



OUTLOOK

2035

Because Mobility Matters



DRAFT
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- E: PUBLIC OUTREACH REPORT
- F: EMERGING TECHNOLOGY POLICY

List of Acronyms & Abbreviations

ADA	Americans with Disabilities Act
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
ARTIC	Anaheim Regional Transit Intermodal Center
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
County	Orange County
CTP	California Transportation Plan
EAP	Early Action Plan
EPA	United States Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GHG	greenhouse gas
GPS	global positioning system
HOV	high-occupancy vehicle
I-5	Interstate 5
I-405	Interstate 405
LAX	Los Angeles International Airport
LOS	levels of service
LOSSAN	Los Angeles-San Diego-San Luis Obispo
L RTP	Long Range Transportation Plan
Metro	Los Angeles County Metropolitan Transportation Authority
MPAH	Master Plan of Arterial Highways
mph	miles per hour
MPO	Metropolitan Planning Organization
NAAQS	national ambient air quality standards
OC Bridges	Orange County Bridges
OCTA	Orange County Transportation Authority
PEIR	Program Environmental Impact Report
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCRRA	Southern California Regional Rail Authority
SCS	Sustainable Communities Strategy
SHOPP	State Highway Operation and Protection Program
SIP	State Implementation Plan
SR-22	State Route 22
SR-55	State Route 55
SR-57	State Route 57
SR-60	State Route 60
SR-73	State Route 73
SR-74	State Route 74
SR-91	State Route 91
SR-133	State Route 133
SR-241	State Route 241
TAP	transit access pass
TDM	Transportation Demand Management
TSM	Transportation System Management

Executive Summary

Introduction

As the State-designated regional transportation planning agency for Orange County (County), the Orange County Transportation Authority (OCTA) is responsible for planning and implementation of countywide transportation systems and projects. In this role, OCTA leads the effort to develop a Long Range Transportation Plan (LRTP)—its vision for mobility over the next 20+ years. The LRTP is updated every 4 years to reflect changing demographics, economic trends, and mobility needs.

Orange County’s LRTP is an essential building block for Southern California transportation planning efforts (see Figure E-1). OCTA submits its LRTP to the Southern California Association of Governments (SCAG) as the County’s transportation input to the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). SCAG is federally required to develop its RTP/SCS every 4 years. Projects must be included in the RTP/SCS in order to be eligible for federal and State funding. Thus, through the LRTP, Orange County’s transportation projects and programs are incorporated into the RTP/SCS for Southern California and subsequently programmed for funding in the Federal Transportation Improvement Program (FTIP).

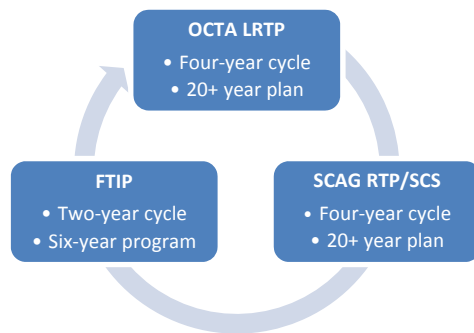


Figure E-1: Regional Planning & Funding Process

This LRTP update (Outlook 2035) forecasts needs for the 2035 horizon year, prioritizes planned projects, and identifies additional strategies that address those needs, thereby providing safe and efficient mobility for the 2035 horizon. Based on the goals and objectives established by the OCTA Board of Directors (Figure E-2), Outlook 2035 includes projects intended to provide mobility choices to Orange County residents, workers and visitors that range from active transportation to expanded transit, enhanced capacity on arterials, and freeway operational improvements.

The first goal and its objectives reflect OCTA’s commitment to deliver the projects and services identified as part of Orange County’s voter-approved sales tax for transportation. Measure M2 was drafted in recognition of anticipated long-range transportation needs, and presented a plan to address those needs. Therefore, Measure M2 projects serve as the foundation of this LRTP.

While Measure M2 funding will go far toward improving mobility in Orange County, Measure M2 alone cannot solve all of the County’s transportation problems. To ensure that the County’s past and future investments are fully utilized, the second goal focuses on improving overall transportation system performance. Outlook 2035 includes projects that improve the efficiency of our infrastructure, thereby reducing delay due to congestion, increasing facility speeds and increasing transit ridership.

One of the key themes heard throughout the LRTP planning process, from both the OCTA Board of Directors and the public, has been the importance of supporting and promoting travelers’ choices and encouraging their efficient use of all available modes of transportation. Achieving the third goal of expanded system choices will require implementing planned networks and expanding transit services to provide adequate facilities for different modes of transportation. Further, modal networks must be better linked together to facilitate traveler access.

Deliver on Commitments	Improve System Performance	Expand System Choices	Support Sustainability
<ul style="list-style-type: none"> • Prioritize Measure M2 projects • Consistency with M2020 and FTIP 	<ul style="list-style-type: none"> • Increase speeds • Reduce delay • Increase Transit Ridership 	<ul style="list-style-type: none"> • Improve multimodal integration • Invest in new facilities • Expand transit services 	<ul style="list-style-type: none"> • Deliver a financially constrained plan • Maintain infrastructure • Implement environmental strategies • Support sustainable communities strategies

Figure E-2: Goals & Objectives

OCTA’s final goal is sustainability—investing today to safeguard the future. For the LRTP, the goal of sustainability is applied in multiple areas: maximizing financial resources, maintaining infrastructure, and protecting and preserving Orange County’s natural environment.

In summary, Outlook 2035 reflects current commitments and completed transportation studies, and provides a platform for identifying issues and challenges related to mobility in Orange County in the future, along with the proposed actions to address those needs.

The Need for Outlook 2035

Orange County currently has a robust transportation network in place that is the result of past planning efforts dating back to the 1950s, with the County’s Master Plan of Arterial Highways (MPAH). The transportation system includes regional highways, arterials and local roads, bus and rail transit, and regional bikeways, all of which were developed to accommodate the growth patterns of the County, and to meet Orange County voter directives through Measure M.

Not surprisingly, Orange County continues to grow (see Figure E-3). This growth will result in increased demand on the County’s transportation networks and services. To assess the impact of this increased demand on the performance of the transportation system, the LRTP uses a future 2035 Baseline Scenario.

The 2035 Baseline Scenario serves the purpose of depicting what the transportation system and travel conditions would be like in 2035 given the projected growth and minimal investment, reflecting only the transportation improvements currently funded in the FTIP. Analysis of this scenario highlights where the projected growth will likely have the greatest impacts on the transportation system.

Given the continued growth in population, housing and employment and the Baseline’s limited investment in mobility, traffic congestion in 2035 (total vehicle hours of delay) is projected to increase by 166 percent over 2010 conditions. At the same time, vehicle

miles traveled will increase while travel speeds decrease. The net result of this analysis is that strategic investment in Orange County’s transportation systems is needed to address the anticipated growth.

The Preferred Plan

To address this need, Outlook 2035 identifies a Preferred Plan that completes Measure M2 transportation improvements and adds discretionary projects to reduce congestion and improve mobility. Full lists of the baseline and Preferred Plan projects are provided in Appendices A and B, respectively. This set of planned improvements and services can be delivered within projected funding resources, which total approximately \$36.1 billion.

This financial forecast considers the revenues that will be available between now and 2035 from local, State, and federal sources (see Figure E-4). Local funds make up the lion’s share of revenues, with Measure M2 as the largest single revenue source at approximately \$11.3 billion. Other local funds are derived from retail sales tax, toll revenues, bus fares, and local jurisdictions’ general fund investments in transportation projects and maintenance. State funding from gas taxes, program funding, and voter-approved funds for transit capacity, enhancement, and safety adds about \$6.1 billion. Finally, federal funds are projected to add approximately \$3.25 billion for Outlook 2035 from programs whose purposes include funding transit, highway rehabilitation, alternative transportation, and projects that reduce traffic congestion and improve air quality.

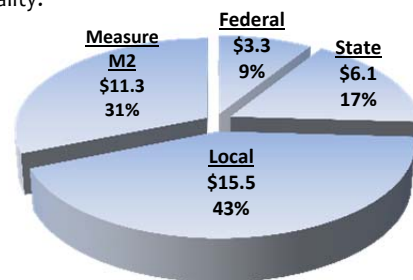


Figure E-4: Fiscal Years 2015-2035 Revenue Forecast (in billions)

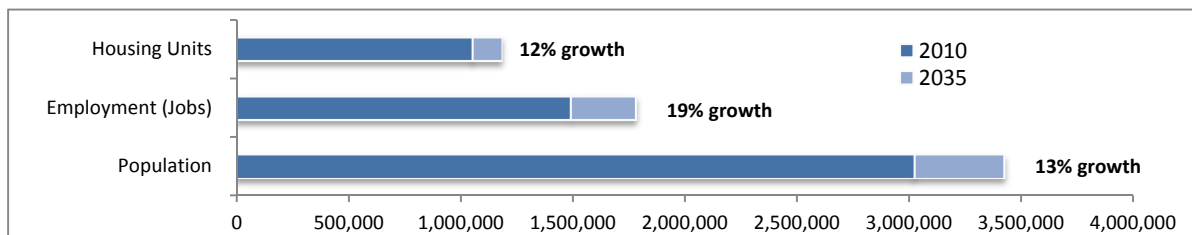


Figure E-3: Projected 2035 Populations, Employment, & Housing Growth

With these funds, the Preferred Plan delivers on Measure M2 commitments and proposes additional projects to improve performance, expand choices, and support sustainability of Orange County’s transportation system.

The Measure M2 commitments encompass a range of projects and activities, including (a) reducing freeway bottlenecks, (b) implementing Metrolink expansion, local community bus and guideways, arterial capacity improvements, and signal synchronization projects, and (c) advancing environmental stewardship and mitigation.

Beyond Measure M2 commitments, discretionary projects that are part of the Preferred Plan include express bus and vanpool service on freeways to increase overall facility usage and average vehicle occupancy, as well as enhanced bus service in high-demand areas. Regional highways are enhanced through elimination of bottlenecks, improved high-occupancy vehicle (HOV) facilities and increased connectivity between facilities in order to improve travel time reliability. Bikeway and pedestrian projects on local streets are included to support new travel choices and reduce vehicular demand.

Compared to the 2010 base year conditions, the Preferred Plan results in the addition of:

- New bus and streetcar service on key, high-demand corridors
- Enhanced bus routes to maintain on-time performance
- 20 weekday Metrolink trains
- 650 miles of bikeways
- 820 lane-miles on the MPAH network
- 200 freeway carpool lane-miles

- 242 tollway lane-miles
- 450 vanpools and station vans

Although the planned investments are categorized by modes, it is important to recognize that all of these systems are integrated. Roadways are typically shared by cars, buses, bicycles, and pedestrians. Freeways are used by cars and buses. Likewise, paved trails are often shared by bicycles and pedestrians. The Preferred Plan offers a multi-layered transportation system that provides better connectivity between modes, shared use of the same infrastructure, and improved travel time for all travelers.

Performance of the Preferred Plan

The Preferred Plan investments improve all but one performance measure when compared to the 2035 Baseline Scenario (see Figure E-5). However, the slight increase of less than 1% in vehicle miles traveled can likely be offset by enhanced coordination with local jurisdictions and implementation of strategies identified in the 2012 RTP/SCS. While these investments go a long way toward achieving a sustainable transportation system, there is room for improvement.

As Figure E-5 indicates, the Preferred Plan investments do not preserve the performance of the 2010 Base Year. The rate at which projected travel demand is increasing indicates that the transportation system will require additional improvements beyond what is included in the Preferred Plan. To provide a forward-looking approach, Outlook 2035 outlines a Conceptual Plan that is not constrained by funding limitations, as well as a 4-year Action Plan of studies and monitoring efforts. Together, these identify additional projects and strategies for consideration in future LRTP updates in order to address emerging issues and position OCTA to take advantage of opportunities.

Performance Metrics	2010 Base Year	2035 Baseline	Draft 2035 Preferred	Percent Change from 2035 Baseline
Daily Transit Trips	133,469	165,219	189,426	14.7% Increase
Total Vehicle Hours of Delay	274,646	729,432	506,142	30.6% Decrease
Daily Vehicle Miles Traveled	63,404,082	81,112,113	81,750,024	0.8% Increase
Average Speed – Freeway GP Peak	40.4	34.5	39.0	13.2% Increase
Average Speed – HOV Peak	48.4	57.4	59.5	3.6% Increase
Average Speed – Arterial Peak	30.3	22.7	27.2	20.0% Increase

Figure E-5: 2035 Preferred Plan – Performance Metrics

The Conceptual Plan

The Conceptual Plan includes improvements that have been identified through a variety of planning efforts, such as Major Investment Studies, but are not yet ready for inclusion in the Preferred Plan. It may be that they require additional planning, public input, and/or funding. However, these projects appear to support the goals and objectives of the LRTP. A full list of projects included in the Conceptual Plan is provided in Appendix C.

Projects in the Conceptual Plan that enhance mobility beyond the Preferred Plan include:

- Connection between Santa Ana and Anaheim fixed guideways along Harbor Boulevard
- Proposed Fullerton Streetcar Connection
- 8 new Bravo! routes in high-demand areas
- 36 new weekday Metrolink trains
- 6 Los Angeles-San Diego-San Luis Obispo (LOSSAN) grade separations
- Operational freeway or carpool improvements

Moving Forward

Through the monitoring of travel conditions, consideration of emerging transportation issues, and regular engagement of stakeholders, OCTA fosters informed decision-making in a transparent manner. Emerging issues that will influence future planning efforts include the recent legislative focus on coordinating land use and transportation, the growing interest in active transportation, the development of new technology, and the importance of coordinating with partner agencies.

Through the early outreach process, several additional themes emerged. These guiding themes summarize stakeholder priorities for mobility and include: optimizing transportation systems, educating the public about transportation alternatives, innovating through

the use of technology and new real-time transit strategies, collaborating with other planning agencies for regional solutions, and exploring incentives to single-occupant automobile trips.

The emerging issues and stakeholder themes listed above helped to lay the groundwork for a 4-year Action Plan that outlines activities for monitoring, tracking, evaluation, and planning to further develop transportation projects needed in the future. The intent is to develop well-defined projects and strategies for consideration in future LRTP updates that will further improve the transportation system beyond the Preferred Plan.

The Action Plan focuses on the following areas:

- Collaboration on inter-county connectivity
- Study of intra-county opportunities
- Enhancement of transportation outreach and education
- Monitoring of emerging technologies

Conclusion

The LRTP begins with a snapshot of Orange County's transportation system today. Looking to the future, it reflects established programs and completed transportation studies, and identifies transportation issues and challenges along with proposed actions to address them via a Preferred Plan. Even with a Preferred Plan in place, there are transportation demands that cannot be met with available funding. Therefore, Outlook 2035 also outlines a Conceptual Plan that is not limited by the revenue forecast in order to outline projects and services beyond the Preferred Plan that address unmet needs. In addition, Outlook 2035 includes a 4-year Action Plan to continue identifying projects and strategies for consideration in future LRTP updates, through additional studies, continued stakeholder outreach, and the monitoring of emerging technologies.

Chapter 1: Introduction

The Orange County Transportation Authority (OCTA) prepares the Long Range Transportation Plan (LRTP) and submits it to the Southern California Association of Governments (SCAG) so that Orange County’s transportation projects and programs will be incorporated into the Regional Transportation Plan (RTP) for Southern California and subsequently funded in the Federal Transportation Improvement Program (FTIP).

The LRTP, which is updated every 4 years, begins with a snapshot of Orange County’s transportation system today. Looking to the future, the LRTP reflects established programs and completed transportation studies, and identifies transportation issues and challenges along with proposed actions to address them.



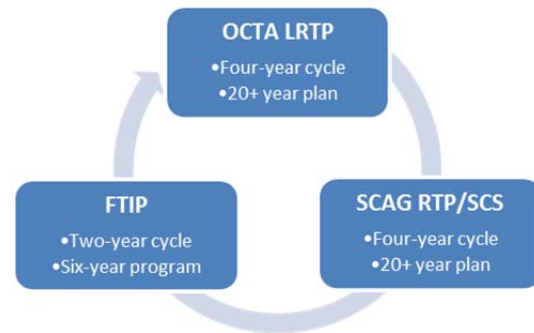
Developing Orange County’s Plan

OCTA’s LRTP provides an opportunity to create a vision for mobility in Orange County. It provides us with a chance to pause, look back, see where we’ve come from, and reflect on the lessons we’ve learned. It provides us a chance to consider where we want to go and to think big. And it provides us a chance to engage the Orange County community in a dialogue about our collective transportation future.

OCTA is designated by the State as the regional transportation planning agency for Orange County (California Government Code Section 29532). As such, OCTA is responsible for planning and implementation of countywide transportation systems and projects. In this role, OCTA leads the effort to develop an LRTP, which is updated every 4 years.

Orange County’s LRTP is an essential building block for Southern California transportation planning efforts. It includes projects, priorities, and policies for Orange County’s transportation system and provides input to a number of regional, State, and federal planning initiatives. OCTA submits its LRTP to SCAG as the County’s input to the RTP, which covers the Counties of Imperial, Orange, Los Angeles, Riverside, San Bernardino, and Ventura.

SCAG is federally required to develop its RTP every 4 years. Projects must be included in the RTP in order to be eligible for federal and State funding. Further, the



RTP is the tool used to demonstrate that the Southern California region meets federal air quality requirements as well as State targets for greenhouse gas (GHG) emissions. In addition to air quality conformity, the RTP must demonstrate how the plan can be implemented within available financial resources.

SCAG develops and maintains the 6-year FTIP in close coordination with County Transportation Commissions, which serves as the programming document for the projects included in the RTP. Locally prioritized lists of projects are forwarded to SCAG by County Transportation Commissions, including OCTA. From these lists, SCAG develops the FTIP and analyzes it for conformity with air quality requirements.

The State also prepares a long-range transportation plan—the California Transportation Plan (CTP)—to guide planning investments statewide. The 2014 CTP is currently being developed, with a focus on integrating

multimodal transportation systems that complement regional transportation plans and land use visions, along with reducing GHG emissions. A more detailed description of the CTP, the RTP, the FTIP, and air quality and transportation conformity requirements is provided in Appendix D.

OCTA recognizes that community input is critical to a successful plan. Throughout the preparation of Outlook 2035, OCTA sought input from a wide range of participants through multiple venues. In addition to extensive discussion by OCTA’s Board of Directors, many government and transportation-related organizations participated. Each of the 34 cities in the County and the County of Orange were provided opportunities for input, along with the Orange County Council of Governments, the California Department of Transportation (Caltrans), and the Transportation Corridor Agencies, to name a few. Businesses, non-profits, university representatives, and several advisory committees provided constructive comments. Residents came to public meetings, workshops, and took online surveys. Multiple community roundtables were held to engage transportation professionals, environmental organizations, active transportation experts, high school youth, and college-aged young adults.



The final product is a roadmap with mobility as its destination. It is OCTA’s guidebook for maintaining and enhancing transportation systems in the County. And it provides the community a basis for tracking progress toward shared transportation goals.

Goals and Objectives: Setting the Stage

To set goals for the organization, OCTA asked the questions: (1) “What are our priorities for mobility in Orange County?” (2) “What must we do to accomplish these priorities?” (3) “What are the local, State, and federal mandates that must be considered?”

In response to these questions and with input from the OCTA Board of Directors, the goals and objectives for OCTA were developed and applied to the LRTP.

GOAL: Deliver on Commitments

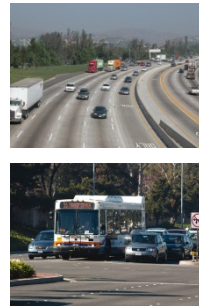
As described previously, Orange County voters have twice affirmed their support of a sales tax for transportation (Measure M in 1990 and Measure M2 in 2006). Each ballot measure included an investment plan that detailed how the sales tax revenues would be spent. All Measure M projects have been completed, and now OCTA must deliver on the Measure M2 commitments made to voters. Thus, Measure M2 projects and programs are part of the foundation of Outlook 2035, the other foundation parts being the committed projects in the M2020 Plan and the FTIP.

Objectives:

- Deliver the Commitments of Measure M2 to the Voters
- Maintain Consistency with the M2020 Plan and the FTIP

GOAL: Improve Transportation System Performance

The purpose of the LRTP is not only building into the future, it is also maximizing the use of what we’ve got and enhancing it to address growth. To ensure that full advantage is taken of our past and future investments, we must work to maximize their efficiencies (e.g., improving on-time transit performance, expanding Bravo! express bus service, implementing Class II bike lanes over the existing network, synchronizing signals on arterials, and improving freeway bottlenecks).



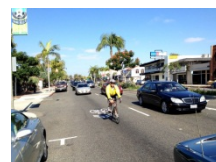
Objectives:

- Reduce Delay Due to Congestion
- Increase Facility Speeds
- Increase Transit Ridership



GOAL: Expand Transportation System Choices

OCTA’s long-range mobility vision embraces choice and encourages use of all modes efficiently for the benefit of both the individual user and the transportation system as a whole. To give travelers real choices, there must be adequate facilities for multiple modes of transportation, and the modal networks need to be linked together.



Objectives:

- Implement Planned Networks
- Expand Transit Services
- Improve Multimodal Integration



GOAL: Support Sustainability

Our decisions must consider our resources (i.e., infrastructure, environmental, and financial) to ensure sustainability and avoid setbacks in the future. We must preserve our natural resources, maintain our infrastructure, and live within our means. Financial sustainability requires disciplined appropriation and accounting to maximize the use of public resources. Along with securing financial resources, Orange County has committed to supporting environmental sustainability through projects that help to protect or enhance the natural environment (such as reducing polluted water runoff from roadways).



Objectives:

- Support Infrastructure Maintenance
- Support Sustainable Communities Strategies
- Implement Environmental Strategies
- Ensure Financial Sustainability

The Foundation

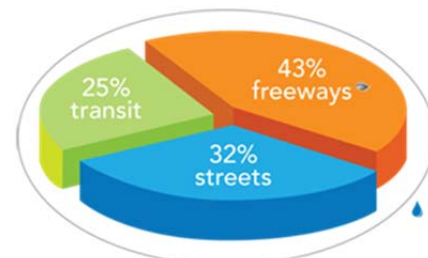
The Measure M sales tax for transportation was approved twice by Orange County voters: the original Measure M in 1990 and Measure M2 in 2006.



Measure M delivered more than \$4 billion worth of transportation improvements for Orange County, adding 192 freeway lane-miles, improving 170 intersections and 38 freeway interchanges, and implementing Metrolink service in Orange County, which now carries the equivalent volume of one lane of Interstate 5 (I-5) traffic.

When voters approved Measure M2, they extended the sales tax for specified transportation-related projects and programs through 2041. Extensive research and planning was undertaken to create the Measure M2 investment plan. There are funds designated for freeways, roadways, and transit that cover a wide range of projects (e.g., fixing freeway bottlenecks, synchronizing traffic signals, mitigating environmental impacts, and building railway over- and underpasses).

OCTA must deliver on the commitments made to voters, and as such, Measure M2 projects serve as the foundation of this LRTP.



A total of 5% of M2 Freeway Program funds is allocated to the Freeway Environmental Mitigation Program
 A total of 2% of the overall M2 Program funds is allocated to the Environmental Cleanup Program

While Measure M2 funding will go far toward improving transportation in Orange County, Measure M2 alone cannot solve all of the County’s transportation problems. In addition to Measure M2, this LRTP reflects planning efforts previously undertaken (e.g., Major Investment Studies), and incorporates many years of extensive research, design work, coordination, cost and benefit analysis, and public input that have gone into planning for mobility in Orange County. This LRTP does not start “from scratch” but builds upon documents that have been prepared by and vetted across a variety of organizations and platforms, including local, regional, State, and federal agencies.





Shortly after Measure M2 passed in 2006, the OCTA Board of Directors adopted an Early Action Plan (EAP) to expedite several transportation projects included in Measure M2. This EAP allowed for delivery of \$1.65 billion worth of transportation improvements to be underway by 2012. During the recent recession, Corridor Mobility Improvement Account funds created by Proposition 1B helped to advance these Measure M2 projects.

Subsequent to the EAP, a program called “M2020” was established to continue expediting projects and improving mobility through the year 2020. M2020 covers the approximately 8 year period from 2013 through 2020, and will result in more than \$5 billion in transportation projects either completed or under construction by 2020. The goal of M2020 is to deliver the majority of the freeway programs by the year 2020 through the strategic use of bonding in order to take advantage of favorable current construction market conditions. In addition, the plan expands rail service



hours, funds fixed-guideway connections to Metrolink, and improves street and road conditions.

A Comprehensive Vision

Ultimately, the projects included in the LRTP reflect OCTA’s visionary goals and objectives, along with public input, existing commitments, and completed studies. Projects that can be completed with available projected revenues, including Measure M2 dollars, are part of the “Preferred Plan” of the LRTP. Outlook 2035 also considers emerging concepts (again, consistent with goals and objectives), which may require further planning, other revenue sources, and community dialogue. For the most part, these emerging concepts stem from previously completed studies.

Those projects that will require more planning, discussion, and revenue are part of the “Conceptual Plan” of the LRTP. Both the Preferred and Conceptual elements are important to the LRTP. Together they offer a comprehensive vision of Orange County’s transportation future.

In addition to Outlook 2035’s Conceptual Plan, an action plan is included that identifies improvements and strategies for consideration in future LRTPs. This 4-Year Action Plan includes efforts to monitor and study emerging issues, up-and-coming research and technology, and priorities identified through public participation.



Chapter 2: The Need for Outlook 2035

The projected growth of Orange County's population and employment will outpace available transportation capacity, resulting in increased congestion, delay, and time in transit. Strategic investment in Orange County's transportation systems is needed to address the anticipated growth.

The 2010 Transportation System

The following are descriptions of the transportation improvements and services “on the ground” in 2010, the benchmark year. This system is the result of the evolution and implementation of transportation planning efforts dating back to the 1950s through the County’s Master Plan of Arterial Highways (MPAH), and more recently reflects the delivery of Measure M and the passage of Measure M2. The projects and services in the 2010 transportation system were developed in response to the development patterns of the County, the preferred mode choices of travelers, and Orange County voter directives.

Regional Highways

Orange County employees, residents, and businesses are served by an extensive system of regional highways comprising 10 major interstate and state route facilities and the nation’s most comprehensive network of managed lanes or high occupancy vehicle (HOV) lanes. Four of these facilities— I-5, Interstate 405 (I-405), State Route 57 (SR-57), and State Route 91 (SR-91)—function as important regional transportation connections to neighboring counties. In addition to 1,113 lane-miles of general-purpose travel lanes, the regional highway system includes 234 lane-miles of HOV lanes, 285 lane-miles of toll roads, and 40 lane-miles of express lanes (see Figure 2-1).

Orange County’s regional highway network is used for a variety of activities: businesses use the regional highways for the movement of their goods. Orange County’s service providers use the network to conduct business, and Orange County’s residents use the regional highway network for commuting, school, shopping, social, and recreational trips. While the existing regional highway system offers flexibility and utility, high demand results in high levels of congestion during peak hours.

Most of the regional highway system operates near or above capacity, which results in time lost and greater fuel costs experienced by travelers due to congestion and delay. Figure 2-2 illustrates the location and severity of traffic congestion during the morning commute



within general-purpose lanes. Average speed during the morning commute period for the system of general-purpose lanes is 38.2 miles per hour (mph).

High demand for travel within HOV lanes can also lead to congestion and slowing. Average speed along the system of HOV lanes is 48.4 mph during the morning and evening commute periods. However, several portions of the HOV system routinely experience lower speeds.

Incidents such as collisions or mechanical breakdown can affect the performance of a regional highway system. Congestion due to incidents can build behind the incident and impact additional facilities. Measure M2 includes funding for changeable message signs along many regional highways, as well as freeway service patrols to clear incidents as quickly as possible and minimize the impact on the regional highway network.

Arterials and Local Roads

Since 1956, Orange County has used the MPAH as a guide and regional planning tool to ensure continuity and consistency of the arterial highway system. Figures 2-3a and 2-3b illustrate the existing lanes for roadways within this system. Approximately 50 percent of daily vehicle miles traveled in Orange County occur on the arterial highway system. Average speed within the system during the a.m. peak period is 29.5 mph.

In addition to automobiles, the arterial highway system also supports bus transit and travel by active transportation such as bicycling. Pavement degradation and congestion affect all three modes. Consequently, Measure M2 included several programs designed to alleviate congestion on the arterial network and preserve pavement quality. These investments are intended not only for automobiles, but also for the benefit of goods movement and active transportation.



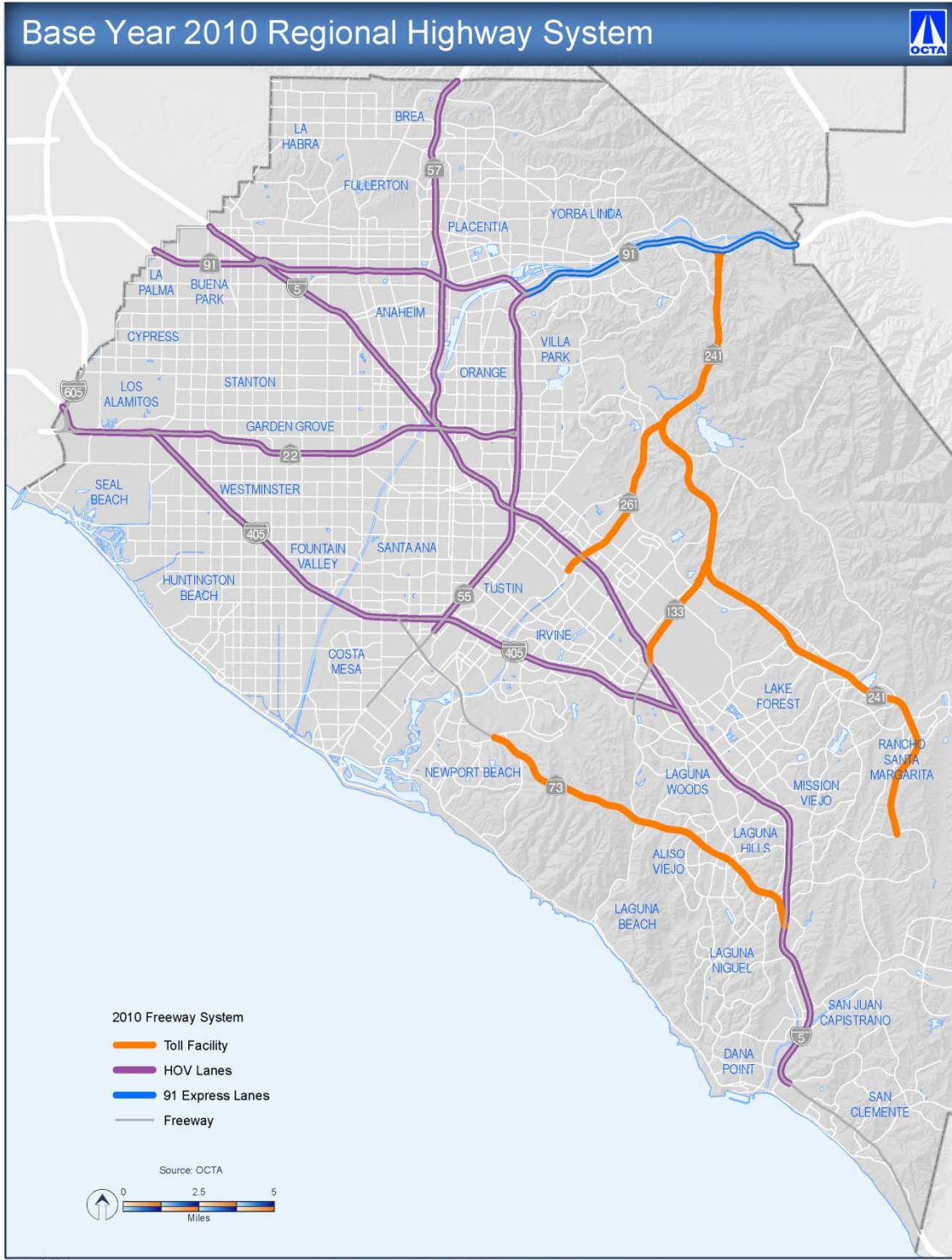


Figure 2-1: Base Year 2010 Regional Highway System

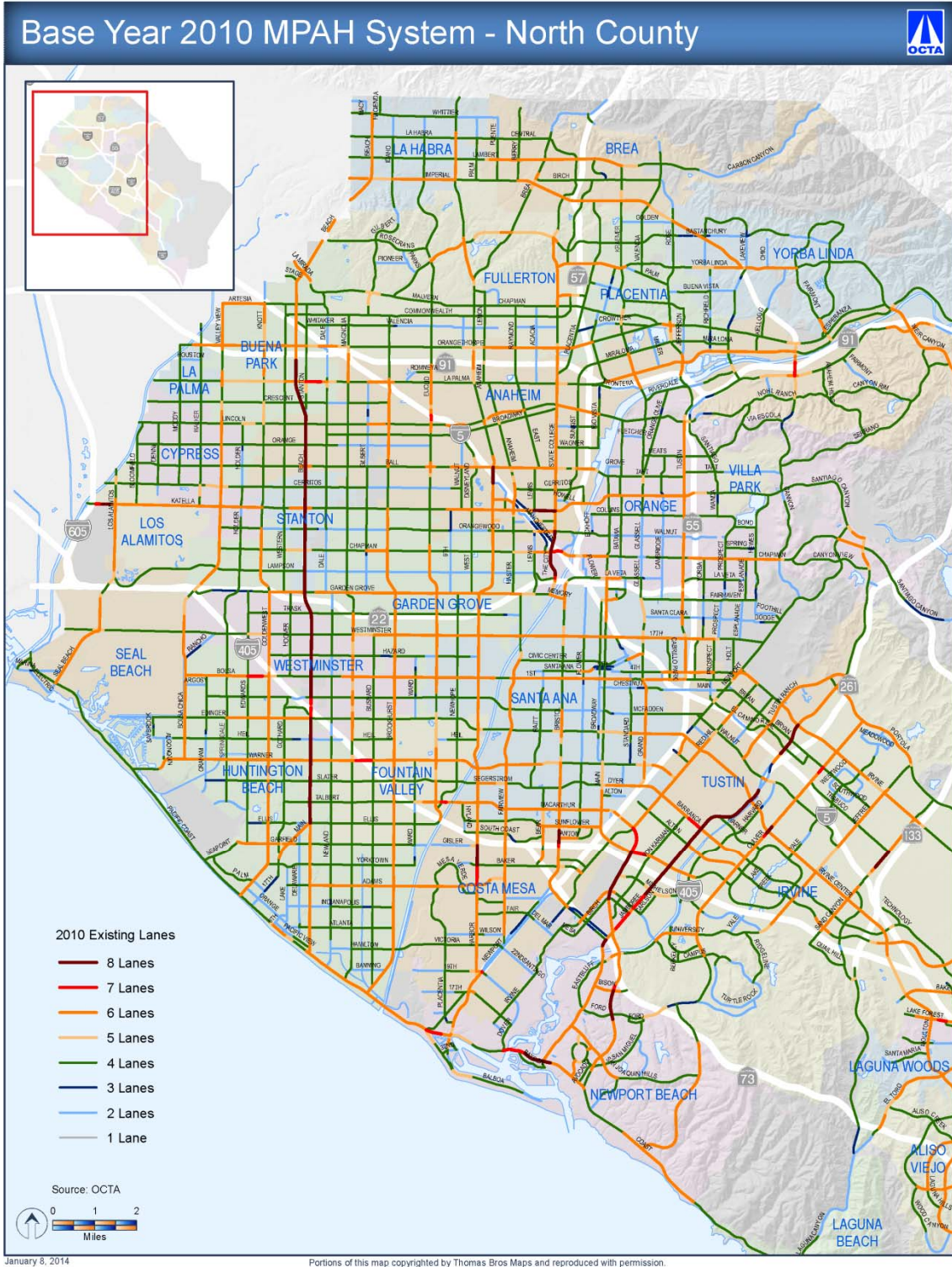


Figure 2-3a: Base Year 2010 MPAH System – North County

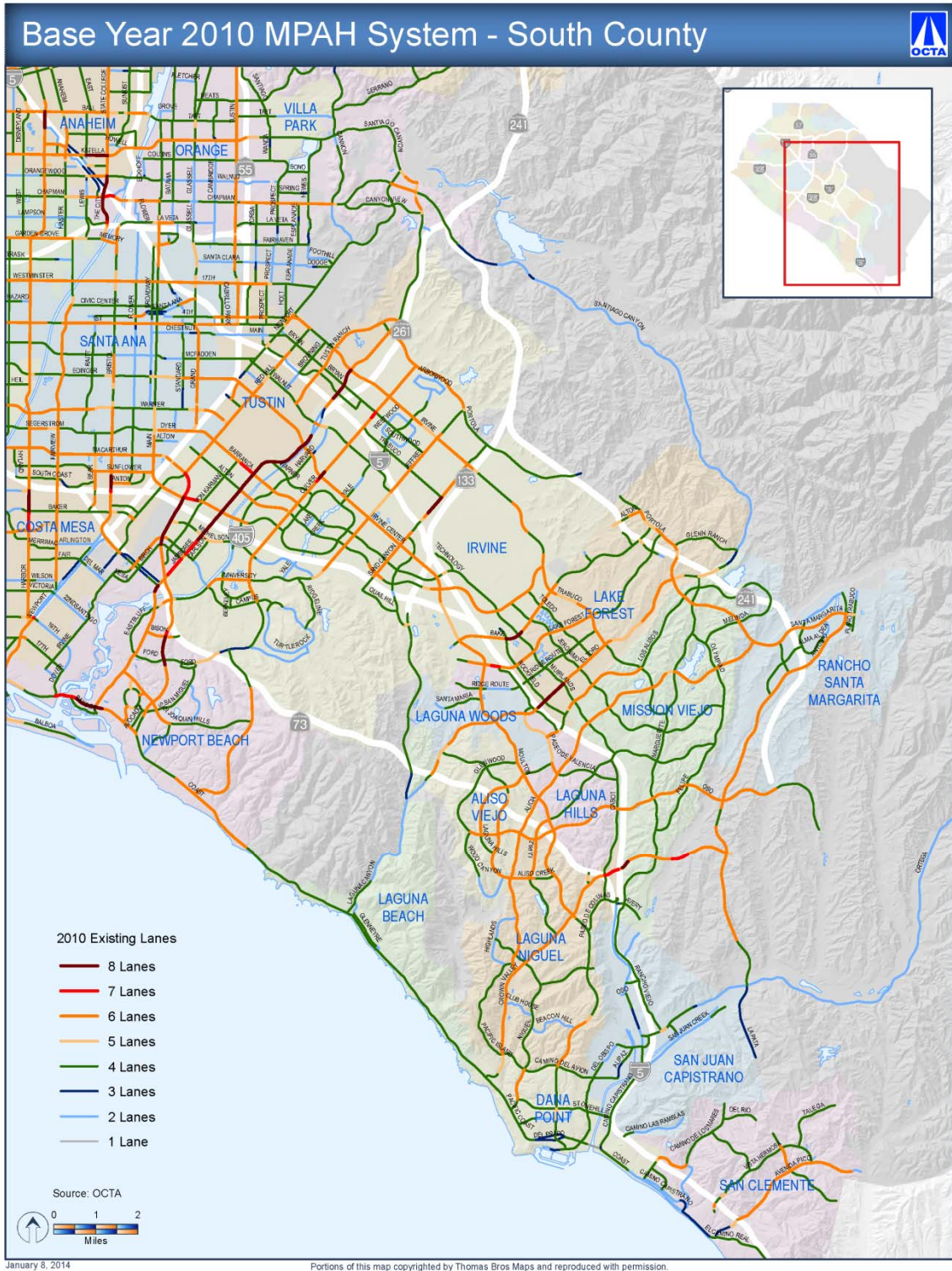


Figure 2-3b: Base Year 2010 MPAH System – South County

Bus Transit

OCTA operates and maintains fixed route and demand-responsive bus transit service, and administers a vanpool and rideshare program for the County. This includes the operation of 40 local routes with headways ranging from 10 minutes to 1 hour. The bus transit system also consists of community shuttle routes, Stationlink Metrolink rail feeder routes, intra-county express routes, and inter-county express routes. Inter-county transit connections are also provided by the Los Angeles County Metropolitan Transportation Authority (Metro), the Riverside County Transportation Commission, and the Long Beach Transit routes that end in Orange County.



Local bus service supplements OCTA service in some communities. Laguna Beach Transit operates three bus lines every 20 minutes during busy summer months. The Irvine iShuttle operates four shuttles year-round, during morning and evening commute hours, between the Irvine Business Complex employment center and the Tustin Metrolink Station, and between the Irvine Spectrum employment center and the Irvine Metrolink Station. The Anaheim Transit Network operates a system of shuttles every 20 minutes between area hotels and attractions such as the Disneyland Resort, Anaheim Convention Center, Knott’s Berry Farm, and the Anaheim Metrolink Station.

ACCESS services provide demand-responsive paratransit for seniors, disabled, and other populations that meet eligibility criteria. This service includes curb-to-curb and door-to-door service (for an additional cost) as well as same-day taxi service, which meet the requirements of the Americans with Disabilities Act (ADA).



Rail Transit

Both regional passenger rail and commuter rail serve Orange County. Amtrak’s Pacific Surfliner provides regional passenger rail service with stops at stations in Fullerton, Anaheim, Santa Ana, Irvine, San Juan Capistrano, and San Clemente.



The Surfliner operates 12 northbound and 11 southbound trains per day.

Commuter rail service is provided by the Southern California Regional Rail Authority (SCRRA) under the brand name “Metrolink.” Three Metrolink routes operate within Orange County (i.e., Orange County Line, Inland Empire-Orange County Line, and 91 Line), with stops at stations in Buena Park, Fullerton, Anaheim, Anaheim Canyon, Orange, Santa Ana, Tustin, Irvine, Laguna Niguel, San Juan Capistrano, San Clemente, and San Clemente Pier. The Orange County Line operates 15 northbound and 14 southbound trains per weekday. Some of these trips operate only between the Fullerton and Laguna Niguel stations as part of OCTA’s Metrolink Service Expansion Program. The Inland Empire-Orange County Line operates 8 northbound and 8 southbound trains per weekday. The 91 Line operates 5 westbound and 4 eastbound trains per day. Both the Orange County and Inland Empire-Orange County Lines offer limited service on weekends. Figure 2-4 illustrates Amtrak and Metrolink routes within the County. As shown on Figure 2-4, the passenger rail network provides inter-county connections to Los Angeles, Riverside, and San Diego Counties.

Goods movement by freight train also occurs on these rail lines. The BNSF Railway owns and utilizes the track along the Metrolink 91 Line. The Metrolink Orange County Line and Amtrak Pacific Surfliner operate along the Los Angeles-San Diego-San Luis Obispo (LOSSAN) corridor, which is also used by BNSF Railway freight trains.



Regional Bikeways

Orange County’s network of regional highways supports travel by bicycle by providing class II bicycle lanes and class III bicycle routes. Orange County has also constructed several class I off-street bicycle paths. Figures 2-5a and 2-5b illustrate the location and connection of these bicycle paths, lanes, and routes.

Orange County currently has 256 miles of off-street bicycle paths, 719 miles of on-street bicycle lanes, and 84 miles of bicycle routes.



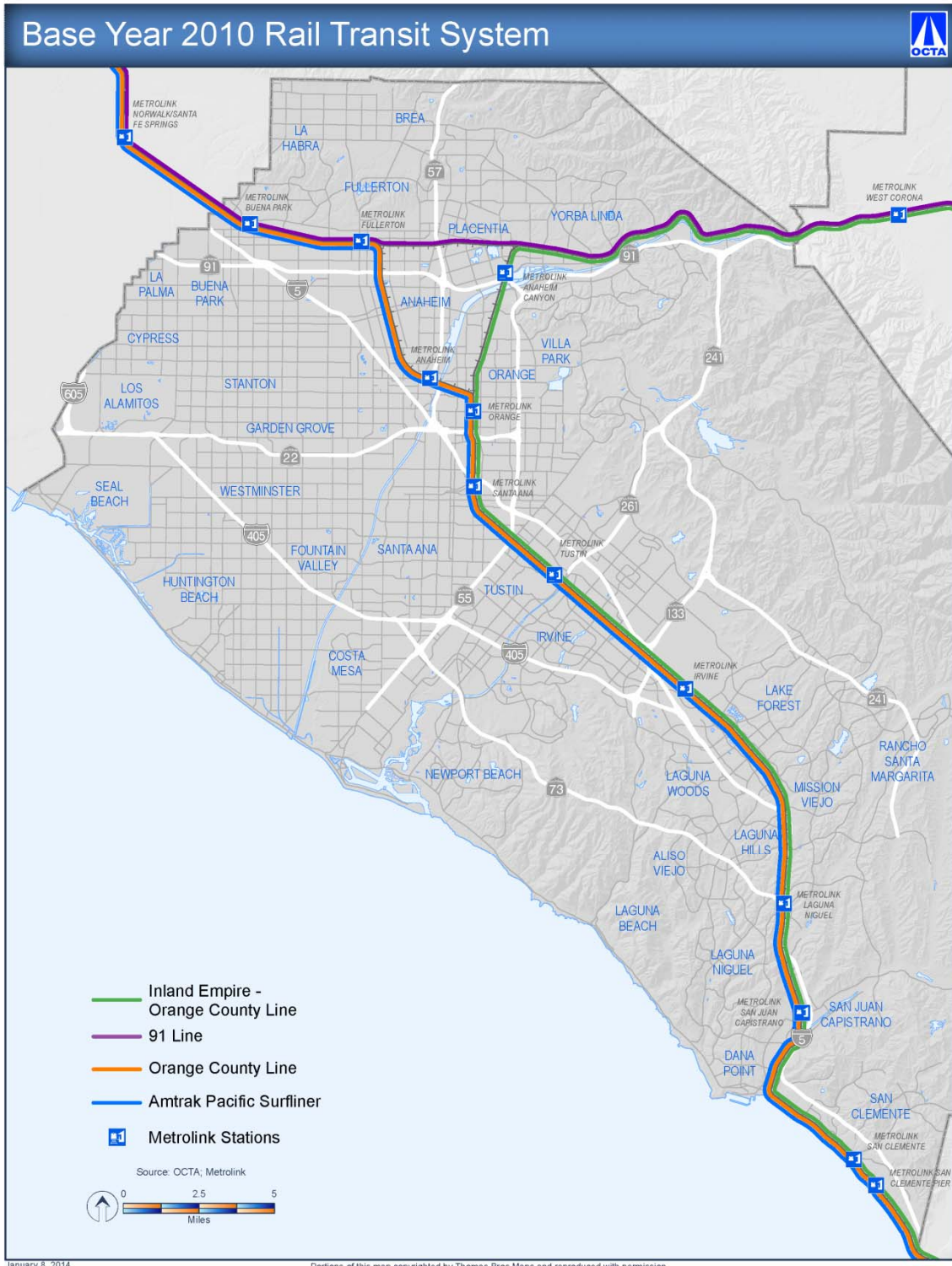


Figure 2-4: Base Year 2010 Rail Transit System

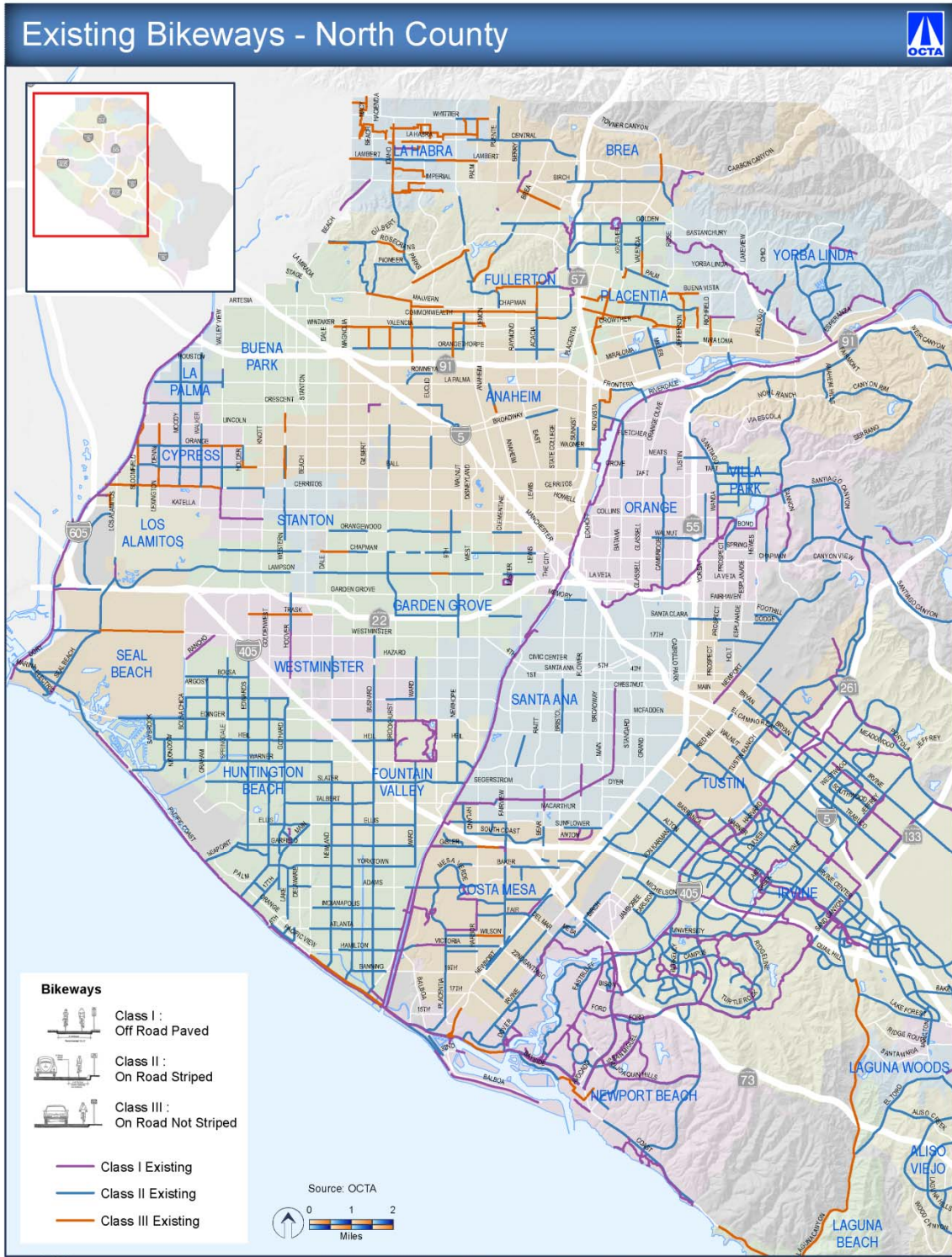


Figure 2-5a: Existing Bikeways – North County

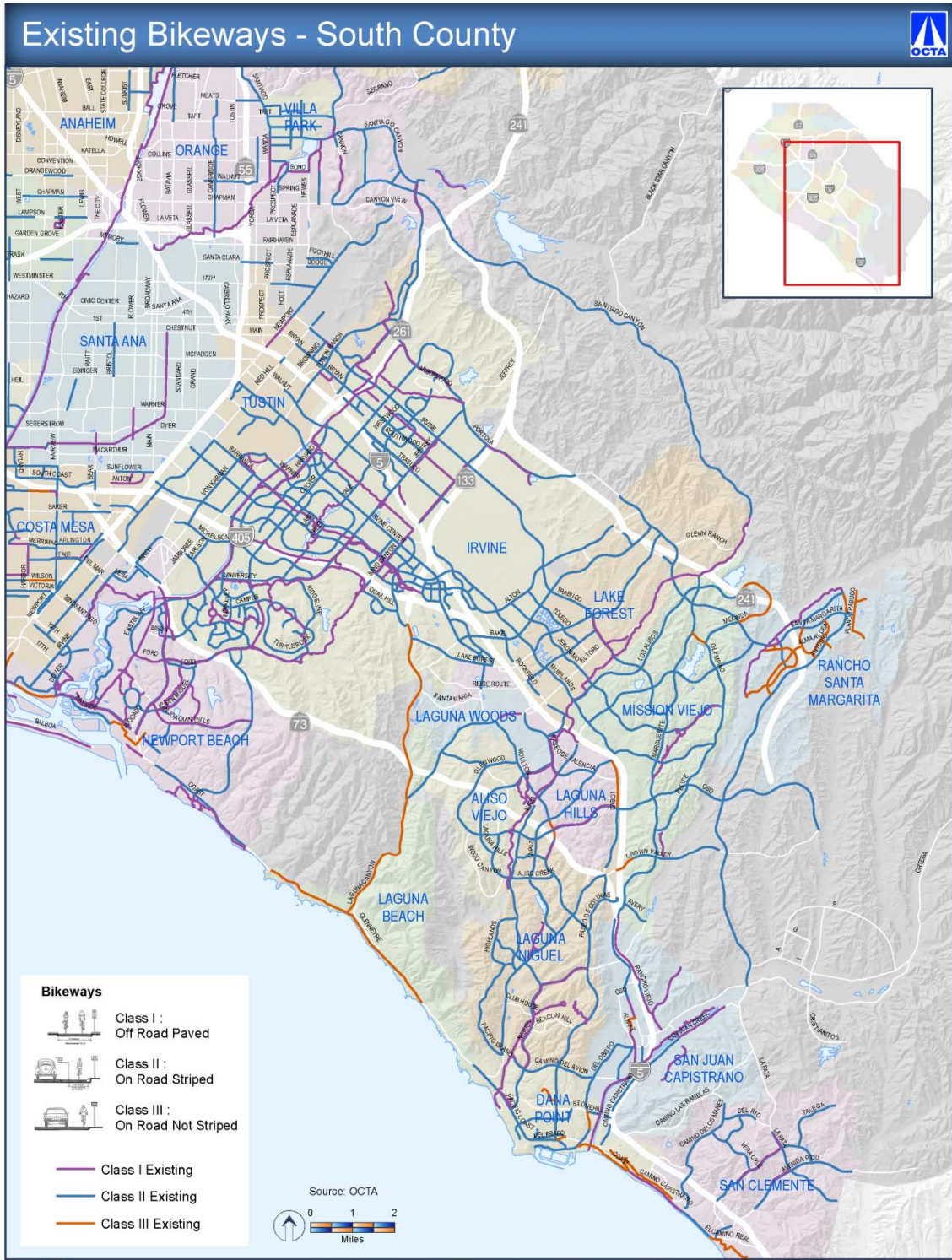


Figure 2-5b: Existing Bikeways – South County

OCTA further supports bicycle travel by equipping OCTA buses with bicycle racks, providing bicycle parking in every car on Metrolink trains, and providing bicycle lockers and racks at Metrolink stations. Since 2011, Metrolink trains have included special bicycle cars with room to secure 18 bicycles on the car’s lower level.

Transportation Systems Management and Transportation Demand Management

The OCTA Vanpool Program assists commuters working in Orange County. OCTA coordinates with commuters, employers, and private vanpool operators to organize and sustain vanpools, and provides a monthly subsidy for each vanpool to offset vehicle lease and maintenance costs. OCTA also maintains park-and-ride lots throughout the County and supports the Guaranteed Ride Home Program. These efforts are designed to reduce single-occupancy commuting.

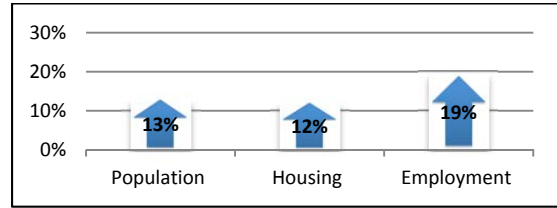


Orange County in 2035 Population and Employment Growth

Despite its already large population and strong employment centers, Orange County continues to grow. Projections show that the County’s population is expected to grow by approximately 400,000 residents (13%), the housing demand is expected to grow by over 125,000 units (12%), and employment is expected to increase by approximately 288,000 jobs (19%). Table 2.1 summarizes the base year (2010) and projected data (2035) for Orange County’s population, housing, and employment. The County’s expected growth between 2010 and the horizon year of 2035 are illustrated on Figure 2-6.

Table 2.1: Projected Population, Employment, and Housing Growth

Category	2010	2035
Population	3,019,356	3,421,228
Employment	1,490,296	1,778,845
Housing Units	993,902	1,124,733



Source: Center for Demographic Research, California State University, Fullerton, Orange County Projections 2010 Modified

Figure 2-6: Projected Change in Population, Housing, and Employment – Orange County, 2010–2035

Population growth is forecasted to occur throughout the County, with increased population density occurring most markedly within the established urban core. The growing population will locate to a greater degree in areas of infill development in housing, as well as in areas with approved entitlements for large residential developments (e.g., La Floresta and Canyon Crest in Brea, the Great Park in Irvine [formerly Marine Corps Air Station, El Toro], the Platinum Triangle in the City of Anaheim, the East Orange planned community in the City of Orange and unincorporated County, and the Rancho Mission Viejo planned community known as The Ranch Plan, which is also located in unincorporated County territory). (See Figures 2-7, 2-8, and 2-9 for 2010 population density, 2035 population density, and the change in population density from 2010-2035, respectively.)

Similar to population growth, housing growth is anticipated to occur throughout the County. Approximately one-third of the housing units projected to be built between 2010 and 2035 are planned on raw land. The remaining two thirds of projected housing units will be infill or redevelopment projects. There will be pockets of increasing housing densification, most notably in Brea, Fullerton, Anaheim, Tustin, Irvine, Lake Forest, Newport Beach, San Juan Capistrano, Yorba Linda, and unincorporated South County communities of Ladera Ranch and Rancho Mission Viejo. Many of the most housing-dense areas will be concentrated in the centralized urban cores of Orange County, along the commuter rail lines and the proposed bus rapid transit and high-frequency bus routes (See Figures 2-10, 2-11, and 2-12 for 2010 housing density, 2035 housing density, and the change in housing density from 2010-2035, respectively.)

While employment will continue to become more dense countywide, job growth is projected to occur primarily in the Cities of Irvine, Anaheim, Tustin, and Orange, all of which are existing employment centers that are anticipated to continue to grow.

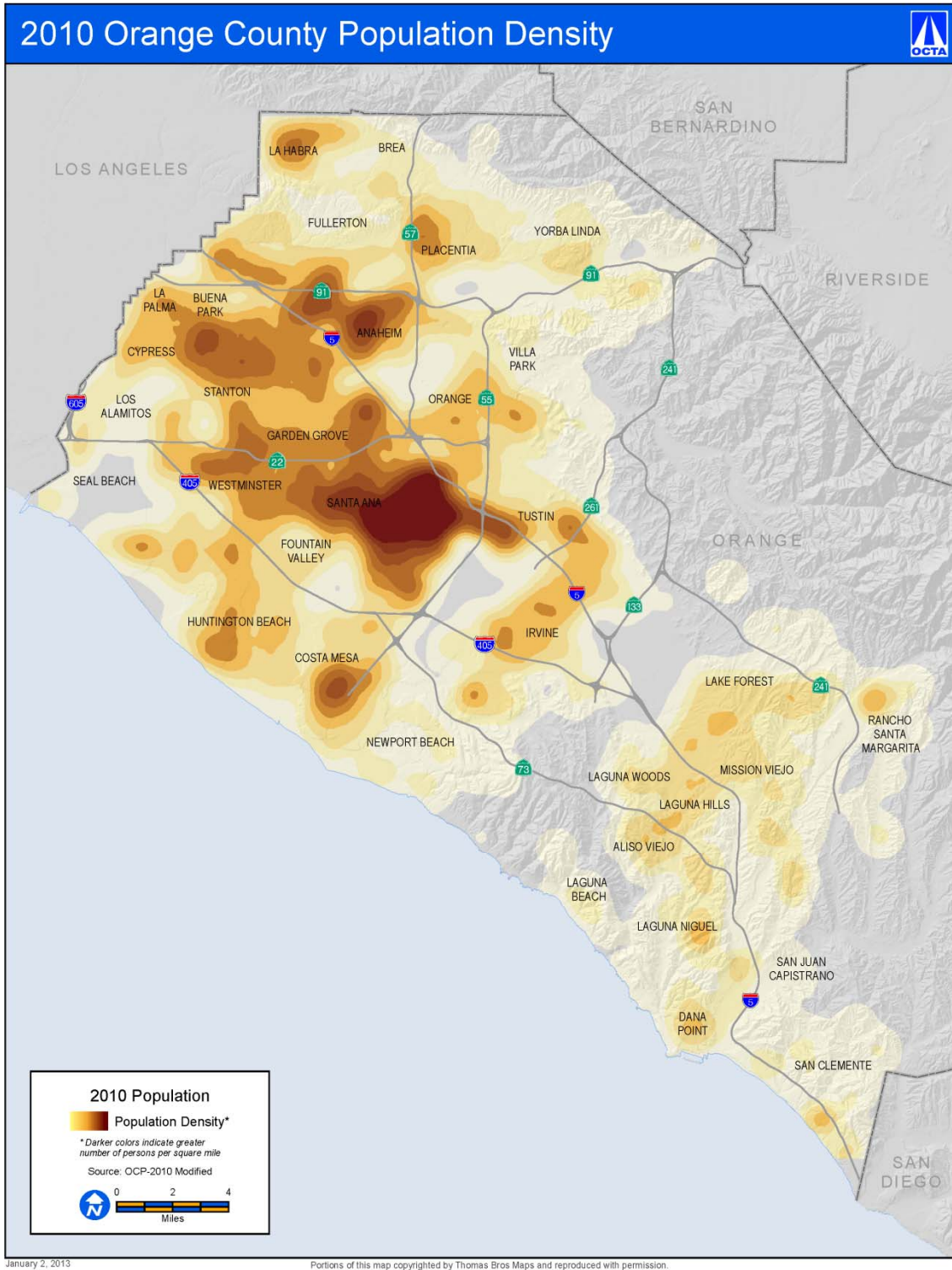
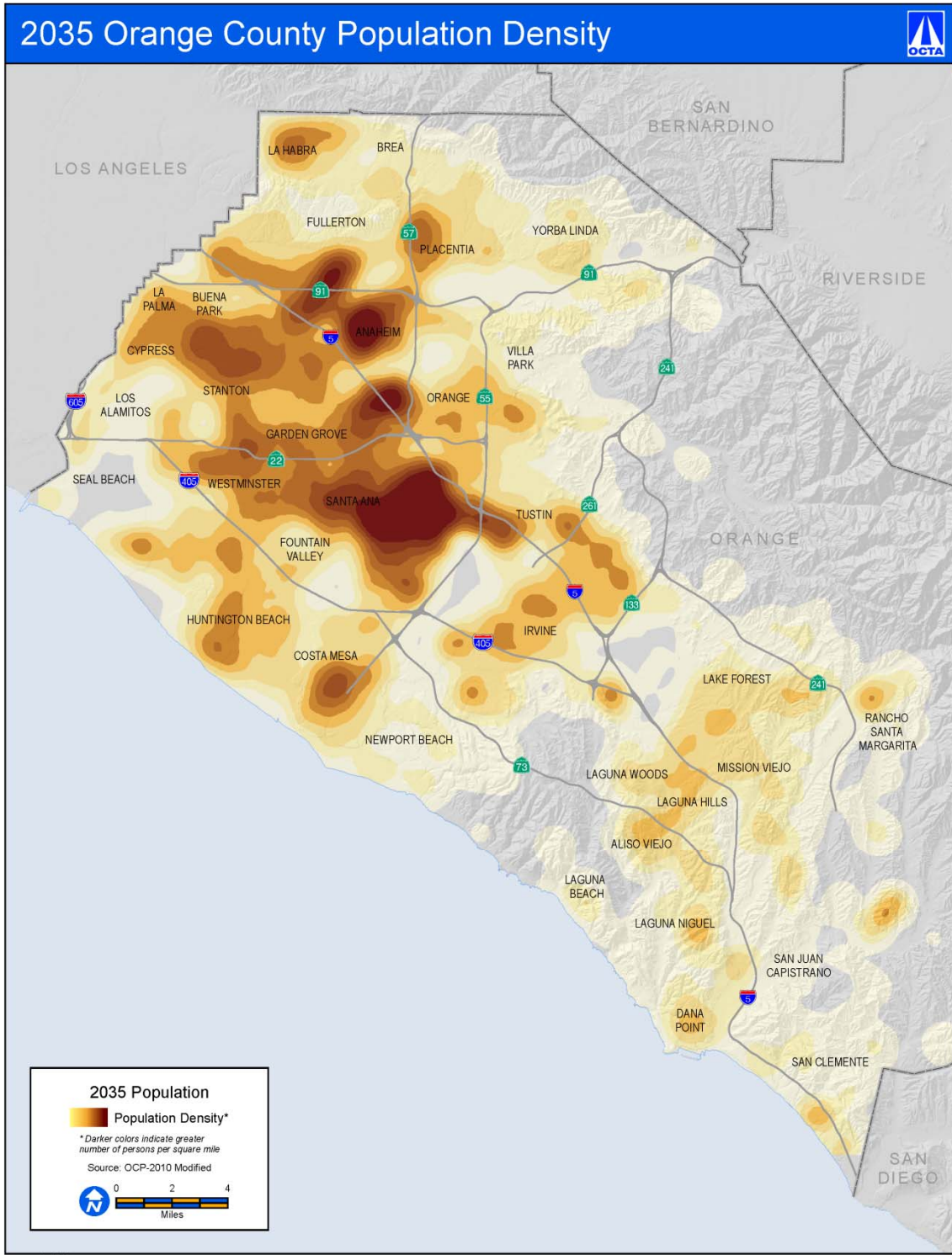


Figure 2-7: 2010 Orange County Population Density



January 3, 2013

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Figure 2-8: 2035 Orange County Population Density

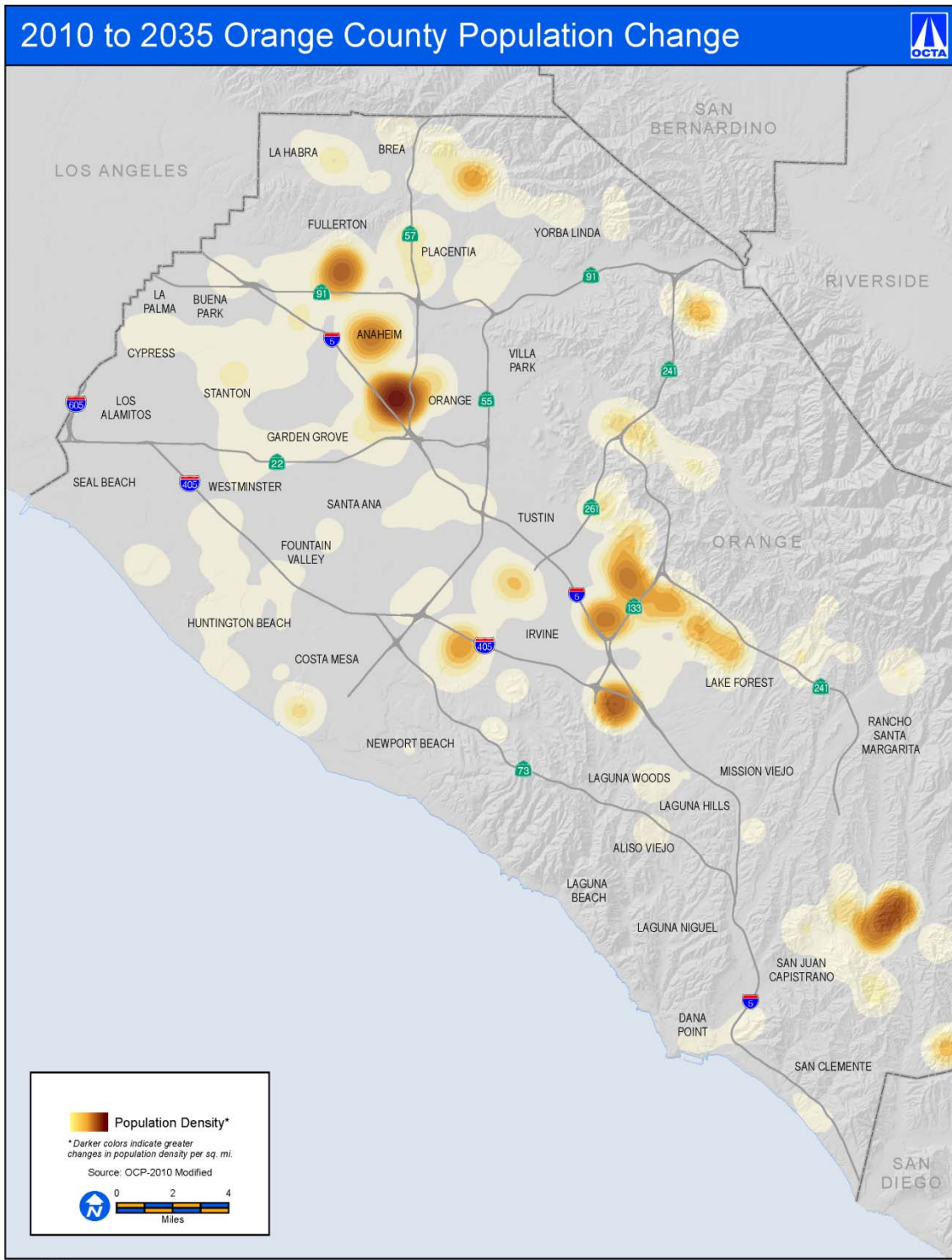


Figure 2-9: 2010 to 2035 Orange County Population Change

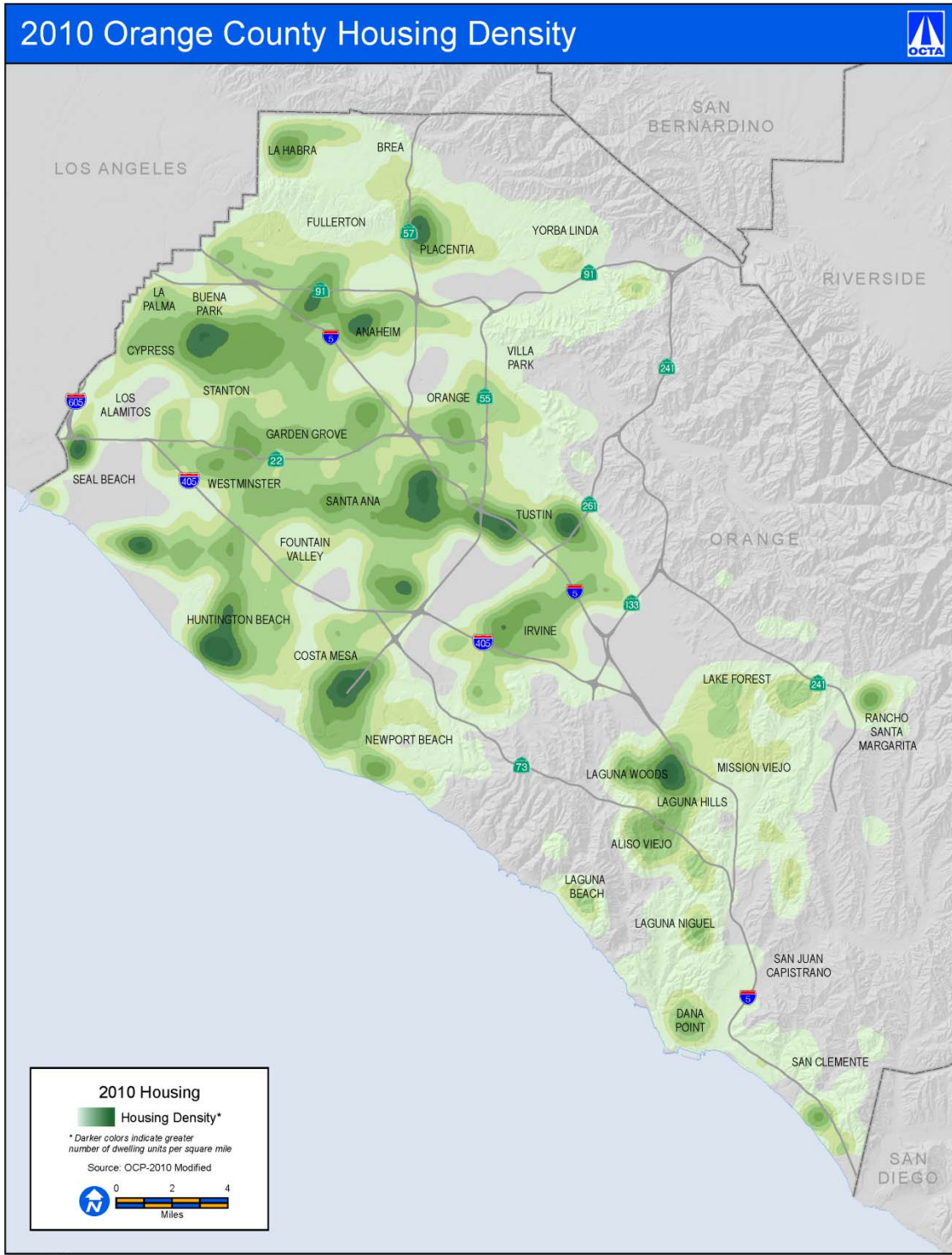


Figure 2-10: 2010 Orange County Housing Density

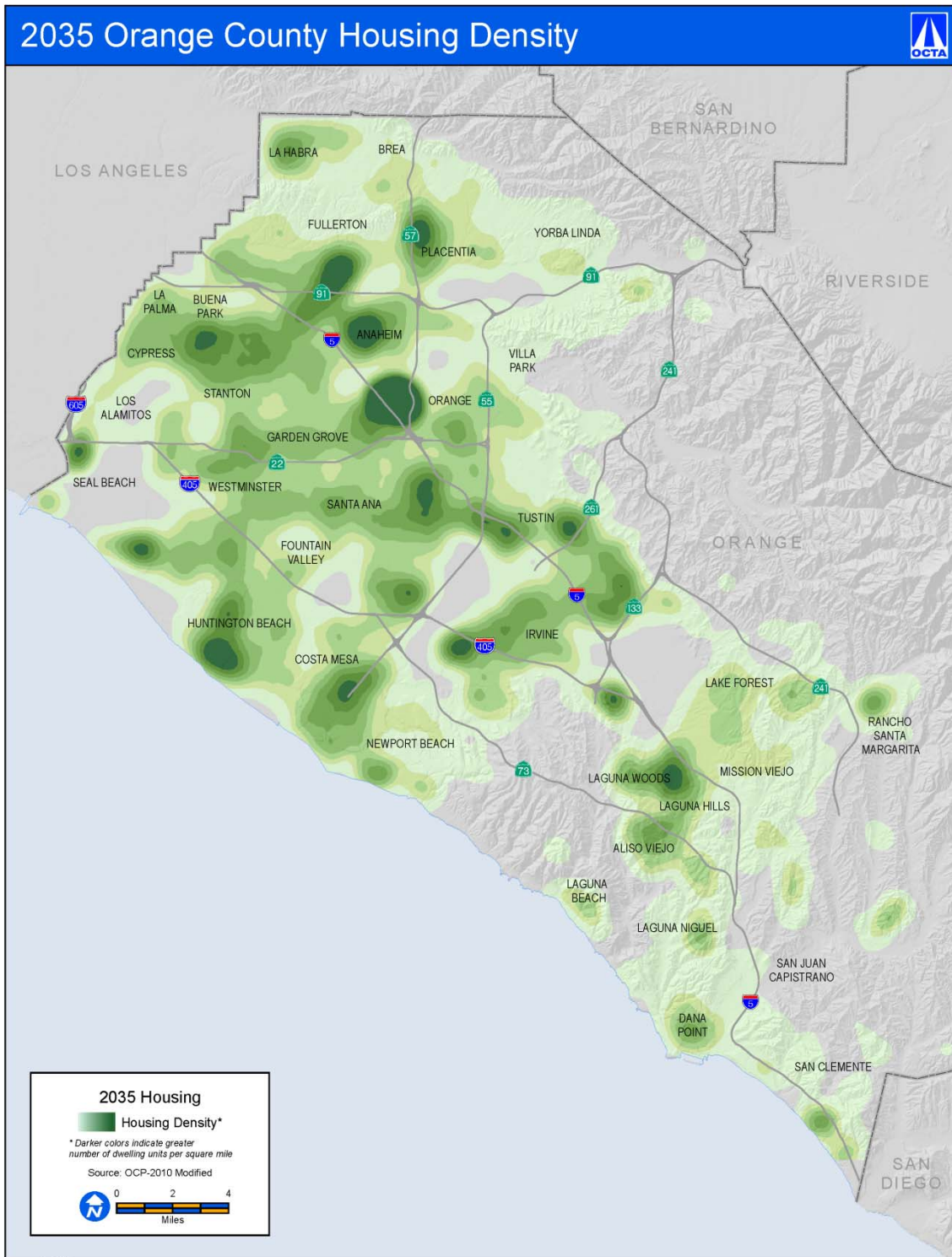


Figure 2-11: 2035 Orange County Housing Density

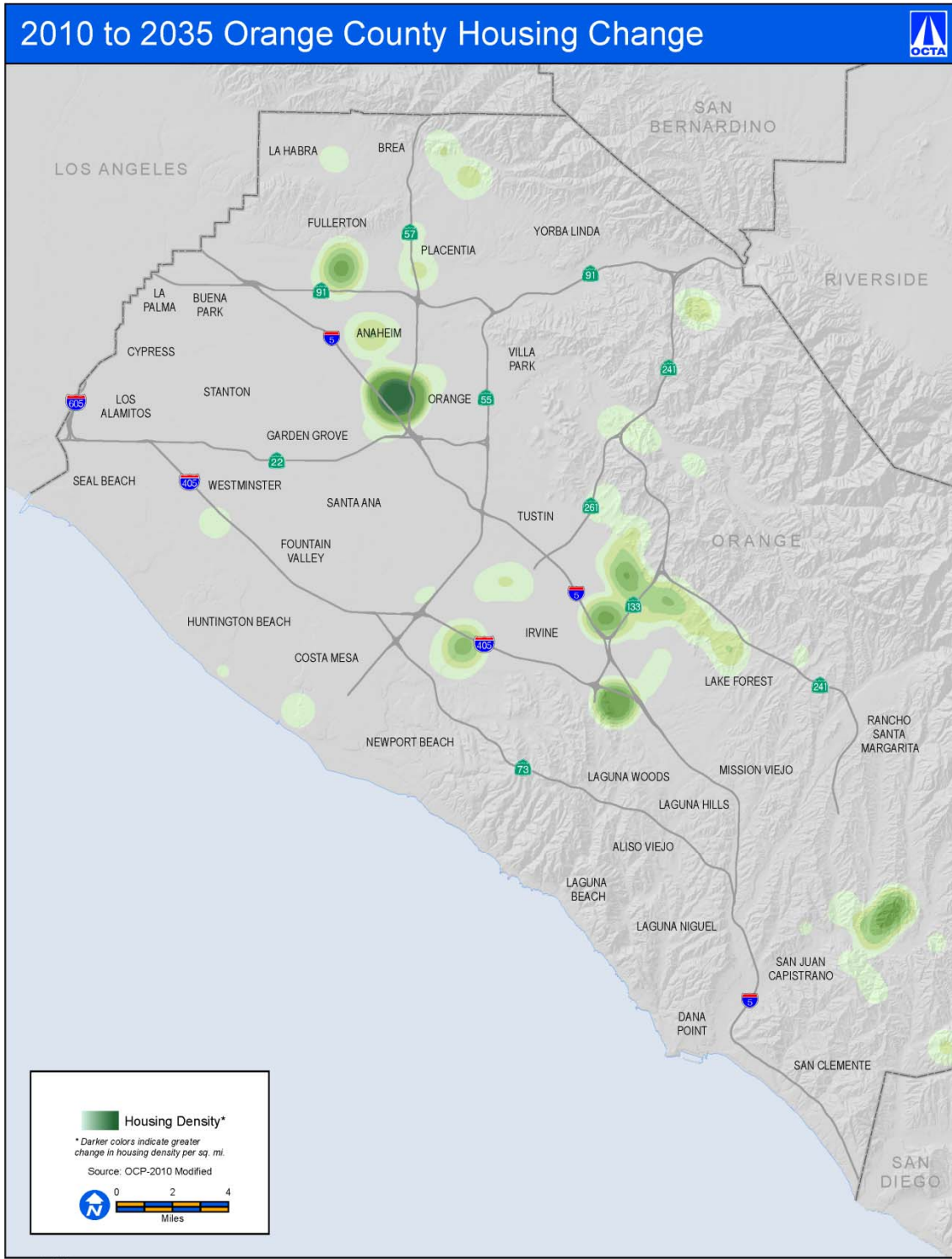


Figure 2-12: 2010 to 2035 Orange County Housing Change

The southern regions of Orange County are projected to increase employment and experience employment densification; however, those increases will be comparatively small when compared to the projected increases in the northern and central regions of the County. (See Figures 2-13, 2-14, and 2-15 for 2010 employment density, 2035 employment density, and the change in employment density between 2010 and 2035, respectively.)

Figures 2-7 through 2-15 depict this anticipated change in population, housing, and employment, with maps illustrating the conditions in 2010 and 2035, and the changes between these 2 years. To address Orange County's growth, planning for the future must consider where development is likely to occur, and where transportation demand is growing.

2035 Baseline Transportation System

The 2035 Baseline Scenario serves the purpose of depicting what the transportation system and travel conditions would be like in 2035, the horizon year, assuming minimal transportation investment and the growth described above. This baseline scenario includes the existing transportation system investments and only those additional improvements and services that are approved and fully funded in the FTIP.

Regional Highways

Voter-approved Measure M2 included several projects to improve the regional highway system that focus on the elimination of bottlenecks. OCTA has advanced the environmental documentation phase for all of the Measure M2 regional highway projects so that they will be shelf-ready for implementation as funding becomes available and be ready to compete for any identified funding sources. The Transportation Corridor Agencies have also planned for improvements to the regional highway network. Among these improvements is the continuation of SR-241 south from its current terminus at Oso Parkway, first to Cow Camp Road near Ortega Highway and ultimately to I-5.

Arterials and Local Roads

OCTA administers the Measure M2 Regional Capacity Program, a funding source for local jurisdictions to complete components of the MPAH. OCTA has also funded projects programmed under the Regional Traffic Signal Synchronization Program, which seeks low-cost approaches to reducing congestion through signal-timing modification and coordination. In addition, several arterial roadway expansion and extension projects are programmed in the FTIP for construction.

Bus Transit

As the needs of transit riders change, OCTA will respond with changes to and expansion of fixed route

service between 2010 and 2035. For example, Bravo! express bus service began operating on Harbor Boulevard between the Fullerton Transportation Center and MacArthur Boulevard in 2013. These buses operate every 10 to 15 minutes with limited stops. Route 273, an additional intracounty connection between the Laguna Niguel Metrolink station and employment centers in Irvine and Costa Mesa, began operating in October 2013. Route 722 began in February 2014, providing intercounty express service every 30 minutes during morning and evening commute periods. This route travels between Santa Ana and Long Beach using State Route 22 (SR-22) for much of the distance. OCTA is examining both customer reaction to service enhancements such as these and opportunities to increase these connections.



Rail Transit

Since 2010, OCTA has purchased new locomotives and rolling stock, constructed turnback and layover facilities, made grade crossing improvements, and has supported increased operational costs associated with higher frequency Metrolink service between Fullerton and Laguna Niguel. In support of expanded Metrolink service, the expansion and improvement of the Fullerton, Orange, Anaheim Canyon, Tustin, Irvine, and Laguna Niguel Metrolink stations have been constructed or are programmed to occur by 2035. Along with important investments in rail and station capacity, investments are being made to enhance the safety of the rail system.



The Anaheim Regional Transit Intermodal Center (ARTIC) is under construction and anticipated to open in 2014. ARTIC provides a connection between regional rail service and local bus service. Improvements to the Class I bike path along the Santa Ana River at ARTIC will create a connection to another travel mode.

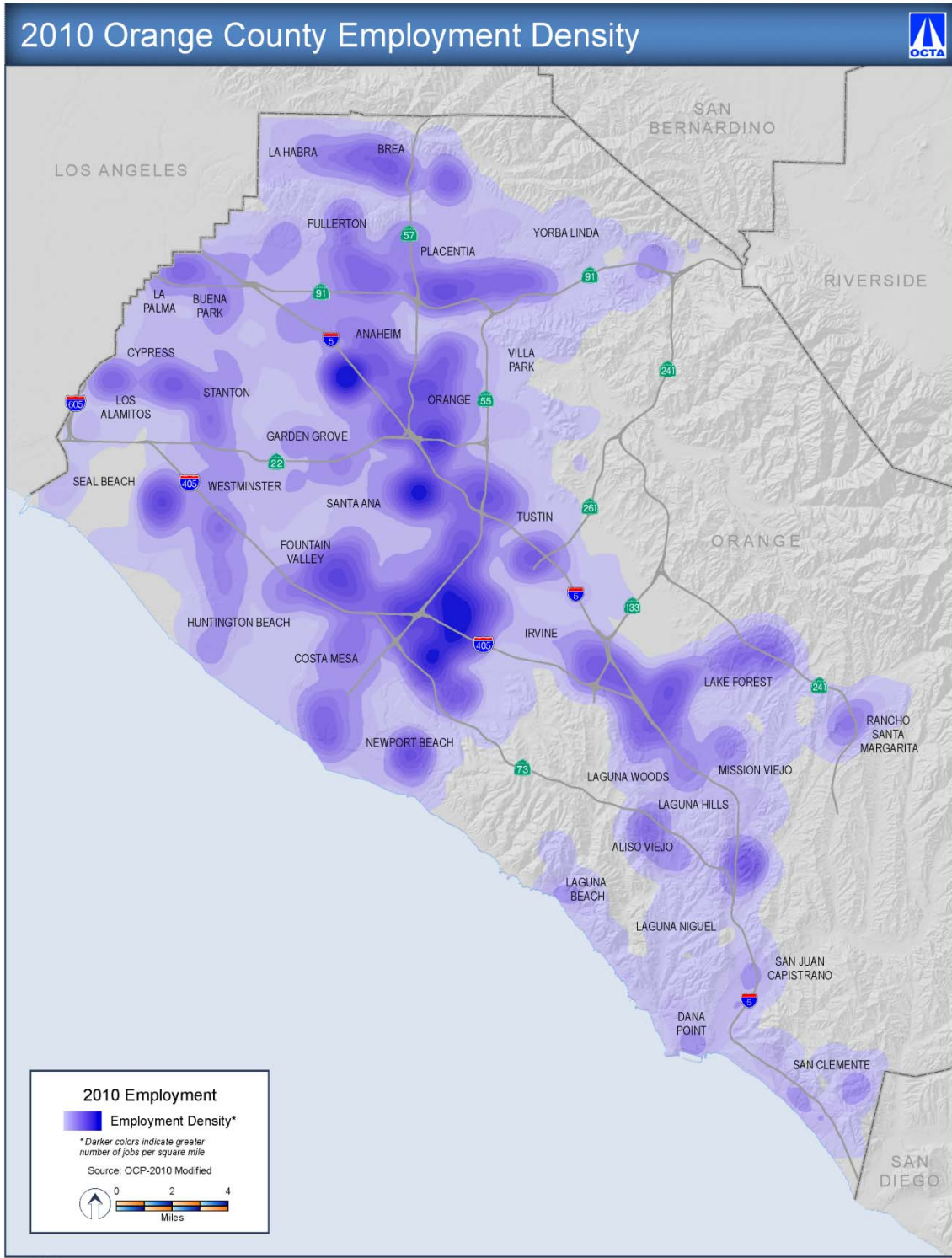


Figure 2-13: 2010 Orange County Employment Density

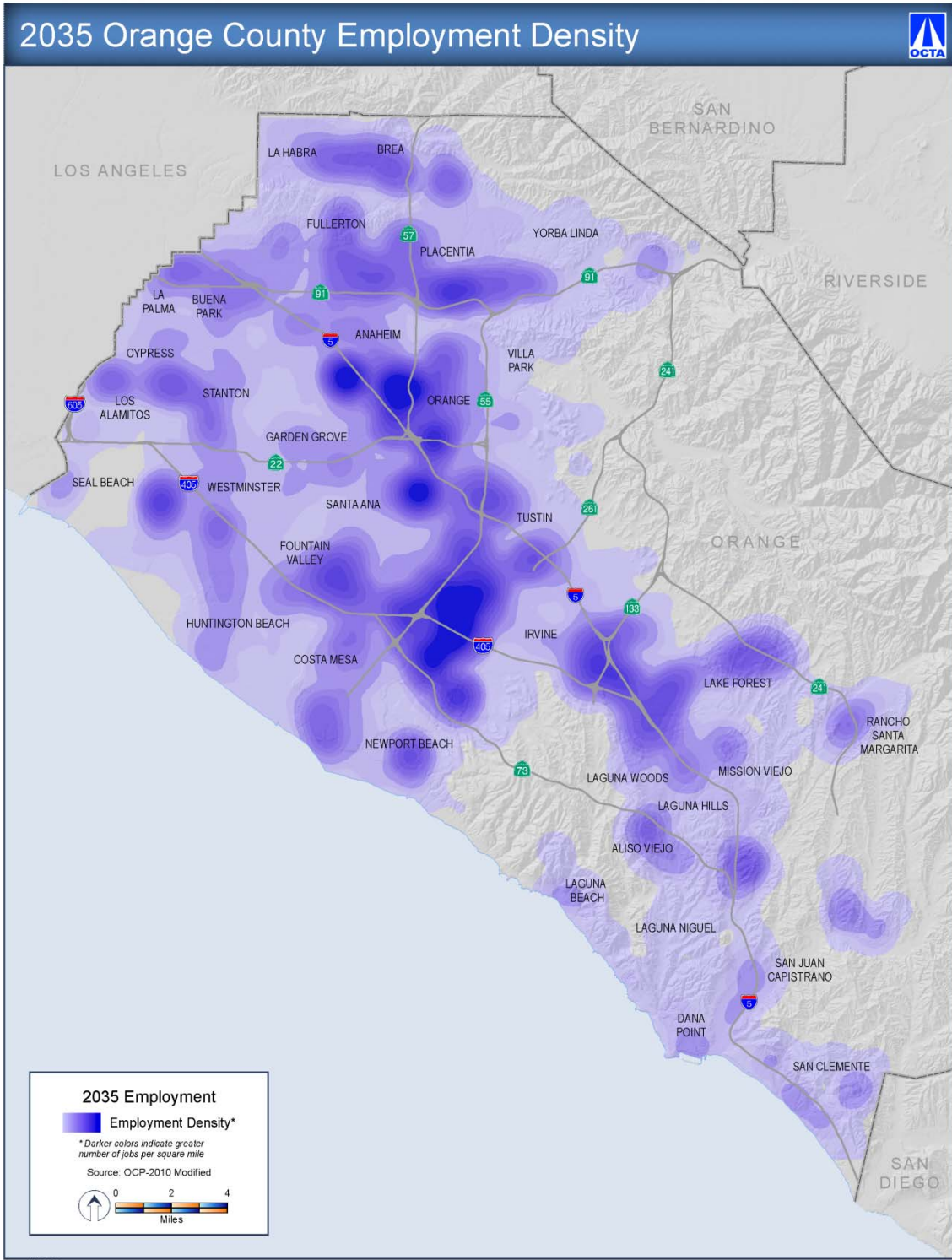


Figure 2-14: 2035 Orange County Employment Density

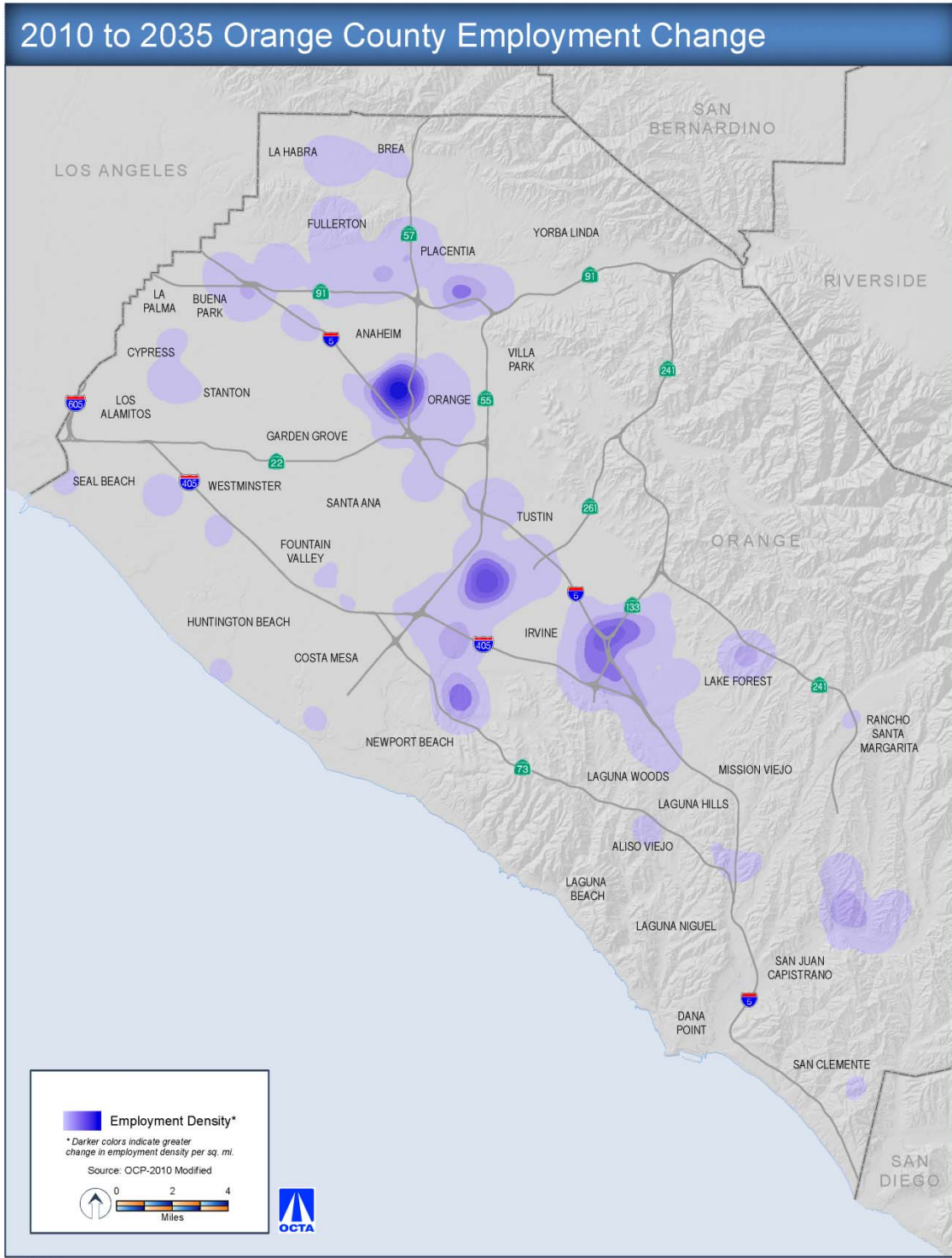


Figure 2-15: 2010 to 2035 Orange County Employment Change



In January 2012, OCTA completed the Railroad Crossing Safety Enhancements Program, which included 52 rail crossing intersections in 8 jurisdictions. Enhancements included new medians, coordinated traffic signals, additional crossing gate arms, new pedestrian swing gates, and improved signage. In addition to the Railroad Crossing Safety Enhancements Program, grade separation of State College Boulevard at the Metrolink tracks is also programmed before 2035.

The Orange County Bridges (OC Bridges) program is designed to address roadway delay and safety hazards resulting from increased goods movement activity from the Ports of Long Beach and Los Angeles across Orange County by train. The OC Bridges program plans grade-separated crossings at Raymond Avenue, State College Boulevard, Placentia Avenue, Kraemer Boulevard, Orangethorpe Avenue, Tustin Avenue/Rose Drive, and Lakeview Avenue. Construction of all of these grade separation projects will be completed by 2016.



Regional Bikeways

The Bicycle Corridor Improvement Program seeks to enhance Orange County’s bicycle infrastructure by providing funds for jurisdictions to construct new bicycle facilities and trails. Projects that improve connectivity between employment and activity centers,

close gaps in the current network, have a direct relationship to transit, and have been included in a bicycle plan are prioritized in this program. Several bicycle projects are included in the FTIP and will be constructed before 2035.

Performance of the 2035 Baseline Scenario

The 2035 Baseline Scenario shows what the transportation system and travel conditions would be like in 2035 given the expected growth and modest transportation improvements. This analysis allows the L RTP to ascertain where system deficiencies will occur and what investments are needed. The 2035 Baseline Scenario uses the existing transportation system as a given, and adds only those projects and services described above, which are approved and fully funded in the FTIP.

Given these assumptions, traffic congestion in 2035 (total vehicle hours of delay) is projected to increase significantly over 2010 conditions. At the same time, vehicle miles traveled increase while travel speeds decrease. In short, Orange County’s growth will generate travel demand that exceeds the capacity of the 2035 Baseline Scenario. Travel demand exceeding capacity will mean congestion on Orange County’s regional highways, local roadways, rail lines, and bus systems. Congestion is apparent to most Orange County residents when it forms on the regional highway network. Figure 2-16 illustrates anticipated traffic congestion in 2035 on Orange County freeways during the morning commute. Figure 2-17 illustrates traffic congestion on HOV and toll lanes during the same period. Table 2.2 offers a detailed look at the anticipated impacts of growth on the Baseline 2035 system compared to the 2010 base year, which is illustrated on Figure 2-18.

Table 2.2: Performance of Regional Highways and Arterials in the 2010 Base Year and 2035 Baseline Scenario

	2010 Base Year	2035 Baseline (HOV 2+) ^a	2035 Baseline (HOV 3+) ^a	Change 2010 to 2035 (HOV 3+)
Daily Transit Trips	133,469	164,443	165,219	24% increase
Daily Vehicle Trips	8,170,633	9,299,399	9,318,002	14% increase
Total Vehicle Hours of Delay	274,646	664,575	729,432	166% increase
Daily Vehicle Miles Traveled	63,404,082	80,822,517	81,112,113	28% increase
Average Speed – Freeway Peak	40.4 mph	36.6 mph	34.5 mph	15% decrease
Average Speed – HOV Peak	48.4 mph	44.5 mph	57.4 mph	19% decrease
Average Speed Arterial Peak	30.3 mph	23.3 mph	22.7 mph	25% decrease

^a For analysis purposes, the performance of the 2035 Baseline Scenario was modeled assuming both an HOV policy of HOV 2+ occupancy and HOV 3+ occupancy. While the current regulations require two people in a vehicle to use carpool lanes, the Federal Highway Administration (FHWA) may require a three-person-per-carpool requirement in the future. Consequently, the 2035 Baseline was analyzed under both conditions to illustrate how the varying HOV policies will affect the HOV and general-purpose lane performance.

HOV = high-occupancy vehicle
mph = miles per hour

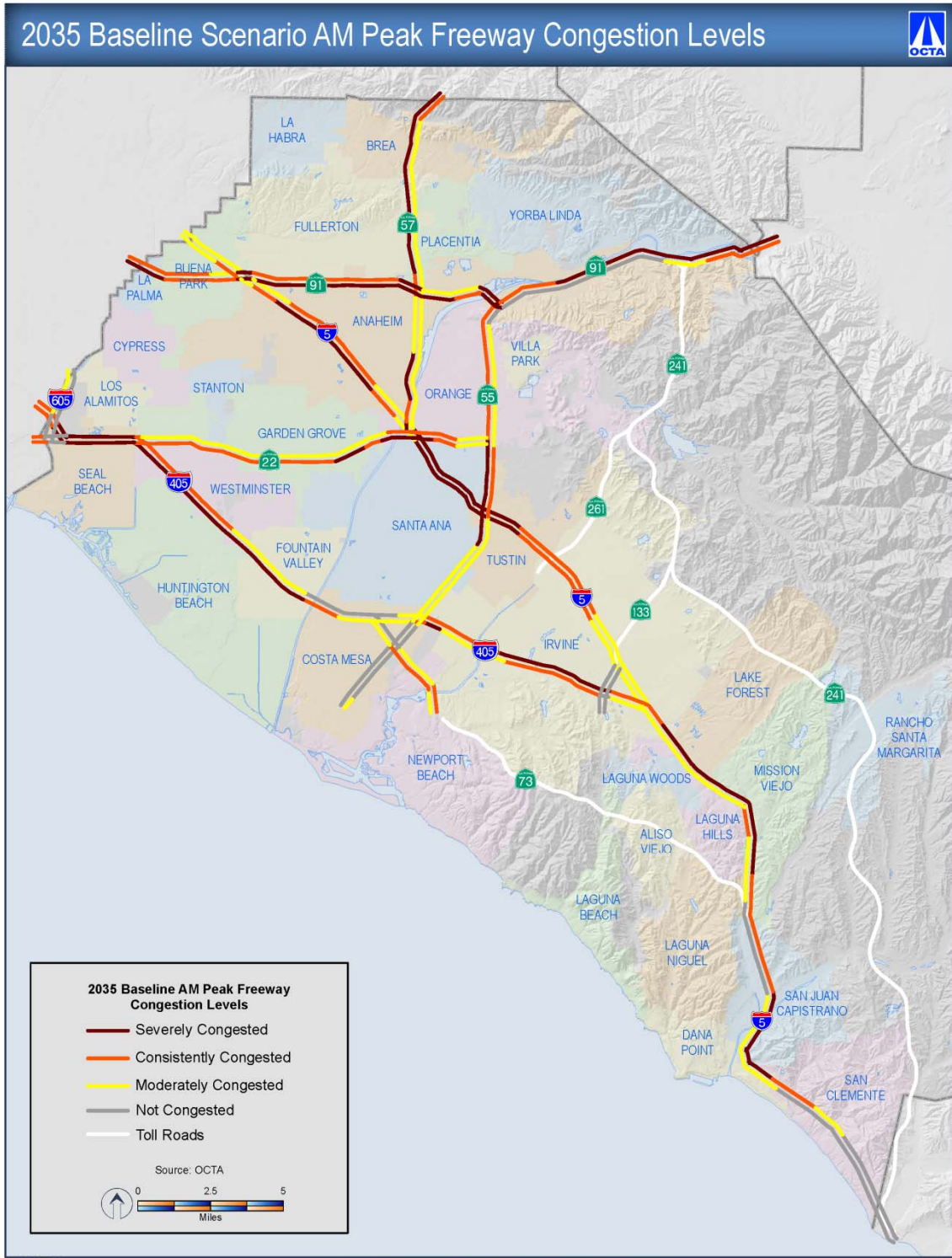


Figure 2-16: 2035 Baseline Scenario AM Peak Freeway Congestion Levels

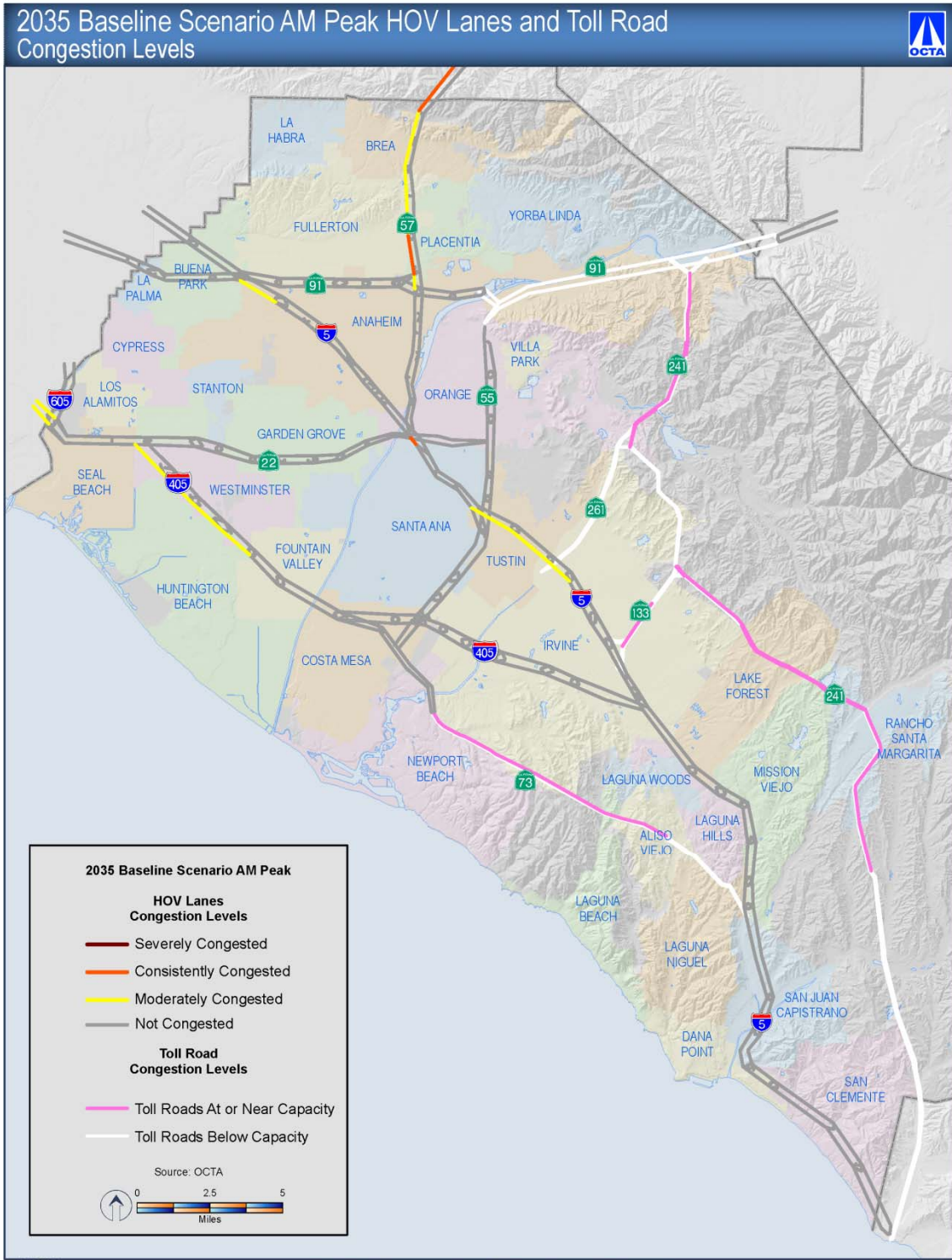
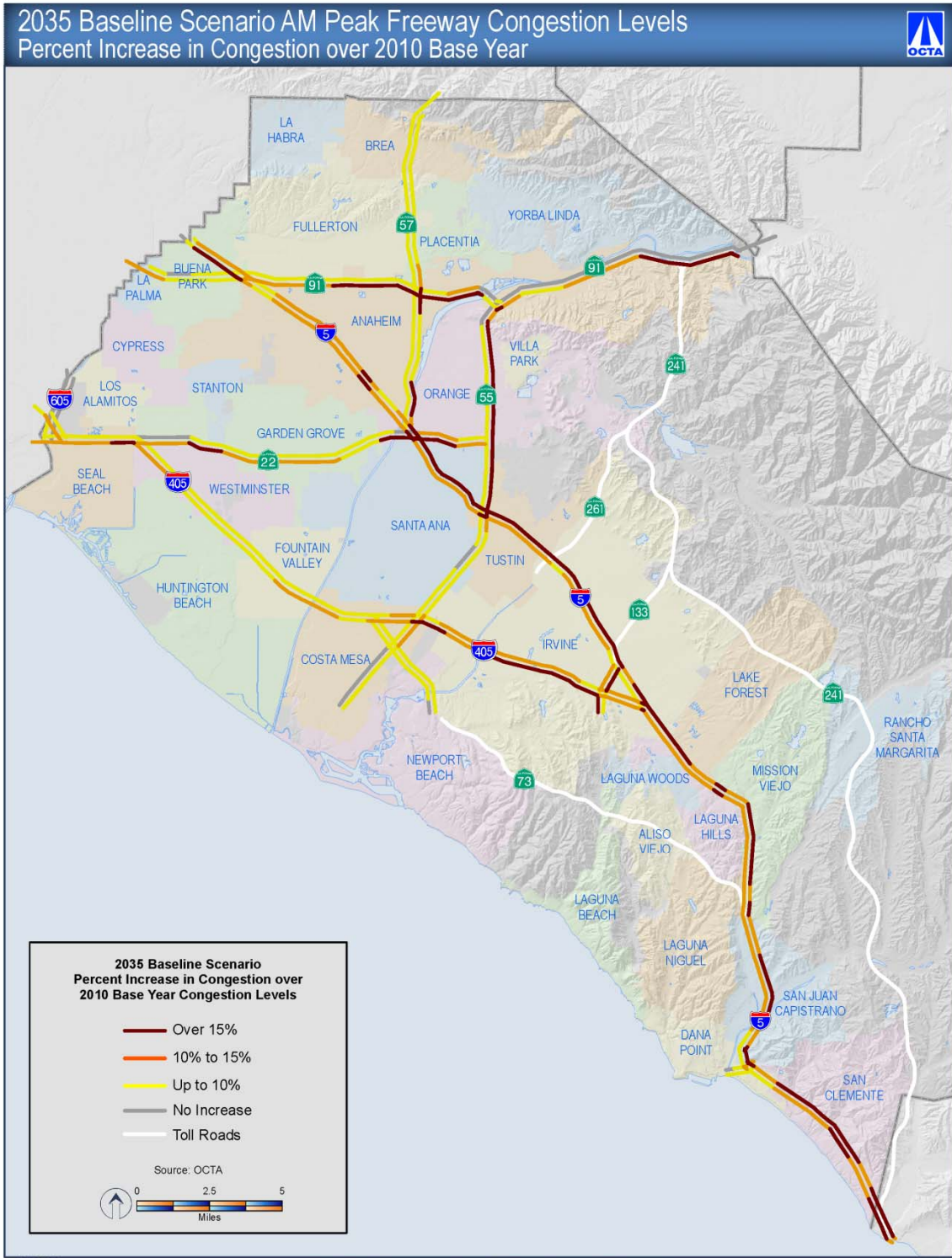


Figure 2-17: 2035 Baseline Scenario AM Peak HOV Lanes and Toll Road Congestion Levels



April 11, 2014

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Figure 2-18: 2035 Baseline Scenario AM Peak Freeway Congestion Levels – Percent Increase in Congestion Over 2010 Base Year

As shown in Figure 2-18, there is an overwhelming need to improve travel times and reduce delays on the Orange County transportation system. Without further improvements, by 2035 in the morning peak period, nearly every freeway will be congested, with only a few free-flowing segments: along State Route 55 (SR-55) south of I-405, eastbound on SR-91, and southbound on I-5 near the southern County border. In contrast, approximately 27% of the freeway system in Orange County will be consistently congested, while 29% will be severely congested. In fact, every freeway is projected to have segments of severe congestion, most notably along I-5 in both the southern and central regions of the County, including Tustin, Santa Ana, and Anaheim. I-405 is anticipated to experience severe

congestion approaching Orange County from the north through Seal Beach and Huntington Beach, as well as northbound through Irvine. SR-55 shows severe congestion where it intersects I-5, while SR-91 has severe congestion through Orange and Anaheim and SR-57 is severely congested north of SR-91. Congestion on regional highways may divert automobile trips onto the arterial network, leading to congestion and delay on these facilities. The baseline scenario increases bus transit and Metrolink service based on available funding, but without greater frequency and last-mile connectivity, planned transit in Orange County will not be able to absorb the additional travel demand of commuters.

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Chapter 3: Preferred and Conceptual Plans

Outlook 2035 conceives a plan that completes Measure M2 transportation improvements and adds discretionary projects within available funding limits to increase system capacity, reduce congestion, and improve mobility (i.e., the Preferred Plan). Recognizing that there will be transportation demands that cannot be met with available funding, Outlook 2035 also outlines a Conceptual Plan to address ongoing needs, develop action plans, conduct additional studies, continue public outreach, and monitor emerging technologies.

Today's Financial Picture

The investments planned for the next 20+ years must be made within available financial resources, with funds included for both project and service delivery as well as ongoing maintenance. Available funding for Outlook 2035 is estimated to total approximately \$36.1 billion, which comes from multiple revenue sources including local, State, and federal funds.

Local funds include Measure M2 dollars, which is the largest local source of dollars at \$11.3 billion between Fiscal Years 2015 and 2035. (While the Measure M2 sales tax is authorized through 2041, for planning purposes, the estimate of available revenue for Outlook 2035 covers the period from 2015 to 2035.) Other local funding totals approximately \$15.5 billion and comes from multiple sources, including retail sales tax, toll revenues on the transportation corridors and 91 Express Lanes, OCTA bus fares, and local jurisdiction investment in transportation projects and maintenance. Collectively, these local revenues total approximately 75% of the total revenues included in Outlook 2035.

State funding totaling approximately \$6.1 billion also comes from several sources, including gas taxes, voter-approved funds for transit capacity, enhancement and safety, and program funding for things like freeway service patrol and GHG emission reductions.

Federal funds are projected to total approximately \$3.25 billion and are derived from programs whose purposes vary from funding transit (both capital and operations) to highway construction and rehabilitation, alternative transportation, reducing traffic congestion, and improving air quality.

Figure 3-1 provides a detailed look at federal, State, and local funding sources and projected revenues for each source between 2015 and 2035.

Funding Commitments, Considerations, and Uncertainties

While \$36.1 billion is projected to be available from local, State, and federal dollars, a majority of these funds are already committed for specific projects and programs through the FTIP and Measure M2. Only approximately \$9 billion out of the \$36.1 billion is expected to be available for new discretionary

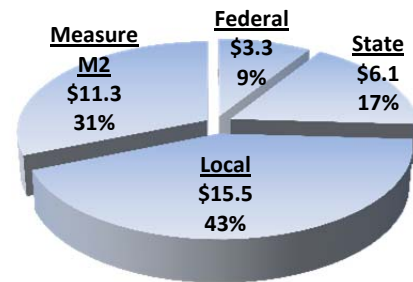


Figure 3-1: Fiscal Years 2015–2035 Revenue Forecast (in billions)

projects, the majority of which is controlled by local jurisdictions and the Transportation Corridor Agencies. The result is that roughly one-quarter of the \$9 billion is available as discretionary funding for OCTA to program through Outlook 2035.

In addition to existing commitments, it is important to consider the variability and uncertainty of several funding sources. For example, Measure M2 funds are impacted by macro-economic forces. The Measure M2 initial revenue projection was \$24 billion; however, the recession fall-out dropped those projected revenues to an estimated \$15 billion (approximately \$11.3 billion from 2015 through 2035).

Further, the purchasing power of transportation dollars is declining due to the flat federal tax on fuel coupled with increasing inflation. Federal funds are especially unpredictable at this time because the current federal transportation authorization expires September 30, 2014, and the federal fuel tax collection authority expires September 30, 2016.

Similarly, State funds are variable and subject to reductions from macro-economic influences and State budget impacts. One example is the State Transit Assistance funds, which have been reduced over time and fluctuate from year to year. The Orange County community values and wants to maintain the transportation systems already in place. When OCTA completes a freeway project, the overall life of the freeway is improved for that portion. But this is only true for specific freeway improvement projects and segments. Maintaining the quality of the overall freeway network is problematic when there is a \$269 million shortfall for transportation maintenance statewide.

The State Highway Operation and Protection Program (SHOPP)—which is not reflected in this LRTP—designates funds for preservation of the State highway system, but has insufficient funding to preserve and maintain the State’s existing transportation infrastructure. While these are State issues, they have an impact on the freeways in Orange County. Over the last 10 years, the projected annual maintenance needs for the State Highway System have more than tripled, and State funding allocations to maintain the State Highway System have not been able to keep pace with the increased maintenance needs. A recent report from the California State Transportation Agency suggests seeking new sources of long-term funding to meet future transportation needs, such as mileage-based user fees and expanded pricing and express lanes.

In summary, the transportation improvements included in Outlook 2035 were developed within the parameters of available funds, taking into consideration existing funding commitments and future uncertainties. This important financial groundwork creates a realistic framework upon which the Preferred and Conceptual Plans are built.

The Preferred Plan

The Preferred Plan sets forth the projects and programs that can be completed with funding expected to be available through 2035. Based on the goals and objectives, the Preferred Plan completes Measure M2 commitments and proposes projects to improve performance, expand choices, and support sustainability of Orange County’s transportation system.

Measure M2 commitments encompass a range of projects and activities, including reducing freeway bottlenecks; implementing Metrolink expansion and gateways, local community bus and guideways, arterial capacity improvements, and signal synchronization projects; supporting active transportation planning and implementation; and advancing environmental stewardship and mitigation.

Beyond Measure M2 commitments, discretionary projects that are part of the Preferred Plan include express bus and vanpool service on freeways and tollways to increase overall facility usage and average vehicle occupancy, as well as enhanced bus service in high-demand areas. Regional highways are enhanced through elimination of bottlenecks, improved HOV facilities, and increased connectivity between price-managed facilities (e.g., SR-91 Express Lanes and State Route 241 [SR-241]) is proposed in order to improve travel time reliability. Recommended bikeway and

pedestrian projects on local streets are included to support new travel choices and reduce vehicular demand.

Compared to the 2010 base year conditions, the Preferred Plan improvements will result in the addition of:

- 176,000 hours of new bus and streetcar service on key, high-demand corridors
- 220,000 hours for enhancing bus routes and maintaining on-time performance
- 20 weekday Metrolink trains
- 650 miles of bikeways
- 820 lane-miles on the MPAH network
- 206 freeway lane-miles
- 236 tollway lane-miles
- 450 vanpools and station vans

Detailed descriptions, lists, and maps of the Preferred Plan projects follow.

Regional Highways

The highway projects included in the Preferred Plan range from interchange and ramp improvements to improving general operations and focusing on bottlenecks throughout the system. HOV operational improvements and HOV-to-HOV connectors are also part of the freeway component of the Preferred Plan, along with safety improvements, sound walls, and motorist aid services. A full list of regional highway projects in the Preferred Plan is detailed in Table 3.1. Maps depicting the major freeway improvements are also provided as Figure 3-2.

Arterials and Local Roads

Several arterial roadway projects in the Preferred Plan provide the incentive to implement the MPAH for overall improved performance. Other arterial and local road



projects include overpasses, intersection improvements and signal coordination, and transportation studies (e.g., the planning and engineering of needed improvements). Importantly, the Preferred Plan includes funds for arterial pavement rehabilitation, which helps achieve the community’s desire to maximize and maintain the existing investment in arterials and local roads. The complete Preferred Plan list of arterial and local road projects is shown on Table 3.2 with a related map on Figure 3-3.

Table 3.1: Regional Highway Component of the Preferred Plan

Project	Description
Freeway Service Patrol and Callbox Program	Countywide Freeway Service Patrol and Callbox Program
Interstate 5 (I-5)	Add one mixed-flow lane in each direction on I-5 from Avery Parkway to Alicia Parkway, extend second HOV lane from El Toro Road to Alicia Parkway, and reconstruct Avery Parkway and La Paz Road interchanges
	Add one mixed-flow lane in each direction on I-5 between I-405 and SR-55
	Add one HOV lane in each direction on I-5 between Avenida Pico and San Diego County Line
	Access and merging improvements on I-5 between El Toro Road and Los Alisos Boulevard
	Add southbound HOV on-ramp and northbound HOV off-ramp on I-5 at Barranca Parkway
	Add one mixed-flow lane each direction on I-5 between SR-57 and SR-91
State Route 55 (SR-55)	Add interchange and auxiliary lanes on SR-55 at Meats Avenue
	Add one mixed-flow lane in each direction on SR-55 between I-405 and I-5
	Add one mixed-flow lane in each direction on SR-55 between I-5 and SR-22 and operational improvements between SR-22 and SR-91
State Route 57 (SR-57)	Add northbound auxiliary truck climbing lane on SR-57 between Lambert Road and Los Angeles County Line
	Interchange improvement at SR-57/Lambert Road
	Add one northbound mixed-flow lane on SR-57 between Orangewood Avenue and Katella Avenue
State Route 73 (SR-73)	Construct HOV connector at SR-73/I-405
	Construct interchange at SR-73/Glenwood Drive with collector-distributor to Aliso Creek
	Add one HOV lane each direction on SR-73 between MacArthur Boulevard and I-405
State Route 91 (SR-91)	Construct connector from northbound SR-241 to eastbound SR-91 HOV/HOT lane and between westbound SR-91 HOV/HOT lane to southbound SR-241
	Add one eastbound mixed flow lane on SR-91 (from SR-57 to SR-55), add one westbound mixed-flow lane (from Glassell Street to State College Boulevard), and interchange improvements at Glassell Street, Tustin Avenue, Lakeview Avenue, and northbound SR-57
	Construct interchange and overcrossing at SR-91/Fairmont Boulevard
	SR-91 Corridor Improvement Project between SR-241 and Pierce Street (Riverside County)
State Route 133 (SR-133)	Construct interchange at SR-133/Trabuco Road
State Route 241 (SR-241)	Construct interchange at SR-241/Jeffrey Road
	Construct interchange at SR-241/Weir Canyon Road
	Interchange improvement at SR-241/SR-261
	Add one mixed-flow lane in each direction on SR-241 between SR-261 and Portola Parkway
	Add two mixed-flow lanes in each direction on SR-241 between Portola Parkway and Santa Margarita Parkway
	Add one mixed-flow lane in each direction on SR-241 between Santa Margarita Parkway and Oso Parkway
Interstate 405 (I-405)	Restripe I-405 to continuous access HOV lane between I-5 and SR-73
	Add one mixed-flow lane in each direction on I-405 between SR-73 and I-605
	Add one mixed-flow lane in each direction on I-405 between I-5 and SR-55 and southbound auxiliary lanes from University Drive to Irvine Center Drive
Interstate 605 (I-605)	I-605 at Katella interchange improvement

HOT = high-occupancy toll HOV = high-occupancy vehicle SR-22 = State Route 22 SR-261 = State Route 261

Table 3.2: Local Roadway Component of the Preferred Plan

Project	Description
Master Plan of Arterial Highways Projects (MPAH)	OCTA funding of local project completing MPAH
Regional Traffic Signal Synchronization Program	OCTA funded and facilitated coordination of traffic signals across jurisdictional boundaries
Arterial Pavement Rehabilitation Program	Countywide preservation of pavement quality
17th Street Grade Separation	Grade separation of 17th Street at Metrolink/freight rail tracks
Santa Ana Boulevard Grade Separation	Grade separation of Santa Ana Boulevard at Metrolink/freight rail tracks

OCTA = Orange County Transportation Authority

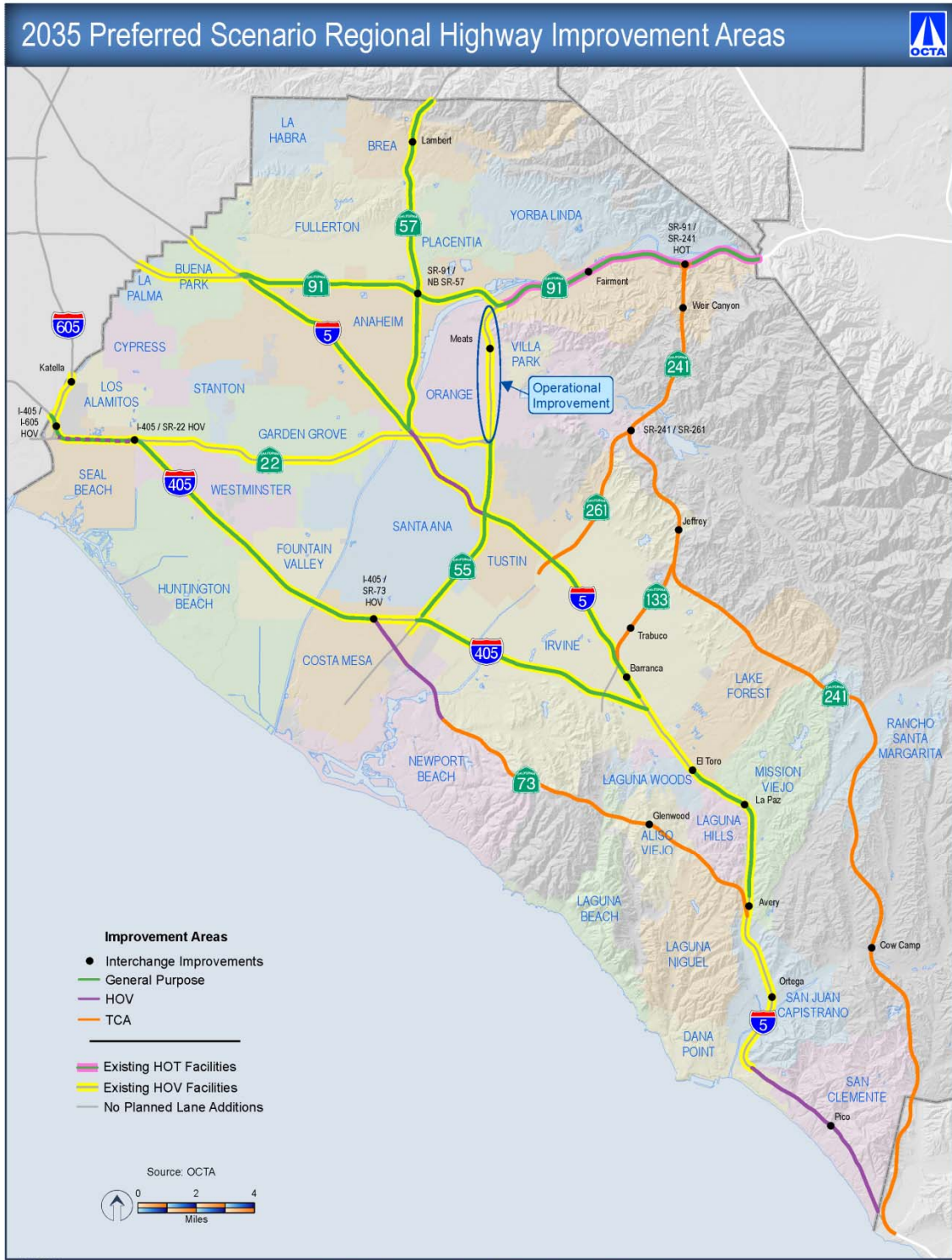


Figure 3-2: 2035 Preferred Scenario Regional Highway Improvement Areas

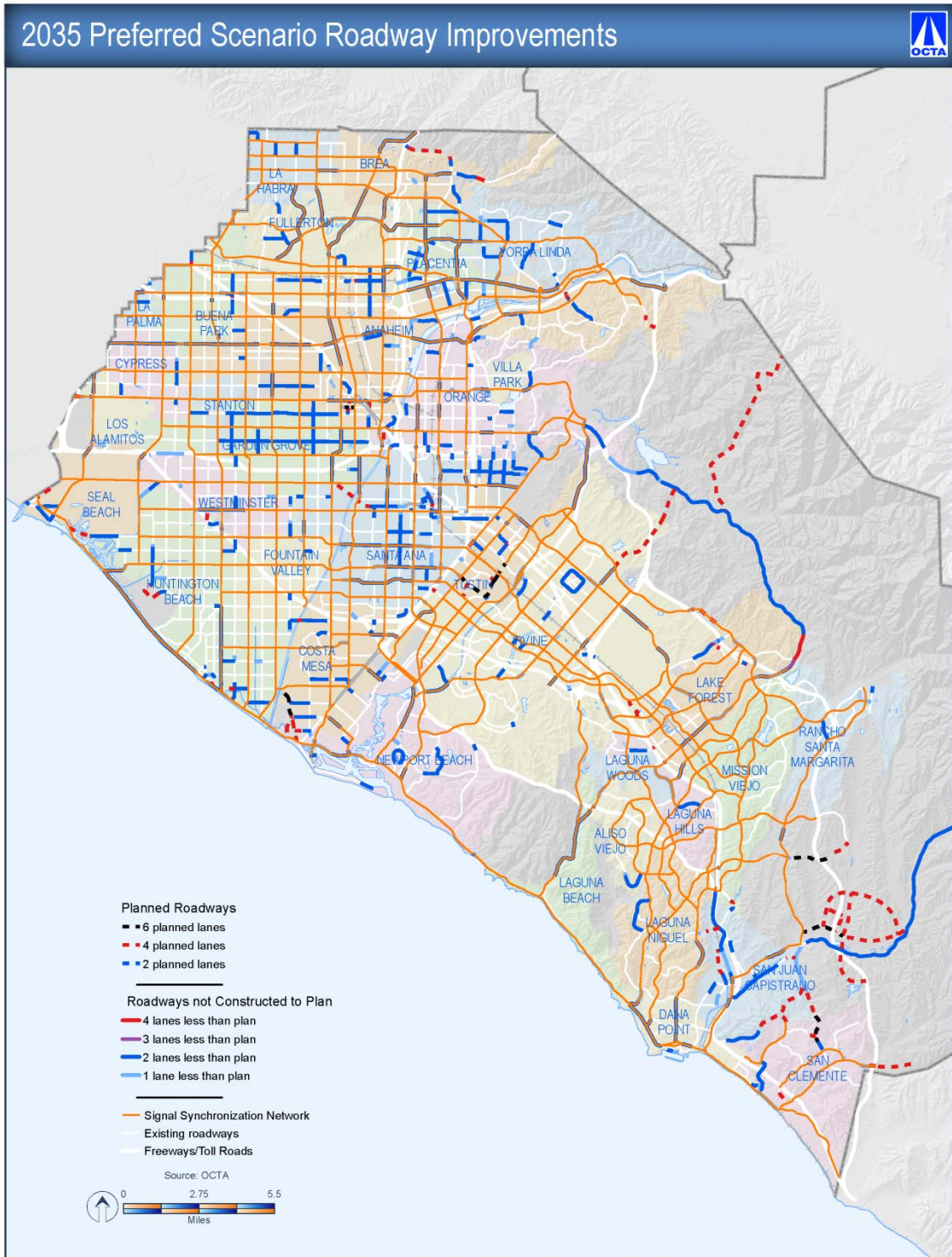


Figure 3-3: 2035 Preferred Scenario Roadway Improvements

Bus Transit

In 2011, OCTA completed a Transit System Study that identified geographic areas likely to provide the most efficient use of transit resources. This is a guiding document for improving service on local routes that identified potential new routes for limited-stop service. New transit service and expanded service hours are planned for areas with high ridership potential (e.g., a high density of housing or employment), consistent with the recommendations of the Transit System Study. As mentioned previously, OCTA has begun expanding limited-stop service with the Bravo! express bus and more intracounty and intercounty limited-stop routes. These services are expanded in the Preferred Plan.

Bus transit plays an important role in the Preferred Plan. In addition to increased service for select OCTA bus routes and bus rapid transit, there is a noteworthy expansion of rail feeder service and new local buses through high-density corridors within the County. Transit assistance for the elderly and handicapped in addition to vanpool and park-and-ride program expansion are also included in the Bus Transit element of the Preferred Plan. The list of bus transit projects in the Preferred Plan is detailed in Table 3.3, and a map depicting transit improvements is provided as Figure 3-4.

Rail Transit

The Metrolink Service Expansion Program will continue to provide a higher frequency of rail service through 2035. The program also provides for safety and operational improvements to the railroad infrastructure necessary to support existing and expanded train service, including grade-crossing improvements, track improvements, signal and communications



system improvements, as well as other projects, as necessary, to support the rail system. Implementation of positive train control to reduce the potential for accidents and the purchase of new rolling stock with advanced energy-absorbing designs to reduce the chance of injuries in an accident will be completed in the Preferred Plan.

As mentioned previously, expansion and improvement of the Fullerton, Anaheim, Anaheim Canyon, Orange, Tustin, Irvine, and Laguna Niguel Metrolink stations are planned to accommodate the additional train service. The ARTIC station in Anaheim, which will open in 2014, will be expanded again in the Preferred Plan to accommodate connections with a planned streetcar route to Anaheim’s tourist destinations and planned statewide high-speed rail. In its full buildout, ARTIC will provide a connection between regional rail service, the local streetcar, local bus service, and the Santa Ana River regional bikeway.



Anaheim Rapid Connection

Another travel mode that will connect at ARTIC is the Anaheim Rapid Connection. This transit link will provide a high-capacity, frequent, and easy-to-use last mile connection between ARTIC, high-density development in the Platinum Triangle, the Anaheim Resort, and the Anaheim Convention Center. An Alternatives Analysis has been prepared to select a locally preferred alternative technology and route. A 3.2-mile streetcar route was selected as the preferred

Table 3.3: Bus Transit Component of the Preferred Plan

Project	Description
Senior Mobility Program	Service to fill the gap between fixed-route and paratransit services
Safe Transit Stops Program	Provide additional amenities to ease the transfer between bus lines and improve safety for bus riders
Community-Based Circulators Program	New transit routes within Orange County communities
Dana Point	Summer weekend trolley system along Pacific Coast Highway
Huntington Beach	Special event shuttle during US Open of Surfing competition and Fourth of July
La Habra	Year-round fixed route service through La Habra connecting to St. Jude Hospital and the Fullerton Transportation Center
Laguna Beach	New off-season trolley service through Laguna Beach
Lake Forest	Connection between Irvine train station and Oakley, Inc. in Foothill Ranch
Lake Forest	Connection between Irvine train station and Ossur Americas in Foothill Ranch
Implement Short-Range Transit Plan (Capital)	Purchase of new buses necessary to implement Short-Range Transit Plan
Implement Short-Range Transit Plan (Operations)	Expansion of bus service hours and routes consistent with the Short-Range Transit Plan

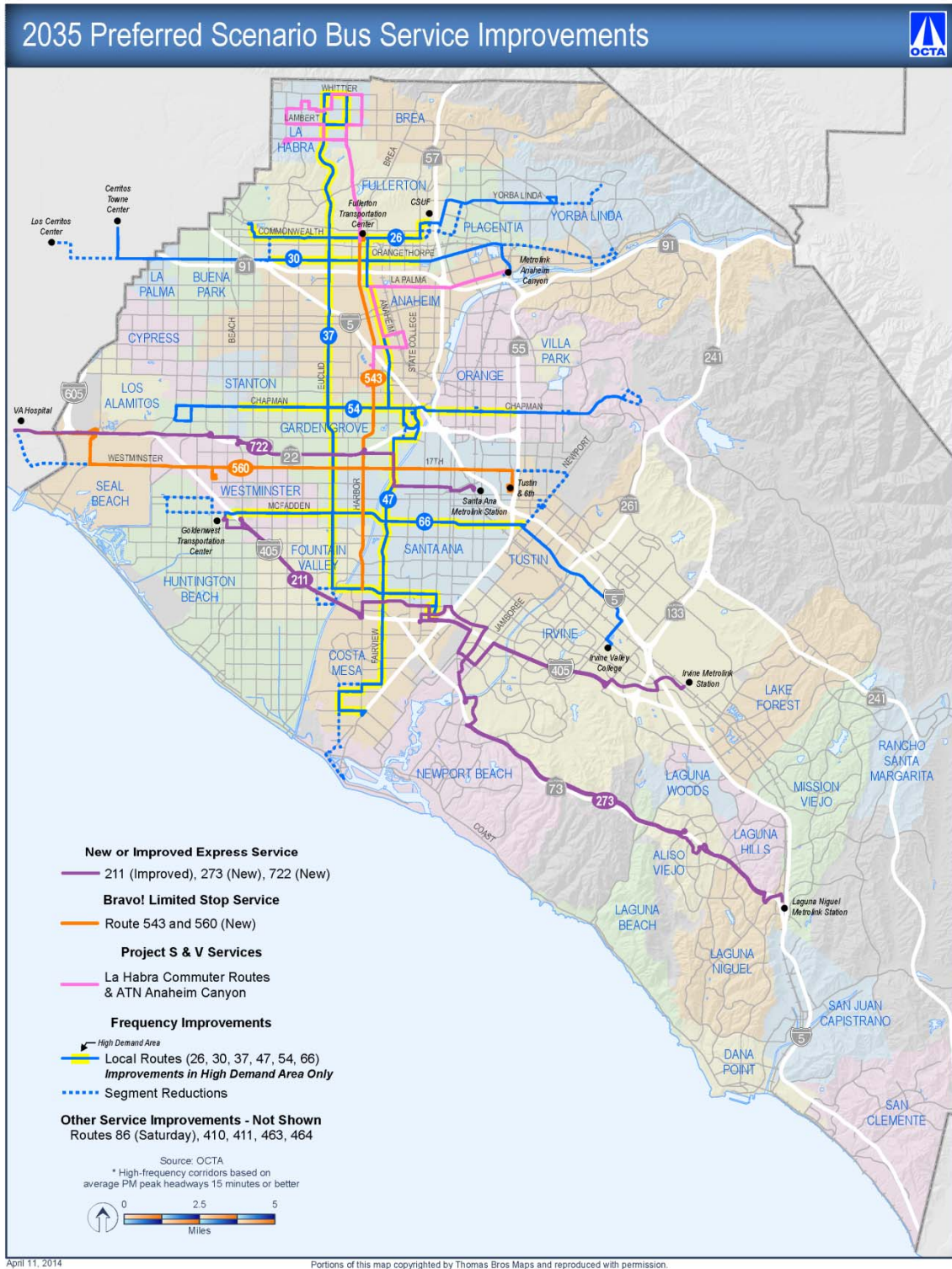


Figure 3-4: 2035 Preferred Scenario Bus Service Improvements

alternative for further environmental review. The streetcar was forecasted to generate higher ridership and be more easily accessible for wheelchairs, strollers, and luggage than the bus alternative, while being less expensive than the elevated fixed-guideway alternative. The streetcar is proposed to have two stops along Katella Avenue in the Platinum Triangle, one stop at Anaheim Garden Walk, one stop near the Disneyland and Disney California Adventure entrance plaza, and one stop at the Anaheim Convention Center. If project development and environmental documentation are completed on schedule and the project is fully funded, Anaheim Rapid Connection could begin operation as early as 2018. The City of Anaheim anticipates that Anaheim Rapid Connection will fully fund its operations and maintenance through farebox revenue, advertising, and dedicated funding from the Anaheim Tourism Improvement District.

Santa Ana/Garden Grove Fixed Guideway Project

A streetcar is also proposed to enhance the last mile connection between the Santa Ana Transportation Center and the Santa Ana Civic Center. The streetcar would operate on a 4.1-mile route and provide stops at Lacy Street, French Street, Main Street, Broadway, Ross Street, Flower Street, Bristol Street, and Raitt Street, and then travel within Pacific Electric right-of-way to Fairview Street and to a new multimodal transit center in Garden Grove, near the intersection of Harbor Boulevard and Westminster Avenue. If project development and environmental documentation are completed on schedule and the project is fully funded,

the Santa Ana/Garden Grove Fixed Guideway could begin operation as early as 2018.

Rail projects contained in the Preferred Plan are shown in Table 3.4. The maps depicting rail improvements are provided as Figures 3-5 and 3-6.

Regional Bikeways

OCTA has become more active in regional bikeway planning in recent years (e.g., participating in the Regional Bikeways Planning initiative, which is a county-wide effort among OCTA, local jurisdictions, and bicycle stakeholders). OCTA roles include facilitating planning of the regional bikeways network, coordinating both internal and external agencies, and addressing regional priorities. While OCTA initiates and coordinates this planning process, it is the local jurisdictions that bring projects from concept to concrete.

To date, a Bikeways Strategy has been completed for the 1st, 2nd, and 4th Supervisorial Districts in Orange County, with Bikeways Strategies expected for Districts 5 and 3 in 2014 and 2015, respectively. An example of projects that will occur as a result of this planning is the 74-mile bicycle loop. This loop will result from closing gaps that currently exist between the Santa Ana River Trail, the San Gabriel River, and the Pacific Coast Highway. Regional Bikeway projects contained in the Preferred Plan, along with a related map, are shown on Table 3-5 and Figure 3-7, respectively. OCTA also seeks to leverage State funds for active transportation, thereby facilitating local jurisdiction access to this additional funding source.

Table 3.4: Rail Transit Component of the Preferred Plan

Project	Description
Metrolink Capital	Purchase of new equipment to facilitate expansion plans
Metrolink Operations	Increase from 54 weekday trains to 62 weekday trains through Orange County
Anaheim Rapid Connection Fixed Guideway	Proposed streetcar connection between the Anaheim Regional Transportation Intermodal Center and popular destinations in Anaheim
Santa Ana/Garden Grove Fixed Guideway	Proposed streetcar between Santa Ana train station, through Santa Ana, and connection to a new transportation center in Garden Grove
Transit Extensions to Metrolink Program (Operations)	Improved rubber tire last-mile connections between Metrolink stations and nearby employment or residential centers

Table 3.5: Bikeways and Transportation Demand Management Component of the Preferred Plan

Project	Description
Vanpool Operations	Continued support and expansion of intra-county and last-mile vanpool options
OC Bikeways Projects	Improved connections between Orange County bike infrastructure and to other travel modes

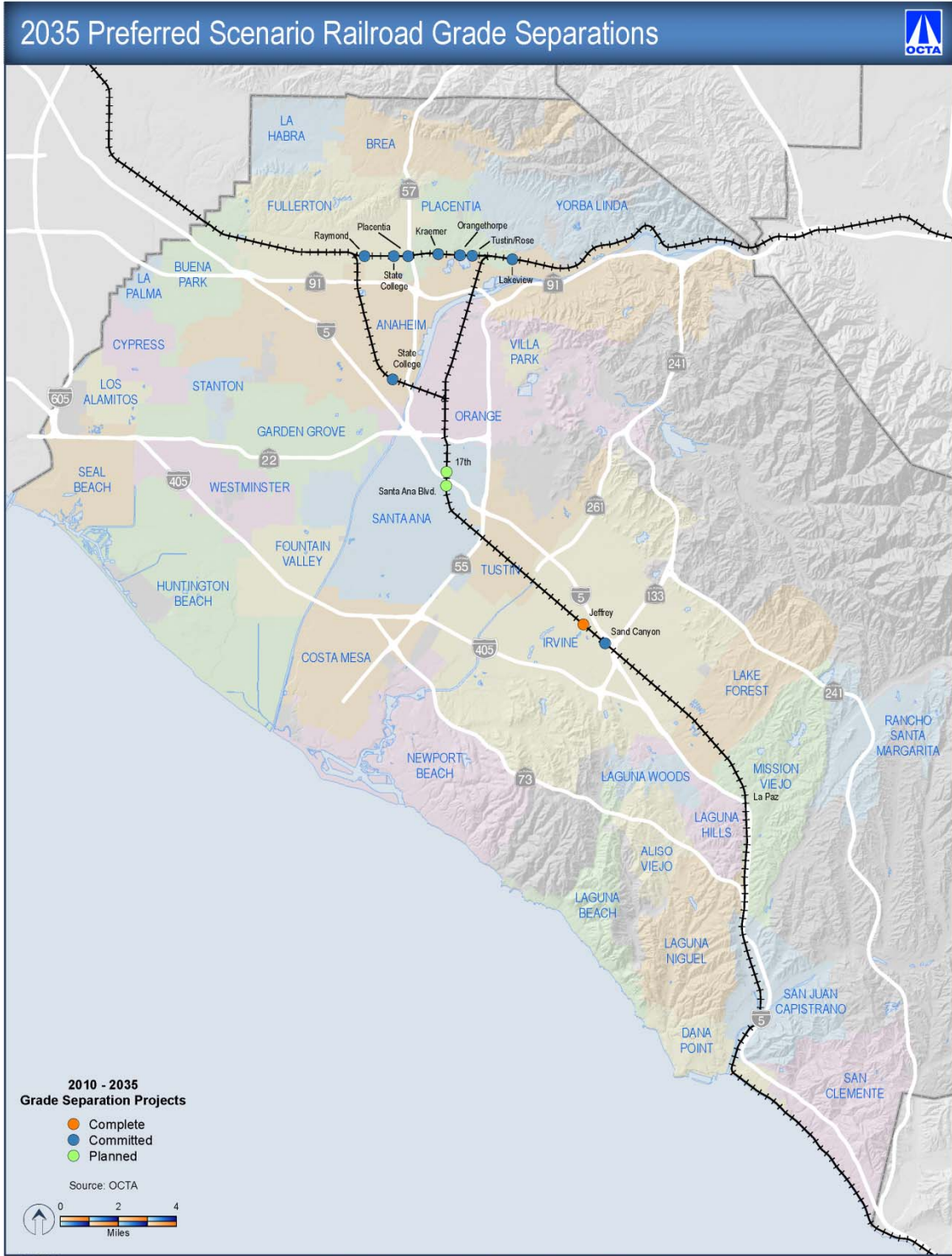


Figure 3-6: 2035 Preferred Scenario Railroad Grade Separations

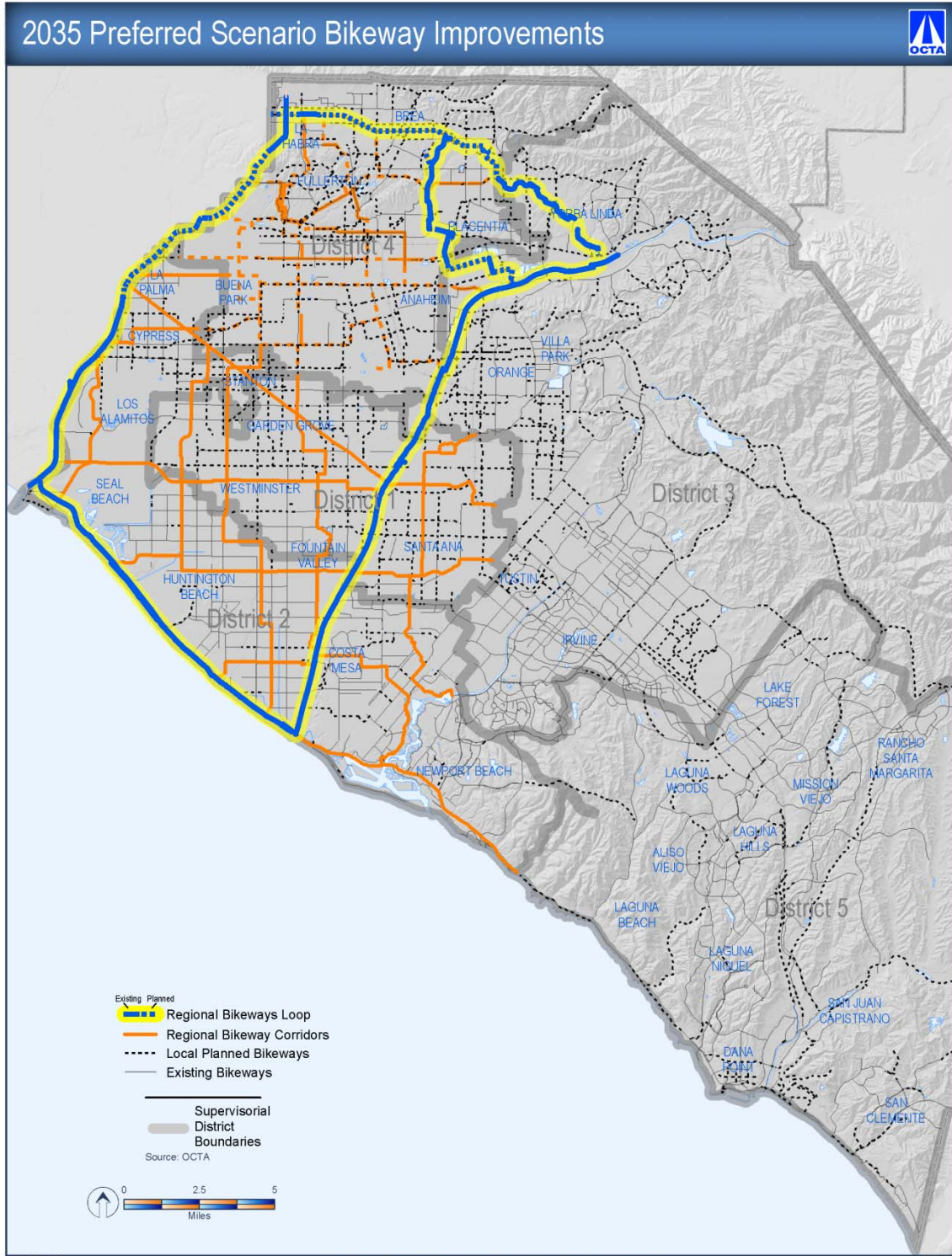


Figure 3-7: 2035 Preferred Scenario Bikeway Improvements

Transportation System Management & Transportation Demand Management

There is a system challenge in Orange County relating to lack of available right-of-way. Simply put, Orange County does not have the space to continue adding lanes—and therefore capacity—to the existing footprints of regional highways and arterials. For example, a recent study showed that to meet expected travel demand on Newport Boulevard in the Cities of Costa Mesa and Newport Beach, the roadway would need to double in size from its current 6-lane configuration to 12 lanes, which is an impossibility given the existing land uses. That study illustrates the point that we can't build our way out of traffic congestion. However, projects that manage transportation demand and systems are one way to address this challenge.

Transportation System Management (TSM)

For regional highways, TSM includes hot-spot projects previously described that address the geometric issues that cause congestion. Measure M2 currently funds and will continue to fund the Freeway Service Patrol and Callbox Program. This program allows incidents to be quickly removed from the regional highways, thereby limiting the amount of time that incidents reduce a facility's capacity. For arterial roadways, system management is supported by two Measure M2 programs, the Regional Traffic Signal Synchronization Program and the Arterial Pavement Rehabilitation Program. In addition, local revenue return provides money to local jurisdictions to fund their capital improvement plans to address arterial hot spots. These programs ensure that funding support is in place in the future to maximize the utility of and reduce the delay on Orange County's arterial roadway network.

Transportation Demand Management (TDM)



TDM policies reduce travel demand for both the regional highways and arterial network. In addition to financial investment supporting local TDM measures, OCTA has also influenced TDM actions at the city level through policy. For example, through a funding eligibility requirement, many local jurisdictions adopted and currently retain TDM ordinances consistent with OCTA guidelines. These ordinances are designed to support the provision of infrastructure at worksites that enable employees to choose an alternative to solo driving. OCTA further supports TDM by supporting first-mile/last-mile travel through StationLink buses, planning support for bikeway improvements, administration and financial support of

the vanpool program, maintaining a ride-matching database for commuters seeking a carpool or vanpool, providing training for employee transportation coordinators, and the Guaranteed Ride Home Program.

OCTA plans to undertake a number of initiatives to encourage TDM activities. These include expansion of vanpools, active transportation integrated as a first- and last-mile solution, and fulfilling countywide initiatives through the SCS linking land use and transportation. Examples of strategies to increase coordination of land use and transportation include: supporting transit-oriented development; promoting land use patterns that encourage the use of alternatives to the single-occupant automobile; eliminating bottlenecks on freeways and arterials; and applying Complete Street practices to arterials and freeways to maximize efficiency.

Multi-Modal Systems Within Systems Offer Choice and Maximize Resources

The various modes that comprise Orange County's transportation system are described separately for clarity above. However, the Preferred Plan is a deliberate strategy to integrate modes into one holistic mobility network. The integration of modes improves traveler choices, speed, and reliability.

As evidenced by the lists of transportation improvements, the Preferred Plan includes a comprehensive and integrated mobility commitment. For example, more Metrolink trains on the Orange County Line will reduce vehicular demand on I-5, better pedestrian and bikeway connections to Metrolink stations will increase Metrolink ridership, and improved bikeway connections will reduce demand on city streets. Regional highway improvements provide greater capacity for commuters and also allow efficient passage for goods and materials, thereby supporting the regional economy. In addition, regional highway improvements include managed lanes that increase passenger ridership, system efficiency, and air quality improvements.



Further, these projects and services result in a multi-layered transportation system that provides better connectivity between modes, multiple use of the same infrastructure, and improved travel time for all travelers. They can be thought of as "systems within systems" (i.e., transportation systems operating within the same corridor and sharing similar infrastructure in order to enhance access to travel choices while

improving the efficiency of infrastructure investments). One desired outcome of the Preferred Plan is to consider how a commute trip today made entirely by single-occupant passenger cars would in the future be completed with a bicycle ride to a Metrolink station, then to a regional stop, followed by a bus ride to the final destination. The Preferred Plan allows for these choices and this type of trip linkage. Other examples of systems within systems that integrate different modes of travel include express bus and vanpool service on freeways and express lanes, and express trains offering limited stop service on rail corridors (with local trains serving all stations).

Performance of the Preferred Plan

Measuring Success

Performance measures provide a tool for decision-makers and the community to understand and assess how well the various LRTP scenarios “perform.” These measures help demonstrate how the Preferred Plan element of the LRTP benefits the established goals and objectives for the Orange County transportation system. For several of the performance measures, quantitative analysis is conducted by mod-

eling the Preferred Plan’s travel conditions, and comparing those conditions with a Baseline Scenario. For other performance measures, qualitative indicators are used (e.g., consistency with Measure M2, enhanced active transportation [bike lane miles, bike share stations and bike lockers], increases in Stationlink routes, investment in maintenance projects, and advocacy such as letters of support to SCAG on behalf of local projects). The resulting outcomes of the performance measures, when applied to the Preferred Plan, provide evidence to demonstrate the success of those plans.

The performance measures are shown in Table 3.6, with the linkage to the established goals.

Seeing Results

The Preferred Plan’s performance in improving mobility is measured by indicators that tie to the goals and objectives. These indicators include vehicle hours of delay, vehicle miles traveled, and travel speeds as well as meeting the established policy goals (e.g., delivery of Measure M2). With the Preferred Plan, the travel conditions in 2035 show improvement across all but one performance measure when compared to the 2035 Baseline Scenario, as shown in Table 3.7.

Table 3.6: 2035 Preferred Plan Performance Metrics

Goal	Performance Measure
Deliver on Commitments	Measure M2 projects included in the scenario
	M2020 projects included in the scenario for completion by 2020
Improve Performance	Daily hours of delay due to congestion
	Average peak period freeway, HOV, and roadway speeds
	Daily transit trips
Expand Choices	Expenditure by mode; service miles of each mode
	Number of new routes (beyond baseline routes) and total revenue vehicle-hour growth
	Number of new linkages between transit and last-mile options (i.e., shuttles, bus transit links to Metrolink, bicycle and pedestrian amenities)
Support Sustainability	Investment in maintenance; Measure M2 Local Fair Share dollars
	Number of High Quality Transit Corridors and their associated frequencies of service
	Acres of environmental mitigation lands; Investment in Project X
	Demonstrate a balanced budget

HOV = high-occupancy vehicle

Table 3.7: Results of the Preferred Plan

	2035 Baseline Scenario	2035 Preferred Plan	Change from Baseline
Daily Transit Trips	165,219	189,426	14.7% Increase
Daily Vehicle Trips	9,318,002	9,293,636	0.3% Decrease
Total Vehicle Hours of Delay	729,432	506,142	30.6% Decrease
Daily Vehicle Miles Traveled	81,112,113	81,750,024	0.8% Increase
Average Speed – Freeway Peak	34.5 mph	39.0 mph	13.2% Increase
Average Speed – HOV Peak	57.4 mph	59.5 mph	3.6% Increase
Average Speed Arterial Peak	22.7 mph	27.2 mph	20.0% Increase

Note: HOV modeled at HOV 3-plus in 2035
 HOV = high-occupancy vehicle
 mph = miles per hours

The Preferred Plan delivers Measure M2 commitments by including all Measure M2 projects, and prioritizing Measure M2020 projects for funding and early implementation. Transportation system performance is improved through investment in new facilities, expansion of transit services, and improved integration of multiple modes of travel to increase systemwide efficiency and capacity. Transportation choices are expanded for Orange County residents and workers as networks are completed and more connections are made between those networks (gap closures and first- and last-mile connections). Taken in total, the projects and programs in the Preferred Plan support a sustainable system—both financially and environmentally—for mobility in Orange County. Table 3.8 provides a detailed analysis of the projects included in the Preferred Plan as they relate to the overall goals and objectives.

The increase in Daily Vehicle Miles Traveled is a function of the County's growth in population and employment. It is important to note that OCTA does not have control over the location, type, or intensity of land use development throughout Orange County. These decisions are the purview of local jurisdictions. Growth in population, employment, and related land uses is at the discretion and under the authority of local agencies. OCTA's role is to coordinate an efficient transportation system, providing improvements within the context of financial and environmental constraints as well as the planned land uses developed by other agencies. Because the Preferred Plan meets the objectives of improved system performance and expanded travel choices with its transportation investments, the total projected vehicle miles traveled increase less than 1 percent from the 2035 Baseline.

Increases in rail and bus transit service, connection of regional bikeways, and focused attention on regional highway and local roadway bottlenecks will improve mobility in Orange County and reduce delay due to congestion compared to the baseline scenario. Even with implementation of the Preferred Plan, however, demand for travel on regional highways will still exceed capacity in 2035. Figure 3-8 illustrates anticipated traffic congestion on Orange County freeways during the morning commute, and reductions in congestion as a result of the Preferred Plan are illustrated on Figure 3-9. Figure 3-10 illustrates traffic congestion on HOV and toll lanes during the morning commute, and reductions to congestion in HOV and toll lanes are illustrated on Figure 3-11.

The Preferred Plan is working toward its goals and objectives, and provides a comprehensive set of improvements to address population growth and anticipated travel demands. As evidenced by its successful performance across several measures, the Preferred

Plan is a good plan for OCTA's investment in transportation. However, more things can be done to enhance mobility in Orange County.

The Conceptual Plan

Given the reality of funding constraints, the Preferred Plan addresses many, but not all, of the mobility needs for Orange County. Therefore, Outlook 2035 offers a Conceptual Plan that suggests additional future efforts to address these mobility needs. This Conceptual Plan includes improvements that have been identified through a variety of planning efforts, such as Major Investment Studies. Projects in the Conceptual Plan that may be implemented to enhance mobility beyond the Preferred Plan scenario, but that require additional funding and/or study include:

- Connection between Santa Ana and the Anaheim Fixed Guideways along Harbor Boulevard
- Proposed Fullerton Streetcar Connection
- 8 new Bravo! routes in high-demand areas
- 36 new weekday Metrolink trains, including greater frequency to Los Angeles
- 6 LOSSAN grade separations
- Operational freeway or carpool improvements

For a variety of reasons, these further projects are not yet ready for inclusion in a Preferred Plan. It may be that the planning has not yet been completed or vetted with public dialogue and input. Funding sources may need to be developed. The projects may not be ready for implementation until after the 2035 horizon year of this LRTP. Additionally OCTA must be responsive to actions occurring outside the agency, such as State activity and legislative mandates (e.g., statewide high-speed rail or sustainable communities legislation), other County or planning agencies, and private enterprise.

Additionally, OCTA must continue to be engaged in the development of the 2016 RTP, for which SCAG will likely include regional strategies that extend beyond the OCTA LRTP. These strategies may include increased integration of land use and transportation, shifts in the location of land use development, and other efforts to reduce vehicle miles traveled and GHG emissions (i.e., SCS). Local jurisdictions will be involved in this collaborative process with SCAG, particularly on proposed land use strategies and development assumptions that may emerge; however, OCTA must stay engaged as well.

Examples of projects and programs that are embodied in the Conceptual Plan are described in greater detail below.

Table 3.8: Meeting Goals and Objectives

	GOALS											
	Deliver on Commitments		Improve Transportation System Performance				Expand Transportation System Choices			Support Sustainability		
OBJECTIVES	Deliver M2 Projects	Consistency with M2020	Reduce Delay from Congestion	Increase Facility Speeds	Increase Transit Ridership	Invest in New Facilities	Expand Transit Service	Improve Multimodal Integration	Maintain Existing Infrastructure	Support Sustainable Communities Strategies	Implement Environmental Strategies	Deliver a Financially Sustainable L RTP
Regional Highways												
Freeway Service Patrol and Callbox Program	●		●	●	●				●			●
Add one mixed-flow lane in each direction on I-5 from Avery Pkwy to Alicia Pkwy, extend second HOV lane from El Toro Rd to Alicia Pkwy, and reconstruct Avery Pkwy and La Paz Rd interchanges	●	●	●	●			●				●	
Add one mixed-flow lane in each direction on I-5 between I-405 and SR-55	●	●	●	●								
Add one HOV lane in each direction on I-5 between Avenida Pico and San Diego County Line	●	●		●		●				●		
Access and merging improvements on I-5 between El Toro Rd and Los Alisos Blvd	●	●	●									
Add SB HOV on-ramp and NB HOV off-ramp on I-5 at Barranca Parkway			●			●				●		
Add one mixed-flow lane each direction on I-5 between SR-57 and SR-91			●	●								
Add interchange and auxiliary lanes on SR-55 at Meats Ave	●		●			●						
Add one mixed-flow lane in each direction on SR-55 btwn I-405 and I-5	●	●	●	●								
Add one mixed-flow lane in each direction on SR-55 btwn I-5 and SR-22 and operational improvements btwn SR-22 and SR-91	●	●	●	●								
Add NB auxiliary truck climbing lane on SR-57 btwn Lambert Rd and Los Angeles County Line	●	●	●	●								
Interchange improvement at SR-57/Lambert Rd	●	●	●	●								
Add one NB mixed-flow lane on SR-57 btwn Orangewood Ave and Katella Ave	●	●	●	●								
Construct HOV connector at SR-73/I-405			●			●				●		
Construct interchange at SR-73/Glenwood Dr with collector-distributor to Aliso Creek			●			●						
Add one HOV lane each direction on SR-73 btwn MacArthur Blvd and I-405				●		●				●		
Construct connector from NB SR-241 to EB SR-91 HOV/HOT lane and btwn WB SR-91 HOV/HOT lane to SB SR-241	●	●	●	●		●				●		
Add one EB mixed-flow lane on SR-91 (from SR-57 to SR-55), add one WB mixed-flow lane (from Glassell St to State College Blvd), and interchange improvements at Glassell St, Tustin Ave, Lakeview Ave, and NB SR-57	●	●	●	●								
Construct interchange and overcrossing at SR-91/Fairmont Blvd	●	●	●									
SR-91 Corridor Improvement Project btwn SR-241 and Pierce St (Riverside County)	●	●	●	●		●						
Construct interchange at SR-133/Trabuco Rd			●	●		●						
Construct interchange at SR-241/Jeffrey Rd			●	●		●						
Construct interchange at SR-241/Weir Canyon Rd			●	●		●						
Interchange improvement at SR-241/SR-261			●									
Add one mixed-flow lane in each direction on SR-241 btwn SR-261 and Portola Pkwy			●	●								●

Table 3.8: Meeting Goals and Objectives (Continued)

	GOALS		Deliver on Commitments			Improve Transportation System Performance			Expand Transportation System Choices			Support Sustainability		
	OBJECTIVES	Deliver M2 Projects	Consistency with M2020	Reduce Delay from Congestion	Increase Facility Speeds	Increase Transit Ridership	Invest in New Facilities	Expand Transit Service	Improve Multimodal Integration	Maintain Existing Infrastructure	Support Sustainable Communities Strategies	Implement Environmental Strategies	Deliver a Financially Sustainable L RTP	
Regional Highways (Continued)														
Add two mixed-flow lanes in each direction on SR-241 btwn Portola Pkwy and Santa Margarita Pkwy				•	•								•	
Add one mixed-flow lane in each direction on SR-241 btwn Santa Margarita Pkwy and Oso Pkwy				•	•								•	
Restripe I-405 to continuous access HOV lane between I-5 and SR-73				•	•				•				•	
Add one mixed-flow lane in each direction on I-405 btwn SR-73 and I-605	•	•	•	•										
Add one mixed-flow lane in each direction on I-405 btwn I-5 and SR-55 and SB auxiliary lanes from University Dr to Irvine Center Dr	•	•	•	•										
I-605 at Katella Interchange improvement	•	•	•											
Arterials and Local Roads														
Master Plan of Arterial Highways Projects	•	•	•	•				•						
Regional Traffic Signal Synchronization Program	•	•	•	•	•			•		•			•	
Arterial Pavement Rehabilitation Program								•	•				•	
17th Street Grade Separation			•				•	•						
Santa Ana Boulevard Grade Separation			•				•	•						
Bus Transit														
Senior Mobility Program	•	•					•	•			•			
Safe Transit Stops Program	•	•						•			•			
Community Based Circulators Program	•	•				•	•	•			•			
Implement Short-Range Transit Plan (Capital)					•	•								
Implement Short-Range Transit Plan (Operations)					•		•	•	•					
Rail Transit														
Metrolink Capital					•	•								
Metrolink Operations (increase from 54 weekday trains to 62)					•		•	•	•					
Anaheim Rapid Connection Fixed Guideway	•		•		•	•	•	•			•			
Santa Ana/Garden Grove Fixed Guideway	•		•		•	•	•	•			•			
Transit Extensions to Metrolink Program (Operations)	•		•		•	•	•	•			•			
Transportation Demand Management														
Vanpool Operations			•						•		•		•	
OC Bikeways						•		•						
Other														
Senior Non-Emergency Medical Transportation Program					•		•	•						
Environmental Cleanup Program												•		

Bldv = Boulevard
 btwn = between
 Dr = Drive
 EB = eastbound
 HOT = high-occupancy toll
 HOV = high-occupancy vehicle

I-405 = Interstate 405
 I-5 = Interstate 5
 I-605 = Interstate 605
 NB = northbound
 Pkwy = Parkway
 Rd = Road

SB = southbound
 SR-133 = State Route 133
 SR-22 = State Route 22
 SR-241 = State Route 241
 SR-261 = State Route 261
 SR-55 = State Route 55

SR-57 = State Route 57
 SR-73 = State Route 73
 SR-91 = State Route 91
 St = Street
 WB = westbound

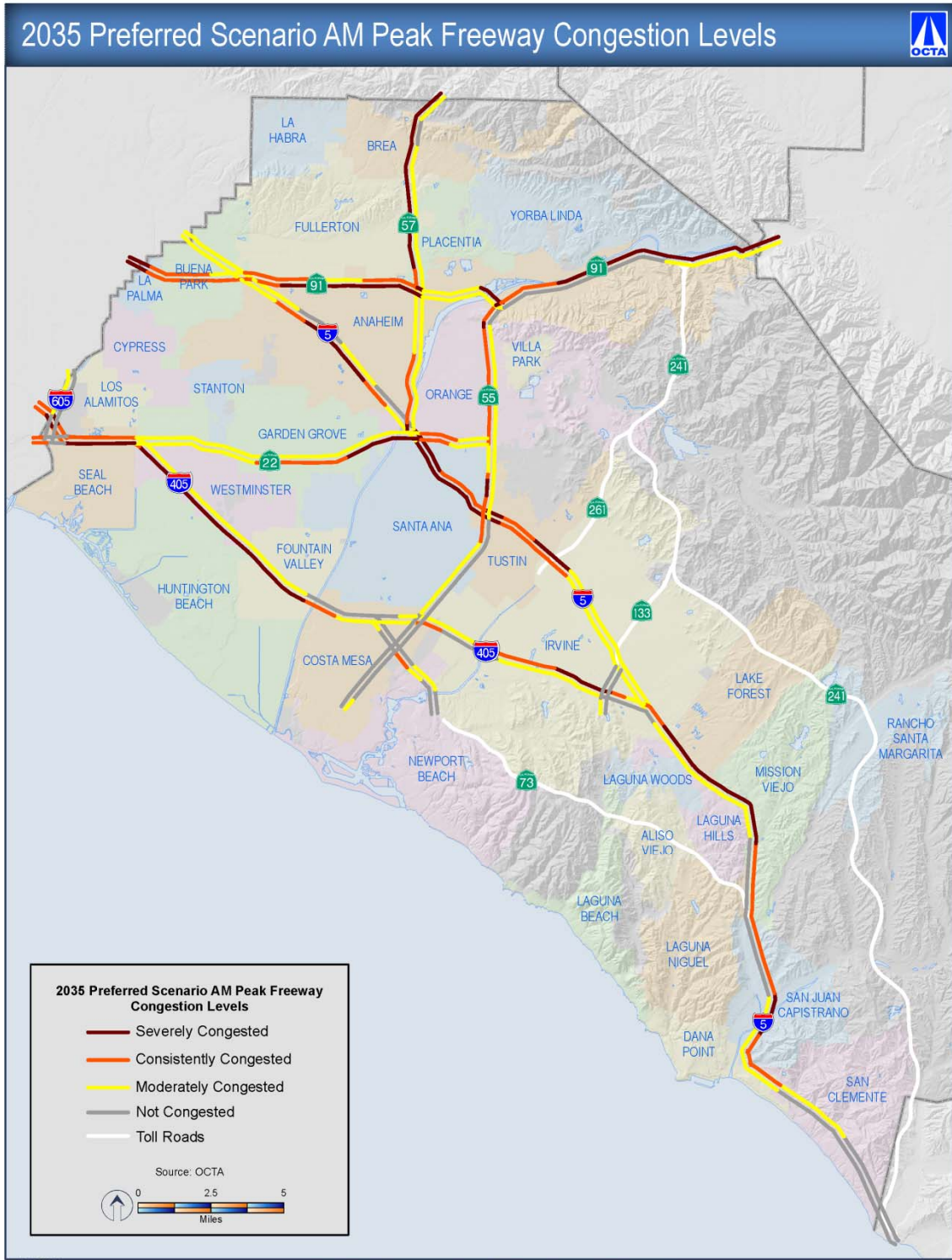
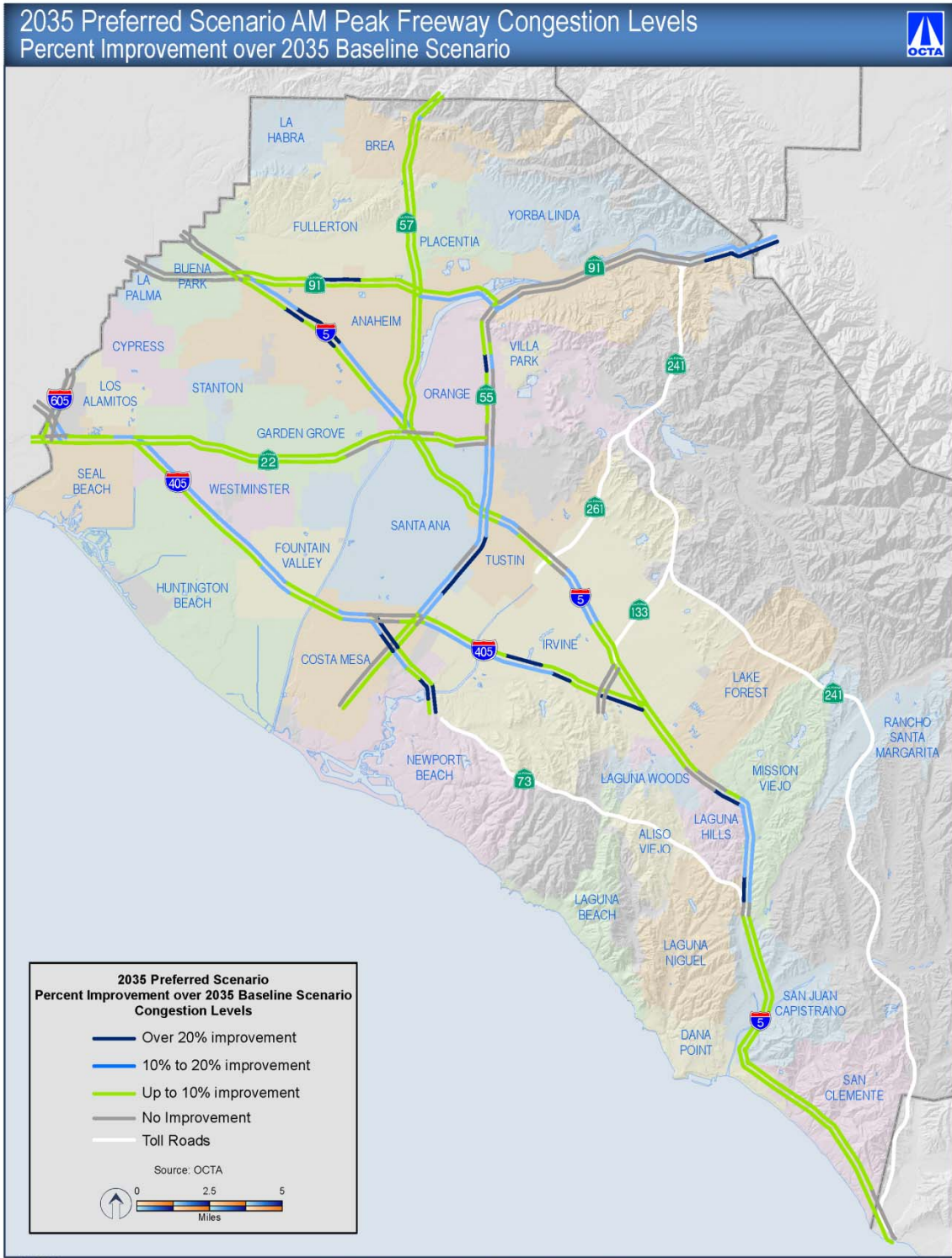


Figure 3-8: 2035 Preferred Scenario AM Peak Freeway Congestion Levels



April 11, 2014

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Figure 3-9: 2035 Preferred Scenario AM Peak Freeway Congestion Levels – Percent Improvement over 2035 Baseline Scenario

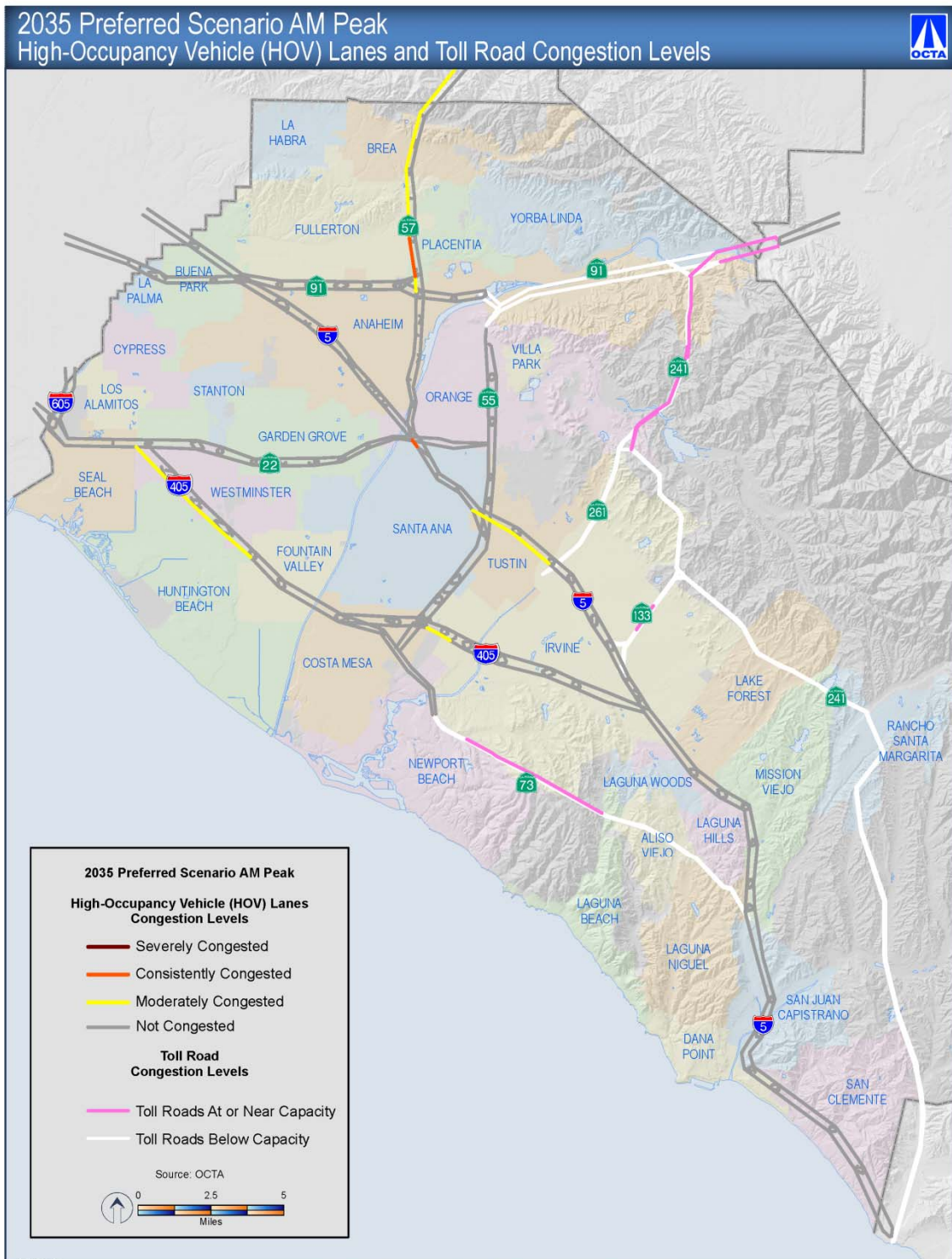


Figure 3-10: 2035 Preferred Scenario AM Peak High-Occupancy Vehicle (HOV) Lanes and Toll Road Congestion Levels

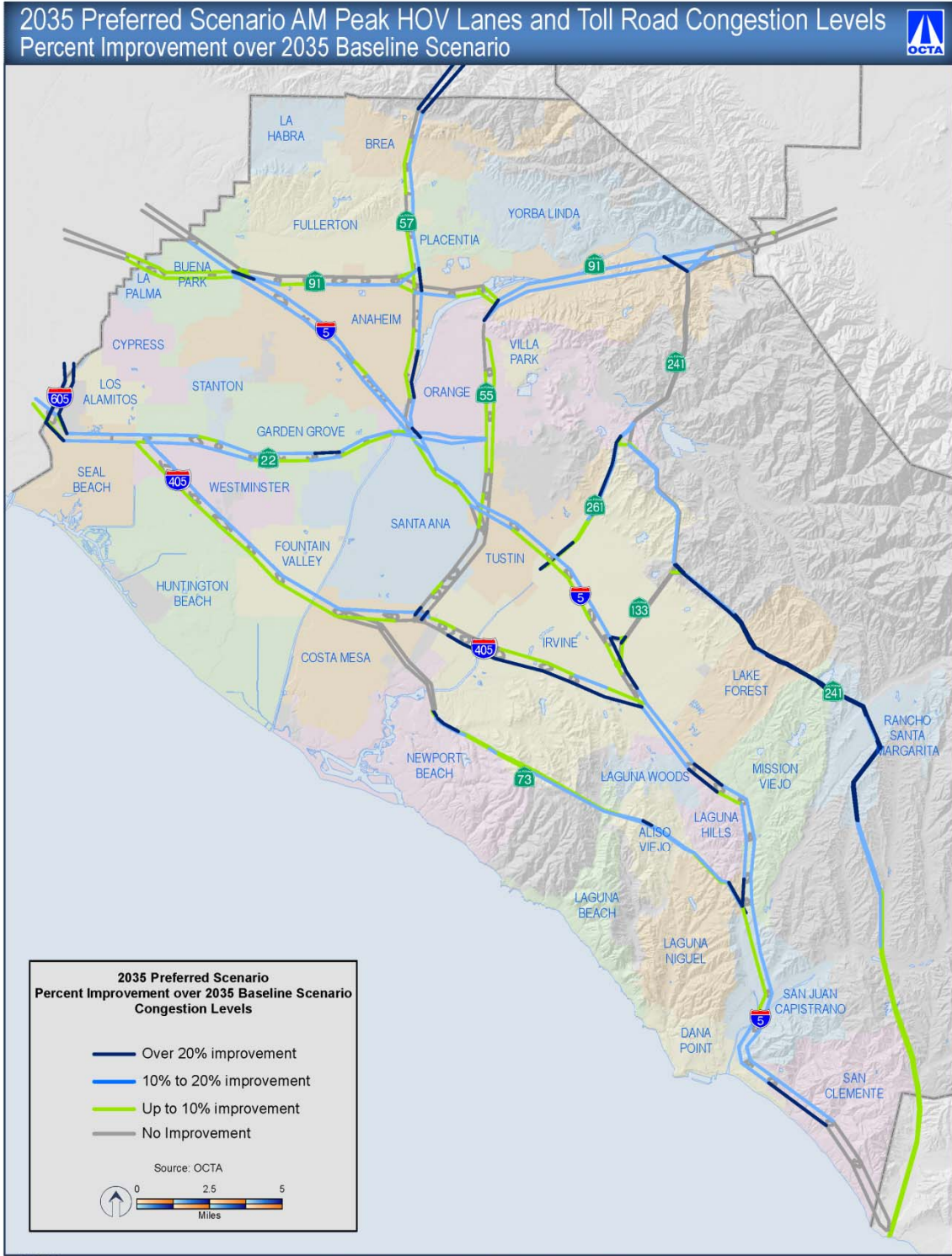


Figure 3-11: 2035 Preferred Scenario AM Peak HOV Lanes and Toll Road Congestion Levels – Percent Improvement over 2035 Baseline Scenario

Examples of operational improvements that could be made to regional highways if funding were identified include the additional direct HOV ramps planned for I-405/Von Karman Avenue, I 405/Bear Street, SR-55/Alton Parkway, and SR-57/Cerritos Avenue. Projects identified to address hot spots of congestion on the regional highway network include adding a truck climbing lane to I-5 northbound between Pico Avenue and Avenida Vaquero, adding one mixed-flow lane in each direction to I-5 between State Route 74 (SR-74) and Pico Avenue, extending SR-55 to Industrial Way, and adding one mixed-flow lane in each direction to I-405 between State Route 133 (SR-133) and Culver Drive. The buildout of the planned toll corridors is also planned but not programmed. General-purpose interchange improvements are also planned for I-5/SR-22/SR-57, I-5/El Camino Real, I-5/Pacific Coast Highway, I-405/SR-133, State Route 73 (SR-73)/Glenwood, and SR-73/El Toro Road. New general-purpose interchanges are planned for I 5/Stonehill Drive, SR-241/Crown Valley Parkway, and SR-241/Cow Camp Road.

OCTA administers the Regional Capacity Program, the Regional Traffic Signal Synchronization Program, and the Local Fair Share Program from Measure M2, which help local jurisdictions fund arterial and local roadway capacity and operational improvements as well as pavement preservation. These programs will provide revenue through 2041 for arterial and local roadway projects that are not yet identified. Some projects being considered include widening the SR-55 frontage road between Paularino Avenue and Baker Street, providing additional lanes on Harbor Boulevard between Warner Avenue and 17th Street, and creating a grade-separated intersection between Harbor Boulevard and Ball Road. Vehicle and pedestrian delay would be reduced by providing a pedestrian bridge over Pacific Coast Highway at Superior Avenue. The location of conceptual roadway and regional highway improvements are illustrated on Figure 3-12.

Additional arterial intersections with the LOSSAN railroad corridor could be grade separated from the railroad to improve safety and mobility for both the users of the railroad and the users of the road. Additional locations where grade separations are contemplated are Orangethorpe Avenue, Ball Road, Main Street, Grand Avenue, Newport Avenue, and Red Hill Avenue.

Over the planning period, OCTA will work toward implementing the recommendations of the Transit System Study. Bus transit operational assistance from State and federal sources is a key constraint to OCTA's ability to expand transit service and is unknown at this time. Operational improvements could include additional fixed-route routes, additional service on high-demand routes, expansion of the Bravo! express bus service, or increased inter-county connections. Additionally, OCTA will consider plans to provide lateral

and last-mile connections from transit to destinations through service such as Stationlink, shuttles, and vans. The locations of conceptual transit improvements are illustrated on Figure 3-13.

The Metrolink Service Expansion Program and LOSSAN Strategic Plan conceive of double track being extended to the San Diego County border, additional capital improvements including new sidings, and up to 98 daily trains serving Orange County stations with increased mid-day trains between Orange County and Los Angeles Union Station. This will further the desire for greater regional rail and transit coordination. Improvements to Orange County's Metrolink stations included in the Conceptual Plan include expanding the Santa Ana station to serve express buses and planned fixed-guideway rail transit.

In 2013, SCAG completed a study of alternative uses along the Pacific Electric right-of-way (known as the West Santa Ana Branch corridor). The right-of-way is currently owned by Metro in Los Angeles County and OCTA in Orange County. If light-rail transit were located along this corridor as recommended by the study, it would provide another inter-county transit connection. An additional inter-county transit line has been suggested that would travel between ARTIC and Ontario International Airport. Within Orange County, the Anaheim streetcar and Santa Ana streetcar included in the Preferred Plan would both terminate on Harbor Boulevard. These transit lines are being planned and will be constructed with compatible technology that allows them to be connected along Harbor Boulevard at a future date. The City of Fullerton has completed conceptual planning for a streetcar that would operate between the Fullerton Transportation Center, Fullerton College, and California State University at Fullerton. All four of these transit lines are in the concept stage and funding would have to be identified for the planning stages.

The supervisorial district bikeway planning efforts facilitated by OCTA will result in an actionable list of projects that can be funded by local jurisdictions or seek competitive funding from OCTA, State, or federal sources. Expansion of Orange County's bicycle infrastructure, including completed networks and improved connections to other modes, will result from the current planning efforts, but specific projects are not known at this time. For example, the City of Laguna Beach intends to construct improved bicycle infrastructure on Laguna Canyon Road between El Toro Road and Canyon Acres Drive, but these improvements have not yet been engineered. In addition to building bicycle infrastructure, enhancements to the bicycle mode could also take the form of expanded opportunities for bike sharing. OCTA is currently partnering with the City of Fullerton to test bike sharing between the Fullerton Transportation Center,

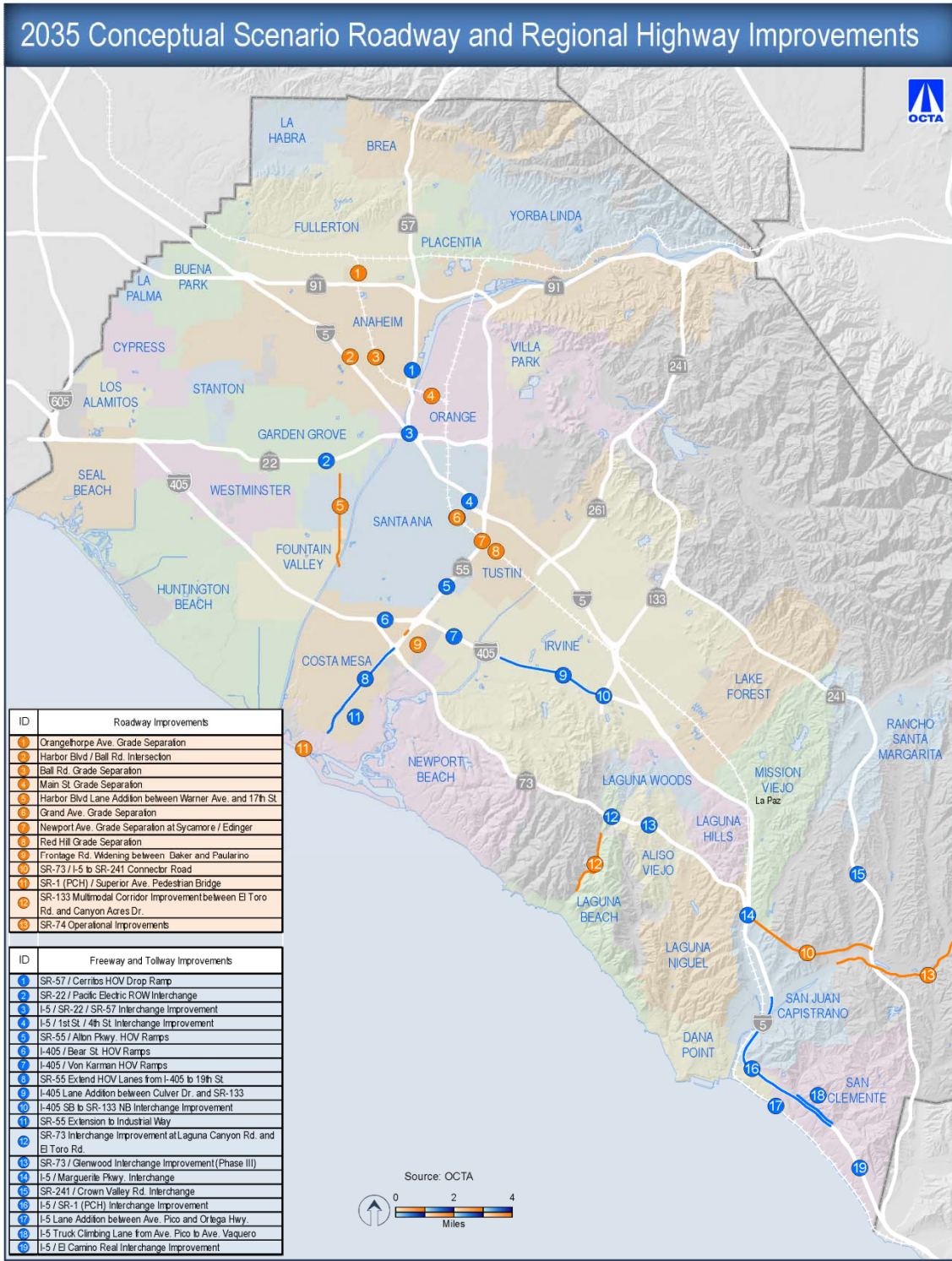


Figure 3-12: 2035 Conceptual Scenario Roadway and Regional Highway Improvements

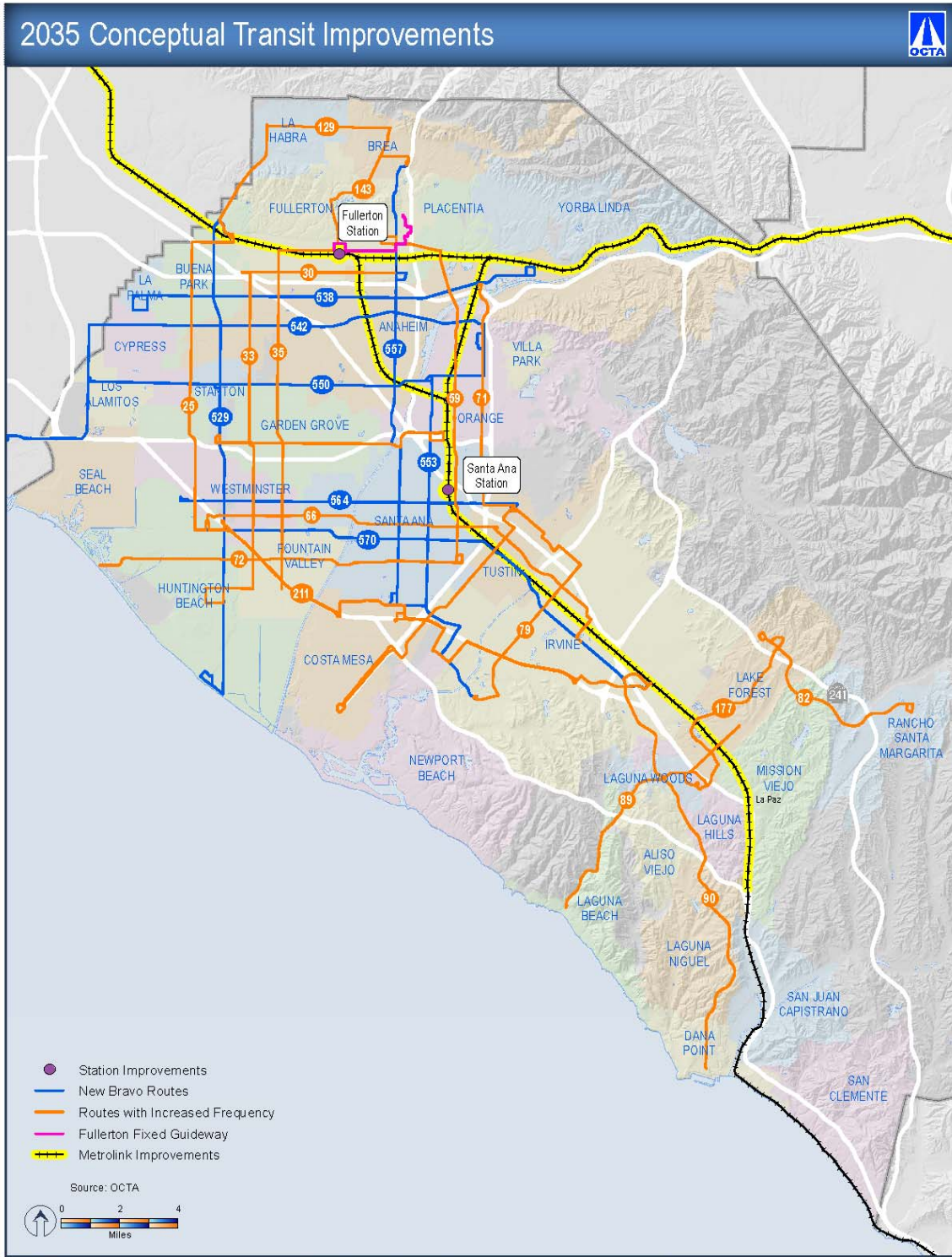


Figure 3-13: 2035 Conceptual Transit Improvements

downtown, and local colleges/universities. If the test is successful, bike sharing could proliferate throughout Orange County.

Performance of the Conceptual Plan

Similar to the Preferred Plan, the Conceptual Plan was assessed using the performance measures described previously. The Conceptual Plan builds on the accomplishments of the Preferred Plan and further benefits mobility for Orange County. The Conceptual Plan increases the frequency of both rail and bus transit, which facilitates an increase in peak-hour and off-peak hour transit trips. If additional funding were available

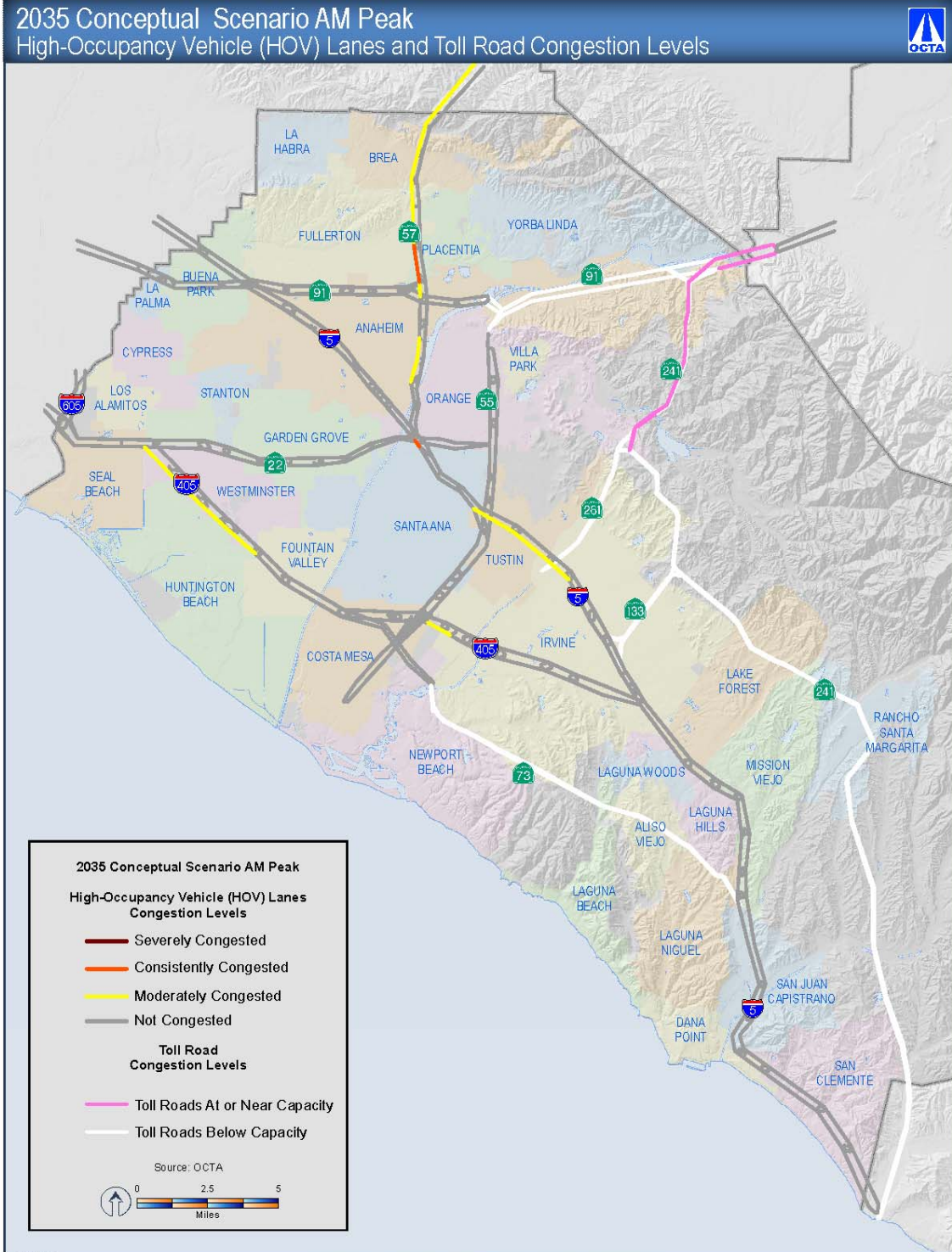
to address arterial and regional highway hot spots, delay experienced on these facilities could be further reduced but not eliminated. With the Conceptual Plan, the travel conditions in 2035 show improvement across all but one performance measure when compared to the Preferred Plan, as shown in Table 3.9. While delay is decreased, areas of congestion would still remain on the regional highway system as illustrated on Figures 3-14 and 3-15. The improved mobility of the Conceptual Plan supports commute trips and discretionary social and shopping trips. This improved mobility improves the quality of life for Orange County residents but also results in a slight increase of daily vehicle miles traveled over the Preferred Plan.

Table 3.9: Results of the Conceptual Plan

	2035 Baseline Scenario	2035 Preferred Plan	2035 Conceptual Plan	Change from Baseline
Daily Transit Trips	165,219	189,426	206,734	25.1% Increase
Daily Vehicle Trips	9,318,002	9,293,636	9,274,401	0.5% Decrease
Total Vehicle Hours of Delay	729,432	506,142	486,714	33.3% Decrease
Daily Vehicle Miles Traveled	81,112,113	81,750,024	82,002,086	1.1% Increase
Average Speed – Freeway Peak	34.5 mph	39.0 mph	39.5 mph	14.5% Increase
Average Speed – HOV Peak	57.4 mph	59.5 mph	59.5 mph	3.6% Increase
Average Speed Arterial Peak	22.7 mph	27.2 mph	27.4 mph	20.7% Increase

Note: HOV modeled at HOV 3-plus in 2035.
 HOV = high-occupancy vehicle
 mph = miles per hour





April 15, 2014

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Figure 3-15: 2035 Conceptual Scenario AM Peak High-Occupancy Vehicle (HOV) Lanes and Toll Road Congestion Levels

Chapter 4: Short-Term Action Plan

Outlook 2035 includes an Action Plan with additional studies, continued stakeholder outreach, and monitoring of emerging technologies in order to continue identifying projects and strategies for consideration in future LRTP updates.

Moving Forward

Proactive planning is essential in a world that is constantly changing. Through continuous monitoring of travel conditions, consideration of emerging issues and their potential impact on the transportation system, and regular engagement of the public, OCTA fosters informed decision-making in a transparent manner. To this end, Outlook 2035 identifies several immediate projects for investigation and implementation over the next 4 years that are rooted in principals and emerging issues identified through the Outlook 2035 public outreach efforts and planning process.

Reflecting Public Input

Several themes emerged from stakeholders and the public as critical for the development and ultimate implementation of the LRTP (see Appendix E for a report of all public input received through the LRTP outreach effort). These guiding themes summarize the public's priorities for mobility as described below.



Optimize Transportation Systems

Several strategies can be used to ensure that the County's existing investment in transportation is maximized. In short, it is doing more with what we have already invested. Fulfilling the vision of the Measure M2 funding plan and completing the Measure M2 list of projects will fundamentally achieve this strategy. Activities may include improving transportation connections both locally and regionally as well as within and between modes. New services may be added to existing networks, and the completion of networks or gap closures can also increase the overall capacity of

existing transportation systems. Reducing system bottlenecks will also improve system efficiency. Activities to maximize existing networks and improve system operations (e.g., signal synchronization projects and new TDM strategies) fall within this category.

Transportation system performance is also essential to support economic activity in Orange County. Too much congestion hampers economic activity (e.g., the provision of services and the movement of goods). Maintenance and optimization of the regional highways system as well as streets and arterials will ensure reliable paths for the movement of goods and services by trucks and heavy-duty vehicles. Continued planning, programming, and construction of grade separations, dual tracking, and other rail improvements will enhance this movement of goods over rail systems.

Maintain Streets and Highways

Not only is it important to maximize use of the systems that Orange County has invested in, it is similarly critical to maintain the County's investment in these systems. Orange County has over 6,365 lane-miles of streets in the MPAH network and 1,673 lane-miles of regional highways. Ongoing maintenance of these facilities must be a priority in order to retain their usefulness and extend their lifecycles.

Educate the Public

One of the common themes heard through community outreach was the need to educate people about transportation alternatives, bicycle safety, and managed lanes. OCTA provides information on transit options on its website and at train stations, but additional efforts may be needed to reach audiences who are unfamiliar with travel alternatives. It was also expressed that outreach is needed to clarify how lane management techniques can maximize the throughput of regional highways. Enhanced education and outreach efforts could facilitate greater use of all of Orange County's transportation systems by residents, workers, and visitors alike.

Innovate

There was significant public discussion around the opportunity for new transit strategies, especially rail, and for providing real-time transit information. Given the fact that Orange County's freeways are built out, OCTA needs to develop projects and activities that incentivize people to choose alternatives to their au-

tomobiles (i.e., to offer them more mobility choices). Such choices may be significantly enhanced through the use of technology.

Collaborate on Regional Solutions

OCTA must continue to work diligently with the County and its cities to implement relevant projects and services, and to link land use development to transportation plans. The most successful plans are those that acknowledge the changing demographics of the County and reflect the needs of the future population profile. Further, traffic does not stop at County borders, and OCTA must be proactive with neighboring counties to identify regional projects to improve inter-county travel. Also, other transportation planning agencies (i.e., FHWA, SCAG, Caltrans, and the Transportation Corridor Agencies) all have a role in funding and improving transportation in Orange County.

Explore

There is a desire to explore incentives for carpools on toll roads, expansion of bus service and the vanpool program, dedicated lanes for transit on streets and freeways, new bikeways, and the potential for managed lanes. The public has identified a need to encourage the use of alternatives to the automobile. Improved facilities, public education, and incentives are suggested as ways to change drivers' perceptions and encourage alternatives to driving alone. However, for commuters and travelers with mode flexibility, psychological factors such as habits and social norms influence mode choice and must be considered. OCTA is experimenting with additional methods for informing the public of transit and active transportation options, trip planning, and active transportation safety by producing the Adventure Series of videos for the internet. If feedback demonstrates that this form of marketing is effective, it could be expanded.

New and Emerging Issues

Changes Since the 2010 LRTP Update

Measure M2

Much has happened in Orange County since the 2010 update to the LRTP. Importantly, the Measure M2 sales tax went into effect in March 2011, marking the continued commitment of voters to transportation improvements through a designated local funding source. Sales tax proceeds are driven in large part by the economy. At the time of the 2010 LRTP update, Orange County was still reeling from the effects of the Great Recession. Today, the County is experiencing economic recovery across multiple sectors. As of December 2013, Orange County's unemployment rate was 5.2%, which is the lowest rate since

2008 and is lower than both the State's and nation's unemployment rates.

Sustainable Communities Strategy

In April of 2012, SCAG adopted the 2012–2035 RTP, which for the first time included an SCS as required by Senate Bill (SB) 375. SB 375 targets regional GHG emissions with the aim of integrating land use and transportation planning in order to reduce emissions from automobiles and light-duty trucks. In response, Orange County developed its own Orange County SCS, which was incorporated into the 2012 SCAG RTP/SCS.

Legislatively, there have been changes as well. SB 743 was signed into law in September of 2013. This bill may fundamentally change transportation impact analysis as part of California Environmental Quality Act (CEQA) compliance by eliminating auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts. SB 743 changes the focus to the reduction of GHG emissions, the development of multi-modal transportation networks, and a diversity of land uses.

Active Transportation

Countywide, there has been an increased interest in active transportation such as bicycling. OCTA is responding by coordinating regional bikeway planning efforts and supporting local jurisdictions' efforts to seek funding to bring projects to fruition. Linking active transportation with future rail service, OCTA completed the Metrolink Station Nonmotorized Accessibility Strategy in June 2013, which builds upon other efforts by OCTA and local cities to expand transportation choices. The Nonmotorized Accessibility Strategy serves as a reference for local cities to improve safety, address existing barriers, and increase the number of Metrolink riders who walk or bicycle to and from the stations through changes to the physical environment.

Beyond the coordination of OCTA and local agencies, Caltrans has acknowledged active transportation and has adopted a policy relating to Complete Streets, stating: "The Department views all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in California and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system."



Staying Ahead of the Curve

Coordinating Transportation and Land Use

It is important to note that OCTA does not have control over the location, type, or intensity of land use development throughout Orange County. These decisions are under the purview of local jurisdictions. Growth in population and employment are additional factors that are difficult for local jurisdictions to predict and manage. OCTA's role is to coordinate an efficient transportation system that provides improvements within the context of financial and environmental constraints as well as the planned land uses developed by other agencies.

Still, the issue of land use and local control impacts the transportation system. The location, type, and amount of land development impacts travel demand and the related transportation improvements that are needed systemwide. While OCTA has no purview over land use, it is linked to the transportation system, and State legislation increasingly seeks to strengthen that linkage. This greater transportation/land use linkage will require OCTA and other local and regional organizations (e.g., the Orange County Council of Governments and SCAG) to continue to closely coordinate transportation decisions with land use decisions moving forward.

For example, OCTA may plan for increased transit investments, but to be most effective, those investments must be supported by transit-oriented land use patterns. Housing growth is projected to occur in and adjacent to areas that are forecasted for increased employment growth. This will create opportunities to link housing and jobs in a way that affords pedestrian, cycling, and transit choices for home/work travel.

Additionally, intensification of both employment and housing will enhance the built environment for mixed uses, transit-oriented and transit-adjacent developments, and multi-use projects along pedestrian and bicycle facilities. This will result in more of the working population living proximate to high-quality transit corridors for rubber tire transit as well as Orange County's Metrolink stops.

Technology

Complex factors drive technological change, including break-through technologies, market competition, manufacturing capability, economics, and consumer needs. OCTA must monitor technological advances and be prepared to address them as part of future planning efforts that anticipate, recognize, and adapt to change. While technologies impacting transportation are generally developed in the private sector, it is the responsibility of OCTA to take advantage of technology opportunities that improve efficiencies when

appropriate. To this end, OCTA has developed an Emerging Technology Policy, which is included in the LRTP as Appendix F.

For example, major auto manufacturers, such as Nissan and Mercedes Benz, have stated that autonomous vehicles will be available at dealerships by 2020, and Google and Tesla are targeting 2016–2017. In addition to potential self-driven vehicles, there are more vehicles each year that monitor and communicate with each other to actively avoid accidents. Impacts on roadways and freeways are speculative, but there is potential for increased capacity on existing infrastructure over the life of the LRTP.



Alternative fuel vehicles are also becoming more commonplace. As battery efficiencies and charging technologies improve, electric vehicles will become more viable to more people. Natural gas infrastructure is present throughout most of Orange County. Improved storage technology could make this fuel a viable option for many commuters. Hydrogen fuel cell technology also continues to advance and could become more prevalent in coming years. It should be noted that Orange County is home to 9 of the 42 hydrogen fueling stations active or in development in California. While the alternative fuel vehicles reduce emissions, the vehicles still contribute to wear and tear on infrastructure. Therefore, as these vehicles gain in market share, the issue of the gas tax revenue shortfalls will be worsened.

Other technologies such as electronic boarding passes, real-time transit information, and social networking could influence future travel behaviors. Metro, Foothill Transit, and Santa Clarita have integrated rail and bus ticketing into one transit access pass (TAP) card that transit riders can use to transfer between transit carrier and transit modes. Use of these electronic boarding passes reduces the amount of time buses wait while boarding passengers and reduces the time it takes riders to transfer between modes. Both outcomes improve travel time and make transit more attractive to potential users. Metro has also intro-

duced Nextrip Service, which provides bus and rail vehicle arrival times to customers with global positioning system (GPS) enabled phones. This service, combined with social networking tools that allow transit providers to inform riders of delays in real time, remove an element of the unknown that could otherwise be a barrier to transit use.

Private sector companies are also offering new transportation services such as bike sharing and car sharing, and they may look to invest in Orange County. The State is currently developing a framework of regulations for peer-to-peer car sharing, which could standardize such services and potentially make it easier for businesses and local jurisdictions to coordinate implementation. Bike sharing and car sharing at transit nodes like Metrolink stations could provide another option for commuters seeking a last-mile option.



Inter-County Connections

Coordination with regional partner agencies will be essential to regional mobility. Looking at the issue of inter-county connections, there are several potential projects on the horizon. The San Diego Association of Governments’ I-5 express lanes project appears to be moving forward as illustrated on Figure 4-1. This will add lanes south of the Orange County/San Diego border and would result in a bottleneck entering Orange County. To address the bottleneck, an extension of the HOV lanes from Avenida Pico to the San Diego border is proposed for study in the Outlook 2035 Preferred Plan, but moving beyond study to implementation would require a new source of funds not yet identified.

Another study, proposed by SCAG, would seek to improve transit connections between Orange County and the Metro Green Line light rail system. If the proposed study moves forward, it would look to improve the transit connection between Orange County’s Metrolink stations and Los Angeles International Airport (LAX). Connecting the Metro Green Line to the Norwalk Metrolink station could provide a viable transit option to and from LAX, which in turn would help to relieve regional congestion. This potential study could

result in project recommendations for future consideration.

Metro is also preparing to select an alignment for the Gold Line Eastern Extension – Phase 2. The project will extend the Gold Line from the existing terminus at Pomona Boulevard and Atlantic Boulevard in East Los Angeles along one of two potential alignments: State Route 60 (SR-60) alignment, which would generally follow SR-60 to the City of South El Monte; and the Washington Boulevard alignment, which would generally follow Garfield Avenue and Washington Boulevard to Lambert Road in the City of Brea. If the SR-60 alignment is selected, there would be limited potential for an Orange County connection.

Intra-County Opportunities

Coordination with local partner agencies such as local jurisdictions, Caltrans District 12, the Transportation Corridor Agencies, and local transit operators will be essential to Orange County’s mobility. As demand on the freeway system is outpacing capacity, the public is looking to alternatives to the single-occupant automobile. There is an immediate opportunity to continue to advance projects that enhance and promote alternatives such as regional bikeway planning efforts to identify priority corridors, multimodal sidewalks and Neighborhood Electric Vehicle paths, and fixed-guideway projects. Other projects geared toward making better use of the systems already in place include signal synchronization projects on multiple corridors throughout the County, improved transit connections, and TDM projects. Further, the County’s carpool lanes continue to increase in congestion, which lowers their incentive for use. An opportunity exists for exploration of a 3+ HOV occupancy pilot project as one step toward developing solutions to improved carpool lane conditions.

OCTA’s 4-Year Action Plan

While implementation of the specific projects to address these issues and opportunities may not be fully developed for inclusion in the Preferred Plan of the 2014 LRTP, OCTA continues to monitor, track, evaluate and plan for future infrastructure investment needs. Further, several projects and studies have been identified for a short-term action plan to respond to these issues and opportunities and further advance OCTA’s goals and objectives.

A listing of the projects and programs in the 4-year Action Plan are found in Table 4.1. They include collaborative planning work on inter- and intra-county projects. As key inter-county projects progress through planning and conceptual design, OCTA will initiate dialogue with appropriate agencies and develop

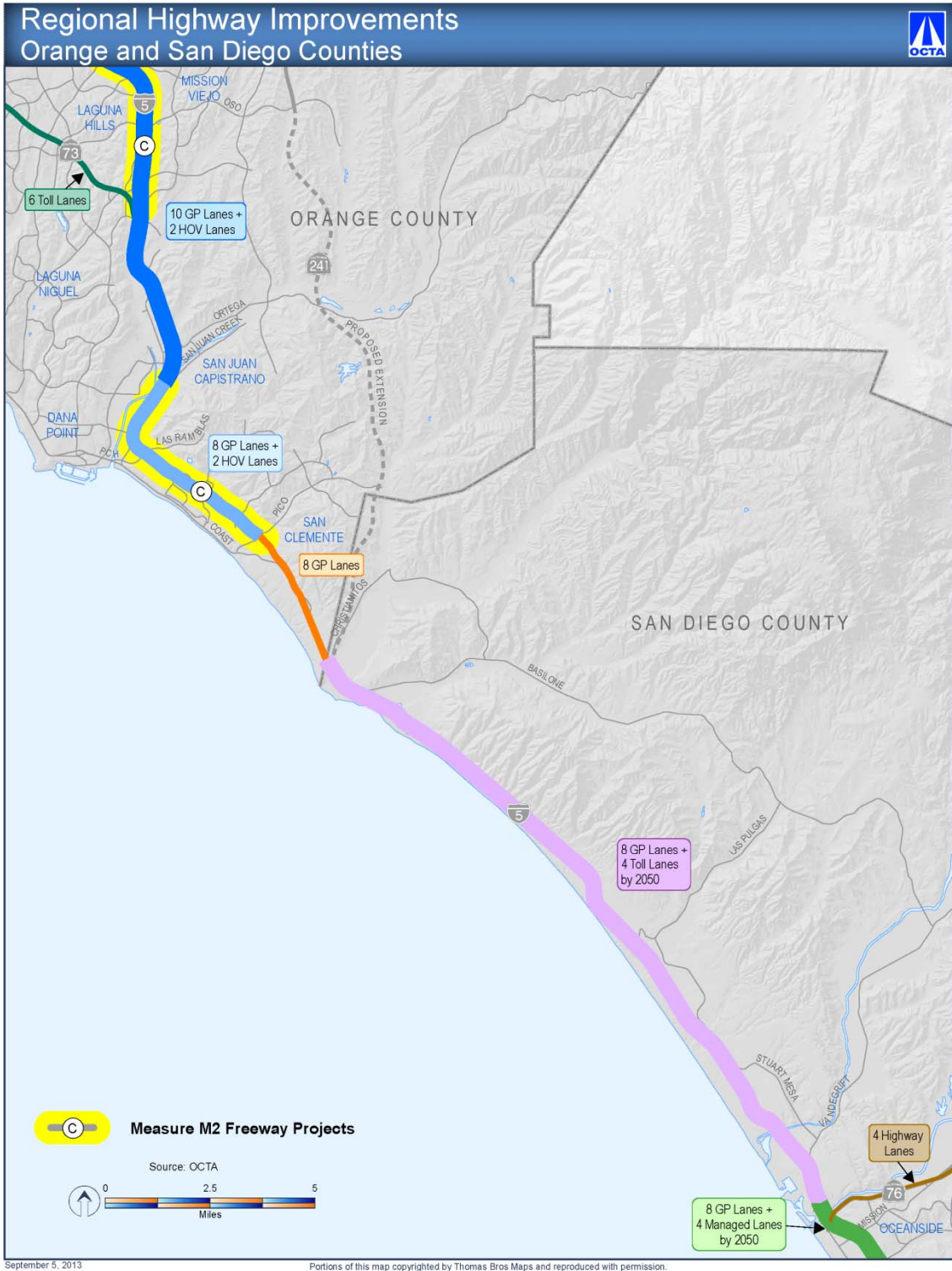


Figure 4-1: Regional Highway Improvements – Orange and San Diego Counties

recommended near-term actions. This will allow OCTA to clearly identify potential impacts, coordinate improvements and schedules, and ensure that OCTA is poised to maximize the inter-county connectivity of these projects. Likewise, there are several opportunities for additional study on intra-county projects as well as initiation of projects with potential for enhancing network efficiency both immediately and in the long term. For example, the short-term action plan includes initiation or completion of over 200 miles and nearly 750 intersections of signal synchronization, as well as multiple regional bikeway planning efforts. The 4-year Action Plan also includes educational components related to alternative transportation options, including public transportation and non-motorized

transportation as well as bicycle and pedestrian safety programs.

Other emerging issues to be addressed by the short-term action plan include State and federal funding opportunities and continued coordination for the 2016 RTP/SCS, and tracking the implementation of the State and federal legislation impacting transportation and linking transportation and land use. As mentioned previously, new technologies are monitored on an ongoing basis, including connected vehicles and smart phone applications that have the potential to increase capacity and reduce travel delay by maximizing the existing network and allowing people to access real-time information and electronic ticketing.

Table 4.1: Short-Term Action Plan

	Description
Inter-County Projects	
LOSSAN/Green Line Connection	Continue dialogue with SCAG and appropriate agencies to identify impacts to and opportunities for connectivity.
Gold Line Eastern Extension – Phase 2	Continue dialogue with Metro and appropriate agencies to identify impacts to and opportunities for connectivity with Orange County’s transportation network.
I-405 Corridor Master Plan	Participate in SCAG’s study, which aims to coordinate this inter-county facility with regional partners.
San Diego’s I-5 HOT Lane Project	Initiate dialogue with SANDAG and appropriate agencies to identify impacts to and opportunities for connectivity with Orange County’s transportation network.
91 Express Lanes Extension into Riverside County	Continue dialogue with RCTC and appropriate agencies to advance the Express Lane extension.
Coordination with Regional Partner Agencies	Continue dialogue with SCAG, SANDAG, County Transportation Commissions, SCAQMD, Caltrans Headquarters, and other regional agencies as needed to further inter-county connectivity.
Intra-County Projects	
Multi-Modal Sidewalks/Neighborhood Electric Vehicles	Support study of opportunities for multimodal sidewalks/Neighborhood Electric Vehicle paths.
3+ HOV Pilot Study	Study opportunities for a 3+ HOV occupancy pilot project.
Guideways	Support and continue to advance planning for Anaheim, Santa Ana/Garden Grove, and Fullerton fixed guideways.
Harbor Boulevard Transit Study	Conduct feasibility study for connecting proposed Project S fixed-guideway projects along Harbor Boulevard.
Transportation Demand Management (TDM)	Study opportunities for new or expanded TDM projects.
Sustainable Transportation Strategies	Coordination with partner agencies on implementation of transportation-related strategies within the Orange County SCS.
Regional Bikeways	Develop implementation plans for priority corridors identified in District 3 and District 5 Bikeway Strategies.
OC Bicycle Planning Loop	Support implementation of OC Bicycle Loop and coordination efforts.
Transit Facility Project Study Reports	Initiate project study report equivalents for transit facilities to determine existing and future capacity levels and other transit requirements.
Vanpool Park-and-Ride Study	Study to assess existing and future capacity levels to accommodate growth in vanpool services.
Signal Synchronization	Initiate implementation of signal synchronization along 23 corridors countywide.
Pacific Coast Highway Corridor Study	Identify a broad range of transportation opportunities and improvements for enhancing regional mobility along this coastal route.

Table 4.1: Short-Term Action Plan (Continued)

	Description
Intra-County Projects (Continued)	
Coordination with Local Partner Agencies	Continue dialogue with local jurisdictions, Caltrans District 12, TCAs, local transit operators, and other local agencies as needed to further intra-county connectivity.
Toll Roads Coordination	Explore opportunities for improved coordination and connectivity.
Emerging Issues	
Monitor New Technology	Monitor developing technologies and their potential impacts on transportation (e.g., autonomous vehicles, alternative fuels, and smart phone applications).
State and Federal Regulation	Monitor State and federal legislation/regulations.
State and Federal Funding	Seek opportunities to access and leverage State and federal funding.
2016 RTP/SCS	Participate in the development of the 2016 RTP/SCS and initiate dialogue with SCAG and local jurisdictions to identify, promote, and support implementation of SCS.
Transportation Outreach and Education	
Active Transportation Safety	Seek opportunities to enhance public outreach and education related to active transportation projects.
Transit Use and Trip Planning	Explore new approaches to increase use of modes other than single-occupant vehicles, including enhanced transit and active transportation facilities, public education, and incentives.

Caltrans = California Department of Transportation
 HOT = high-occupancy toll
 HOV = high-occupancy vehicle
 I-405 = Interstate 405
 I-5 = Interstate 5
 LOSSAN = Los Angeles-San Diego-San Luis Obispo
 Metro = Los Angeles County Metropolitan Transportation Authority
 RCTC = Riverside County Transportation Commission
 RTP = Regional Transportation Plan
 SANDAG = San Diego Association of Governments
 SCAG = Southern California Association of Governments
 SCAQMD = South Coast Air Quality Management District
 SCS = Sustainable Communities Strategy
 TCAs = Transportation Corridor Agencies

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**APPENDIX A:
DETAILED YEAR 2035 BASELINE PROJECT LIST**

Location	From	To	Description	Completion Date	Cost (\$000, YOE) FY 2015–2035
Regional Highways					
I-5	La Paz Rd		Interchange improvement	2012	Previously Funded
I-5	Camino Capistrano		Interchange improvement	2014	Previously Funded
I-5	Camino de Estrella		Interchange improvement	2011	Previously Funded
I-5	Crown Valley Pkwy		Interchange improvement	2012	Previously Funded
I-5	Avenida Pico	Avenida Vista Hermosa	Add one HOV lane in each direction and reconfigure Avenida Pico interchange	2017	\$86,669
I-5	Avenida Vista Hermosa	PCH	Add one HOV lane in each direction	2017	Previously Funded
I-5	PCH	San Juan Creek Rd	Add one HOV lane in each direction	2016	Previously Funded
I-5	SR-55	SR-57	Add one HOV lane in each direction for a total of four lanes	2019	\$39,125
I-5	Ortega Hwy		Interchange improvement	2015	\$1,210
I-5	Tustin Ranch Rd	Jamboree Rd	Add SB auxiliary lane	2012	Previously Funded
I-5	Jamboree Rd		Interchange improvement	2013	Previously Funded
I-5			Restripe to continuous access HOV lane	2018	\$6,550
SR-55	Edinger Ave	Dyer Rd	Add SB auxiliary lane	2011	Previously Funded
SR-55	Dyer Road	MacArthur Boulevard	Add southbound auxiliary lane	2012	Previously Funded
SR-55	Paularino Ave	17th St	Restripe to continuous access HOV lane	2012	Previously Funded
SR-55	MacArthur Blvd		Widen NB on-ramp	2012	Previously Funded
SR-55	MacArthur Blvd		Widen SB on-ramp	2012	Previously Funded
SR-57	Orangethorpe Ave	Lambert Rd	Add one NB mixed-flow lane	2014	Previously Funded
SR-57	Katella Ave	Lincoln Ave	Add one NB mixed-flow lane	2014	Previously Funded
SR-91	SR-55	Tustin Ave	Extend WB auxiliary lane	2016	Previously Funded
SR-91	SR-57	I-5	Extend WB auxiliary lane through interchanges	2016	Previously Funded
SR-91	SR-241	SR-55	Add one EB mixed-flow lane (from SR-55 to SR-241), add EB auxiliary lane (from SR-55 to Lakeview Ave), and one WB mixed-flow lane (SR-241 to Imperial Hwy)	2013	Previously Funded
SR-91	SR-241	SR-71	Add one EB mixed-flow lane	2011	Previously Funded
I-405	SR-22	I-605	Construct HOV connectors at SR-22 and I-605, and add a second HOV lane in each direction on I-405 btwn the direct connectors	2014	\$10,475
I-405	1 mile north of Jeffery Rd	Culver Dr	Add NB deceleration lane	2014	Previously Funded
SR-241/SR-261	SR-91	I-5	Widen to four lanes in each direction	2030	\$557,333
SR-241	Oso Pkwy	SR-261	Widen to four lanes in each direction	2030	\$151,668
SR-241/SR-133	I-5	Oso Pkwy	Widen to four lanes in each direction	2030	\$1,021,856
SR-73	I-5	Bison Ave	Widen to four lanes in each direction	2030	\$327,000

Location	From	To	Description	Completion Date	Cost (\$000, YOY) FY 2015-2035
Arterials and Local Roads					
Countywide			Orange County Signal Improvement Program	2012	Previously Funded
Countywide			Master Plan of Arterial Highways improvements	2017	\$76,105
Jeffrey Rd	LOSSAN		Grade separation	2012	Previously Funded
Kraemer Blvd	BNSF		Grade separation	2014	Previously Funded
Lakeview Ave	BNSF		Grade separation	2017	\$18,338
Orangethorpe Ave	BNSF		Grade separation	2016	Previously Funded
Placentia Ave	BNSF		Grade separation	2014	Previously Funded
Raymond Ave	BNSF		Grade separation	2018	\$14,062
Sand Canyon Ave	LOSSAN		Grade separation	2014	Previously Funded
State College Blvd	BNSF		Grade separation	2018	\$5,745
State College Blvd	LOSSAN		Grade separation	2017	\$80,800
Tustin Ave/Rose Ave	BNSF		Grade separation	2016	\$7,529
Del Prado Ave/PCH	Blue Lantern	Copper Lantern	Reconfigure PCH to four lanes and reconfigure Del Prado Ave to two lanes	2014	Previously Funded
Imperial Hwy	Los Angeles County Line	Harbor Blvd	Widen from four to six lanes	2011	Previously Funded
Bus Transit					
Countywide			Countywide fixed-route, express, and paratransit (capital)	2035	\$1,040,145
Countywide			Countywide fixed-route, express, and paratransit (operations)	2035	\$8,978,920
Rail Transit					
Countywide			MetroLink capital	2035	\$546,826
Countywide			MetroLink operations (54 week-day trains)	2035	\$779,357
Fullerton Transportation Center			Parking expansion	2012	Previously Funded
Placentia			Construct new MetroLink station and rail siding	2014	Previously Funded
Orange Transportation Center			Parking expansion	2017	Previously Funded
Anaheim Canyon MetroLink Station			Station improvements	2014	Previously Funded
Laguna Niguel/ Mission Viejo MetroLink Station			Station improvements including ADA undercrossing	2015	Previously Funded
Anaheim Station			Construct Anaheim Regional Transportation Intermodal Center, Phase 1	2014	Previously Funded
Tustin MetroLink Station			Parking expansion	2012	Previously Funded
Laguna Niguel/ Mission Viejo MetroLink Station			Parking expansion	2013	Previously Funded
Santa Ana Transportation Center			Planning and conceptual engineering of transportation center expansion	2015	Previously Funded
Transportation Demand Management					
Countywide			Countywide bikeway and pedestrian improvements	2016	\$12,717
Imperial Hwy	Main St		Construct pedestrian bridge over Imperial Hwy	2014	Previously Funded
Lemon St	Santiago Creek	Valley Dr	Recreational trail improvements	2012	Previously Funded
Moulton Pkwy	400 ft north of El Toro Rd	500 ft north of Santa Maria Ave	Complete streets improvements	2013	Previously Funded

Location	From	To	Description	Completion Date	Cost (\$000, YOE) FY 2015-2035
Transportation Demand Management (Continued)					
Santiago Creek	Tustin Ave	Collins Ave	Extend the Class I bikeway 2 miles	2012	Previously Funded
Newport Blvd	Main St	Irvine Blvd	Reconstruct bicycle trail	2014	Previously Funded

ADA = Americans with Disabilities Act
 Ave = Avenue
 Blvd = Boulevard
 BNSF = BNSF Railway
 btwn = between
 Dr = Drive
 ft = feet
 FY = Fiscal Year
 HOV = high-occupancy vehicle
 Hwy = Highway
 I-5 = Interstate 5

I-405 = Interstate 405
 I-605 = Interstate 605
 LOSSAN = Los Angeles-San Diego-San Luis Obispo Rail Corridor
 NB = northbound
 PCH = Pacific Coast Highway
 Pkwy = Parkway
 Rd = Road
 SB = southbound
 SR-22 = State Route 22
 SR-55 = State Route 55

SR-57 = State Route 57
 SR-71 = State Route 71
 SR-73 = State Route 73
 SR-91 = State Route 91
 SR-133 = State Route 133
 SR-241 = State Route 241
 SR-261 = State Route 261
 St = Street
 WB = westbound
 YOE - Year of expenditure

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APPENDIX B: DETAILED YEAR 2035 PREFERRED PLAN PROJECT LIST

Location	From	To	Description	Completion Date	Cost (\$000, YOY) FY 2015–2035
Regional Highways					
Countywide			Freeway Service Patrol and Call-box Program	2035	\$247,158
I-5	El Toro Rd	SR-73	Add one mixed-flow lane in each direction from Avery Pkwy to Alicia Pkwy, extend second HOV lane from El Toro Rd to Alicia Pkwy, and reconstruct Avery Pkwy and La Paz Rd interchanges	2022	\$518,700
I-5	I-405	SR-55	Add one mixed-flow lane in each direction	2023	\$728,120
I-5	Avenida Pico	San Diego County Line	Add one HOV lane in each direction	2035	\$285,821
I-5	El Toro Rd	Los Alisos Blvd	Access and merging improvements	2023	\$57,954
I-5	Barranca Pkwy		Add SB HOV on-ramp and NB HOV off-ramp	2035	\$41,888
I-5	SR-57	SR-91	Add one mixed-flow lane each direction	2035	\$335,103
SR-55	Meats Ave		Add interchange and auxiliary lanes	2023	\$60,000
SR-55	I-405	I-5	Add one mixed-flow lane in each direction	2021	\$268,577
SR-55	I-5	SR-91	Add one mixed-flow lane in each direction btwn I-5 and SR-22 and operational improvements btwn SR-22 and SR-91	2023	\$148,460
SR-57	Lambert Rd	Los Angeles County Line	Add NB auxiliary truck climbing lane	2035	\$124,600
SR-57	Lambert Rd		Interchange improvement	2018	\$41,949
SR-57	Orangewood Ave	Katella Ave	Add one NB mixed-flow lane	2030	\$34,500
SR-73	I-405		Construct HOV connector	2035	\$314,159
SR-73	Glenwood Drive		Construct interchange with collector-distributor to Aliso Creek	2019	\$9,000
SR-73	MacArthur Blvd	I-405	Add one HOV lane each direction	2035	\$221,812
SR-241	SR-91		Construct connector from NB SR-241 to EB SR-91 HOV/HOT lane and btwn WB SR-91 HOV/HOT lane to SB SR-241	2020	\$180,000
SR-91	SR-55	SR-57	Add one EB mixed-flow lane (from SR-57 to SR-55), add one WB mixed-flow lane (from Glassell St to State College Blvd), and interchange improvements at Glassell St, Tustin Ave, Lakeview Ave, and NB SR-57	2025	\$416,000
SR-91	Fairmont Blvd		Construct interchange and overcrossing	2030	\$88,930
SR-91	SR-241	Pierce St (Riverside County)	SR-91 Corridor Improvement Project	2035	Funded by RCTC
SR-133	Trabuco Rd		Construct interchange	2020	\$101,154
SR-241	Jeffrey Rd		Construct interchange	2018	\$15,000
SR-241	Weir Canyon Rd		Construct interchange	2018	\$15,060
SR-241	SR-261		Interchange improvement	2018	\$20,070

Location	From	To	Description	Completion Date	Cost (\$000, YOY) FY 2015-2035
Regional Highways (Continued)					
SR-241	SR-261	Portola Pkwy	Add one mixed-flow lane in each direction	2035	\$132,708
SR-241	Portola Pkwy	Santa Margarita Pkwy	Add two mixed-flow lanes in each direction	2035	\$265,417
SR-241	Santa Margarita Pkwy	Oso Pkwy	Add one mixed-flow lane in each direction	2035	\$56,875
I-405	I-5	SR-73	Restripe to continuous access HOV lane	2020	\$1,000
I-405	SR-73	I-605	Add one mixed-flow lane in each direction	2020	\$1,241,464
I-405	I-5	SR-55	Add one mixed-flow lane in each direction and SB auxiliary lanes from University Dr to Irvine Center Dr	2023	\$374,540
I-605	Katella Ave		Interchange improvement	2035	\$50,060
Arterials and Local Roads					
Countywide			Master Plan of Arterial Highways	2035	\$2,731,003
Countywide			Regional Traffic Signal Synchronization Program	2035	\$694,125
Countywide			Arterial Pavement Rehabilitation Program	2035	\$5,964,068
17th St	LOSSAN		Grade separation	2017	\$55,000
Santa Ana Blvd	LOSSAN		Grade separation	2015	\$80,000
Bus Transit					
Countywide			Senior Mobility Program	2035	\$173,531
Countywide			Safe Transit Stops Program	2035	\$30,600
Countywide			Community-Based Circulators Program	2035	\$277,600
Countywide			Implement Short-Range Transit Plan (capital)	2035	\$97,445
Countywide			Implement Short-Range Transit Plan (operations)	2035	\$791,165
Rail Transit					
Countywide			Metrolink capital	2035	\$95,100
Countywide			Metrolink operations (increase from 54 weekday trains to 62)	2035	\$135,540
Anaheim			Anaheim Rapid Connection Fixed Guideway	2020	\$318,000
Santa Ana/Garden Grove			Santa Ana/Garden Grove Fixed Guideway	2019	\$238,000
Countywide			Transit Extensions to Metrolink Program (operations)	2035	\$817,764
Transportation Demand Management					
Countywide			Vanpool operations	2035	\$49,954
Countywide			OC Bikeways	2035	\$420,039
Other					
Countywide			Senior Non-Emergency Medical Transportation Program	2035	\$138,825
Countywide			Environmental Cleanup Program	2035	\$482,562
			Debt service	2035	\$2,296,500

Ave = Avenue
 Blvd = Boulevard
 btwn = between
 Dr = Drive
 FY = Fiscal Year
 HOT = high-occupancy toll
 HOV = high-occupancy vehicle
 I-5 = Interstate 5
 I-405 = Interstate 405

I-605 = Interstate 605
 LOSSAN = Los Angeles-San Diego-San Luis Obispo Rail Corridor
 NB = northbound
 Pkwy = Parkway
 RCTC = Riverside County Transportation Commission
 Rd = Road
 SB = southbound
 SR-22 = State Route 22
 SR-55 = State Route 55

SR-57 = State Route 57
 SR-73 = State Route 73
 SR-91 = State Route 91
 SR-133 = State Route 133
 SR-241 = State Route 241
 SR-261 = State Route 261
 St = Street
 WB = westbound
 YOY = Year of expenditure

APPENDIX C: DETAILED YEAR 2035 CONCEPTUAL PLAN PROJECT LIST

Location	From	To	Description
Regional Highways			
I-5	1st St/4th St		Interchange improvement
I-5	Marguerite Pkwy		Construct interchange
I-5	Ortega Hwy	Avenida Pico	Add one mixed-flow lane in each direction
I-5	Pico Ave	Avenida Vaquero	Add one NB truck climbing lane
I-5	El Camino Real		Interchange improvement
I-5	PCH		Interchange improvement
I-5	SR-57/SR-22		Interchange improvement
I-5	Stonehill Dr		Construct interchange
SR-22	Pacific Electric ROW		Construct interchange
SR-55	I-405	Industrial Way	Extend SR-55 from 19th St to Industrial and extend HOV lane from I-405 to 19th St
SR-55	Alton Pkwy		Construct HOV ramps
SR-57	Cerritos Ave		Construct HOV ramps
SR-73	Glenwood Dr		Interchange improvement
SR-73	El Toro Rd/SR-133		Interchange improvement
SR-241	Crown Valley Pkwy		Construct interchange
SR-241	Cow Camp Rd		Construct interchange
I-405	Von Karman Ave		Construct HOV ramps
I-405	Bear St		Construct HOV ramps
I-405	SR-133		Interchange improvement
I-405	SR-133	Culver Dr	Add one mixed-flow lane in each direction
Arterials and Local Roads			
San Juan Capistrano	SR-73	SR-241	Construct a four-lane limited access road connecting both I-5 and SR-73 to Antonio Pkwy and Cow Camp Rd
Ortega Hwy	I-5	County line	Operational improvements
Frontage Rd	Baker St	Paularino St	Widen and restripe SR-55 Frontage Rd
Harbor Blvd	Warner Ave	17th St	Add one lane in each direction beyond MPAH
Harbor Blvd	Ball Rd		Grade-separated intersection
Ball Rd	LOSSAN		Grade separation
Grand Ave	LOSSAN		Grade separation
Main St	LOSSAN		Grade separation
Newport Ave	LOSSAN		Grade separation
Orangethorpe Ave	LOSSAN		Grade separation
Red Hill Ave	LOSSAN		Grade separation
Bus Transit			
Countywide			Transit System Study improvements
Countywide			Zero-emission transit investments (bus & rail)
Rail Transit			
Countywide			LOSSAN Strategic Plan (capital) including third main track in Irvine and Serra siding infrastructure projects
Countywide			Metrolink operations (increase from 62 weekday trains to 98)
Fullerton			Fullerton College Connector fixed guideway
Garden Grove			Connect Anaheim and Santa Ana/Garden Grove fixed guideways
Fullerton Transportation Center			Add higher-density, mixed-use, transit-oriented development
Santa Ana Transportation Center			Expand to include fixed-guideway station, bus rapid transit station, reconstructed and additional parking, pedestrian bridges, and circulation improvements
Countywide			Sustainable transportation strategies

Location	From	To	Description
Rail Transit (Continued)			
SR-133	El Toro Rd	Canyon Acres Dr	Multimodal corridor improvements
PCH	Superior Ave		Construct pedestrian bridge over PCH

Ave = Avenue	I-405 - Interstate 405	SR-22 - State Route 22
Blvd = Boulevard	LOSSAN - Los Angeles-San Diego-San Luis Obispo Rail Corridor	SR-55 - State Route 55
Dr = Drive	MPAH = Master Plan of Arterial Highways	SR-57 - State Route 57
FY = Fiscal Year	NB = northbound	SR-73 = State Route 73
HOT = high-occupancy toll	PCH = Pacific Coast Highway	SR-133 State Route 133
HOV = high-occupancy vehicle	Pkwy = Parkway	SR-241 - State Route 241
Hwy = Highway	Rd = Road	St = Street
I-5 - Interstate 5	ROW = right-of-way	YOE - Year of expenditure

APPENDIX D

INTEGRATION INTO SOUTHERN CALIFORNIA REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

Southern California Regional Transportation Plan/ Sustainable Communities Strategy

The Southern California Association of Governments (SCAG), a federally-designated Metropolitan Planning Organization (MPO), prepares a Regional Transportation Plan (RTP) for Southern California. The Southern California RTP covers the Counties of Imperial, Orange, Los Angeles, Riverside, San Bernardino, and Ventura. SCAG must develop an RTP every 4 years in order for the region's transportation projects to be eligible for federal and State funding. The RTP identifies regional transportation strategies to address mobility needs by using growth forecasts and economic trends for at least a 20-year period and considers broader economic, environmental, and quality-of-life goals. The Orange County Transportation Authority (OCTA) submits its LRTP to SCAG as Orange County's input to the RTP.

In April of 2012, SCAG adopted the 2012–2035 RTP. For the first time, the 2012–2035 RTP included a Sustainable Communities Strategy (SCS). This new element of the RTP is required by the State through Senate Bill (SB) 375. SB 375 targets regional greenhouse gas (GHG) emissions with the aim of integrating land use and transportation planning in order to reduce emissions from automobiles and light duty trucks. While the RTP is required by federal planning regulations, the SCS element is required and approved at the State level.

The RTP/SCS outlines a plan for meeting regional emissions reduction targets established by the California Air Resources Board (ARB). In the SCAG region, SB 375 allows a subregional Council of Governments and County Transportation Commission to work together to propose a subregional SCS. For the inaugural SCS, Orange County prepared a subregional SCS that SCAG incorporated into the 2012 Southern California RTP/SCS. For the next iteration, SCAG will prepare both elements of the 2016 RTP/SCS, and OCTA will submit Outlook 2035 as Orange County's input into the regional transportation planning effort.

Whenever an RTP is developed, a corresponding Program Environmental Impact Report (PEIR) is also prepared to disclose any significant impacts of the RTP on

the environment. This PEIR is required by law (i.e., the California Environmental Quality Act [CEQA]). SCAG prepared a PEIR for the 2012–2035 RTP and will prepare a PEIR for the 2016 update to the RTP/SCS. The PEIR evaluates regional environmental impacts, both direct and indirect, as well as growth-inducing impacts and cumulative impacts of the overall RTP.

Federal Transportation Improvement Program (FTIP)

The FTIP is a listing of capital transportation projects proposed over a 6-year period. As the MPO, SCAG is responsible for developing and maintaining the FTIP for the SCAG region. SCAG prepares the FTIP every other year on an odd-year cycle. The FTIP is the programming document for the projects included in the RTP. Locally prioritized lists of projects are forwarded to SCAG by County Transportation Commissions (e.g., OCTA). From this list, SCAG develops the FTIP and analyzes it for conformity with air quality requirements.

Air Quality and Transportation Conformity

The Clean Air Act is the federal law that governs air quality. It sets standards (i.e., national ambient air quality standards [NAAQS]), for the amount of pollutants that can be in the air. If an area does not meet the air quality standards, it is designated a “nonattainment” area.

A State Implementation Plan, called a SIP, outlines a plan for achieving the goals of the Clean Air Act and meeting the NAAQS. For the South Coast Air Basin, which covers the Southern California region, the South Coast Air Quality Management District (SCAQMD) prepares an Air Quality Management Plan (AQMP) that is submitted to the United States Environmental Protection Agency (EPA) as the official State Implementation Plan (SIP) for the region. The AQMP is prepared by the SCAQMD in conjunction with ARB, SCAG, and EPA. The plan incorporates a comprehensive strategy aimed at controlling pollution from all sources, including mobile sources (like vehicles) and stationary sources.

Because Southern California does not meet the air quality standards for pollutants, it is a nonattainment area. As such, the RTP must demonstrate “transporta-

tion conformity.” This means that a conformity determination must be made by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), showing that the transportation projects in the RTP support the goals of the SIP and do not degrade air quality. In other words, the total emissions projected from projects in the RTP and FTIP must be shown to be within the motor vehicle emission limits established in the SIP.

In addition to air quality conformity, the RTP must demonstrate how the plan can be implemented within available financial resources. It identifies the current and anticipated revenue sources and financing to accomplish the projects and programs included in the financially-constrained plan (in the LRTP this is referred to as the Preferred Plan).

California Transportation Plan

The California Transportation Plan (CTP) is a statewide LRTP prepared in response to federal

and State requirements. The CTP, which is updated every 5 years, defines performance-based goals, policies, and strategies focused on achieving a statewide, integrated, multimodal transportation system. The 2040 CTP is currently being developed with plan approval scheduled for December 2015 by the Secretary of the Transportation Agency.

The CTP provides a common policy framework to guide transportation investments and decisions in the State. In response to SB 391, the 2040 CTP is being prepared in conjunction with the California Interregional Blueprint, which seeks to ensure that the State-level transportation plan integrates multimodal transportation systems that complement regional transportation plans and land use visions. The CTP is also tasked with identifying the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State’s transportation needs.

APPENDIX E:
PUBLIC OUTREACH REPORT

This report will be available soon under separate cover.

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APPENDIX F: EMERGING TECHNOLOGY POLICY

OCTA policy is to consider inclusion of experimental transit projects in future transportation planning studies based on the ability to evaluate performance according to the principles below:

- The system will be evaluated based on the number of years it has been in continuous test service.
- The system must have a proven safety record based on accident history.
- There must be sufficient data to demonstrate long-term system and vehicle reliability.
- The system's construction, operation, and maintenance costs must be established based on similar projects currently in operation and must be compared with other alternatives, including more established transit technologies.

- The system's average revenue and farebox recovery must be evaluated and compared with other transit alternatives.
- A competitive vendor pool must be available to construct and maintain the system.

If an experimental transit system is not currently in revenue service in another location, it is difficult to gather reliable statistics regarding the long-term safety, reliability, and operation and maintenance costs of the technology. Therefore, OCTA will not invest taxpayer dollars in technologies that have not been fully developed and tested for a reasonable period of time.

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OUTLOOK



OCTA

2035

Because Mobility Matters