. Doing so, while also taking steps to protect the environment – isn’t just a goal for our everyday trips. It’s vital for shipping the goods that help fuel our regional economy, and for keeping our region healthy. How we all get from point A to point B is important, and it impacts the quality of our lives. Commuting to work, getting to school, shopping, running errands, and saving time for some fun away from home – it all requires mobility. Whether it’s driving a car on the highway, taking the local bus or one of the regional Rapid services, catching the COASTER, SPRINTER, or Trolley, jumping on a bike, or just taking a walk – we all want the freedom to choose how and when we get around.

In the upcoming review of our planned transportation network, you’ll read about various “modes” of transportation – or ways that people travel to their destinations. Together, these modes offer a diverse mix of public transit service; a variety of Managed Lane projects on our highways (which include toll lanes, carpool, and transit-only lanes); pedestrian and bicycle investments (known as active transportation); and other programs. They’re all designed to work together as a package, making the entire system more efficient while also giving travelers a variety of options.
Building a System That Meets the Needs of a Growing Region

Our region’s transportation network, shown in Figure 2.1 includes 298 miles of regional public transit service, and 1,282 miles of local public transit service. The existing network also includes more than 30 miles of Managed Lanes (high occupancy vehicle (HOV) and Express Lanes) on sections of Interstates I-5, I-15, and I-805. In addition, the network consists of 1,340 miles of bike routes and amenities, and about 9,400 miles of sidewalks. Rounding out the network and supporting connectivity of all transportation types are thousands of miles of local streets and roads maintained and managed by the individual cities and the County of San Diego.

Between now and 2050, we will steadily add more high-quality public transit and expand our regional network of interconnected bike routes and walking paths. Also planned is a connected and free-flowing system of Managed Lanes on our highways.

As our region grows, a quality transportation system will go a long way toward preserving our quality of life, even making it better than it is today. We may not think about it much – or maybe we do! – but the way we get around impacts our environment, our wallets, and our physical and mental health. It impacts how much we exercise, the quality of the air we breathe, and the amount of money we have available to spend on other things. Our investment plan reflects our Regional Plan’s commitment to a healthier and higher-quality daily life for the people in our region.
Elements of 21st Century Mobility
An expanded and more efficient public transit system

Where We’ve Been – San Diego Trolley Launched a New Era in the ‘80s

Back in 1981, the new San Diego Trolley marked a big leap forward for public transit. But a lot has changed since then – for the better. What was a limited collection of local bus routes in the 1970s has evolved into a system of modern local bus services and regional high-speed bus service (Rapid), paired up with efficient rail services including the San Diego Trolley, SPRINTER, and COASTER lines. The result? Annual transit boarding on public transit has more than doubled, from 42 million riders in 1981 to just over 100 million riders in 2013.

Where We’re Headed – A Transit Strategy Focused on the Most Urbanized Areas

Over time, plans change to reflect the progress we’ve made and to incorporate new and changing ideas. The transit plan envisioned 30 years ago has been largely realized. Now there’s a new vision for the next generation of public transit. The UATS,22 developed for the 2050 RTP/SCS in 2011 and used in this Regional Plan as the foundation of the SCS transit network, aims to create a world-class public transit system similar to what many people have experienced in other major cities worldwide. The UATS studied the transit strategies that work best in other cities,
and built upon local market research to help identify what San Diegans want from their transit system. These include:

- Making a strong link between how we design local development projects and how we design the regional transit systems that serve them.

- Focusing improvements to the transit system where the most people and jobs are concentrated, so riders can easily walk and bike to transit stations.

- Making transit more convenient. Market research shows that if trains and buses come by at least every 10 minutes, people don’t have to plan their day around transit. Instead, transit is planned around them.

- Offering a range of transit services that fits the needs of riders. Some people use transit for short trips, where local transit services fit their needs. Others use transit for longer trips and where express services with fewer stops are a better option.

- Making the transit trip fast and reliable. Transit-only lanes, traffic lights that give priority to public transit vehicles, and freeway Managed Lanes all can help transit vehicles bypass congested areas.

- Offering lots of ways to get to and from transit stations, including carsharing, bikesharing, and employer shuttles. Infrastructure and safety improvements for bicyclists and walkers also can help.

- Making transit easy to use. Maximizing investments in current technology can make paying fares easier, transit information more readily available, and enhance choices for getting to and from transit stations.

The Urban Area Transit Strategy used market research, along with local land use plans, to identify the most effective places to concentrate transit improvements. The Smart Growth Concept Map included in Chapter 1 shows the Urban Area Transit Strategy Boundary layer, geographically illustrating the areas where our Regional Plan focuses regional transit investments that serve major activity centers, residential areas, and places of employment. In addition, as discussed earlier in this chapter, transit oriented development (TOD) and complete streets policies help complement the performance of our transit network, the friendliness of our streets, and the overall livability of our communities.

**Looking ahead: The transit investments planned for 2050**

So, what new transit services and improvements are we planning? In our growing region, public transit will play an increasing role in lightening the load on our roads and highways, and getting people where they want to go quickly and safely. The following is a summary of the major transit projects included in the Regional Plan.
Los Angeles-San Diego-San Luis Obispo (LOSSAN) Rail Corridor: The COASTER, AMTRAK, and Metrolink rail corridor is the nation’s second busiest. Premier passenger rail services connect the San Diego region to Los Angeles and other points north and east. The Regional Plan builds on this corridor by adding more track capacity and improved stations. These enhancements also will benefit shipping, because the LOSSAN corridor serves as the region’s main freight rail line. Figure 2.8 illustrates the Southern California intercity and commuter rail services.

Trolley/SPRINTER/Rapid service: These routes serve as the trunk lines of the regional transit system. Together, they offer fast and reliable rail and bus travel with limited stops in key travel corridors. The Trolley and SPRINTER operate on their own dedicated rail lines, while Rapid service operates on freeway Managed Lanes and on local streets. Planned improvements include:

- The Mid-Coast Trolley extending service from Santa Fe Depot in Downtown San Diego to the University City community, serving Old Town, the University of California San Diego (UC San Diego), and Westfield University Towne Centre
- SPRINTER double-tracking, which will enable higher frequency service, and the extension of service from Escondido south to Westfield North County
- A new Trolley line from San Ysidro to Carmel Valley along the I-805/I-15 corridors via Chula Vista, National City, Southeastern San Diego, Mid-City, Mission Valley, Kearny Mesa, University City, and Sorrento Valley
- A new Trolley line from Pacific Beach to the El Cajon Transit Center, via Clairemont, Kearny Mesa, Mission Valley, and San Diego State University (SDSU)

- A new Trolley line from Downtown San Diego to SDSU, along the Park Boulevard and El Cajon Boulevard corridors via Balboa Park, North Park, and City Heights

- A new Trolley line from University City to Sorrento Valley, which will include a connection to the COASTER

- New Rapid service from Otay Mesa to Downtown San Diego, along State Route 125 (SR 125)/ East Palomar/I-805 corridors via Otay Ranch, eastern Chula Vista, and National City

- New Rapid service from San Ysidro to Downtown San Diego, along the I-5 corridor.

- New Rapid service for commuters. This will offer peak period service to key regional job centers along the Managed Lanes of key freeway corridors, including South Bay to Kearny Mesa/University City/Sorrento Mesa via the I-805 corridor; East County to Kearny Mesa/University City/Sorrento Mesa via the SR 52 and I-805 corridors; East County to Downtown San Diego via the SR 94 corridor; South County/Mid-City to Palomar Airport Road corridor via the I-805/I-5 corridors; and Downtown San Diego to Kearny Mesa along the SR 163 corridor.
• New Rapid service on arterials. This will operate on arterial roadways and provide limited-stop, high-speed service along several key corridors throughout the region, supplementing existing local bus services. This new arterial service would benefit from a variety of measures designed to give public transit priority along busy roadways (e.g., signal priority for buses and transit-only lanes). The frequency of service will be every 10 minutes (at least) on most routes throughout the day.

• New Airport Services. This will include premium bus transit from select stations along the I-5 and I-15 corridors directly to San Diego International Airport, as well as to the crossborder airport facility with access to Tijuana International Airport. All funding for these airport services is assumed to come from other sources, such as the San Diego Regional Airport Authority and other agencies.

Figure 2.9 shows the network of rail services by 2050, and Figure 2.10 shows the network of Rapid services.

Local Bus Services: Local bus services remain the backbone of the regional transit system. Most routes within the Urban Area Transit Strategy boundary will see service frequencies increased to every 10 minutes all day, creating a network of convenient local bus service for short-distance trips and access to rail and Rapid services.
Streetcars/Shuttles: Streetcars and shuttles are great for short distance trips, and in many ways they can help strengthen community character and generate economic activity. Streetcars are rail vehicles that operate in auto travel lanes and offer short-distance rides within neighborhoods. They also offer connections to regional transit lines. The Regional Plan includes streetcars that would operate in several neighborhoods in and around Downtown San Diego, connect North Park with Downtown San Diego, and link La Jolla with Mission Beach via Pacific Beach. A shuttle in Downtown San Marcos also is included. Most funding for streetcars and shuttles is assumed to come from non-transit sources, such as local agencies and business improvement districts.

Seniors and People with Disabilities: The Regional Plan reserves 10 percent of transit operations funding for seniors and persons with disabilities. Five percent of the funds are reserved for Americans with Disabilities Act (ADA) services. Additionally, the Regional Plan includes 5 percent of transit operations funds to support a coordinated system of services provided by social services agencies for “door-through-door” assistance for seniors and persons with disabilities.

High-Speed Train Service: In coming years, our state will be home to a high-speed rail line connecting Northern and Southern California. The first legs of this exciting rail system are being built now in the Central Valley. When completed, high-speed trains will connect San Diego, Los Angeles, San Francisco, and Sacramento. In San Diego, high-speed trains will arrive at the future San Diego International Airport Intermodal Transportation Center. This is a project funded by the State of California.
Figure 2.8
Southern California Intercity/Commuter Rail and San Diego Region Airport Locations
April 2015
Figure 2.10
2050 Revenue Constrained Rapid Services
April 2015

- Rapid Transit
- Local Bus
- Intermodal Transit Center

Map Area
San Diego Region

Chapter 2 :: A Strategy for Sustainability
Figure 2.11 shows all of the transit investments included in our Regional Plan by 2050. The Regional Plan offers a robust and interconnected network of services that promote quick and convenient travel to the places we live, work, and play in our region’s most urbanized areas. We’ve come a long way since the initial transit network from the 1970s. With nearly 50 percent of the Regional Plan’s revenues going toward transit infrastructure and operations, we’re moving ambitiously toward the world-class transit system envisioned in the Urban Area Transit Strategy – a natural progression that builds on our success over the last 30 years. A new local funding source starting in 2020 will be needed to implement many of the new services.

The active transportation network: Healthy alternatives to driving

And more of us than ever before are choosing to walk or ride our bikes to more places. Biking and walking, while not for everybody all the time, are important choices for many people. They’re good for the environment and for our health.

Over time, choosing to walk and bike has become known as active transportation, because these two forms of getting around provide opportunities for exercise (i.e., being active), rather than letting a car do the work.

At some point in the day, walking is a part of most every person’s life. That’s particularly true in mixed-use, smart growth neighborhoods, where people often walk and sometimes bike between their homes, stores, parks, schools, and jobs.

With nearly 50 percent of the Regional Plan’s revenues going toward transit infrastructure and operations, we’re moving ambitiously toward the world-class transit system envisioned in the Urban Area Transit Strategy – a natural progression that builds on our success over the last 30 years.
Figure 2.11
2050 Revenue Constrained Transit Network
April 2015

- High Speed Rail
- COASTER/AMTRAK/Metrolink
- Trolley/SPRINTER
- SPRINT Express
- Rapid Transit
- Streetcar/Shuttle
- Airport Express
- Local Bus

- Intermodal Transit Center
- Safe Routes to Transit

Map Area
San Diego Region
Our active transportation projects are intended to make walking and biking safer, particularly for students, seniors, and disabled people. Walking and bicycling will only be viable choices for people if they’re safe. The Regional Plan recognizes this, and so it incorporates safe bike and pedestrian access into investments in other modes of travel, including public transit and highway improvements.

The Regional Plan’s Active Transportation Network includes all projects found in the Regional Bike Plan, as well as Safe Routes to School and Safe Routes to Transit projects and programs, bike and pedestrian improvements in and around highway and freeway interchanges, and various educational programs and data collection efforts. The majority of the projects and programs described below will provide safer access for pedestrians, particularly the most vulnerable roadway users such as school children, seniors, and the disabled.

**Regional Bike Plan:** The regional bike network is a valuable resource for people who choose to bike. This network was identified in Riding to 2050: The San Diego Regional Bicycle Plan, which SANDAG adopted in 2010. It is incorporated into the Regional Plan. As shown in Figures 2.12 and 2.13, the bike plan details 40 interconnected bicycle corridors throughout the region, which total more than 500 miles of bike routes. The goal of the Regional Bicycle Plan is to make it more practical and desirable for people to choose bicycling for everyday trips. By 2050, the Regional Plan includes full build-out of the entire regional bike network. Most bike projects will have safety improvements not only for bicyclists but also for pedestrians, including shortened crossing distances at intersections.

**Safe Routes to School:** The San Diego Regional Safe Routes to School Strategic Plan, which SANDAG adopted in 2010, was designed to help local communities establish Safe Routes to School programs.

**Safe Routes to Transit:** Safe Routes to Transit projects will make walking or riding a bicycle between transit stops or stations and a variety of destinations – including residential areas, commercial centers, and places of employment – safer and more comfortable. (See Figure 2.11 for Safe Routes to Transit Improvements.)

**Education and Data Collection Efforts:** The Regional Plan includes investments in education on bicycle and pedestrian safety, outreach and encouragement programs, and data collection and modeling.

**Active Transportation Improvements Related to Highway and Freeway Interchanges:** When walking or riding a bicycle, crossing highway on-ramps and off-ramps is often the most dangerous and difficult part of a person’s trip. Our Regional Plan includes the incorporation of safer crossings as part of all future freeway and highway interchange projects. (See Figure 2.14 for Active Transportation Improvements related to Highway and Freeway Interchanges.)
Figure 2.12
2050 Revenue Constrained Regional Bicycle Network
April 2015

- Class I - Bike Path
- Cycle Track
- Bicycle Boulevard
- Enhanced Class II - Bike Lane
- Enhanced Class III - Bike Route
- Regional Arterials

MILES
KILOMETERS

SANDAG

Chapter 2 :: A Strategy for Sustainability
Figure 2.13
2050 Regional Bicycle Network Corridor Alignments
April 2015

1. Bayshore Bikeway
2. Bay to Ranch Bikeway
3. Border Access Corridor
4. Camp Pendleton Trail
5. Carlsbad - San Marcos Corridor
6. Central Coast Corridor
7. Centre City - La Mesa Corridor
8. Chula Vista Greenbelt
9. City Heights - Old Town Corridor
10. Clairemont - Centre City Corridor
11. Coastal Rail Trail
12. East County Northern Loop
13. East County Southern Loop
14. El Camino Real
15. Encinitas - San Marcos Corridor
16. Escondido Creek Bikeway
17. Gilman Connector
18. Hillcrest - El Cajon Corridor
19. Imperial Beach Connector
20. Inland Rail Trail
21. Kearny Mesa - Beaches Corridor
22. Kensington - Balboa Park Corridor
23. North Park - Centre City Corridor
24. Mid-County Bikeway
25. Mira Mesa Corridor
26. Mission Valley - Chula Vista Corridor
27. Park Boulevard Connector
28. Poway Loop
29. San Diego River Bikeway
30. San Luis Rey River Trail
31. Santee - El Cajon Corridor
32. Sweetwater River Bikeway
33. Vista Way Connector
34. I-15 Corridor
35. I-15 Bikeway
36. SR 52 Bikeway
37. SR 56 Bikeway
38. SR 125 Corridor
39. I-805 Connector
40. SR 905 Corridor

San Diego Forward: The Regional Plan
California Coastal Trail: The California Coastal Trail (CCT) is made up of a series of trails stretching 1,300 miles up and down the California coastline.\(^{27}\)

The CCT is intended as a continuous public right-of-way that extends from the northern border of California to the southern border, all within sight, sound, or at least smell of the ocean. It is the CCT’s proximity to the ocean that makes it distinctive among other trails.

SANDAG has developed technical memoranda entitled “Feasibility Study for the San Diego Portion of the California Coastal Trail” to inform the scoping of a comprehensive feasibility study for the region. The documents lay the groundwork and gather preliminary material to help identify existing and potential network segments, linkages, gaps, and coastal access routes. These technical memoranda are located in Technical Appendix U.5: California Coastal Trail Technical Memoranda. A map of the California Coastal Trail is included in Appendix A: Transportation Projects, Costs, and Phasing, as requested by Government Code Section 65080.1.

Offering people more route choices

Local Streets and Roads

Local streets and roads can get busy, especially on weekdays when kids are getting dropped off at school and people are heading to work in the morning, and when people are heading home in the afternoon. On many weekends, it seems as though everyone is out – in cars, on bicycles, riding scooters and skateboards, walking, and running. So it’s vital to keep local streets and roads in good shape and safe. Our region has thousands of miles of local streets and roads, and they demand a lot of care to make sure they’re serving people well. Our investment plan dedicates a great deal of resources to help local jurisdictions improve, rehabilitate, and maintain these local roadways.

An important function of local streets and roads is to accommodate the various buses, Trolleys, and streetcars that connect our local neighborhoods and surrounding communities. So, our investment plan includes funding to ensure that these vehicles can flow smoothly. Among the planned projects, improvements include: coordinating traffic signals, managing systems that detect traffic, implementing technology that gives public transit priority on roads and at intersections (such as queue jumpers), and deploying management systems that optimize the flow of arterials.

While local roads and streets are the responsibility of our cities and the County government, completing the Regional Arterial System (RAS) is nevertheless a continued priority in our Regional Plan.\(^{28}\) For vanpools, carpools, and solo drivers, regional arterials offer critical links to highways. The RAS is the network of regional roadways and local streets that, along with the system of highways and transit services, allows for a significant amount of mobility throughout the region.
The region’s 18 cities and the County have planned improvements to arterials within their jurisdictions, and these improvements are detailed in Appendix A.

**Managed Lanes: Adapting the Highway System for Optimal Mobility**

The Regional Plan also supports a flexible highway system. By “flexible” we mean that some highway lanes can be dedicated to certain users to create a wide range of time-competitive travel choices on our highway system. Within this plan, these lanes are referred to as “Managed Lanes.” They generally fall into three categories:

- **Express Lanes:** These are lanes in the middle of the highway that give priority access to transit, carpools, vanpools, motorcycles, and certain clean-air vehicles at no cost. Excess capacity on these Express Lanes is available for people driving alone to travel for a fee through the FasTrak® program. These “freeways within a freeway” also can be constructed with moveable barriers, allowing different lane configurations such as three lanes in one direction and one lane in another, instead of two lanes in each direction. Express Lanes are managed to ensure that the people who use them can bypass congestion. Access to Express Lanes is typically provided along the route, and electronic signs post the cost for solo drivers. On-ramps to Express Lanes – such as direct access ramps – allow vehicles to safely drive onto them.
• *Carpool Lanes:* These lanes, also known as HOV or high occupancy vehicle lanes, have a limited number of access points along the highway. They are similar to Express Lanes, but solo drivers are precluded from using them. Each vehicle that travels onto an HOV lane must carry the minimum number of people posted at the entrance sign. Currently in San Diego County, that number is two, but some areas of the state require three. Some HOV lanes in California are active only during peak commute times, but the HOV lanes in San Diego County operate all day.

• *Transit-Only Lanes:* These lanes are open only to transit vehicles. They accommodate both regional and local bus services.

One of the important features of the Express Lane system is that the fee that solo drivers pay to use Express Lanes (through the FasTrak system) supports transit service along the same corridor. This is now the case along the I-15 corridor. As shown in Figure 2.14, the Regional Plan includes a robust system of Managed Lanes that can be designated as Express Lanes, carpool lanes, or transit-only lanes.
Figure 2.14
2050 Revenue Constrained Managed Lanes and Highway Network
April 2015

- Existing Managed Lanes
- Managed Lanes
- General Purpose Lanes
- Toll Lanes
- Operational Improvements
- Existing Facility
  - Freeway Connectors
  - ML Connectors
  - Freeway & ML Connectors
  - Bicycle/Pedestrian Improvements at Freeway Interchanges

C = Conventional Highway
F = Freeway
ML = Managed Lanes
T = Toll Road
R = Reversible Lanes
OPS = Operational Improvements

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The San Diego region is building its Managed Lanes system incrementally. In 2012, the region had about 30 miles of HOV lanes and Express Lanes on sections of I-5, I-15, and I-805. An important strategy of the Regional Plan is to continue to guide the development of the freeway system into a fully interconnected network of Managed Lanes that supports not only carpools, vanpools, and fee-paying solo drivers, but also the extensive network of Rapid transit services that is planned for full build-out with the Regional Plan. The Regional Plan includes funding for four new Managed Lanes on segments of I-5, I-15, and I-805, and funding for two new Managed Lanes on portions of SR 52, SR 54, SR 78, SR 94, and SR 125. By 2050, the region’s Managed Lane system will include about 160 miles. In addition to Managed Lane improvements, the Regional Plan includes direct Managed-Lane-to-Managed-Lane connectors where major facilities intersect.

The I-15 corridor is one of the region’s best examples for how to integrate transit and roadways into a flexible transportation system for an entire corridor. The 20-mile segment between SR 163 and SR 78 includes four Express lanes that feature a movable barrier (similar to the movable barriers on the San Diego-Coronado Bridge); dynamic pricing; multiple access points to regular highway lanes; and direct access ramps for buses, high occupancy vehicles, and toll-paying customers. Revenues from toll-paying customers are used to help fund public transit in the corridor. High-frequency Rapid transit vehicles operate in these lanes, enhancing connectivity to regional job centers for residents throughout the region.

During peak periods, *Rapid* transit vehicles using the I-805, I-5, SR 52, and SR 94 Express Lanes will carry commuters from their neighborhoods to where they work. Routes include South County to Kearny Mesa/University City/Sorrento Mesa on the I-805 corridor; East County to Kearny Mesa/University City/Sorrento Mesa on the SR 52 and I-805 corridors; East County to Downtown San Diego via the SR 94 corridor; and South County/Mid-City to Palomar Airport Road via the I-805 /I-5 corridors. South County *Rapid* routes also provide services to individuals who live in Baja California.

**Highway Improvements**

Highway improvements (including highway lanes, freeway connectors, and operational improvements) complement and complete the existing highway network. Planned improvements will increase the efficiency of the regional transportation system.

**Toll Roads**

State Route 11, a proposed two-mile toll highway, will connect the future Otay Mesa East Port of Entry (POE) with the rest of the region’s freeway system via SR 905 and the...
South Bay Expressway. The new POE will offer an alternative to the highly congested ports of entry at Otay Mesa and San Ysidro, benefitting the regional economy and the environment by reducing border-crossing wait times. Separately, new toll lanes are envisioned on the I-5 corridor north of SR 76 and on I-15 north of SR 78, if demand builds over time and the improvements can be financed with toll revenues.

**Applying the latest technologies to maximize mobility**

To make our transportation system as efficient and user-friendly as possible, the Regional Plan envisions a network of high-tech tools to help transportation managers keep the system running smoothly, and to help travelers make their trips faster, more efficient, and trouble-free.

Intelligent Transportation Systems (ITS) is the term that describes a whole variety of technology applications to different modes of travel. We’ve all seen those electronic alerts on the freeway that give us a heads up on road construction, or warn us of an accident up ahead. And many of us have used FasTrak transponders to zip onto Express Lanes, toll roads, and bridges. Those are basic examples of how technology can be leveraged to keep us moving efficiently and safely. Technology also can be leveraged inside cars, on local roads, at intersections, with public transit, and throughout bicycle and pedestrian networks. Technology, applied intelligently, is most powerful when it gives each of us the ability to choose the best mode of travel for a given circumstance.30
Technology embedded into the transportation system will grow even more useful when it’s linked to our smart phones, tablets, and other hand-held computing devices. There’s no reason why our regional transportation system can’t leverage the power that mobile applications, or apps, and other smart phone features give us – and they will.

The benefits of these technologies go beyond speeding up the commute. Better informed travelers and more efficiently run roadways and transit systems can lead to lower demands on the overall transportation system. People have the information to make smarter choices about when and where to hit the road, and to drive alone less often. Better access to real-time information also can encourage people to use public transit more, or choose to bike or walk instead of driving.

Our region already uses, is developing, or plans to develop several emerging technologies to make the transportation system more efficient. Here are several examples:

- **Vehicle Technologies:** It’s the kind of stuff you see now in movies and sci-fi television shows – cars and other vehicles that drive themselves and are connected to one another and the larger environment through which they’re traveling. But those kinds of technologies aren’t fiction. They’re coming. Autonomous or automated vehicles are evolving from today’s driver-assist vehicles to vehicles that will be able to operate independently, and use sensors.

  By 2025, driverless cars are expected to begin replacing conventional cars. Autonomous vehicle technologies will transform public transit as well, increasing efficiency and accessibility while reducing congestion.
to survey their surroundings and respond to changing conditions. Vehicles that communicate wirelessly with one another will work cooperatively to increase the capacity of highway lanes, use fuel more efficiently, and increase safety. By 2025, driverless cars are expected to begin replacing conventional cars. Autonomous vehicle technologies will transform public transit as well, increasing efficiency and accessibility while reducing congestion.

- **MultiModal Management:** Our region’s network of freeways, arterials, roads, transit systems, bike paths, and sidewalks must be managed as a unified transportation system so that all modes of travel work together most efficiently. Doing this requires implementing Integrated Corridor Management (ICM). An important step toward making this happen is expanding the Regional Communications Network, a high-speed, inter-governmental data network that supports the San Diego region by defining, designing, and deploying specific projects that make the entire system work more effectively. The Regional Communications Network also improves mobility by allowing system managers to assess real-time travel conditions and then provide travelers with options. Expanding the Regional Communications Network would result in:

  - The deployment of a Dedicated Short-Range Communications (DSRC) system to support future Vehicle Infrastructure Integration (VII);
• Enhanced data collection for regional arterials, bikeways, and pedestrian facilities in order to better monitor how the transportation system is performing; and
• An enhanced California Freeway Performance Measurement System, which collects data that can be used to improve both transit and road performance.

An emerging technology within Multimodal System Management is real-time computer modeling and simulations of multiple modes of travel. These applications are designed to simulate and evaluate traffic patterns, and then develop strategies for making the transportation system more efficient across jurisdictional boundaries – all within minutes. Equipped with this technology, system managers can better forecast traffic patterns and pursue operational changes to minimize delays and congestion.

• **Smart Parking:** Smart parking combines management strategies and technology to deliver advanced parking solutions for communities. Smart parking systems can inform people where, when, and how much parking is available in the vicinity of their destination – even before they take their trip. Smart parking systems collect, analyze, and report data to help determine, for example, how public parking lots are being used, and to provide people the facts they need to use available parking more efficiently. Information like this can help people decide when to leave, whether to travel by car or by transit, what public transit service to take, or what route to choose.

The practical application of management strategies and smart parking technology has many benefits. It can reduce unnecessary driving to find a parking space, saving time and gas while also reducing greenhouse gas emissions and traffic congestion; provide travelers with improved information, as real-time parking information will supplement transit alerts like departure and arrival times; and improve the management and financial health of parking lots and garages.

• **Universal Transportation Account:** A unified or universal transportation account combines all forms of public transportation payments, including transit fares, municipal parking, and toll collection into a single user-friendly system. By offering rewards based on frequent use, toll discounts and other incentives, the system can lead to a shift from driving alone to using public transit. A universal transportation account can be at the heart of a well-connected city, where people constantly receive information from the transportation network and are provided with the best options for their trips – based on their priorities, including cost, convenience, speed, and environmental impact.
Other emerging technology trends and programs

Other emerging technologies and programs that could have an impact on transportation demand, systems management, travel choices, and system accessibility include:

- Traveler Information Program
- Arterial Management
- Freeway Management
- Transit Management System
- Advanced Transportation Technology Program
- Transit Infrastructure Electrification/Regional Charger Program
- Active Traffic and Demand Management

Transportation Demand Management

Managing demands on the existing transportation system is an important strategy for making the overall system more efficient.

The Regional Plan makes investments in emerging TDM innovations that are gaining traction across the globe. They are envisioned as key components of the Regional Plan. These TDM innovations have the potential to help transform the way that we travel within and between our communities. One of the new investment areas is “mobility hubs,” or transportation centers focused around particular geographic locations and designed to give people more options for getting around. The other is “shared mobility services,” which give people alternatives to owning a car, such as shared, temporary, and convenient transportation options when they need them. These two innovations, mobility hubs and shared mobility services, can transform our transportation behaviors and patterns. Let’s take a closer look at them:

- **Mobility Hubs:** What exactly are mobility hubs? They’re places of connectivity, where different modes of transportation — walking, biking, ridesharing, and transit — come together seamlessly to connect people to their jobs, school, shopping, errands, recreation, and back home. Smart growth areas are excellent places to build mobility hubs, because of their mixture of land uses and transit amenities.

  Access to transit is a key ingredient of a mobility hub. We all recognize that getting to and from transit stations can sometimes be challenging, and those first and last steps often end up being deterrents to using public transit. Mobility hubs can solve that problem. They promote options like carsharing, bikesharing, and neighborhood electric vehicles — for short trips within the neighborhood or to connect to the transit station for longer trips outside the area.
Meanwhile, mobility hubs include several features onsite that make using public transit easier. These include bicycle and pedestrian improvements, signs or apps that help people find their way (akin to “You Are Here” maps at shopping malls), urban design enhancements, real-time traveler information, parking spots for motorcycles, and a universal payment system. Figure 2.15 provides an example of what elements could be included in a mobility hub.

A near-term action of the Regional Plan is to develop a “Regional Mobility Hub Strategy” to further define the mobility hub concept for the San Diego region and to identify opportunities for pilot projects (See Chapter 5).

Mobility hubs will play a big role in the lives of many people. By 2050, 87 percent of the region’s new housing and 79 percent of new jobs will be situated within a half-mile of public transit – making mobility hubs increasingly useful and accessible to travelers.

- **Shared Mobility Services:** The Regional Plan promotes shared mobility, which reduces the need to own and drive a private automobile by offering people on-demand access to convenient and affordable transportation options for any type of trip, whether or not these are in mobility hub areas. These options include carsharing, bikesharing, real-time ridesharing, transportation network...
companies (e.g., Uber, Lyft, Sidecar), neighborhood electric vehicles, scootershare, and shuttle or jitney services. Shared mobility services – like traditional forms of public transit, carpooling, vanpooling, biking and walking – give people convenient alternatives to driving alone. Shared mobility can even provide people with options for running an errand or going to an off-site meeting in the middle of the workday.

The idea of shared mobility is becoming more popular in our region. Carsharing and bikesharing have experienced unprecedented growth. As of 2014, more than 33,000 people had access to more than 400 carshare vehicles regionwide. Early research shows that people who carshare drive less and use public transit more because shared mobility options complement public transit. As a result, opportunities to pair up shared mobility and mobility hubs provide great potential to influence our transportation choices and patterns.

While the section above focuses on innovative strategies to manage the demands on our transportation system, it’s important to remember that many of our existing TDM programs have been very effective for years. They are expected to continue to make valuable contributions to the efficiency of the transportation system. These more traditional TDM strategies include the regional vanpool program, employer services and outreach, and commuter services and bike programs.

Source: Mike Di Edoardo
Addressing Parking Needs

When it comes to planning for a more efficient transportation system, parking is a big focus. Many of us are often concerned about the location, price, supply, and convenience of parking, as well as the impact it has on travel choices and even the affordability of housing, among other issues. There are growing concerns about how parking impacts the transportation system, land use, and the design of our communities.

Over the years, SANDAG studies have shown that managing parking effectively can help communities achieve their goals for smart growth, mobility, and a healthier environment. We’ve also learned that proactive parking programs can support thriving commercial districts, affordable housing development, and increased choices for travelers. While many parking studies have been prepared, the need for a practical set of parking management strategies – a parking toolbox to help city governments cope with parking issues – was identified in the 2050 RTP/SCS.

SANDAG, in collaboration with local jurisdictions, businesses, and other community organizations, developed the Regional Parking Management Toolbox as part of the Regional Plan. The toolbox is one of many planning and financing tools that support smart growth and sustainable development. In short, it is an interactive, web-based resource for local jurisdictions to identify parking-related challenges, such as long-term parkers using on-street spaces, spillover into neighborhoods, or parking issues faced by small businesses, and apply solutions that fit local communities, such as...
as comprehensive curb lane management policies, valet zones, or the use of transitional parking spaces. As we move toward smarter growth and implementing mobility hubs and shared mobility services, the parking toolbox can help communities apply approaches that meet their specific needs.

**Promoting Sustainable Mobility: Building Infrastructure for More Environmentally-Friendly Vehicles**

Reducing the number of miles that people travel in their cars is an important goal for our Regional Plan. Transitioning to more fuel efficient vehicles and alternative, low-carbon fuels are key steps toward a more sustainable San Diego region.

Fuel efficiency improvements and alternatives also comprise a major part of the state of California’s plan for reducing greenhouse gas emissions from the transportation sector.

This transition will be implemented primarily through the state’s Low Carbon Fuel Standard (LCFS) and Advanced Clean Cars Program. The LCFS calls for a reduction of at least 10 percent in the carbon intensity of California’s transportation fuels by 2020. The Advanced Clean Cars Program is designed to boost vehicle efficiency by combining greenhouse gas emission standards and other air pollution requirements into a single package of standards. Under the program, 1.5 million zero-emission vehicles (ZEVs) will be operating in California by 2025, and 15 percent of new car sales will be ZEVs by then. For the state to meet its clean vehicle goals, new fueling infrastructure is needed statewide to power ZEVs and alternative fuel vehicles.

1.5 million zero-emission vehicles will be operating in California by 2025.
California also is working to reduce greenhouse gas emissions from transportation statewide by promoting the use of alternative fuels (including propane, natural gas, biodiesel, and ethanol). In our region, efforts are underway to promote the use of zero-emission vehicles and alternative fuels, and to ensure that we have the infrastructure to support them.

Since 2012, SANDAG has provided a forum for local governments and other regional stakeholders to discuss how to lower barriers to increasing the number of alternative fuel vehicles, and how to take steps toward building the needed fueling stations. In 2014, SANDAG completed a regional readiness plan for plug-in electric vehicles and charging stations, as shown in Appendix U.12. By 2016, an expanded plan that also addresses readiness for all alternative fuels will be completed.

As of 2015, our region is home to more than 10,000 plug-in electric vehicles and more than 500 public charging stations, including more than 20 DC Fast Chargers, a type of electric vehicle charging station, along key corridors. Moving forward, the readiness plan for plug-in electric vehicles identified barriers that the region still needs to address. These include the need for a better installation process for chargers at multi-unit dwellings, at the workplace, and at other commercial sites. Also needed is a more streamlined permitting process, as well as the integration of plug-in electric vehicle infrastructure into building codes. The Regional Plan provides us with an opportunity to continue to be leaders in this area, and to address these barriers to progress toward wider use of zero-emission vehicles.

Our region is home to more than 10,000 plug-in electric vehicles and more than 500 public charging stations.
Separating Key Rail Crossings and Busy Streets from One Another

The transportation system is not just a collection of disconnected modes of travel. At its best, a transportation system integrates all modes of travel into a unified whole, so that people and goods can travel efficiently and safely. Rail-grade separations offer a good example of how our transportation system can work together. When tracks are separated from streets, cars, trucks, bicyclists, pedestrians, and the goods shipped by rail can get to where they’re headed without coping with conflicts built in to the system. Rail-grade separations are expensive, and their construction must be prioritized. However, over the years we’ve added them in key locations throughout the region. The Regional Plan identifies several additional places where rail-grade separations will help the transportation system function more smoothly and safely. By 2050, nine rail-grade separations are proposed along the LOSSAN and SPRINTER corridors. On the Orange and Blue Line Trolley lines, 11 rail-grade improvements are planned by 2050.
Connecting the Region and CrossingBorders

The San Diego region, with the greater Los Angeles area to the north, the international border region of Baja California to the south, and agricultural industries to the east, sits between major centers of production, trade, and population. We depend on an integrated transportation network to effectively move people and goods within our region, in and out of our region, and through our region to the rest of the nation and around the world. In our region, I-5, I-15, and SR 125 are major north-south corridors, while I-8 is the key east-west corridor for domestic cargo and international trade.

Our regional transportation system also is impacted by interregional commuting patterns between San Diego County and Imperial, Orange, and Riverside counties.

Three international land ports of entry operate between San Diego County and Baja California, while a fourth is planned at Otay Mesa East. Additionally, a crossborder airport terminal connecting San Diego to the Tijuana International Airport is under construction. Another three land ports of entry connect Imperial County to Baja California. All of these accommodate millions of crossings every year, including pedestrians, bicyclists, personal vehicles, and buses as well as trucks and trains carrying cargo.

The San Ysidro POE is one of the busiest border crossings in the world, with an estimated 59 million bidirectional crossings in 2014. The port primarily processes
pedestrians and passenger vehicles, but it also handles trade on a small-scale through its intermodal rail cargo facility.

The Otay Mesa POE is the busiest commercial crossing in California, and it processes the third highest dollar-amount value of U.S.-Mexico trade on the entire border. In 2014, an estimated 1.6 million trucks carrying nearly $38.8 billion in trade crossed through the port. Congestion at this POE causes major delays in crossborder goods movement. The future port at Otay Mesa East is expected to ease congestion in Otay Mesa.

The smallest POE in San Diego County is Tecate. Tecate is a multimodal facility for freight rail, commercial vehicles, personal vehicles, buses, and pedestrians. Projects to modernize the crossborder rail line are being planned. These projects would increase the market potential of this route for the international and interstate shipment of goods.

The Managed Lanes along the I-5, I-805, and I-15 corridors increase the capacity of these highways so they can meet the demands of interregional travel. The improvements at the San Ysidro POE and the additional Cross Border Facility connecting with the Tijuana International Airport aim to consistently reduce wait times in the near future. The new port at Otay Mesa East is intended to cut delays for both individual international crossings and trade. Reductions in wait times reduce the amount of time vehicles spend idling and therefore greenhouse gas emissions.

**Transporting goods more efficiently**

The shipping of goods fuels the regional economy. It’s made possible by an extremely complex network of public and private assets and operations, and as a result it’s often the least understood part of the regional transportation system. The flow of goods by truck, rail, air, and sea – throughout our region and across borders – generates a constant stream of raw materials, parts, and finished goods. They all keep us supplied with food, clothing, shelter, vital consumer goods, and discretionary items.

The region’s transportation network for shipping goods, also referred to as the “goods movement” network, encompasses the transport of air cargo at airports, the shipping of goods in trucks and rail cars at border crossings, maritime operations, and the flow of energy along pipelines and at terminals, as well as rail yards and mainlines. All of these elements of the goods movement network are served by trucks that use local and regional roadways.

Vital infrastructure serving the movement of goods includes: roadways (local, state, and Interstate routes); Class I and short line track and yards (nearly all rail tracks are shared with public passenger trains); the maritime Port of San Diego (two terminals at Tenth Avenue and in National City); San Diego International Airport’s Cargo terminal, as well as smaller air cargo operations; several privately held pipeline...
networks and associated energy terminals; and finally border crossings by rail at San Ysidro, and by trucks at Otay Mesa and Tecate.

SANDAG’s Draft 2014 Updated Freight Gateway Study reviews our goods movement system in detail. But the Regional Plan focuses on a few key points. Among them: goods movement contributes to the regional economy; the planning of goods movement is driven by sophisticated logistical practices that involve lean delivery approaches; there are both inherent conflicts and synergies between personal travel and the movement of goods (e.g., they often share the same assets at the same time, and operations have to be planned carefully); and finally, the movement of goods has to be planned and managed so operations are sustainable. Whenever and wherever possible, our Regional Plan strives to balance the need for mobility and speed, the capacity for growth, economic competitiveness goals, and the importance of clean air and healthy communities.

The majority of potential goods movement-related infrastructure projects outlined in our Regional Plan appears in the list of “unconstrained” goods movement projects. There are far more projects in the unconstrained list than in the “preferred” or “revenue-constrained” list. This is because only self-financed projects and/or roadway and railway projects with dual passenger and freight benefits will be found in the preferred scenario. Investments in goods movement infrastructure are only beginning to be thought of as appropriate for public financing. As a result, there is no long-term funding category in our overall transportation investment plan that is solely focused on goods movement projects.
Even so, SANDAG works extensively with state and federal policy makers to help shape a publicly funded freight investment program. To date, SANDAG has financed all of the region’s freight projects through grants, dedicated border funds, one-time bond bills, and other innovative financing strategies. A long list of unfunded projects to enhance the movement of goods regionally can be found in Appendix A. This list is a testament to a great unmet need. The Unconstrained Goods Movement Network Map is shown in Figure 2.16.

**Quick and easy access to regional airports**

Headache-free air travel is elusive for millions of Americans around the country. One of the goals of our Regional Plan is to make access to air travel as easy as possible. First, a few stats on how much we rely on air travel in our region:

- In 2013, more than 17 million air passengers used the San Diego International Airport (SDIA). McClellan-Palomar Airport also serves commercial travel. These airports are part of the San Diego County Airport System of 12 public-use airports in San Diego County, in addition to Tijuana International Airport. The system accommodates commercial, general aviation, and corporate services (Figure 2.8). Airports that serve only general aviation and corporate operations are Brown Field Municipal, Gillespie Field, Montgomery Field, and Ramona. The remaining airports accommodate general aviation only. Many people choose to use other airports in the region, including in Mexico because of the varied air services they offer.
Figure 2.16
Unconstrained Goods Movement Strategy
April 2015

Key Project Locations
Air Cargo
1. San Diego International Airport Access Improvements
2. Southbound Truck Route Improvements
3. SR 11/Future Otay Mesa East Border Truck Crossing
4. SR 125

Maritime
5. Port Terminal and Access Improvements Harbor Drive

Rail
6. LOSSAN/SPRINTER Burlington Northern Santa Fe Railroad (BNSF)
7. Baja California Railroad, Inc. (BJRR) in Mexico/Desert Line in USA

Freeway/Highway
8. I-5
9. I-15
10. I-805
11. SR 94/125, I-8
12. SR 52/54/56/94
13. SR 78

Commercial/Industrial Land Use
2012 San Diego Data and 2013 Baja California Data

Freight Rail
1. Burlington Northern Santa Fe Railway (BNSF) shared with COASTER/SPRINTER
2. San Diego and Imperial Valley Railroad (SDIY) shared with MTS Trolley

Baja California Railroad, Inc. (BJRR) in Mexico/Desert Line in USA

Air Cargo
Port of San Diego
Land Port of Entry
San Ysidro Rail Port of Entry

Otay Mesa Truck Port of Entry

Tecate Truck Port of Entry

Otay Mesa East Future Truck Port of Entry

Logistics Center/Yard (Concept) not location-specific

Potential Truck Rest Stops

San Diego Region Map Area
San Diego, CA

Miles
0 5 10

Kilometers
0 5 10

SANDAG

San Diego Forward: The Regional Plan
Of all the San Diego County passengers who connect at Los Angeles International Airport (LAX) annually, 41 percent originate their travel at San Diego International Airport, and about 54 percent connect at LAX using ground transportation (e.g., train, car, and bus). About 5 percent of the passengers connecting at LAX begin their trips at McClellan-Palomar, which currently offers only commercial service to LAX.

Previous studies have documented demand for air travel across our international border. A large share of San Diego County individuals who traveled to Mexico destinations flew from Tijuana International after crossing the international border.

In 2010, about 126,000 tons of air cargo were shipped from or to the San Diego region. About 90 percent of the cargo handled at San Diego International Airport was accommodated on integrated/express carriers that originated from or were destined for Downtown San Diego.

Senate Bill 10 (Kehoe, 2007), passed into law in 2007, required SANDAG and the San Diego County Regional Airport Authority (Airport Authority) to coordinate planning for the multiple modes of transportation that serve the airport. The legislation required the development of two plans: a Regional Aviation Strategic Plan (RASP) and an Airport Multimodal Accessibility Plan (AMAP). The Airport Authority was the lead agency for the RASP, which analyzes scenarios to improve the performance of the regional airport system. SANDAG was the lead agency for the AMAP, which details a multimodal strategy to improve airport access for cars, transit, shuttles, trucks, and other surface transportation. The overarching goal of both these plans is to maximize the efficiency and effectiveness of existing and planned aviation facilities.

San Diego International Airport

In 2009, SANDAG, the Airport Authority, and the City of San Diego completed Destination Lindbergh, which detailed a planning strategy for the ultimate build-out of San Diego International Airport at its present location. The document evaluated improved intermodal access to the airport, and determined actions that could reduce traffic on surrounding arterial streets. Also envisioned was a consolidated rental car center on the north side of the airport (currently in construction), and the development of an Airport Intermodal Transit Center (ITC) along the existing rail corridor to provide direct connections to Amtrak, COASTER, Trolley, bus services, and the southern terminus for the proposed high-speed train service. Also planned were direct connector ramps from I-5 to Pacific Highway that would improve access to and from the airport.

The Airport Authority has completed its expansion of Terminal 2, known as The Green Build, which opened in August 2014. This improvements will accommodate growth to 21 million passengers annually. The Airport Authority has begun a planning update called the Airport Development Plan, which will identify the next phase of improvements so San Diego International can meet demand through
2035. The Airport Development Plan will look at the entire airport, and generate a plan that considers the redevelopment of Terminal 1, as well as coordination with SANDAG on the Intermodal Transit Center and ground access plans.

Beyond 2035, San Diego International Airport likely will not have enough capacity to meet growing demand. This may result in the inability of the region as a whole to accommodate the demand for air travel, leading to potential service disruptions and higher air-fares. Several options, including high-speed trains, could help alleviate problems caused by exhausted capacity at San Diego International from 2035 through 2050.

**Cross Border Airport Facility**
A new, elevated pedestrian bridge for Tijuana International Airport passengers crossing the U.S.-Mexico border is scheduled to be completed in 2015. The “Cross Border Xpress” is the first such facility in the United States to directly connect to a foreign airport terminal. The Cross Border Xpress will be an option for about 2.4 million passengers who already cross the border as part of their travels, enabling them to avoid often unpredictable and long delays at the San Ysidro and Otay Mesa land ports of entry. Bridge users, who will pay a toll to cross, will be able to fly to China and more than 30 destinations within Mexico that Tijuana International Airport offers. Many of these Mexican destinations are not served by other Southern California airports. Direct express bus service that provides a one-seat ride from North County Inland to the cross border airport facility is proposed.
Our international border: Easier travel across and back
Since the U.S. Congress enacted the North American Free Trade Agreement, the international ports of entry in our region have experienced significant increases in the number of crossings, the levels of global trade, and security issues. All this has led to longer wait times for pedestrians and vehicles crossing the border into the United States, with substantial negative impacts on the economies and health of our border communities. In recent years, the federal governments of the United States and Mexico have taken steps to improve this situation. They include expanding the hours of operation, improving and modernizing border infrastructure, and using innovative technology to implement programs that reduce security threats and increase operational efficiencies at the region’s ports of entry.

Currently, a variety of “trusted traveler” programs are used by people crossing at our region’s ports of entry, including the Secure Electronic Network for Traveler’s Rapid Inspection (SENTRI) and Global Entry, which provide expedited inspection processing for pre-approved, low-risk travelers. The Fast and Secure Trade (FAST) program facilitates trade and the movement of goods across the border via dedicated inspection lanes.

In 2014, agencies and stakeholders from both sides of the border prepared an update to the California – Baja California Border Master Plan. The intent of this plan is to coordinate the planning and delivery of projects at land ports of entry and the transportation infrastructure serving the border crossings. The Border Master Plan was prepared for the U.S.-Mexico Joint Working Committee and led by Caltrans and the Secretariat of Infrastructure and Urban Development of Baja California. The Master Plan created a list of prioritized projects to guide implementation.

As traditional resources for transportation and land ports of entry are diminishing, SANDAG and Caltrans, along with a number of local, state, and federal agencies in the United States and Mexico, are developing innovative tools to self-finance a proposed new border crossing at Otay Mesa East in the San Diego-Baja California region.40

Improving Air Quality & Doing Our Part to Combat Climate Change
Air quality in the San Diego region has improved significantly over the past four decades. In 2013, San Diego County’s air quality was the best it has been since the early 1970s.41

One measure of air quality is the Air Quality Index (AQI), which reports daily air quality. It tells us how clean or polluted the air is and if there are associated health effects that might be of concern. For the San Diego region, the AQI is calculated for two major pollutants regulated by the Clean Air Act: ground-level ozone and particle pollution (also known as particulate matter). For both of these pollutants, the U.S. Environmental Protection Agency has established national air quality standards to protect public health.
An AQI value of 100 generally corresponds to the national air quality standard for the pollutant and is generally thought of as satisfactory. When AQI values are above 100, air quality is considered unhealthy – first for sensitive groups such as children, seniors, and those with heart or lung disease, and then for everyone as AQI values rise. As seen in Figure 2.17, the number of days with AQI values of more than 100 has dropped significantly, with the lowest levels seen in 2013.42

Ground-level ozone, which most people refer to as smog, also has decreased across our region. The number of days exceeding the federal 2008 standard for ozone levels over an eight-hour period has fallen dramatically, from a high of 179 days in
1981 to 12 days in 2014 as shown in Figure 2.18. Transportation investments detailed in this Regional Plan, coupled with improvements in fuel and vehicle technologies, will continue to help improve air quality throughout our region. Appendix B: Air Quality Planning and Transportation Conformity includes the air quality analysis for the Regional Plan, including how the Regional Plan conforms to applicable Clean Air Act requirements.

**Figure 2.18**

**Days Exceeding the 2008 Eight-Hour Ozone Standard**

Using our land and building a transportation system in ways that lead to reduced greenhouse gas emissions

As we’ve discussed, the Legislature has mandated reductions across the state in greenhouse gas emissions. It’s also calling upon regional governments to coordinate efforts that make the state more adaptable and resilient to the effects of climate change. Here in the San Diego region, that means supporting a strong economy, improving public health, providing more sustainable transportation and energy choices, protecting infrastructure, conserving open space and natural habitats, and striving for equal opportunities for everyone.

Across the San Diego region, SANDAG is working collaboratively with regional public agencies and local governments to reduce the production of greenhouse gases that contribute to climate change, as well as to prepare for the potential impacts of a changing climate in the region.

Land use decisions made at the local level can impact nearly all sources of emissions, – for better and for worse. Development guided by smart growth principles – remember: more compact communities, less suburban sprawl – brings people closer to more destinations. It also encourages alternative travel choices, such as public transit, carpooling, walking and biking, which cut greenhouse gas emissions and other forms of pollution. Mixed use, compact developments also use less water, electricity, heating, and cooling per capita. Beyond this, smart growth promotes the
preservation of agricultural land, open space, and natural habitats; improved water quality regionally because more compact developments cover less land than suburban housing tracts; less air pollution; and healthier lifestyles.

To better track the sources of greenhouse gas emissions in the region, SANDAG periodically completes an inventory of sources. This inventory identifies and then quantifies our region’s sources of emissions, which allows planners to monitor those sources over time. In 2012, regionwide emissions totaled 35 million metric tons of carbon dioxide equivalents (MMTCO₂e), which is a measure of all greenhouse gases – including CO₂ and others such as methane and nitrous oxide. The total amount in 2012 – 35 million metric tons – was an 18.7 percent increase over 1990 emissions levels, which measured 29.5 metric tons (see Appendix D: 2012 Greenhouse Gas Inventory for San Diego County and Projections). As you can see from Figure 2.19, transportation is the largest source of greenhouse gas emissions in the region, followed by electricity and natural gas.

Figure 2.19

Source: Energy Policy Initiatives Center (EPIC)
Our region’s 18 cities and the County of San Diego all have inventoried greenhouse gas emissions from government operations and from their communities as a whole. More than half of these jurisdictions, representing more than 75 percent of the region’s population, also have adopted or are in the process of developing a climate action plan (CAP). This type of plan includes an inventory and forecast of greenhouse gas emissions. It also identifies measures to lower emissions toward a specific target.

In addition to designing this Regional Plan to achieve SB 375’s greenhouse gas reduction targets for light duty vehicles, SANDAG also supports local efforts to reduce the greenhouse gas emissions that contribute to climate change. In 2010, SANDAG prepared a Climate Action Strategy, which provides tools for local agencies as well as SANDAG itself to consider as plans and projects are prepared. SANDAG also offers local agencies resources and incentives for smart growth, and it supports efforts to save energy. Through our Energy Roadmap Program, SANDAG has developed energy management plans, or “Roadmaps,” for local governments that identify opportunities to save energy in their own operations and in their larger communities. All 18 cities and the County have completed their own Roadmaps, and SANDAG is now focused on supporting them as they implement recommendations within their Roadmaps. The Energy Roadmap Program is made possible through a Local Government Partnership with San Diego Gas & Electric.45

Through the Energy Roadmap Program, we’ve also partnered with the San Diego Regional Clean Cities Coalition to assess the fleets of the region’s local governments. We’ve reviewed options available to them for converting to alternative fuel vehicles, and detailed the costs, savings, and environmental impacts of making the switch. These fleet assessments complement our broader efforts to reduce emissions through the use of ZEV and alternative fuels.

Despite local efforts to reduce greenhouse gas emissions, the San Diego region will experience the consequences of ongoing global climate change.46 As we’ve mentioned, sea levels along our coastline are already rising. The potential impacts for our region, identified in the SANDAG Climate Action Strategy (2010), are summarized in Figure 2.20. These impacts include higher surf and storm surges as a consequence of rising seas that will be seen statewide – and these will erode beaches, degrade bluffs, and damage coastal infrastructure. Other projected impacts, some of which we mentioned at the beginning of this chapter, include less fresh water, an increase in the frequency and intensity of wildfires, the loss of native plant and animal species, and severe weather events. All these are expected to threaten public health and the regional economy.
Preparing the region for the inevitable consequences of our changing climate requires steps to adapt to these consequences and create more resilient communities. These words, “adaptation” and “resiliency” aren’t chosen randomly. They represent important ways in which we can cope with coming changes – despite our best efforts regionally, nationally, and globally to reduce greenhouse gas emissions. Adapting to climate change means adjusting how we build, where we build, how we store and distribute water, and myriad other things in the face of ongoing change. Making our region more resilient to the consequences of climate change means increasing the capacity of our communities, economy, and environment to cope with hazardous events such as storms, heat waves, wildfires, and ongoing drought. State officials in Sacramento have developed policy guidance for local and regional decision makers, planning resources for local and regional governments, and technical tools to assist governments at every level to help their constituents adapt to climate change and become more resilient.

SANDAG considers the potential impacts of climate change on transportation projects by designing infrastructure to withstand impacts such as sea level rise, extreme heat, and intense rain events. Also, through our TransNet EMP, SANDAG studies how to help natural habitats become more resilient to climate changes.
addition, SANDAG also promotes collaboration to build and maintain beaches, which are threatened by rising sea levels.

**Selecting the transportation network in our regional plan and measuring its effects**

Constructing and managing a transportation network that will work best for our region into the future – and that we can afford – is no small challenge. But our Regional Plan has been guided by the three Board-adopted goals of Innovative Mobility and Planning, a Vibrant Economy, and a Healthy Environment and Communities. To predict the success of the network included in the Regional Plan, we subjected it to ten key questions that were designed to gauge the performance of the chosen network (Figure 2.21). Appendix N: Evaluating the Performance of the Transportation Network includes detailed performance results at the regional, subregional, and corridor level, and the methodology SANDAG used for estimating the performance measures.47 The SANDAG travel demand model used for this analysis is documented in Appendix T: SANDAG Travel Demand Model Documentation.

### Figure 2.21

**Performance Measures**

<table>
<thead>
<tr>
<th>Goal</th>
<th>Key Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibrant Economy</td>
<td>1. Do the transportation system investments help to improve the regional economy?</td>
</tr>
<tr>
<td></td>
<td>2. Are the relative costs of transportation changing similarly for all communities?</td>
</tr>
<tr>
<td></td>
<td>3. Are connections to neighboring counties, Mexico, tribal lands and military facilities improved?</td>
</tr>
<tr>
<td>Innovative Mobility and Planning</td>
<td>4. Are travel times reduced?</td>
</tr>
<tr>
<td></td>
<td>5. Are more people walking, biking, using transit, and sharing rides?</td>
</tr>
<tr>
<td></td>
<td>6. Is the transportation system safer?</td>
</tr>
<tr>
<td>Healthy Environment and Communities</td>
<td>7. Does the transportation network support smart growth?</td>
</tr>
<tr>
<td></td>
<td>8. Is access to jobs and key destinations improving for all communities?</td>
</tr>
<tr>
<td></td>
<td>9. Is the region’s air quality improving?</td>
</tr>
<tr>
<td></td>
<td>10. Are greenhouse gas emissions reduced?</td>
</tr>
</tbody>
</table>
The transportation investments in the Regional Plan provide benefits that outweigh their costs by a ratio of nearly two-to-one. With implementation of our Regional Plan, the percentage regionwide of people and jobs near high-frequency transit will increase substantially. In 2012, 35 percent of the region’s population lived near high-frequency transit stops. With the significant transit investments and the implementation of the land uses outlined in the Regional Plan, that figure will increase to 61 percent by 2050. Similarly, the percentage of jobs located within half a mile of high-frequency transit will increase from 42 percent in 2012 to 71 percent in 2050.

Meanwhile, investments in infrastructure for bicycling and walking, combined with implementing smart growth principles, will result in an increase in the percentage of people and workplaces near bike routes. These transportation options will result in more people exercising and fewer people choosing to drive alone.

The Regional Plan’s transportation investments, coupled with expected improvements in fuel and vehicle technologies, will help to reduce on-road, smog-forming pollutants and greenhouse gas emissions below 2012 levels. Over the life of the Regional Plan, more than 2.8 million fewer tons of greenhouse gases will be emitted, compared to a scenario in which no improvements are made (also known as the “no-build” scenario).
The transportation choices provided in the Regional Plan yield region-wide benefits, but these benefits are often more pronounced in the corridors where the transportation investments occur. Significant investments are being made in public transit, helping to improve transit access to a number of the region’s major job centers. With an increase in efficient transit options, more people will be using transit to access jobs in University City, with 9 percent of peak-period work trips being made via transit in 2050 – three times 2012 levels of 3 percent. Similar increases are expected to be seen in the Kearny Mesa and Sorrento Mesa job centers. More people will also be taking transit to jobs in Downtown San Diego – with nearly one in five people taking transit to work in 2050.

In terms of the use of the future transit system, daily regional transit boardings will double from 366,000 in 2012 to 787,000 in 2035, with a further increase to 971,000 in 2050. In terms of annual transit boardings, this translates to:

- 100.5 million annual boardings in 2012
- 251.8 million projected annual boardings in 2035
- 310.7 million projected annual boardings in 2050

The transportation investments made in our Regional Plan will provide residents, workers, and visitors with more transportation choices, while helping to preserve the environment and support regional economic growth.

**Measuring greenhouse gas emissions reductions**

So, how does the transportation network we’ve described in this chapter measure up? Will it help achieve the state-mandated targets for reducing greenhouse gas emissions in our region?48

A Climate Change Scoping Plan (Scoping Plan) was prepared pursuant to AB 32 (The Global Warming Solutions Act of 2006) by ARB in 2008 and updated in 2014.49 The Scoping Plan identifies reduction targets for all sources of greenhouse gas emissions in the state. While the transportation sector is responsible for the greatest greenhouse gas reductions, nearly 30 percent of the total, most of those reductions will come from higher fuel efficiency vehicles (Pavley fuel efficiency standards) (18 percent), and a more diverse fuel mix (low carbon fuel standards) (9 percent). Statewide, metropolitan planning organizations, such as SANDAG, are responsible for less than 3 percent of the greenhouse gas reductions through the adoption of Regional Transportation Plans. Senate Bill 375 is the mechanism that establishes greenhouse gas emission reduction targets for each regional agency.

SANDAG’s SB 375 target is to reduce regional greenhouse gas emissions from cars and light trucks by 7 percent, per capita, by 2020, and by 13 percent by 2035, compared with a 2005 baseline.

The Regional Plan, encompassing both our RTP and our SCS, shows that our region will exceed these targets. How? By pursuing the strategies we’ve discussed here.
already: using land in ways that make developments more compact, conserving open space, and investing in a transportation system that provides people with alternatives to driving alone.

In short, our SCS will result in an 18 percent reduction in emissions by 2020, and a 24 percent reduction by 2035 – far more than what the state mandates require. Appendix C includes the technical methodology to estimate greenhouse gas emissions submitted to the ARB and the detailed greenhouse gas emission reductions calculations.

### Table 2.1

<table>
<thead>
<tr>
<th>SB 375 Greenhouse Gas Reduction Targets and Regional Plan Greenhouse Gas Emissions Reductions Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
</tr>
<tr>
<td>ARB Targets</td>
</tr>
<tr>
<td>Greenhouse Gas Emissions Reductions</td>
</tr>
</tbody>
</table>

Note: Average weekday per capita carbon dioxide reductions for cars and light trucks from 2005.
Source: ARB and SANDAG

**Potential State Funding to Meet our Greenhouse Gas Reduction Goals**

Transportation projects that result in lower greenhouse gas emissions go hand-in-hand with the drive toward smarter growth and a healthier environment. Recognizing this, the California Legislature has set aside funding to support projects that reduce emissions. The Legislature’s cap-and-trade initiative, which created a market to encourage businesses to lower their emissions of greenhouse gases that contribute to climate change, provides financial incentives for lowering emissions. As a result, the state can provide financial help for many of the transportation projects planned in our region. These include increasing transit to low-income communities, expanding transit systems, purchasing low-emission vehicles, encouraging transit-oriented development, and building high-speed rail. Cap-and-trade revenues are included in the financial plan (See Appendix O: Transportation Financial Background).

California’s Active Transportation Program, funded in part by federal tax dollars, supports projects that encourage walking and biking as an alternative to driving. In our region, the TransNet Ordinance and the state’s Transportation Development Act also set aside funds for bike and pedestrian projects. TransNet provides further funding for building and operating new transit projects.

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**Government Code § 65080(b)(2)(H)**

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.
Looking Past 2035 – Possible Pathways for Additional Greenhouse Gas Emissions Reductions from Transportation

Winston Churchill once said: “It is always wise to look ahead, but difficult to look further than you can see.”

Continuing the effort to reduce greenhouse gas emissions beyond the year 2035 will require carefully crafted and aggressive policies and strategies. The effort, obviously, must be a global one – far beyond the scope and control of just regional government bodies such as SANDAG. Even so, the San Diego region will continue working toward larger state goals beyond the 2035 horizon.

As our region looks ahead, it will be important to consider how we can reduce greenhouse gas emissions beyond the current SB 375 targets as they apply to cars and light-duty trucks. Progress could be made on several fronts, including:

- Expanding programs that enhance Transportation Demand Management (TDM) and Transportation System Management (TSM) – making the existing transportation system increasingly efficient.
- Extending the Low Carbon Fuel Standard (LCSF) beyond the current reduction horizon year of 2020.51
- Getting more zero emission vehicles on the road, beyond near-term statewide goals.52
- Increasing the availability of vehicle charging stations, in order to extend the electric range of plug-in hybrid electric vehicles.
- Providing supportive infrastructure for the operations of automated vehicles and other emerging technologies.

As described in Appendix D, both ARB and Caltrans are evaluating potential strategies to meet statewide climate goals with a focus on the transportation sector. In 2012, ARB released a Draft Vision for Clean Air: A Framework for Air Quality and Climate Planning, which examines strategies to meet California’s air quality and climate goals.53 As part of the development of the California Transportation Plan 2040 (CTP 2040), Caltrans also is using the ARB Vision framework to evaluate greenhouse gas emissions reductions from the transportation sector toward achieving California climate goals.54

The SANDAG Regional Plan focuses on reducing greenhouse gas emissions from cars and light-duty trucks, as required by SB 375. SANDAG reviewed the assumptions included in the ARB Vision scenarios and the draft CTP 2040 and developed a potential post 2035 scenario focused on carbon dioxide emissions reductions from cars and light-duty trucks for the San Diego region. This potential scenario uses state greenhouse gas emission reduction goals under both Executive Orders S-03-05 and B-16-12 as long-term reference points.55
Figure 2.22 illustrates the projected regional carbon dioxide (CO₂) emissions from cars and light-duty trucks before current ARB policy and with current ARB policy. Current ARB Policy includes the Advanced Clean Car Program (Pavley) and low carbon fuel standard (LCFS). In addition, as shown in Figure 2.22 in dashed lines, a combination of varying levels of zero emission vehicle penetration and VMT reductions could further decrease emissions by 2050. Achieving the additional emission reductions would require substantial changes in state and federal policies or regulations, which are beyond SANDAG’s ability to implement.

It’s worth noting that 2050 greenhouse gas emission projections are highly uncertain, and depend on assumptions regarding the growth of our regional population and economy, increasing the utilization of clean technologies, and major changes in markets for energy and transportation systems. To achieve the 2050 greenhouse gas emission reduction goals will require a concerted effort among federal, state, regional, and local agencies. California lawmakers, along with many local and regional governments within the state and beyond, are working to create innovative policies, plans, and programs to strive for a lower-carbon future. In the San Diego region, local governments, SANDAG, and other regional public agencies are working collaboratively with local non-profits, universities, and businesses to coordinate efforts with state, federal, and international initiatives.
SCS Public Involvement Activities

The public was deeply involved in the development of this Regional Plan’s SCS. 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 Regional Plan and its SCS. The Regional Plan Public Involvement Plan (PIP) established a process and outlined specific activities for communicating with the public and obtaining input from the public – throughout the Regional Plan’s development. The PIP, adopted on February 22, 2013, is based on the SANDAG Public Participation Plan, which was approved by the Board of Directors on December 21, 2012.

On March 27, 2015, SANDAG conducted an informational meeting on the SCS at its Board of Directors meeting. Pursuant to Government Code Section 65080(b)(2)(E), one informational meeting is required, if it is attended by the County Board of Supervisors and city councilmembers who represent a majority of the cities with a majority of the population in the incorporated areas of the 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 of these meetings also is included in Appendix F: Public Involvement Program.

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

Government Code § 65080(b)(2)(E)
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.
SANDAG’s efforts to involve the public in the development of the SCS have been tracked and recorded to chronicle the large number and wide range of activities organized and held by the agency. 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, as well as the PIP and the Public Participation Plan, are included in Appendix F.

Consultation with the local agency formation commission

SANDAG considered spheres of influence that have been adopted by the Local Agency Formation Commission (LAFCO) within our region during the development of the SCS. A sphere of influence is defined as a plan for the probable physical boundaries and service area of a local government agency, as determined by LAFCO. All territory proposed for annexation to an incorporated city is required to be included in the city’s sphere of influence and be located within the city’s general plan.

LAFCO is responsible in our region for assisting the state legislature with promoting orderly development and growth, while also fulfilling many regional priorities. These include: accommodating growth within or through the expansion of local agency boundaries, extending necessary government services, preserving open space and prime agricultural lands, and promoting the provision of housing for residents of all incomes.

Government Code
§ 65080(b)(2)(G)
In preparing a sustainable communities strategy, the metropolitan planning organization shall consider spheres of influence that have been adopted by the local agency formation commissions within its region.
LAFCO also is a member of the Regional Planning Technical Working Group, which provides coordination on regional planning issues among member agencies. Members of the working group include the planning or community development director from each of the 18 cities and the County of San Diego, as well as representatives from other single-purpose regional agencies.

In the development of the Regional Growth Forecast, LAFCO and SANDAG consulted regarding sphere of influence determinations – as well as on factors that would be considered in the review of proposals. The 18 incorporated cities and the County of San Diego were asked about sphere of influence issues during the Regional Growth Forecast land use input process. No requests for adjustments to spheres of influence were made.56

Up Next: Paying for the Regional Plan

Next, in Chapter 3: Financing Our Future, we’ll review how the transportation network described in this chapter will be paid for over the next 35 years. This is the “Financial Element” of the Regional Plan, as required by state law. Among the sections in Chapter 3 are:

- A discussion of where our transportation funds come from, and how we can invest them to build the network we can afford. We’ll also offer a brief analysis of our investment plan – that is, a general review of how much money will be invested on different aspects of the transportation network.
- A review of SANDAG’s accomplishments since 2011, when our last regional plan, “The 2050 San Diego Regional Transportation Plan: Our Region. Our Future.” was adopted. This section includes a discussion of how local, state, and federal funds have been invested to implement that plan.
- A reference to detailed information on the risks associated with relying on sources of funding for the new Regional Plan, and what SANDAG can do if anticipated revenues fall short.
Endnotes

1  EPA: http://www.epa.gov/climatechange/ghgemissions/sources/transportation.html
   ARB: First Update to Scoping Plan 2014, p 46.
2  http://www.arb.ca.gov/cc/sb375/sb375.htm
3  Additional detailed information on the SCS is included in Appendices C: Sustainable Communities
   Strategy Documentation and Related Information, I: Consultation with the Local Agency Formation
   Commission (LAFCO), J: Regional Growth Forecast, L: Regional Housing Needs Assessment Plan, and
   U.13: Housing – Providing Homes for all Residents. Appendix C includes a table documenting specific
   locations in San Diego Forward where each of SB 375’s SCS requirements are met.
4  See Appendix E: Transportation System and Demand Management Programs, and Emerging
   Technologies for a discussion of TDM and TSM strategies.
5  In this region, the Multiple Species Conservation Program and Multiple Habitat Conservation Program
   implement the Natural Communities Conservation Plan from the state and federal government, which
   implements the California State Wildlife Action Plan.
6  Appendix U.10: Management Strategic Plan for Conserved Lands in Western San Diego County.
7  This provision does not vest SANDAG with any authority to mandate changes to existing city and
   county general plans, but does allow the SCS to take into account reasonably expected changes in
   existing general plans and other city and county land use regulations. In addition, because the SCS
   planning process is collaborative in nature, the process may be used to assist local jurisdictions to
   identify potential further changes that would promote the goals of sustainability and reduction of
   greenhouse gas emissions.
8  Appendix J: Regional Growth Forecast includes the Series 13 Regional Growth Forecast and
   Appendix L: Regional Housing Needs Assessment Plan includes the Regional Housing Needs
   Assessment (RHNA) for the San Diego Region.
9  Appendix U.3: SANDAG Board of Directors Report San Diego Forward: The Regional Plan Alternative
   Land Use Scenarios
10  Appendix J: Regional Growth Forecast
11  Open Space and Parks include Beach-Passive (other sandy areas along the coastline with limited
    parking and access), Open Space Park or Preserve, and Undevelopable Natural Area. Farmland
    includes Williamson Act Lands. Habitat includes SANDAG Conserved Lands.
12  Based on the best practically available scientific information regarding resource areas and farmland in
    the region as additionally shown in Appendix C and used to prepare the Regional Growth Forecast
    described in Appendix J.
13  Appendix U.4: SANDAG Transit Oriented Development Strategy
14  Appendix U.2: Regional Complete Streets Policy
15  The Regional Growth Forecast reflects land use changes made by local jurisdictions since the adoption
    of the 2050 RTP/SCS, RHNA, and Series 12 Regional Growth Forecast. These changes include updates
    made as a result of housing elements prepared by the local jurisdictions for the fifth housing element
    cycle.
16  Further information about how SANDAG considered and meets the state housing goals and the Series
    13 Regional Growth Forecast are included in Appendix L and Appendix U.13: Housing - Providing
    Homes for all Residents
17  Updated housing information is included in Appendix U.13: Housing – Providing Homes for all
    Residents.
Appendix R: Transportation Security and Safety

21 The Healthy Communities Atlas can be found in Appendix U.11: Healthy Communities Atlas, San Diego Region.

Appendix U.17: Urban Area Transit Strategy

23 Appendix U.16: Riding to 2050: The San Diego Regional Bike Plan

24 See Appendix A: Transportation Projects, Costs, and Phasing for an updated California Coastal Trail map, and Appendix U.5: California Coastal Trail Technical Memoranda for maps and discussion of the California Coastal Trail, as required by Government Code Section 65080.1.

Appendix U.18: Safe Routes to School Strategic Plan

25 Safe Routes to Transit will be informed by recommendations from subregional studies such as the I-8 Corridor Study and the California-Baja California Port of Entry Bicycle and Pedestrian Study.

26 The development of the California Coastal Trail a collaborative effort among the Coastal Conservancy, State Parks, the Coastal Commission, and the nonprofit agency Coastwalk. Designated in 1999 as California’s Millennium Legacy Trail, it is defined as “a continuous public right of way along the California coastline; a trail designed to foster appreciation and stewardship of the scenic and natural resources of the coast through hiking and other complementary modes of non-motorized transportation.”


28 A definition of Rapid bus is included in Appendix K: Glossary of Transportation Terms, Abbreviations, and Acronyms.

30 Additional information on emerging technologies, transportation demand management (TDM), transportation system management (TSM), and investment levels is included in Appendix E and the Emerging Technologies White Paper (Appendix Q).

31 Appendix U.8: San Diego Region Intelligent Transportation Systems Strategic Plan


33 Additional information and a link to the toolbox can be found in Appendix E.

35 U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of
Transportation Statistics, Border Crossing/Entry Data, based on the U.S. Department of Homeland
Security, Customs and Border Protection data
36 Ibid.
37 Appendix U.15: Draft Executive Summary SANDAG Gateway Study Update.
38 This list can be found in Appendix A.
39 The RASP Technical Report and AMAP are included in Appendix U.6: Regional Aviation Strategic Plan
and Airport Multimodal Accessibility Plan.
40 More information on crossborder transportation issues is included in Appendix U.14: Borders.
41 California Air Resources Board: iADAM: Air Quality Data Statistics.
42 San Diego County Air Pollution Control District and California Air Resources Board, Air Quality and
Metrological Information System (AQMIS).
43 California Air Resources Board, AQMIS
44 Carbon dioxide equivalent (MMTCO2e) is a measure of all greenhouse gases – including CO2, as well
as others such as methane and nitrous oxide converted to what their quantity would be if converted
to just CO2.
45 Appendix U.9: Regional Energy Strategy for the San Diego Region.
46 Appendix Q: White Papers
47 Details on the project evaluation criteria which informed the transportation network development are
included in Appendix M.
48 SB 375 is the only mandated greenhouse gas reduction requirement for MPOs and focuses only on
the reductions that could come from transportation planning for passenger vehicles, not those
reductions that can come from vehicle technology improvements or from the carbon intensity of fuels.
49 Initial AB 32 Climate Change Scoping Plan Document
http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm
First Update to the AB 32 Scoping Plan
15/pdf/Enacted/BudgetSummary/CapandTradeExpenditurePlan.pdf
51 The LCFS directive calls for a reduction of at least 10 percent in the carbon intensity of California’s
transportation fuels by 2020. LCFS targets are back loaded in terms of mandated carbon reductions in
the California fuel supply, starting slowly and ramping up quickly starting in 2015.
52 The current Pavley Clean Car Standards (AB 1493) and Advanced Clean Cars Program are limited to a
2025 horizon year, yielding an opportunity to seek additional greenhouse gas reduction benefits if
these or similar programs were supported by the state legislature in the future.
53 ARB Vision for Clean Air: A framework for Air Quality and Climate Planning, June 27, 2012
http://www.arb.ca.gov/planning/ARB/Vision/docs/vision_for_clean_air_public_review_draft.pdf;
Vision for Clean Air: A Framework for Air Quality and Climate Planning Sacramento Vision Workshop
August 22, 2012
http://www.arb.ca.gov/planningvision/docs/staff_presentation_on_August_22_2012.pdf;
Scenario Assumptions and Results, August 20, 2012
http://www.arb.ca.gov/planningvision/docs/draft_scenario_assumptions_and_results_appendix.pdf
54 Caltrans, Draft California Transportation Plan 2040, March 2015.
Executive Order (EO) S-03-05 establishes the following greenhouse gas emission reduction targets for California: reduce greenhouse gas emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. EO B-16-12 orders that California target for 2050 a reduction of greenhouse gas emissions from the transportation sector equaling 80 percent less than 1990 levels.

Reference Appendix I for more information on Local Agency Formation Commission.
Chapter 3
Financing Our Future
Financing Our Future
How we’ll pay for the Regional Plan

Paying for the Regional Plan
San Diego Forward: The Regional Plan (Regional Plan) is ambitious. Over the next 35 years, through 2050, the Regional Plan projects that about $204 billion in local, state, and federal tax dollars will be available to build a comprehensive, interconnected transportation system that provides choices. SANDAG is working creatively to leverage available funds in order to maximize every dollar. Even so, there is a finite amount of anticipated funding available over the next three and a half decades. As we mentioned at the end of Chapter 2, this chapter, Financing our Future, and the appendices it references comprise the financial element of the Regional Plan, as required by law.

Where Our Transportation Funds Come From, and How We Can Invest Them

Building a transportation system we can afford
Federal law requires SANDAG to develop a regional plan built on reasonable assumptions of the revenues that will be available during the time period covered by that plan. While we’re anticipating around $204 billion over 35 years, we don’t have all the money right now. Also, a majority of the funding sources are tied to certain types of projects (for example, transit infrastructure or highway operations and maintenance) and we don’t have the authority to interchange them. These constraints come with specific provisions from Congress or the state Legislature. The “revenue constrained scenario” for transportation investments detailed in our Regional Plan plays by those rules. It’s what we can do given the budget we project. From this point on, we’ll refer to the “revenue constrained network” as our investment plan for transportation.

Figure 3.1
Major Revenue Sources
$204 billion in Year of Expenditure

Figure 3.2
Phased Revenues
$204 billion in Year of Expenditure

Federal law requires SANDAG to develop a Regional Plan built on reasonable assumptions of the revenues that will be available during the time period covered by that plan.
Our investment plan will be funded by a combination of local, state, and federal revenues. Local funds make up 48 percent of the total projected revenue, state funds make up 34 percent, and federal funds amount to 18 percent (Figure 3.1). Because funding will not be available all at once, projects will be constructed as the money becomes available. This is shown in Figure 3.2.

Table 3.1 outlines income sources within each revenues category. All revenues have been escalated to the year that the money will be spent, and they are based on the escalation factor appropriate for that specific revenue source. It should be noted that the Regional Plan includes assumptions for new fund sources at the local, state, and federal levels. These include a potential new “Quality of Life” sales tax measure collected and managed at the regional level, fees charged for the number of miles driven by cars and trucks, and new gas taxes. While the actual timing and amount of these new fund sources may vary from what is assumed, given how new fund sources have been approved at various times over the past several decades, it is reasonable to assume that new fund sources will continue to be established in the future. None of the new fund sources are assumed to begin prior to 2020, but they would be required in order to complete all of the projects in the Regional Plan.
### Table 3.1

**Revenue Sources**

<table>
<thead>
<tr>
<th>Estimated Revenues (in millions of YOE dollars)</th>
<th>FY 2014-2020</th>
<th>FY 2021-2035</th>
<th>FY 2036-2050</th>
<th>Total</th>
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<tr>
<td><strong>Local</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TransNet</td>
<td>$1,796</td>
<td>$7,454</td>
<td>$13,573</td>
<td>$22,823</td>
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<tr>
<td>TransNet (Bond Proceeds)</td>
<td>$1,257</td>
<td>$1,870</td>
<td>$405</td>
<td>$3,532</td>
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<tr>
<td>Transportation Development Act</td>
<td>$1,019</td>
<td>$3,695</td>
<td>$6,729</td>
<td>$11,443</td>
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<tr>
<td>Developer Impact Fees</td>
<td>$191</td>
<td>$438</td>
<td>$393</td>
<td>$1,022</td>
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<tr>
<td>City/County Local Gas Taxes</td>
<td>$871</td>
<td>$1,903</td>
<td>$2,438</td>
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<tr>
<td>General Fund/Miscellaneous Local Road Funds</td>
<td>$1,990</td>
<td>$5,942</td>
<td>$9,257</td>
<td>$22,823</td>
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<tr>
<td>Future Local Revenues for Transportation</td>
<td>$169</td>
<td>$3,727</td>
<td>$6,787</td>
<td>$10,683</td>
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<tr>
<td>Toll Road Funding (I-5/I-15/SR11/241)</td>
<td>$494</td>
<td>$0</td>
<td>$7,454</td>
<td>$7,948</td>
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<tr>
<td>Public Private Partnerships/Transit Oriented Development</td>
<td>$5</td>
<td>$119</td>
<td>$192</td>
<td>$316</td>
</tr>
<tr>
<td>FasTrak® Net Revenues</td>
<td>$48</td>
<td>$337</td>
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<td>$1,659</td>
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<tr>
<td>Passenger Fares</td>
<td>$933</td>
<td>$4,776</td>
<td>$9,554</td>
<td>$15,263</td>
</tr>
<tr>
<td>Motorist Aid Services - Call Box Program</td>
<td>$56</td>
<td>$147</td>
<td>$198</td>
<td>$401</td>
</tr>
<tr>
<td>Prior Year Funds in Regional Transportation Improvement Program</td>
<td>$410</td>
<td>$111</td>
<td>$0</td>
<td>$521</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$9,239</td>
<td>$30,519</td>
<td>$58,254</td>
<td>$98,012</td>
</tr>
<tr>
<td><strong>State</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Transportation Program</td>
<td>$67</td>
<td>$248</td>
<td>$617</td>
<td>$932</td>
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<td>State Transportation Improvement Program</td>
<td>$262</td>
<td>$939</td>
<td>$2,338</td>
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<tr>
<td>State Transit Assistance Program</td>
<td>$175</td>
<td>$451</td>
<td>$694</td>
<td>$1,320</td>
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<tr>
<td>State Highway Account for Operations/Maintenance</td>
<td>$1,334</td>
<td>$4,587</td>
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<td>$15,450</td>
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<tr>
<td>Future State Revenues for Transportation</td>
<td>$128</td>
<td>$4,380</td>
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<tr>
<td>Cap and Trade</td>
<td>$97</td>
<td>$895</td>
<td>$1,343</td>
<td>$2,335</td>
</tr>
<tr>
<td>Transportation Bond/Infrastructure Programs</td>
<td>$263</td>
<td>$4,138</td>
<td>$8,127</td>
<td>$12,528</td>
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<td>State Managed Federal Programs</td>
<td>$403</td>
<td>$1,397</td>
<td>$2,905</td>
<td>$4,705</td>
</tr>
<tr>
<td>High-Speed Rail</td>
<td>$0</td>
<td>$0</td>
<td>$17,182</td>
<td>$17,182</td>
</tr>
<tr>
<td>Prior Year Funds in Regional Transportation Improvement Program</td>
<td>$254</td>
<td>$0</td>
<td>$0</td>
<td>$254</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$2,983</td>
<td>$17,035</td>
<td>$48,954</td>
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<tr>
<td><strong>Federal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal Transit Administration Discretionary</td>
<td>$875</td>
<td>$4,315</td>
<td>$1,616</td>
<td>$6,806</td>
</tr>
<tr>
<td>Federal Transit Administration Formula Programs</td>
<td>$697</td>
<td>$1,827</td>
<td>$6,254</td>
<td>$8,778</td>
</tr>
<tr>
<td>Congestion Mitigation and Air Quality/Regional Surface Transportation Program</td>
<td>$485</td>
<td>$1,496</td>
<td>$4,605</td>
<td>$6,586</td>
</tr>
<tr>
<td>Federal Highway Administration Discretionary</td>
<td>$4</td>
<td>$37</td>
<td>$86</td>
<td>$127</td>
</tr>
<tr>
<td>Other Financing (Grant Anticipation Notes)</td>
<td>$547</td>
<td>$0</td>
<td>$0</td>
<td>$547</td>
</tr>
<tr>
<td>Future Federal Revenues for Transportation</td>
<td>$184</td>
<td>$3,270</td>
<td>$5,377</td>
<td>$8,831</td>
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<tr>
<td>Federal Railroad Administration</td>
<td>$39</td>
<td>$467</td>
<td>$787</td>
<td>$1,293</td>
</tr>
<tr>
<td>Corridors and Borders Infrastructure/Other Freight Funds</td>
<td>$23</td>
<td>$842</td>
<td>$2,287</td>
<td>$3,152</td>
</tr>
<tr>
<td>Prior Year Funds in Regional Transportation Improvement Program</td>
<td>$305</td>
<td>$14</td>
<td>$0</td>
<td>$319</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td>$3,159</td>
<td>$12,268</td>
<td>$21,012</td>
<td>$36,439</td>
</tr>
<tr>
<td><strong>Grand Total Revenue Sources</strong></td>
<td>$15,381</td>
<td>$59,822</td>
<td>$128,220</td>
<td>$203,423</td>
</tr>
</tbody>
</table>
Also, certain funds can only be used for certain projects. For example, TransNet sales tax revenue can only be used for specific projects and programs. The same is true for the state’s Active Transportation Program. Some funds will become available on a yearly, ongoing basis; others will be delivered in a single payment at one particular point in time. The timing also can depend on when the state Legislature and federal government pass their budgets. All this means that scheduling projects can be tricky. And certainly, not all of the projects in the Regional Plan can be built at once.

SANDAG, as an agency, has purview over a relatively small portion of the overall funds included in this Regional Plan, and therefore must continue to work creatively on how best to leverage the available dollars (Figure 3.3). We have further constraints on when money becomes available during the lifespan of the Regional Plan, and we also have constraints on which dollars stay with SANDAG and which dollars are distributed directly to other agencies to maintain, operate, and rehabilitate the transportation network. For example, the majority of the funds included in the Regional Plan are distributed directly to agencies such as Caltrans and the transit agencies for highway and transit operations and maintenance needs, as well as the cities and County for their local streets and roads.

Figure 3.3
San Diego Forward Funding Distribution
Our Investment Plan for Transportation: A Brief Analysis

Table 3.2 and Figure 3.4 summarize the nearly $204 billion in transportation expenditures included in the investment plan. Regardless of which agencies expend the funds (as described above), here’s an overall breakdown of how this money will be spent:

- Fifty percent is for public transit (29% for capital projects and 21% for operations).
- Fifteen percent is for Managed Lanes and connectors, including those that support public transit.
- Thirteen percent is for improvements to local streets and roads and rail grade.
- Eight percent is for rehabilitating highways and making them work more efficiently.
- Six percent is for other highway lanes and connector improvements.
- Four percent is for servicing debt.
- Three percent is for projects that promote walking and bicycling, as well as smart growth.
- One percent is for managing the overall transportation network and the demands on it to make it more efficient.

More than a third of total expenditures is designated for the operation, maintenance, and rehabilitation of transit, highways, and local streets and roads.
Figure 3.4
Major Project Expenditures
Nearly $204 billion in year of expenditures (YOE) dollars
Table 3.2
Major Expenditures by Mode

<table>
<thead>
<tr>
<th>Project Categories</th>
<th>Estimated Expenditures (in millions of YOE dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FY 2014-2020 FY 2021-2035 FY 2036-2050 Total</td>
</tr>
<tr>
<td>Transit Facilities</td>
<td></td>
</tr>
<tr>
<td>Major New Facilities</td>
<td>$2,558 $10,752 $15,469 $28,779</td>
</tr>
<tr>
<td>Miscellaneous Capital/Rehabilitation/Replacement</td>
<td>$680 $3,742 $7,341 $11,763</td>
</tr>
<tr>
<td>Transit Operations</td>
<td>$2,657 $12,056 $24,552 $39,265</td>
</tr>
<tr>
<td>ADA and Specialized Transportation Services(^b)</td>
<td>$266 $1,206 $2,455 $3,927</td>
</tr>
<tr>
<td>High-Speed Rail</td>
<td>$0 $0 $17,182 $17,182</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$6,161</strong> <strong>$27,756</strong> <strong>$66,999</strong> <strong>$100,916</strong></td>
</tr>
<tr>
<td>Managed Lanes and Highway Improvements</td>
<td></td>
</tr>
<tr>
<td>Managed Lanes</td>
<td>$2,344 $9,476 $17,813 $29,633</td>
</tr>
<tr>
<td>Highways</td>
<td>$306 $224 $8,931 $9,461</td>
</tr>
<tr>
<td>Managed Lanes Connectors</td>
<td>$14 $888 $503 $1,405</td>
</tr>
<tr>
<td>Freeway Connectors</td>
<td>$72 $1,025 $265 $1,362</td>
</tr>
<tr>
<td>Operations / Maintenance / Rehabilitation</td>
<td>$1,334 $4,587 $9,529 $15,450</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$4,070</strong> <strong>$16,200</strong> <strong>$37,041</strong> <strong>$57,311</strong></td>
</tr>
<tr>
<td>Local Streets and Roads (Capital, Rehabilitation, and Operations/Maintenance)</td>
<td></td>
</tr>
<tr>
<td>Local Streets and Roads</td>
<td>$3,180 $8,573 $14,857 $26,610</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$3,180</strong> <strong>$8,573</strong> <strong>$14,857</strong> <strong>$26,610</strong></td>
</tr>
<tr>
<td>Debt Service</td>
<td></td>
</tr>
<tr>
<td>Debt Service</td>
<td>$863 $3,834 $4,477 $9,174</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$863</strong> <strong>$3,834</strong> <strong>$4,477</strong> <strong>$9,174</strong></td>
</tr>
<tr>
<td>Active Transportation/Systems Management/Demand Management</td>
<td></td>
</tr>
<tr>
<td>Smart Growth Incentive Program</td>
<td>$121 $352 $533 $1,006</td>
</tr>
<tr>
<td>Regional Rail Grade Separations</td>
<td>$0 $0 $720 $720</td>
</tr>
<tr>
<td>Active Transportation Program</td>
<td>$588 $1,716 $2,597 $4,901</td>
</tr>
<tr>
<td>Transportation Systems and Demand Management</td>
<td>$398 $1,391 $996 $2,785</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$1,107</strong> <strong>$3,459</strong> <strong>$4,846</strong> <strong>$9,412</strong></td>
</tr>
<tr>
<td>Grand Total Cost</td>
<td><strong>$15,381</strong> <strong>$59,822</strong> <strong>$128,220</strong> <strong>$203,423</strong></td>
</tr>
</tbody>
</table>

\(^a\) Year of Expenditure (YOE)

\(^b\) ADA and Specialized Transportation Services costs represents 5 percent each of the total transit operations cost (10 percent total)
The Regional Plan’s major funding sources

Local Revenues

TransNet Half-Cent Local Sales Tax

The county-wide transportation sales tax TransNet, which was first approved in 1987 and expired in 2008, implemented major transit and highway projects. It also funded improvements to local streets and roads, as well as, bike and pedestrian facilities. In November 2004, San Diego County voters approved an extension of TransNet to 2048. The TransNet extension became effective in April 2008. The revenues included in the Regional Plan are based on actual receipts to FY 2014, and they assume an annual increase based on the growth in taxable retail sales as projected by the SANDAG Demographic and Economic Forecasting Model (DEFM). The amount estimated to be available through 2050 is two years beyond the current expiration of 2048; however, there is an assumption that the sales tax program will continue to be collected beyond 2048.

To make the program’s benefits available more quickly, the SANDAG Board of Directors approved jump-starting several regional transportation projects by implementing the TransNet Early Action Program (EAP). The agency has issued bonds under the TransNet extension that so far amount to about $1.5 billion. These bonds support the accelerated delivery of major transit and highway projects across the region. The EAP strategy is to borrow against future TransNet revenues, in order
to leverage additional federal and state funds. The goal is to complete these projects early, and give people more travel choices as soon as possible.

The TransNet extension includes some added features over the initial program. It supports an innovative $850 million environmental mitigation program to offset biological impacts of future transportation improvements while at the same time reducing overall costs and accelerating the delivery of projects. The extension also provides for a $280 million smart growth incentive fund. In addition, another $280 million are slated for bicycle paths and facilities, pedestrian improvements, neighborhood safety projects, and the Regional Bike Plan Early Action Program. These funds are leveraged to access other funding sources.

**Developer Impact Fees**

An element of the TransNet Ordinance requires the region’s 18 cities and the County of San Diego to collect an exaction from the private sector for each new housing unit constructed in their jurisdiction. The Regional Transportation Congestion Improvement Program (RTCIP) has been in effect since July 1, 2008. SANDAG adjusts the minimum fee amount on July 1 of each year, based on analysis of construction cost indices. But it’s no less than 2 percent. The purpose of the adjustment is to ensure that RTCIP retains its purchasing power to improve the regional arterial system. At its February 27, 2015, meeting, the SANDAG Board voted to increase the fee to $2,310 beginning July 1, 2015.

**Transportation Development Act (TDA) Quarter-Cent Sales Tax**

By state statute, TDA funds may be used for transit operating or capital purposes, but they are not eligible for use on non-transit-related improvements to highways or local streets and roads. Future year estimates are based on the same growth in taxable retail sales as projected by DEFM as is done for TransNet.

**Local Gas Tax/General Fund**

The local agencies receive direct subsidies from the state in the form of gas tax subventions. These subventions are based on a formula derived from the Assembly Bill x8-9 (Evans, 2010) (ABx8 9) fuel tax swap, which considers future fuel consumption, the federal tax rate, and the swap rate. Due to the continued improvement in fuel efficiency in vehicles, the average growth rate for this program is about 1 percent over the Regional Plan period. General funds are road expenditures the agencies spend from their general fund or other local revenues. The data is derived from the annual State Controller’s report, and it’s estimated to grow by about 3 percent per year.

**Future Local Revenues**

A provision in the TransNet Extension Ordinance specified that “SANDAG agrees to act on additional regional funding measures (a ballot measure and/or other secure funding commitments) to meet the long-term requirements for implementing habitat conservation plans in the San Diego region, within the timeframe necessary to allow a ballot measure to be considered by the voters no later than four years
after passage of the TransNet Extension.” A component of the future ballot measure is to fund transit operations. The SANDAG Board has periodically reassessed the timing of a new measure since the passage of TransNet, and has amended the particular section of the Ordinance to extend the deadline from 2008 to 2016. Using the existing TransNet program as the basis for estimating revenues, the assumption is that a quarter-cent of the sales tax would fund transit projects. These revenues are assumed to begin in 2020. The rate of growth assumed is the same as with TransNet and TDA.

Passenger Fares
These revenues are what passengers pay to ride on public transportation, and they help support transit operations. The revenues are assumed to be available through FY 2019, and are based on the short-term budgets as estimated by the two transit agencies – the North County Transit District (NCTD) and the Metropolitan Transit System (MTS). The farebox recovery ratio, assumed at 35 percent, is continued through the life of the Regional Plan.

Other Local Revenues
Other locally generated revenues include toll road funding, public/private partnerships, FasTrak revenues, and motorist aid services. Toll road revenues are based on the planned Managed Lanes and would help off-set operational costs and transit services.

State Funding

State Transportation Improvement Program
State funding for transportation improvements comes from taxes on gas and diesel fuels, truck weight fees, and other sources. These funds are distributed by the state to the region through the State Transportation Improvement Program (STIP), which is administered by the California Transportation Commission (CTC).

Beginning with the 1998 STIP, a greater share of the STIP was made available to regional agencies such as SANDAG. This gave them the flexibility to better determine how funds should be used. Overall, transportation funding has fluctuated significantly as the economy has gone through ups and downs. For example, the 1998, 2000, and 2002 STIP cycles were built on optimistic funding scenarios, but these were followed by a severely constrained STIP cycle in 2004.

The landmark transportation infrastructure bond, Proposition 1B, injected much needed revenues in the middle of the 2006 STIP cycle. With these revenues came some relief to transportation funding at a time when improvements were badly needed. This infusion was short-lived, however, as the Great Recession beginning in 2007 led to flat and even declining gas tax revenues. Interestingly, gas tax revenues also have fallen with the increased number of vehicles on the road that are more fuel efficient or use alternative sources of energy, such as electricity. All these changes have impacted STIP cycles from 2008 through 2014. In short, traditional
sources of funding that pay for transportation improvements have not kept pace with the demands of a growing population and an aging transportation system.

California’s economy has improved in recent years and the state budget has stabilized, but transportation funding continues to be strained. In its 2014 Annual Report, the California Transportation Commission (CTC) urged the Governor and the Legislature to address near-term funding needs to preserve the existing transportation system. The report notes: “For over a decade the Commission has implored the Legislature and the Administration to address this dire situation. No longer do we have the luxury of time; definitive and non-partisan action is required immediately to ensure the economic stability and public safety of the people we serve.” There are a number of options being discussed to augment revenue sources for transportation. Each comes with both challenges and opportunities for transportation programs. Some of the options include: mileage-based user fees, toll pricing, an increase to the fuel tax, an increase to vehicle weight fees, an increase to other vehicle-related fees, and opportunities for more public-private partnerships.

**State Highway Operations and Preservation Program (SHOPP)**

The CTC also is responsible for allocating funds to this program that the state administers. State law requires that these expenditures be given priority over new construction, and they are funded “off the top” of the State Highway Account. Caltrans develops a SHOPP ten-year plan from which projects are prioritized and selected during the SHOPP updates.
Transportation Bond/Infrastructure Program

Although the Legislature has failed to pass a comprehensive and sustainable transportation funding program, it has recognized the need to provide funding. Historically, the Legislature and voters of the state have passed a number of bond measures to fund transportation such as the Traffic Congestion Relief Program, Propositions 108/116, Proposition 42, and Propositions 1A and 1B. Given this history, the Regional Plan includes a bond measure in the future similar to prior measures for transportation projects. The funding assumption is based on the historical share the region has received from these efforts. To be conservative, revenues begin in FY 2020.

Future State Revenues for Transportation

As noted above, some of the options for funding transportation include a user based mileage fee. Senate Bill 1077 (DeSaulnier) (enacted in 2014 would authorize such a fee. The legislation calls for an advisory committee to study and develop options that can be implemented as a pilot project in 2017. The state of Oregon will start its pilot program in July 2015, while the state of Washington is reviewing the potential for a similar program. Other states around the country are studying its potential as a transportation funding source that may replace or supplement the current gas tax.
**High-Speed Rail**

The Governor and the state have committed to building a high-speed rail system. Senate Bill 1029 (Hancock, 2012) appropriated $8 billion in federal and state funds to construct the first segment of the high-speed rail in the Central Valley. Based on the current plan, the system will run from San Francisco to the Los Angeles basin by 2029 in less than three hours. The line will be extended north to Sacramento and south to San Diego. There is no specific timeline for the San Diego segment, so the Regional Plan assumes the San Diego segment may be built toward end of the Regional Plan period.⁵

**Other State Funds**

Other funds administered by the state include the Active Transportation Program for non-motorized projects, the Cap-and-Trade Program as described in Chapter 2, the State Transit Assistance program dedicated toward public transit operations and capital support, and state managed federal programs such as the Highway Bridge Program.

**Federal Funding**

SANDAG is working toward the completion of federally-funded transportation projects, while also seeking additional discretionary funding for improved transportation infrastructure at the border, major transit projects, and other transportation improvements. The agency continues to work with regional, state, and national partners toward the reauthorization of MAP-21 – the Moving Ahead for Progress in the 21st Century Act. MAP-21, which President Obama signed into law in 2012, is the first long-term highway authorization bill signed into law since 2005.

SANDAG is collaborating with other regional agencies, transportation providers, organizations, and associations statewide to develop a set of principles for the next reauthorization of MAP-21. The effort to build support for these principles continues, so that California can present a clear and unified position as federal legislation is developed. It remains unclear when MAP-21 will be reauthorized.

The Highway Trust Fund, which is the source of most federal funding for the nation’s roads and transit infrastructure, has seen revenues fall short of expenditures for more than a decade. Drawing down trust fund balances and transferring money from the general fund have served as temporary fixes, but these measures have not addressed the underlying challenge of declining revenues from the federal fuel excise tax of 18.4 cents per gallon on gasoline and 24.4 cents per gallon on diesel fuel. The Congressional Budget Office projects that, without reforms, shortfalls in the Highway Trust Fund will grow to $162 billion over the next ten years. As with the state funds, the Regional Plan assumes several potential options, such as an increase in the federal fuel tax on gasoline.
While these efforts are underway, the Regional Plan assumes continuation of the various funding programs as well as new federal revenue sources based on the discussions and actions by Congress.

**Federal Transit Administration Programs**

The Regional Plan assumes that the formula programs – Sections 5307, 5337, 5339, 5310, and 5311 – will continue. The majority of these funds are passed through to the two transit agencies while others also are passed through to social services transportation providers. The Regional Plan also includes assumptions of discretionary funding for both large scale projects under the New Starts Program as well as smaller projects under the Small Starts program.

The Regional Plan also includes the use of Grant Anticipation Notes (GAN) backed by the Federal Transit Administration (FTA) New Starts Program specifically for the Mid-Coast Trolley project. The project is rated very high in the New Starts Program for FY 2015. Due to the anticipated long duration to fully appropriate all the New Starts funds, SANDAG plans to securitize the FTA funds in order to complete the project.

**Federal Highway Administration Programs**

As with the FTA formula programs, the Regional Plan assumes the continuation of the FHWA formula programs, which include the Congestion Mitigation and Air Quality Improvement program, and the Regional Surface Transportation Program. Discretionary funds are not included in the early years; however, the Regional Plan assumes these funds would become available after 2020.

**Future Federal Revenues for Transportation**

Like California state legislators, federal lawmakers continue to discuss approaches for a long-term, sustainable transportation bill. The federal gas tax has not been increased since 1993 and has not been indexed for inflation. As a result, the Highway Trust Fund has been running on empty. Congress does recognize the crisis and various proposals have been introduced and discussed. In the meantime, the Regional Plan assumes a potential increase to the federal gas tax, beginning in 2020 will be conservative.

**Addressing Potential Funding Shortfalls**

Planning for investments funded with anticipated income can be challenging. Table O.1 in Appendix O: Transportation Financial Background reviews each revenue source, the risks associated with relying on them for projects, and what can be done if anticipated revenues fall short. Although the revenue forecast is based on trends for existing revenue sources as well as reasonable assumptions about potential changes in the future, from time to time there are significant changes that cannot be easily predicted. These include economic downturns and the approval of new funding sources. Fortunately, the plan is reviewed and updated every four
years to take into account these changes, and to make the necessary adjustments to
the timing and availability of revenues to pay for all the projects in the Regional Plan.

**Future Needs**
What if our region had an unlimited budget? SANDAG considered this too, in order
to get a clear-eyed view of what the region is actually expected to need in the years
leading up to mid-century. This “Unconstrained Needs Analysis” provided a cost
estimate for additional projects, programs, and services that would meet our
transportation demands through 2050. This included the costs for operating,
maintaining, and rehabilitating the transportation system regionwide. Obviously,
this would cost more than our actual investment plan, but it’s worth looking at
because it shows the total actual needs for the region (See Table A.4 in Appendix A:
Transportation Projects, Costs, and Phasing). 6

**Looking Ahead**
In the next chapter, we’ll review the tangible benefits of the Regional Plan, many of
which come from the transportation, smart growth, and environmental mitigation
investments discussed in Chapter 2. These are benefits for people throughout the
region, regardless of where they’re from, their economic circumstances, or their
background. Our Regional Plan was created to achieve gains across our region,
enhancing the quality of life for all of us.
Endnotes

1 For more details about each source of funding, see Appendix O: Transportation Financial Background.

2 List of Projects in our investment plan can be found in Appendix A: Transportation Projects, Costs, and Phasing.

3 Active Transportation Program includes: Regional Program, Local Bike Projects, Local Pedestrian/Safety/Traffic Calming, and Safe Routes to School.

4 For a more detailed breakdown of the Transportation Systems Management and Transportation Demand Management expenditures by phase, please see Appendix E.

5 Although High-speed Rail (HSR) is not a proposed Regional Plan project, since its funding and implementation will be determined by the State of California rather than by entities within this region, its revenues and expenditures are included in the Regional Plan because the HSR segment between Los Angeles and San Diego, via the Inland Empire, is expected to provide connectivity for the San Diego region with the rest of the state and the project. Therefore, it is an integral part of the planned transportation infrastructure for the region.

6 A list of these unconstrained projects is shown in Appendix A.
Chapter 4
Benefits of the Plan
Benefits of the Plan

Fostering economic vitality

How We Can All Benefit

Making our transportation system more efficient will help generate tens of thousands of jobs, billions of dollars in economic output, and ultimately create economic opportunity for people across the financial spectrum. In other words, a healthy transportation system makes a robust regional economy possible.

San Diego Forward: The Regional Plan (Regional Plan) does more than just outline a construction effort to build transportation choices. It makes connections that will fuel the continued success of the economy: it connects businesses with customers, future employees with education and training, suppliers and manufacturers with retailers and services industries. The more freely these connections flow, the more economic benefits will be realized.

When we think about our region’s economic health, it’s important to recognize that the transportation system:

• **Moves goods and services** through our binational megaregion.

• **Provides access and connects people and neighborhoods** of all income levels to jobs, education, recreational opportunities, and key destinations throughout the region.

• **Promotes health** through a variety of transportation choices that encourage active living.

• **Creates jobs** through construction and operation.

While our Regional Plan helps drive economic growth, it also will achieve environmental sustainability by guiding the region toward more choices for mobility, smarter growth, protected open spaces, healthier communities with more active people and less air pollution, and reduced greenhouse gas emissions – benefits we’ve talked about in previous chapters. In addition, the economic analysis conducted for the Regional Plan shows that its benefits outweigh its costs by a factor of nearly two-to-one, meaning that for every dollar invested in transportation, the region gets back almost two dollars in benefit.  

Planning for Economic Prosperity

With long-range planning, our region can capitalize on, improve upon, and protect the qualities that make it a great place to live and drive a successful local economy: an educated workforce, energetic centers of employment, a spectacular natural environment, close proximity to the international border, and an abundance of recreational activities – to name just a few of our best attributes.
Smart growth, as we’ve discussed, can help us retain many of these attributes and make them better. Many American metropolitan areas are being reinvigorated with mixed-use, “walkable” developments that are served by a variety of transportation choices, including more frequent and farther reaching networks of public transit. These developments are especially attractive to younger people entering the workforce.\(^2\) They also serve the needs of an increasing number of older individuals in our region who have varied transportation needs and may rely on transit and/or specialized transportation services.

**Our circulatory system**

The transportation system acts as an economic circulatory system, allowing businesses to access raw materials, ship finished goods, and reach customers. To function at its best, it must efficiently connect workers with jobs, future employees with education and training, and industries with one another, as well as with points outside San Diego County. The region’s current transportation network relies on an efficient network of freeways and arterials, multiple airports, a seaport, expanding bike routes and other options for active transportation, a growing transit system, and shared-use mobility services. With the population and job growth projected in our future, keeping this system running well and adding layers of transportation choices in an environmentally-conscious way will be critical to our region’s economic future. Put simply, an efficient and healthy transportation system reduces costs for businesses and people, and it does this sustainably.
A high-quality transportation system that serves a growing region not only fuels its economy, but it also determines how that economy grows. The price of housing and where it’s situated, how much tax revenue municipalities take in to serve the region, and where businesses decide to locate all are influenced by the quality of local and regional transportation. Meanwhile, development patterns impact the kinds of transportation options we have. And those transportation options, in turn, influence our access to jobs and residential areas, our traffic congestion and commute times, the state of our natural environment, how healthy we are, and how and where business develops.

**Connecting with public investments**

We know that the physical “clustering” of similar types of businesses can stimulate the growth of an industry, innovation, and entrepreneurship. The biotech and brewing industries in San Diego are great examples. Retail, manufacturing, shipping, and construction businesses need transportation infrastructure and particular patterns of land use to thrive. Businesses depend on roadways, rails, and ports, but they also depend on sidewalks and parks to attract customers and employees. Supporting emerging technologies, such as wireless communications that help maximize the efficiency of transit and highways, helps stimulate an area’s business climate as well. The economics of public investments must be properly considered in order for policy-makers to make effective decisions that help promote the growth of industries and entrepreneurial areas vital to the region.

**Promoting Both Economic Vitality and Equity: The Big Picture**

Improving our economy is critical for everyone. Our goal is a balance between economic sectors - characterized by many different types of industries, a healthy middle class, a strong labor force, and high paying jobs. However, the San Diego region today has an “hourglass economy” – with many high-paying jobs and many low-paying jobs, and relatively few in between. This phenomenon of a shrinking middle class has been seen nationwide and it presents serious challenges.

One alarming trend is that the percentage of people in poverty in the San Diego region has grown steadily, from roughly 11 percent in 2007 to more than 15 percent in 2013. This percentage has continued to rise even as unemployment has begun to fall and incomes have rebounded since the Great Recession. It’s clear that not everyone shares in the region’s growing economic prosperity.

Poverty and persistent inequality undermine our regional economy. Jobs have rebounded, but wage growth has not kept pace. Higher home prices relative to lower wages results in less potential for taxable retail sales growth and sales tax revenues. For our region’s economy to truly thrive, everyone must have the opportunity to prosper.
The need for widespread access to quality transportation

One of the biggest challenges for low-income communities, and one that can prolong poverty, is limited access to transportation. Low-income individuals in areas without adequate public transit often have to spend disproportionate amounts of time and money to access education, jobs, and recreation. These very practical, transportation-related barriers make it difficult for people in poverty to access education and training, cutting into our region’s potential for producing skilled workers. Improving transportation options for low-income neighborhoods can help people lift themselves above the bottom of the region’s “hourglass” economy.

Widespread access to quality transportation is equally important to employers, who need to draw from a broad pool of potential employees of varying skill levels.

It’s difficult to overstate the importance of transportation options for people who are economically disadvantaged. Without access to transportation, it’s extremely difficult for poor people to improve their economic prospects. For many low-income individuals, the costs of owning and operating a car are prohibitive, and having one is simply not an option. As a result, investing in more transportation options regionally can increase economic opportunities for people who most need it.
Our Regional Plan will make transportation investments in low-income communities, increasing access to high-frequency public transit by 24 percent, as shown in Figure 4.1. The Regional Plan’s benefit-cost analysis concludes that low-income individuals will receive equitable benefits, when compared with others throughout the region.

One key to better connecting low-income communities with the rest of the economy will be the changing land use patterns reflected in the Regional Plan. Many low-income communities in the region are close to city centers. And like other metropolitan areas around the country, the San Diego region has seen a resurgence of development in city centers or downtowns, and in surrounding neighborhoods. It’s a trend that our Regional Plan supports with investments in public transit projects and incentives for smart growth, biking and walking, and other projects that will encourage people to travel without a car.

**Achieving Social Equity**

Social equity and environmental justice aren’t just obscure academic terms. They are embedded in the cherished right to equal opportunity that we value so much as Americans. By making investments in lower-income and minority communities, the Regional Plan gives everyone an opportunity to participate in the economy, which benefits all of our communities. In transportation planning, striving for social equity and environmental justice requires involving a wide variety of communities and stakeholders so they can help shape their futures. We should all have the
opportunity to participate in planning the future of our region. For most of us, it’s difficult to get involved in regional planning due to our busy lives. For some of us, it is particularly hard because of additional barriers to involvement that include language, not understanding our rights, a lack of familiarity with the planning process, and in some cases a fear of getting involved. In the not so distant past, areas with high concentrations of low-income individuals and minorities, as well as members of federally recognized tribes, were underrepresented in the planning process. SANDAG carries out extensive outreach to ensure that these groups have a meaningful voice in the regional planning process.7

As SANDAG developed the Regional Plan, from the beginning, we partnered with a network of Community-Based Organizations (CBOs) from a wide range of disadvantaged communities in the region. These organizations helped to ensure that the needs and issues of their communities were heard and considered in a timely manner throughout each step of the planning process. They also helped to shape how we measured whether the Regional Plan improves people’s access to transportation choices in an equitable manner.8 Access to key amenities is critical for everyone. We need to be able to count on the transportation system to get us to our jobs or to school or to the doctor, as well as to the store, or the park, or the beach regardless of our income or background. In addition, through our government-to-government relationship, SANDAG and the tribal nations in the region worked together throughout the planning process to make sure that tribal needs and concerns were heard and considered.9 The San Diego Regional Tribal Summit, held in April 2014, allowed tribal nations and the SANDAG Board to develop coordinated strategies to pursue. Twelve tribal nations provided us with their own tribal long range plans to include in the Regional Plan to facilitate better coordination.10

**San Diego Forward: for an equitable future**

Working with CBO’s, SANDAG identified specific populations that would need special attention in the planning process. These included minorities, people with low income (200 percent of the Federal Poverty Rate), and seniors who are 75 years or older. We performed a social equity analysis using several performance measures to determine how the Regional Plan would benefit or burden disadvantaged populations in comparison to the rest of the region. The key is that no one group or population should get the short end of the stick; the benefits and the burdens of the Regional Plan should be equitably distributed.

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**Defining Environmental Justice:**

Environmental justice is defined as the **fair treatment** and **meaningful involvement** of all people regardless of race, color, national origin, or income. **Fair treatment** means that no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies. **Meaningful involvement** means that: a) potentially affected community members have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; b) the public’s contribution can influence the regulatory agency’s decision; c) the concerns of all participants involved will be considered in the decision-making process; and d) the decision makers seek out and facilitate the involvement of those potentially affected.

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**Defining Social Equity:**

SANDAG uses the term **social equity** as shorthand for an overarching goal that combines the concept of environmental justice, the federal laws in Title VI, the Americans With Disabilities Act (ADA), and National Environmental Policy Act (NEPA), and various other federal and state laws intended to promote an equitable distribution of benefits and burdens from SANDAG projects and programs.
In conducting its social equity analysis for minority, low-income, and senior populations, SANDAG used a threshold of significance of 20 percentage points. The analysis indicates, however, that implementation of the Regional Plan will not cause any disproportionate effects or disparate impacts for the low-income, minority, or senior populations in our region.12 Here are some key findings from our social equity analysis:

- In 2012, 46 percent of low-income people in our region had access to high-frequency transit; in 2050, with the Regional Plan’s projects in place, 70 percent will have access. When compared to groups who are not low-income, the low-income populations benefit equally in their access to high-frequency transit.

- Access to bike facilities improves for everyone substantially, and equitably. In 2012, 55 percent of minorities had access to those facilities, but with the Regional Plan, 66 percent will be a quarter of a mile from a bike facility by 2050.

- Overall, disadvantaged populations will share proportionately in having better access to more transportation options.

- No particular population group will experience heavier burdens of toxic air emissions than any other group as a result of the Regional Plan.

**Defining Minority:** The term “minority” is described by the Federal Highway Administration as:

- Black (having origins in any of the black racial groups of Africa);
- Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race);
- Asian American (having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or
- American Indian and Alaskan Native (having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).
Realizing the benefits of living on an international border

The San Diego region and Tijuana are linked socially and economically. Think about the amount of goods and number of people flowing everyday across our borders. The ports of entry along the border, as we discussed in Chapter 2, are among the busiest in the world. The San Diego region imports up to 90 percent of its energy and about 80 percent of its water each year, and it shares delivery systems for these resources with Mexico. Consequently, roadways, ports of entry, energy transmission lines, and water delivery systems are all issues of common concern for the San Diego region and our neighbors to the south. Collaboration with our Mexican counterparts has focused on transportation and housing, energy and water supply, the environment, and economic development. More recently collaborative efforts also have included active transportation, public health, and climate change (see Appendix U.14: Borders).

Our region’s economy is binational in character, especially when considering the industry clusters that thrive here. Our geographic location means there is some reliance on Mexico’s large labor force. The economy of Tijuana and the greater Baja California region have benefited from employment opportunities across the border in the San Diego region, and our region has benefited from employment opportunities in Baja California. Mexico has taken several steps to bolster economic development along its northern border, such as the creation of the maquiladora program. The maquiladora industry is a big source of employment opportunities in Baja California and in the San Diego region; you only have to look at the large number of transnational corporations with sister facilities north of the border. Employment in the maquiladora industry in Baja California doubled between 1991 and 2004. In Tijuana, employment in the sector reached its peak in 2008, with more than 200,000 people employed. There are now about 150,000 people employed by 560 maquiladora companies in Tijuana. That number represents 11 percent of Mexico’s total number of manufacturing plants.

By taking advantage of research and development hubs in San Diego, and advanced manufacturing capabilities in Baja California, goods are jointly produced in the United States and Mexico. They often cross the border many times before becoming finished products. This phenomenon of joint production is illustrated by the fact that Mexican exports to the United States contain 40 percent U.S. content, which greatly exceeds the U.S. value-added of any other foreign imports.¹ This manufacturing interdependence has huge implications for the local, regional, and national economy, given the enormous scale of U.S.-Mexico trade.
Bilateral trade

The ports of entry between the United States and Mexico in our region are the main conduits for our economic relationship. The massive number of people and goods that cross the international border, and the intense economic activity at the border, are testaments to the close economic ties between the San Diego region and Baja California. In 2014, the dollar value of bilateral trade that passed through the ports of entry connecting San Diego County and Baja California was more than $40 billion.

In addition to trade, crossborder tourism, commerce, and commuting also are important players in the regional economy. For example, it’s estimated that Mexican citizens spend $3 billion annually in San Diego County. That spending accounts for more than $1 out of every $15 in retail sales. Similarly, tourism in Baja California is a key source of revenue for that region, and anecdotal evidence suggests that northern Baja California is making up for a shortfall in affordable housing in San Diego. These trends mean that people who live on one side of the border but work on the other are subject to significant commuting delays at the ports of entry every day – damaging both economies and highlighting an important transportation-related problem that is addressed in this Regional Plan through the development of the State Route 11 project and new Otay Mesa East Port of Entry (POE). State Route 11 will connect the future POE with the rest of the region’s freeway system via State Route 905 and the South Bay Expressway and will offer an
alternative to the highly congested border crossings at Otay Mesa and San Ysidro, benefitting the regional economy and the environment by reducing border-crossing wait times.

**Megaregions**

Residents of San Diego County live in two overlapping megaregions – interdependent groups of metropolitan areas in a single geographic area bound by interdependent relationships on several levels: environmental, economic, shared border infrastructure, a linked transportation system, related land use policies, history, and culture. Our binational community, like other megaregions around the world, has an opportunity to leverage its crossborder economic relationships to become more globally competitive.

The San Diego region actually is considered part of two megaregions – the greater California megaregion and the greater binational megaregion. The greater California megaregion includes five important metropolitan areas in terms of freight movement (Los Angeles/Long Beach, Sacramento, San Diego, San Francisco/San Jose, and Las Vegas, Nevada). The four metropolitan centers in California are located on or nearby the Interstate 5 (I-5) corridor.15

Our binational megaregion is part of the “Cali Baja Binational Megaregion Initiative,” which promotes the entire border region between California and Baja California, Mexico as a globally unique, binational location for business
The San Diego-Northern Baja California region is becoming an increasingly important, interdependent trade and commuting corridor with a distinct global competitive advantage. It’s important for us to do all we can to understand the diverse landscapes, politics, economics, languages, and cultures of our geographic international neighbor as we plan for this unique and promising binational megaregion.

The Economic Analysis of our Regional Plan

To measure the potential impacts of our Regional Plan on the local economy, SANDAG developed a detailed economic analysis. This can be found in Appendix P: Economic Impact Analysis and Competitive Analysis. The results of the economic analysis help clarify that the Regional Plan is not simply a transportation plan, it’s crucial to the economic health of the region. The analysis has three parts.

- **Benefit-Cost Analysis**: Uses transportation and economic modeling to compare the benefits of the transportation investments with the costs of the projects.

- **Economic Impact Analysis**: Explores how those benefits, such as reduced travel times and operating costs, translate into increased economic activity (more output, more jobs) for the San Diego region.
- **Economic Competitiveness Analysis**: Takes a broader view of the regional economy. It looks at how transportation and planning efforts can reduce costs and boost growth and opportunity. It also considers the views of business leaders to get real-world perspectives on the potential impacts of our Regional Plan on the overall business climate.

In essence, the first two parts of the analysis provide important quantitative measures of the economic impacts of our Regional Plan, and the third part provides broader perspectives about the interrelationships of our economy and the Regional Plan.

The **Benefit-Cost Analysis** (BCA) uses the outputs of SANDAG’s activity-based travel model to determine if the benefits outweigh the costs. This analysis tells us things such as how much time and money drivers and transit riders will save, and how much safer, healthier, and cleaner our system becomes as the Regional Plan is implemented. We can then compare those monetized benefits to the cost of the Regional Plan to get a “benefit-cost ratio.” The results indicate that the benefits of the Regional Plan outweigh the costs by a factor of almost two-to-one (1.86), meaning that for every dollar invested in the Regional Plan, San Diegans receive almost two dollars of benefit. The primary driver of these benefits is a savings of time savings, which represent 80 percent of the benefits, followed by reduced operating costs, and the rest of the benefits categories. Detailed results and methodology are available in Appendix P, which spells out the methods and results of the BCA in detail.

The **Economic Impact Analysis** measures: 1) the economic effects of the stimulus obtained from construction and operation of the transportation system; and 2) the economic effects of a more efficient transportation system (compared with a “no-build” scenario). The combined impacts are listed in Table 4.1 and in Figures 4.2 and 4.3, and show an average increase in the San Diego economy of roughly 53,000 jobs and $13 billion in gross regional product (GRP) per year, versus the “no-build” scenario. About 11,500 of those jobs, and $1.2 billion of the GRP increase, result directly from transportation investment. The rest, over 40,000 jobs and over $12 billion in GRP, result from private sector investments enabled by the improved efficiency in the transportation system. This equates to an increase of 2.5 percent in employment, and 4 percent in GRP between 2012 and 2050. This increased economic activity also will put an average of nearly $6 billion in additional income into the pockets of San Diego residents. These benefits result from improvements in the ability of firms to access inputs, tap into a wider labor pool, and save on transportation-related production costs. Basically, it translates the monetary benefits calculated in the BCA into increased economic activity.
Table 4.1: Economic Impacts of San Diego Forward: The Regional Plan
(in 2014 dollars)

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<td>11,427</td>
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<td>Impacts from Increased System Efficiency</td>
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<td><strong>$13.4 billion</strong></td>
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Figure 4.2
Increase in Gross Regional Product from Implementing San Diego Forward: The Regional Plan
(in billions 2014 dollars)

- Impact from Increased System Efficiency
- Impact from Construction/Operations
The Economic Competitiveness Analysis provides a more qualitative investigation into the economic effects of the Regional Plan. It examines the benefits of proposed transportation investments on industry clusters as a result of reducing travel times. These key industry clusters provide higher wage jobs in the region compared to non-cluster industries, and are fundamental to the region’s economic development.

SANDAG compared travel times for auto and transit travel between the no-build scenario and the Regional Plan transportation network. With implementation of the Regional Plan, travel times would improve compared with the no-build scenario for both auto and transit in key travel corridors. With shorter travel times, important San Diego industries, such as the high-tech sectors (often called “industry clusters”), would have easier access to employees, suppliers, partners, and customers. And residents living near transportation corridors would have better access to jobs in these important sectors. Because transit is projected to experience greater time savings compared to automobiles, it is expected that transit will grow more attractive as a transportation option in the future. And transit stops can serve as focal points around which industry clusters can agglomerate for economic efficiencies. Thus, investment in transit could support growth in high-wage industry clusters that might not otherwise be achievable solely through additional road capacity.
The availability of affordable housing also influences the success of important industry clusters – and on the overall economic health of the region. The economic competitiveness analysis looks at the San Diego region’s capacity to provide affordable housing in key transportation corridors that serve industry clusters. The analysis helps assess whether investing money to improve our transportation system will result in affordable housing costs and improving the standard of living of workers in those corridors. Specifically, the analysis evaluates the average cost of buying or renting a home along various transportation corridors in the region (I-15, as an example), and comparing those costs to the average wages of employees of the industry clusters situated along that corridor. The results suggest that workers earning the average wage of those industry clusters along most transportation corridors in the region will have difficulty purchasing a house in that corridor. However, the analysis also indicates that a broad range of rental housing is within the reach of the average cluster worker in these travel corridors. Overall, the analysis concludes that investments in transportation reduce the costs of traveling and improve productivity in a corridor, potentially leading to a rise in wages. However, this analysis suggests that even after transportation investments are made it may still be difficult for San Diego residents to afford houses along the transportation corridors, and more high-wage jobs are needed.
The economic competitiveness analysis also includes detailed background literature, synthesized comments, and observations from economic outreach activities. It presents a few brief case studies from around the United States to illustrate how transportation investments can spur economic development. All of this information is in Appendix P.

SANDAG has attempted to capture the full range of economic effects that the San Diego region will realize from the Regional Plan with this analysis. The results are summarized in the following graphic, which shows the interrelationships of the several analyses. The average of roughly 53,000 jobs and $13.4 billion in GRP annually between now and 2050 indicate that the Regional Plan will be a boon to the regional economy in the long-term. And there are many unquantifiable economic benefits stemming from the Regional Plan that will help make the San Diego region more prosperous, sustainable, and equitable for businesses and residents in the future.
Taking Action

Developing our Regional Plan is one thing. Taking action is another. In the next and final chapter, we’ll discuss key actions we’ll take to implement the Regional Plan. We’ll also review how we’ll check our progress over time, to ensure that we realize our ambitious vision for the future.

Endnotes

1 See Appendix P: Economic Impact Analysis and Competitive Analysis.
5 See Appendix H: Social Equity: Engagement and Analysis for more information on the Social Equity Analysis.
6 See Appendix H, Figure H.3 on page 17.
7 Tribal consultation and Tribal transportation plans are included in Appendix G: Tribal Consultation Process for San Diego Forward: Communication, Cooperation, and Coordination. An overview of the Tribal Consultation plan is discussed in Appendix F: Public Involvement Program.
8 SANDAG’s Public Involvement Program is included in Appendix F and specifics about the CBO Outreach Network are included in Appendix H.
9 The Tribal Consultation process is included in Appendix G.
10 See Appendix G, Attachment B – Tribal Transportation Plans
11 Discussed further in Appendix H.
12 The complete social equity analysis is included in Appendix H.
14 Estimated from surveys conducted for Economic Impacts of Wait Times at the San Diego–Baja California Border, SANDAG and Caltrans, 2006.
16 CaliBaja Mega-Region Initiative (http://www.calibaja.net/cbdb/p/), (accessed October 2014).
17 The impacts of both types of effects were estimated using Regional Economic Models, Inc. (REMI) TranSight model, and the methodology is detailed in Appendix P.
Chapter 5
Ensuring Performance
Ensuring Performance
Implementing the Plan and monitoring our progress

Putting San Diego Forward: The Regional Plan into Action
“The way to get started is to quit talking and begin doing.”
– Walt Disney

San Diego Forward: The Regional Plan is a blueprint for how we’ll grow and get around in the future. Putting this Regional Plan into action requires concrete steps – steps we need to take now to realize our vision, goals, and objectives for 2050 and beyond. This final chapter serves as the Action Element for our Regional Plan. It discusses key actions, and it shows how we’ll measure our progress.

This Regional Plan, like others before it, will take time to implement. But these plans do get implemented. Each regional plan builds upon the one before it, reflecting the new realities of changing demographics, economics, new laws, and other developments. They are continually reevaluated, revised, and refined – all in the service of ensuring a high quality of life in our region for years to come.
The importance of collaboration and incentives

The Regional Plan has been built collaboratively with a wide variety of people and stakeholders, as we’ve discussed in previous chapters. This broad range of public involvement will help strengthen support for several key actions, including enhancing the connections between transportation and how we use land; reinforcing the links between our local and regional plans; and providing the framework to collaborate on implementing the Regional Plan.

The Regional Plan calls for using federal, state, regional, and local transportation funds, in conjunction with locally-generated incentives, as catalysts to promote smart growth, economic prosperity, and sustainable development. As people see changes develop around our region – whether they be biking or walking projects, new Trolley lines, enhancements to our freeway networks, local smart growth projects, binational infrastructure projects, or initiatives that preserve and enhance our environment – they’ll want to see them in their own cities, neighborhoods, and the places where they work. That’s why our implementation strategy also includes incentives to help communities across the region realize their own specific goals.
In past decades, our region has developed a variety of incentives funded through the local TransNet half-cent sales tax. TransNet grant programs will continue to play a big role in providing incentives for this Regional Plan. They include:

- The Active Transportation Grant Program, which funds bike and pedestrian plans, projects, and education and training programs.

- The Smart Growth Incentive Program, which funds planning and infrastructure projects that support mixed use and higher density development in the urbanized areas of the region near existing and planned public transportation. The program also supports long-term sustainability by encouraging development in areas that are not being used as habitat, farmland, rural land, or open space.

- The Environmental Mitigation Program, which funds the acquisition, management, and monitoring of habitat preservation lands and environmentally sensitive species.

- The Senior Mini Grant Program, which funds specialized transportation services for seniors.

- Other tools and incentives provided by SANDAG to help the region grow as envisioned in the Regional Plan. They include technical assistance, such as the Smart Growth Toolbox, the Smart Growth Concept Map, and smart growth...
design guidelines, smart growth visual simulations, guidelines for integrating Transportation Demand Management into the planning process, the Parking Management Toolbox, guidelines for planning and designing for pedestrians, a smart growth trip generation tool, customized land use and transportation modeling, forecasting work, and subregional planning.

How the plan gets used: Evolving over time to reflect changing conditions

As a planning agency, SANDAG understands that change is inevitable. So implementing the Regional Plan will be part of an “iterative process.” Here’s what we mean – as illustrated in the following Interactive Planning Process graphic: Local general plans and policies, as well as binational and interregional plans, feed information into the SANDAG regional forecast for growth. The forecast aggregates that information to create a picture of the region’s overall land use pattern of the future, which is included in the Regional Plan. That big-picture land use pattern is then used to determine regional transportation needs. The Regional Plan, in turn, guides other agencies’ plans and infrastructure investments, such as those of the San Diego County Water Authority, local government water and wastewater infrastructure, energy providers such as San Diego Gas & Electric, and others that rely on population, housing, and employment projections.

The policies and actions included in the Regional Plan can also influence future changes to local land use plans and crossborder plans. These local and crossborder planning efforts then get incorporated into the next regional forecast for growth.

By updating the Regional Plan every four years, as required by federal law, SANDAG captures changes, refines its analyses, and continues to incorporate policies and ideas that move us forward.
Actions to Implement the Plan

As noted in Chapter 1, the Regional Plan establishes the following vision, goals, and policy objectives.

A key question is: What actions should we take to implement the Regional Plan and our Sustainable Communities Strategy and most effectively achieve our vision, goals, and policy objectives?

The Regional Plan will be implemented with a combination of both near-term actions and continuing actions. As we discussed in Chapter 2, transportation projects and programs will be phased in over the life of the plan. So the actions we identify will be either “near-term” (completed before the adoption of the next regional plan), or “ongoing” to support the longer-term implementation of projects and programs.

The most important near-term action related to transportation is to implement the Regional Transportation Improvement Program (RTIP), which includes the transportation projects and improvements scheduled to be built in this region over the next five years. Some examples include the addition of carpool lanes to Interstate 5, the Mid-Coast Trolley extension project, the double tracking of the region’s coastal rail corridor (our portion of the Los Angeles-San Diego-San Luis Obispo Corridor), the completion of the widening of State Route 76, and the construction of the South Bay Rapid Transit project. RTIP projects, which include identified funding sources and detailed implementation schedules, are the concrete...
next steps of the region’s transportation capital improvement plan. They also provide a foundation for the additional, longer-term transportation projects included in this Regional Plan.

The Regional Plan helps SANDAG set budget priorities, with the Regional Plan’s near-term actions incorporated into the agency’s annual budgets for the next few budgeting cycles. Below is a list of near-term actions – not necessarily in order of priority, but numbered for ease of reference – planned for completion prior to the adoption of the next regional plan in 2019. Following the near-term actions is a list of continuing SANDAG actions necessary to implement the Regional Plan, organized according to the Regional Plan’s three goals.

**Near-Term Actions**

1. Implement the RTIP as detailed above.

2. Continue to implement the SANDAG Coordinated Plan, a short-range transit and specialized transportation planning document, and develop its biennial update.9

3. Apply the Regional Complete Streets Policy to relevant SANDAG plans, programs, and projects.

4. Complete the first phase of a Regional Mobility Hub Strategy.

5. Complete a follow-up study that details ways to expand the use of alternative fuels regionwide.

6. Incorporate regional transportation model enhancements to provide more robust data regarding bicycle and pedestrian travel and public health outcomes.

7. Pursue an Integrated Corridor Management Plan and design for up to three new corridors.

8. Complete the comprehensive 10-year review of the TransNet Program in accordance with the TransNet ordinance and for use in the next regional plan.


10. Participate in the target-setting process and monitoring for federal performance measures and report on progress toward the achievement of these federal performance measure targets in the new System Performance Report.

San Diego Forward: The Regional Plan
Continuing Actions

*Healthy Environment and Communities*

1. Continue to provide and/or expand incentive programs that support the reduction of greenhouse gas emissions, protect open space and farmland, and create great places to live, work, and play.

2. Through incentives and collaboration, continue to work to increase the supply and variety of housing types affordable for people of all ages and income levels in areas with frequent transit service and with access to a variety of services.

3. Continue to refine planning and modeling tools to assess the public health implications of regional and local plans and projects.

4. Continue to support wildlife and habitat conservation through the acquisition, management, and monitoring of the region’s habitat preserve areas through the TransNet EMP incentive program and implementation of the Multiple Species Conservation Program and Multiple Habitat Conservation Program.

5. Build a network of electric vehicle charging stations and develop a regional alternative fuel plan, promoting the use of both zero-emission vehicles and alternative fuels and ensuring that we have the infrastructure to support these innovations.
6. Support the efforts of local jurisdictions to implement their Energy Roadmap Programs to save energy in their own operations and in their larger communities.

7. Develop strategies to enhance our region’s ability to adapt to the consequences of climate change, including planning and design strategies to help communities to cope with hazardous events such as storms, heat waves, wildfires, or ongoing drought.

8. Continue to help improve our regional air quality through the implementation of transportation investments detailed in this Regional Plan, coupled with improvements in fuel and vehicle technologies.

Innovative Mobility and Planning

9. Work with partner agencies to implement the transportation projects contained in the Regional Plan. These include:

- Putting into operation the public transit projects included in the investment plan between now and 2050 (LOSSAN rail, COASTER, high-speed train, Trolley, SPRINTER, Rapid services, airport services, local bus services, streetcar/shuttles, and specialized services for seniors and people with disabilities).
- Fulfilling the Active Transportation Program, including building out the regional bike network, safety improvements for bicyclists and pedestrians,
Safe Routes to School, Safe Routes to Transit, education and data collection efforts, and active transportation improvements related to new highway and freeway interchanges.

- Improving, rehabilitating, and maintaining local streets and roads
- Deploying advanced signal technologies to extend green lights for buses and other transit vehicles.
- Completing the Regional Arterial System and instituting technology and management systems that optimize the flow of arterials
- Supporting a flexible highway system with Managed Lanes, carpool lanes, or transit-only lanes, which will result in a fully interconnected network of Managed Lanes, including direct Managed Lane connectors.
- Constructing rail grade separation projects in key locations.
- Enhancing our border crossings to cut delays for individual international crossings and trade.

10. Conduct advanced planning on the highest priority segments of the proposed new transit services included in the Regional Plan.

11. Continue to seek funding for transportation investments that provide a variety of choices, and which reduce greenhouse gas emissions and promote healthy lifestyles through more active transportation.

12. Deploy cutting-edge technologies, and implement Transportation Demand and Systems Management Programs to provide more mobility choices and allow the transportation system to function more efficiently.

13. Link technologies in vehicles and mobile devices to improve the way people travel. These include emerging technologies such as autonomous vehicles, expansion of the regional communications network, smart parking systems, and universal transportation payment systems.

14. Continue to pursue opportunities for shared use mobility.

15. Support the development of policies, programs, and funding for moving goods in the state and nation, as well as for infrastructure in the region that supports moving goods.

16. Coordinate with the Airport Authority to implement the Regional Aviation Strategic Plan and the Airport Multimodal Accessibility Plan to maximize the efficiency and effectiveness of existing and planned aviation facilities. Move forward on the Intermodal Transit Center, ground access plans, and direct connector ramps to improve access to and from the San Diego International Airport.

17. Continue to seek innovative financing tools and new funding sources to implement the plan.
Vibrant Economy

18. Continue to apply social equity and environmental justice considerations in the implementation of SANDAG projects and programs.

19. Continue to collaborate with key partners and stakeholders, including representatives from low-income and minority communities, and actively involve the public in the planning process.

20. Leverage available funds in order to maximize every dollar, and advocate for legislation that supports implementation of the Regional Plan.

21. Continue to leverage our cross-border economic relationships with binational and global interests to become more globally competitive and strengthen our megaregion.¹⁰

22. Coordinate intergovernmental planning with our crossborder and interregional partners, and with tribal governments within the San Diego region to promote collaborative solutions.

23. Continue to monitor implementation of the Regional Plan on a four-year reporting cycle, through the production of the Regional Plan Implementation Monitoring Report.
Monitoring important issues outside the scope of the Regional Plan

SANDAG doesn’t have direct responsibility for issues such as water quality, water supply, solid waste, education, libraries, police/crime, hospitals, local parks, and other issues that have regional significance. Other agencies and city/county departments, which we collaborate and coordinate with, are actively working on these priorities. In many cases, these other entities have their own plans that address them.

For example, the San Diego County Water Authority has adopted plans identifying water sources, water projections, conservation targets, and infrastructure enhancements. The County of San Diego addresses solid waste and recycling issues. And the region’s primary school districts, community college districts, and local universities address and plan for educational facilities and curriculum needs.

Because SANDAG is responsible for growth projections and transportation infrastructure, we are frequently in touch with these other agencies and departments to ensure maximum collaboration. And because these issues affect our quality of life, we measure and monitor some data related to them in order to consider the broader regional picture.

Monitoring the Plan’s Success

How will we know if our Regional Plan is achieving the goals we’ve set? We’ll have to track our progress as we implement our Regional Plan over time. A few years down the road, we should be able to answer the question, “How well are we doing?” If we’re not achieving our goals, we should consider changes to the Regional Plan when it’s updated.

To track the Regional Plan’s performance, we’ve identified 20 “performance monitoring indicators.” These indicators will help us gauge the Regional Plan’s progress toward an increase in the choices that people have to get around, expanded access to public transit, improved regional air quality, a more efficient and innovative use of energy, a stronger economy, and enhanced public health. These indicators will be revised periodically as new plans are adopted to reflect new and changing conditions.
In Figure 5.1, the performance indicators are grouped into categories that reflect the vision and goals of the Regional Plan:

**Figure 5.1**

**Performance Monitoring Indicators**

<table>
<thead>
<tr>
<th>Healthy Environment &amp; Communities</th>
<th>Vibrant Economy</th>
<th>Innovative Mobility &amp; Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Share of new housing units and jobs located in Smart Growth Opportunity Areas</td>
<td>• Travel times to jobs</td>
<td>• Commute mode share</td>
</tr>
<tr>
<td>• Share of new housing units within County Water Authority water service boundary</td>
<td>• Real per capita income, compared with California and the United States</td>
<td>• Annual transit boardings</td>
</tr>
<tr>
<td>• Habitat conserved within designated preserve areas</td>
<td>• Regional poverty rate, compared with California and the United States</td>
<td>• Border wait times</td>
</tr>
<tr>
<td>• Beach widths</td>
<td>• Water consumption</td>
<td>• Border crossing volumes</td>
</tr>
<tr>
<td>• Impaired waterbodies</td>
<td>• Percent of households with housing costs greater than 35 percent of income</td>
<td>• Travel times and volumes for all modes</td>
</tr>
<tr>
<td>• Air quality</td>
<td>• Annual income needed to afford fair market rent</td>
<td>• Alternative fuel vehicle ownership</td>
</tr>
<tr>
<td>• Fatalities/serious injuries per Vehicle Miles Traveled</td>
<td>• Beach widths</td>
<td></td>
</tr>
<tr>
<td>• Diversity of water supply</td>
<td>• Impaired waterbodies</td>
<td></td>
</tr>
<tr>
<td>• Diversity of energy supply and use</td>
<td>• Air quality</td>
<td></td>
</tr>
<tr>
<td>• Electric and natural gas consumption by sector</td>
<td>• Travel times to jobs</td>
<td></td>
</tr>
</tbody>
</table>

Data for these indicators will be compiled and detailed in the Regional Plan Performance Monitoring Report,\(^{12}\) which will be produced every four years in a timeframe that is staggered with the preparation of the next regional plan.\(^{13}\) The next monitoring report is due out in 2017.

**Conclusion: Forging a Shared Path toward a Sustainable and Prosperous Future**

The Regional Plan will guide us toward a future that supports economic prosperity, offers people more options for getting around, encourages the creation of healthy and livable communities, improves air quality, cuts per capita greenhouse gas emissions, and preserves our natural environment.

SANDAG, the region’s 18 cities and the County, member agencies, our binational, interregional and tribal partners, and regional stakeholders can work together to implement this Regional Plan. When implemented, the Regional Plan will:

- Exceed Senate Bill 375’s greenhouse gas reduction targets for the San Diego region.
- Provide more mobility choices for individuals and businesses.
- Reduce travel times for commuting to work, the shipment of goods, and recreation.
- Make $204 billion in transportation investments equitably throughout the region.
• Yields a return of nearly $2 for every $1 invested in transportation infrastructure.

• Provide more than 100 new miles of Trolley and SPRINTER service, and more than 160 miles of Managed Lanes to facilitate carpools, vanpools, and Rapid transit service.

• Spend $258 million to create mobility hubs that expand the reach of transit in the region.

• Provide $4.9 billion for regional and local bicycle and pedestrian projects and programs, and encourage exercise through active transportation.

• Accommodate housing to meet projected population growth in the San Diego region, and improve housing choices for all income levels.

• Preserve more than half of our land as open space, parkland, and natural habitat.

• Result in an average of 53,000 jobs annually in the San Diego region, $13.4 billion annually in projected increased regional economic output, and $5.9 billion annually in projected increased income.

• Strengthen collaboration with Mexico, tribal partners, and neighboring counties throughout the San Diego-Baja California megaregion.
This is a big list of expected accomplishments from the Regional Plan. But this Regional Plan is *designed* to accomplish grand things, for a future that will continue to make San Diego a fantastic place to live, a vibrant place to work and go to school, and a world-class destination for people everywhere.

Our Regional Plan is a “living” document; it will change over time as policies and programs evolve. We’ll update it every four years to inform the region about our accomplishments, add new objectives, and adapt the Regional Plan to the region’s changing needs.

Thank you for spending the time to learn about the Regional Plan. After all, it belongs to all of us. Together we can build a future that we all want. A future in which our region grows in new and exciting ways, yet preserves the qualities we love most about this very special place.

Let’s work together to move San Diego Forward!

*Together we can build a future that we all want. A future in which our region grows in new and exciting ways, yet preserves the qualities we love most about this very special place.*
Endnotes

2  http://www.sandag.org/index.asp?projectid=296&fuseaction=projects.detail
4  http://www.sandag.org/index.asp?projectid=334&fuseaction=projects.detail#visualization
5  http://www.sandag.org/index.asp?projectid=19&fuseaction=projects.detail
6  http://www.sdforward.com/mobility-planning/regional-parking-management-toolbox
7  http://www.sandag.org/index.asp?subclassid=98&fuseaction=home.subclasshome
10 A definition of Megaregion can be found in Appendix K: Glossary of Transportation Terms, Abbreviations, and Acronyms.
11 The 20 performance indicators are detailed in Appendix S: Monitoring Performance.
12 Detailed methodology is included in Appendix S
13 Appendix R: Transportation Security and Safety