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District System Management Plan



District 12
November 2014

Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

CALTRANS – DISTRICT 12

DISTRICT SYSTEM MANAGEMENT PLAN (DSMP)

NOVEMBER 2014



District System Management Plan

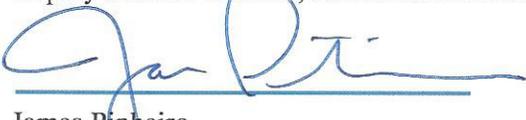
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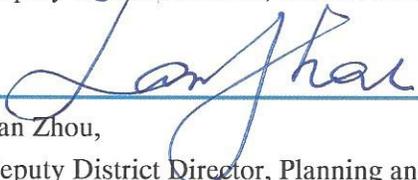
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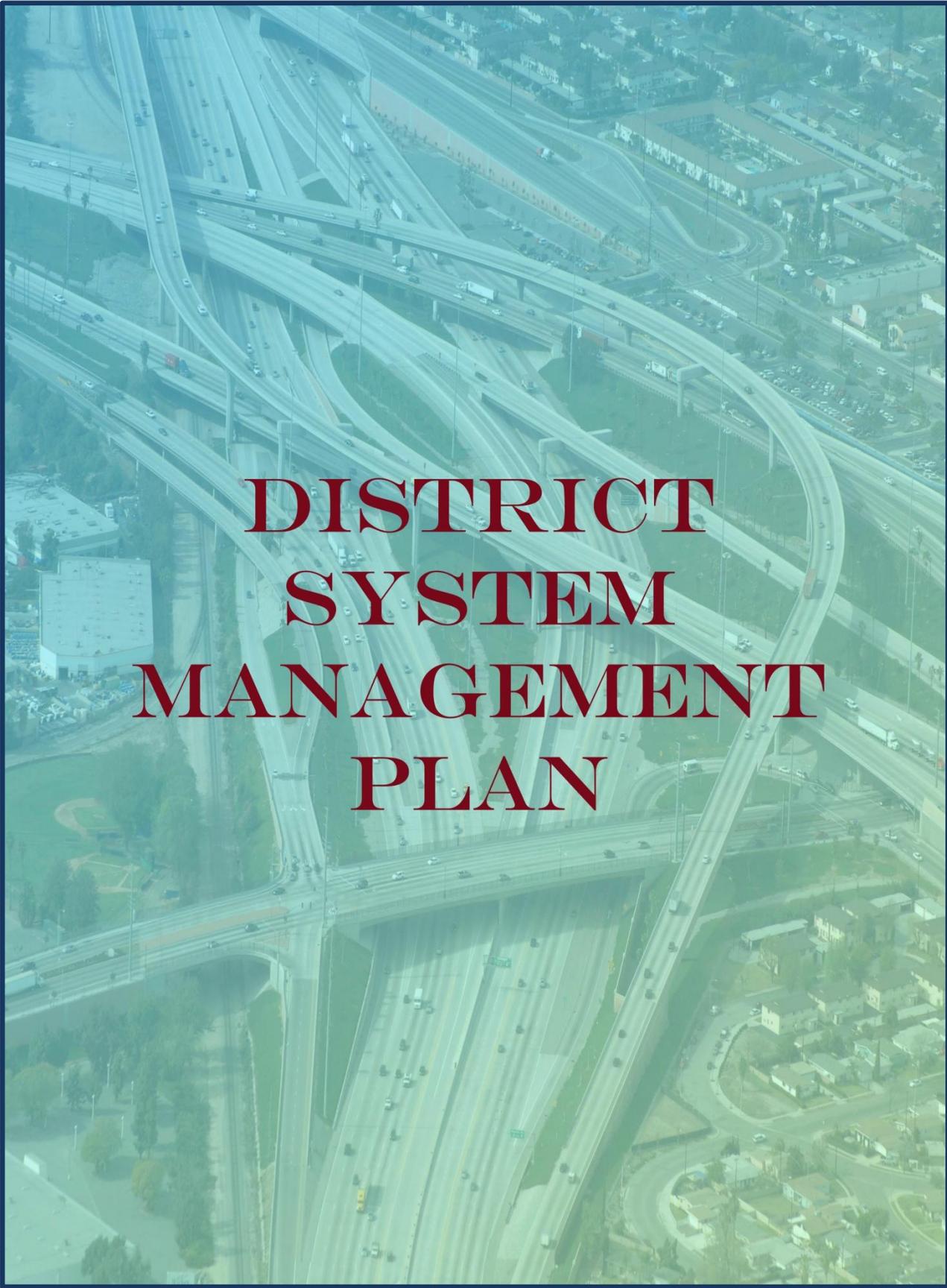
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DISTRICT SYSTEM MANAGEMENT PLAN

Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

FOREWORD

The purpose of this Long Range Transportation Strategy document is to advance future approaches toward resolution of the regions' transportation needs. Historic dependence on the automobile has resulted in the myriad of complex problems the region experiences today. Southern California residents currently experience above average traffic congestion and air pollution, even with environmental improvements made in the last 30 years. As the region continues to grow in the 21st century, it is imperative that a sustainable long range perspective is selected. The story of the loss of the Pacific Electric "Red Car" network and the transition to auto dependence enlightens us, revealing the escalating demand for alternative modes of transportation to serve the region. Currently and into the future a renewed emphasis is being placed on alternative modes of travel such as bus, rail, non-motorized and pedestrian as these modes are being programmed and implemented. Learning from our own history provides us with the insight necessary to cultivate the comprehensive safe, efficient, and economical transportation network that we all strive for in the future.

This document entails continued cooperation between federal, state, regional and local agencies; as well as, the southern California Districts. Through the continued active partnerships and working relationships between these various bodies, it is hoped that the demands, goals and objectives of all parties can be satisfied. Realizing the diverse modes of travel utilized by the public, it is important to maintain a comprehensive long range viewpoint. The comprehensive approach will provide the people of southern California with a safe, complete, efficient and balanced transportation network.

The California Transportation Commission prepared a Needs Assessment Report in October 2011 that detailed future needs and its respective cost for California's transportation system. The total cost of all system preservation, system management, and system expansion projects, totals \$538 billion. The findings show a shortfall of funding of \$296 billion over a ten-year period. The total estimated revenue from all sources during this ten-year period is \$242 billion. The deterioration of the State Highway System is steadily increasing as demand is also increasing. So, with this mounting pressure, the deterioration of the system is rapidly aging the State Highway System. California must be prudent in funding projects appropriately, justly, environmentally and sustainably.

Vision, goals, and strategies are necessary to attain these outcomes as described in this document. Through a continued cooperative effort, the attainment of these goals; such as, the improvement of air quality and reduction of traffic congestion is certainly possible. Proposed plans for implementation of the various programs to be developed are also discussed in detail. Strategies for utilization of available funding sources and concepts for the future acquisition of additional funding from new sources are also examined.

The District System Management Plan proposes a direction for moving from a transportation system which is dominated by low occupancy vehicle use to a more balanced transport system, in which public transport and non-motorized options are feasible for many trips. To better manage the transportation system, it should be noted that gateways to the urban region, including national and state highways, seaports and airports are critical to its wellbeing. The traffic volume and freight mobility will continue to grow and needs to be addressed statewide. Innovative projects to enhance higher vehicle occupancy can significantly improve transportation efficiency in the region.

This will require realistic and measurable performance standards to ensure the efficient use of transportation resources. A performance-based transportation and land use planning system is needed, comprising clearly identified desired outcomes, examination of strategies to assess outcome; as well as, innovation and initiative in solving transportation and land use issues. In addition, a multi-faceted partnership of private and government entities is crucial to implement these strategies.

It is hoped that this document will serve as a set of working guidelines for use in the solution of existing and anticipated transportation issues in Orange County and the region. The linkages between the region's diverse economic, environmental, social, geographical and infrastructure conditions must be fully recognized and understood in order to provide the people of the region with a continually enhanced and enriched way of life.

1

Introduction



Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

CHAPTER 1 - INTRODUCTION

Over the past decades, Orange County has emerged from a rural setting into a highly urbanized community that is inseparable from the Los Angeles Metropolitan area. The population of Orange County has steadily grown and today it surpasses 3.1 million, according to the Center for Demographic Research (CDR)¹. Although Orange County's economic growth was somewhat dampened by the latest recession, it has weathered the downturn and now continues an upward trend. Despite the positive outlook for the county's economic prosperity, traffic congestion and air quality impacts will continue to increase unless significant emphasis is put on a transportation planning process that identifies solutions to these challenges at the earliest stage.

The voters of Orange County recognized this challenge and voted for Measure M in November of 1990. This half-cent local transportation sales tax initiative provided the funding for major transportation improvements in the county:

- Various freeway capacity enhancement projects throughout Orange County
- Expanded bus service
- Metrolink commuter rail service
- Improvements to existing roadways of the local arterial system, and conversion of principal arterials to the Smart Streets network.

In November 2006, Orange County voters approved Measure M2 for an additional thirty years. Over this period, the Measure M2 sales tax will provide billions of dollars to improve the transportation infrastructure of Orange County. In addition, Measure M2 contains two innovative environmental programs that will help to preserve/enhance wildlife habitats and cleanup the waterways of the County. This sales tax measure, along with much needed state and federal funding sources, will play a key role in financing transportation improvement projects.



Measure M has contributed greatly to the relief of traffic congestion; however the forecasted additional half million people poses crucial challenges to all of us.

¹ Source: Center for Demographic Research (<http://www.fullerton.edu/cdr/ocff.pdf>)

District 12 and the Orange County Transportation Authority (OCTA) have the responsibilities in maintaining the freeway network, reducing traffic congestion, improving safety, and contributing to the improvement of the system's connectivity in a broad, regional landscape. Over the past twenty years, the District and its transportation partners have gone to great lengths to relieve freeway congestion by doubling freeway lane miles and building the most complete High Occupancy Vehicle (HOV) lane network in California. Given the existing framework of our society where public safety and health concerns for the citizens are of primary importance, the concept of freeway expansion may not be the most viable solution for most of our transportation issues in Orange County.



I-405 near Golden West Street/Bolsa Avenue Interchange

District 12 plays a key role in maintaining the freeway network, reducing congestion and improving safety, which are all vital to the economic growth of Orange County.

Additional challenges, such as the requirement to reduce greenhouse gas emissions and an increasingly complex transportation funding process, further complicate the picture. Amid all of these challenges, the District continues to fulfill its core responsibilities in making sure that it is here to assist commuters and travelers reach their desired destinations on a daily basis in a reliable and sustainable manner.

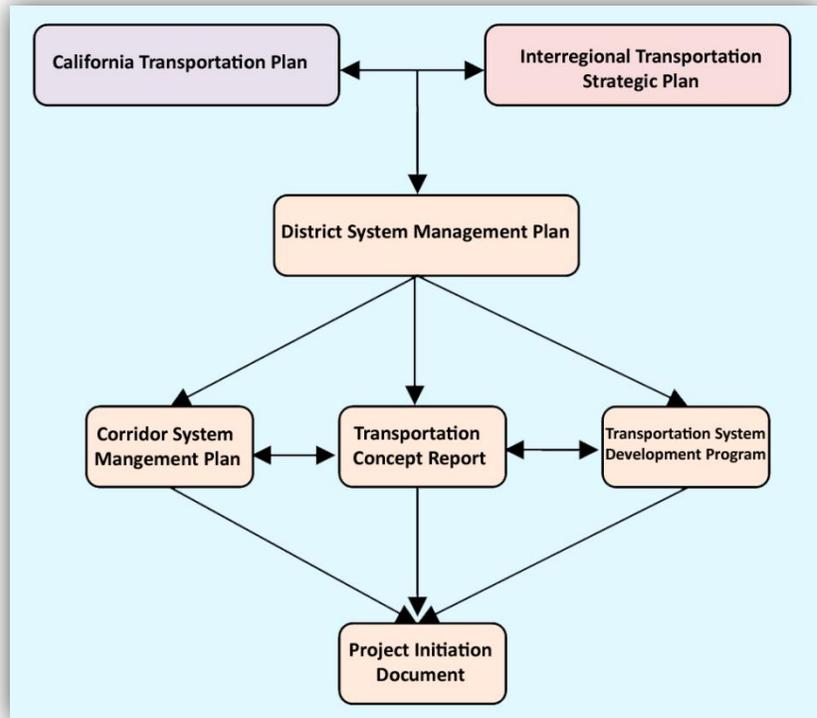
System Planning is the long-range transportation planning process for the California Department of Transportation (Caltrans). The System Planning process fulfills Caltrans' statutory responsibility as owner/operator of the State Highway System (SHS) (Gov. Code §65086) by evaluating conditions and proposing enhancements to the SHS. Through System Planning, Caltrans focuses on developing an integrated multimodal transportation system that meets Caltrans' goals to: "Provide a safe, sustainable, integrated and efficient transportation

system to enhance California’s economy and livability.” The purpose of the District System Management Plan (DSMP) is to develop the District’s vision of how the transportation system will be maintained, managed, and developed over the next 20 years and beyond. It provides a vehicle for the development of multimodal, multijurisdictional system strategies. The DSMP is developed for integrating and meeting community and environmental needs throughout the District.

This visionary plan entails improvements for safety, maintenance, new construction and other innovative transportation strategies. The existing highway system is in constant need of attention and

improvement, but due to the current difficulties with funding, the District is unable to maintain the aging infrastructure system. Maintaining the existing system and investing in new infrastructure are equally important and Caltrans must protect public investments through efficient maintenance practices.

Finding and implementing new and innovative ways to maximize new sources of funding is imperative to the future of system improvements. There have been discussions of new state fuel taxes, additional extensions to the County’s measures, emissions taxes and investment of new technology for congestion management. The District has to work diligently with its local and regional partners in obtaining the necessary resources to maintain, improve and complete our system since the condition of the transportation system will affect the regional economy on numerous levels.



The DSMP is at the heart of the Planning Process

As Orange County lies at the crossroad where it provides connectivity to an international commercial route between Mexico and Los Angeles; in addition to, connecting the Inland Empire and the beach cities, the visions and strategies in the DSMP reflect a consensus among the District, our local partners, and the adjoining Caltrans districts. These policy level insights are based on careful consideration of all aspects that affect today's transportation system, such as multi-modal transportation concepts, land use initiatives, and economic growth. Innovative and cutting edge technology is required to facilitate the highway network into a world class system that Orange County deserves. Also, to meet the visions and goals as set forth in Caltrans' Strategic Growth Plan (SGP) and the California Transportation Plan (CTP) 2040, the District needs to go beyond our traditional role of owner and operator of the system and become an active partner in finding common solutions to the future demand of Orange County's infrastructure.



Newport Beach coastline¹

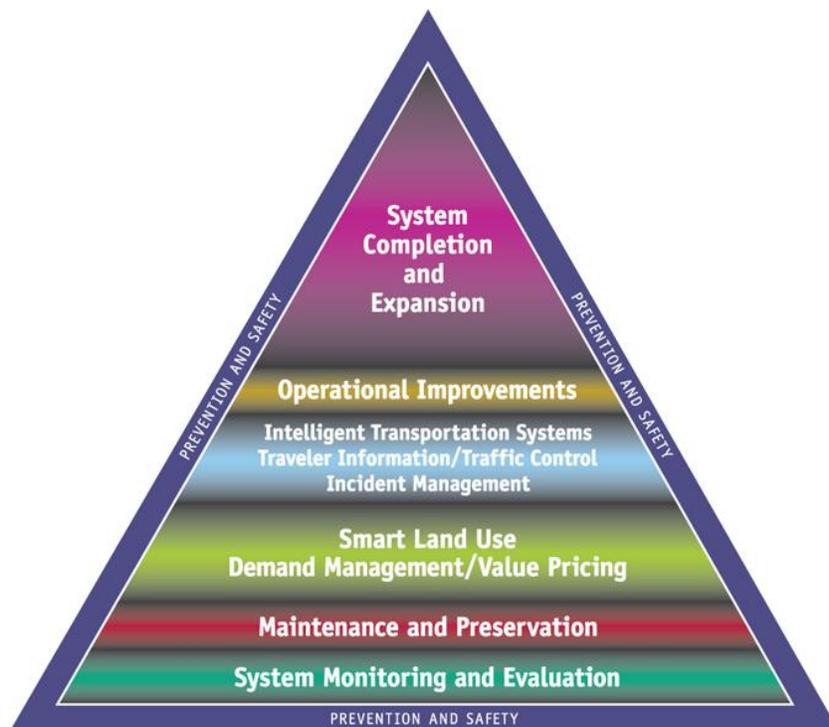
2 Mission, Vision and Goals



Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

CHAPTER 2 – KEY STRATEGIES, VISION, AND MOVING FORWARD

As forecasts continue pointing to strong population and employment growth in Orange County, the concept of freeway expansion may no longer be the most logical and viable strategy. To maintain support for a vibrant economy by effectively moving people and goods throughout the transportation network, Caltrans has adopted the Complete System Approach, where the entire highway system is evaluated and planned based on a combination of the traditional expansion concepts and other complementary strategies. This approach was inspired by the transportation component of the 2006 California Strategic Growth Plan (SGP)² aiming at rebuilding the California infrastructure. The Complete System Approach is portrayed in the following system management pyramid:



Under the Complete System Approach, system expansion continues to be a critical component of the pyramid. However, the decision to implement system expansion should be consequential to other strategies at the base of the pyramid, which helps build a solid foundation for sound transportation policies and investments.

² Source: California Strategic Growth Plan (http://www.bondaccountability.ca.gov/Strategic_Growth_Plan/)

KEY STRATEGIES

Based on Caltrans' mission to "*Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability*", Caltrans has set forth five Strategic Goals:

Safety and Health: Provide a safe transportation system for workers and users, and promote health through active transportation and reduced pollution in communities

Stewardship and Efficiency: Money counts. Responsibly manage California's transportation-related assets.

Sustainability, Livability and Economy: Make long-lasting, smart mobility decisions that improve the environment, support a vibrant economy, and build communities, not sprawl.

System Performance: Utilize leadership, collaboration and strategic partnerships to develop an integrated transportation system that provides reliable and accessible mobility for travelers.

Organizational Excellence: Be a national leader in delivering quality service through excellent employee performance, public communication, and accountability.

These strategic goals have served as the core values for the District in planning, developing, maintaining, and operating a safe and effective highway system for the people of Orange County. In line with Caltrans' Complete System Approach, the District's focus will be on the following three key strategies:

1. System Maintenance and Preservation
2. Congestion Management and Operational Improvements
3. System Completion and Refinements

System Maintenance and Preservation

The State Highway System in Orange County is approaching 40 years of age with over 2,000 lane miles to operate and maintain. Caltrans must not only protect the taxpayers' investment in the system, but an aging and neglected transportation system would eventually require more resources to restore in the future. The District considers maintaining and preserving the highway network as the most logical and cost effective strategy in these uncertain economic times.

According to the 2006 Goods Movement Action Plan for Orange County, part of a broader Multi-County Goods Movement Action Plan (MCGMAP)³ by the Los Angeles County Metropolitan Transportation Authority, 40% of all rail container traffic out of the ports of Los Angeles and Long Beach travels through Orange County. Interstates 5, 405, and 605 along with State Route 91 within Orange County are vital components of the national truck network and serves as key corridor for goods movement from Los Angeles County's international ports to the Inland Empire and beyond. The effect of truck traffic combined with projected traffic growth will result in tremendous deterioration of roadway pavement in Orange County.

In 2013, Caltrans Division of Maintenance released the "State of the Pavement"⁴, which outlines Caltrans' efforts in pavement rehabilitation. To maintain these roadway segments, the Division of Maintenance conducts a biannual inventory survey to assess the pavement condition as follows:

- The Automated Pavement Condition Survey (APCS) collects surface pavement sensor and image-based distress data
- Ground Penetrating Radar (GPR) technology is used for data collection of continuous layer thicknesses
- The information is then processed in Pavement Management System (PaveM) for developing pavement strategies to address the deficiencies as determined in the biannual survey.

In addition, District field maintenance staff routinely inspects the pavement condition and performs crack sealing and pot hole patching. At the local level, the District develops the pavement management system for programming pavement projects. These pavement programs include Highway Maintenance (HM) and State Highway Operation and Protection Program (SHOPP) for major rehabilitation.

The HM program consists of both preventative and corrective maintenance strategies. Flexible pavement includes Asphalt Concrete (AC) overlays with a thickness of 0.1 feet. For concrete pavement, it includes removal and replacement of Portland Cement Concrete (PCC)

³ Source: Los Angeles County Metropolitan Transportation Authority (http://www.metro.net/projects/mcgmap/goods_action_plan/)

⁴ Source: Caltrans – Division of Maintenance (http://www.dot.ca.gov/hq/maint/2007_SOP_8_7_08.pdf)

panels and smooth grindings. The 10-Year HM program work plan currently allocates \$8.9 million per year on the average to preserve pavement condition, and reduce minor pavement distresses. Refer to **Appendix A** for HM project locations.

The SHOPP includes Roadway Rehabilitation projects and Capital Preventive Maintenance (CAPM) projects. A Roadway Rehabilitation project [Pavement Focused (2R) and Resurfacing, Restoration, and Rehabilitation (3R)] involves total lane replacement or reconstruction for flexible pavement. This consists of the removal and replacement of more 0.25 feet of AC, replacement of concrete panels, grinding and grooving.

Typical CAPM projects consist of an overlay of more than 0.1 feet of AC (not to exceed 0.25 feet), slab replacement, diamond grinding, cold plane, and grooving. The standard 10-Year CAPM program work plan currently allocates approximately \$28 million per year on the average to preserve pavement condition and to extend the pavement service life. Refer to **Appendix B** for CAPM project locations.

Appendix C provides a complete and detailed list of all projects in Orange County, which receive funding from the SHOPP program.

Since 2006, District 12 has spent approximately \$109 million in HM and SHOPP projects through 2011. From 2012 to 2015, \$97 million is allocated for these programs. In 2013, the

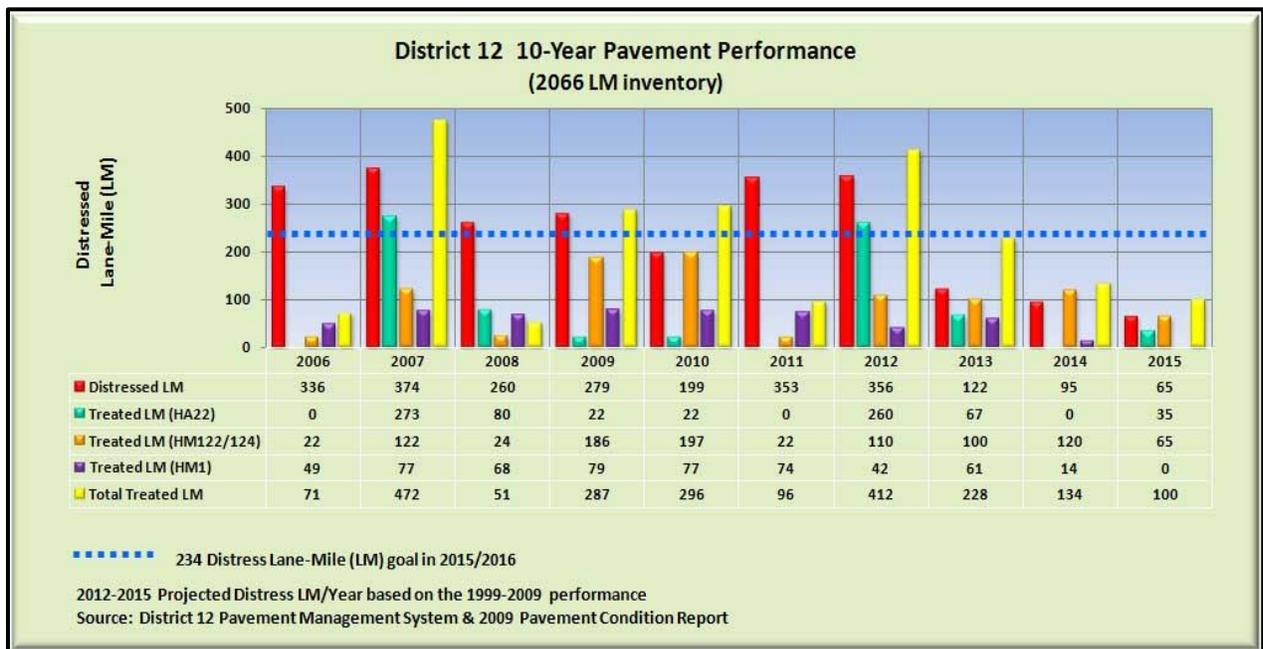


Exhibit 1- District 12 10 Year Pavement Performance

District 12 had 122 lane miles of distressed pavement. With HM and SHOPP project list, the District estimates that the distressed lane miles will be reduced to 95 or 4.5% of total lane miles by end 2014. (See **Exhibit 1**)

By 2015, District 12's projected distressed pavement would be approximately 65 lane miles, which is far below the targeted 234 lane miles recommended by the 2008 State of Pavement Report.

Structure maintenance is also an important aspect as Caltrans is responsible for maintaining the safety and integrity of over 24,000 bridges statewide. District 12 is responsible for 639 bridges in Orange County and the 10-Year Plan allocation for all bridge improvement exceeds \$38.5 million. The majority of District 12 bridges' structure has a health index score of 90 or above on a scale of 0 to 100⁵, with 100 being the best.

The District also focuses on the runoff of storm water from state highways that degrades pavement and works closely with the local partners in keeping the environment free from transportation-generated pollution. New research, such as the 2010 Ornamental Roadside Vegetated Treatment Site⁶ by Caltrans' Landscape Architecture Division, provides long-term guidance for assessing options for roadside landscapes and treatment of roadway runoff for existing and new vegetation (native and ornamental) in strips and swales. As a result, this may reduce the cost and impact of water runoff onto the SHS.



Storm Damage along State Route 74

⁵ Source: Caltrans Division of Maintenance , Structure Maintenance (<http://www.dot.ca.gov/hq/structur/strmaint/>)

⁶ Source: Caltrans – Landscape Architecture Research (<http://www.dot.ca.gov/hq/LandArch/research/index.htm>)

Congestion Management and Operational Improvements

The first and foremost component of the system management pyramid is System Monitoring and Evaluation. This is done by evaluating the performance of the existing system, identifying bottleneck locations in the network, and developing solutions to eliminate these traffic “choke points”. This thorough evaluation and understanding of system performance serves as the foundation for informed decisions in transportation investments. The ultimate goal of this approach is to maximize the transportation system productivity by reducing traffic congestion and improving mobility. Solutions could be as simple as traffic operational improvements such as adding a ramp meter or auxiliary lane, or as costly as freeway expansion. The expansion approach should be considered after a careful evaluation of system performance and after all other viable options are exhausted. There was a statewide effort for each District to conclude a series of Corridor System Management Plans (CSMPs) and District 12 completed the following reports:

- Interstate 5
- State Route 22, Interstate 405, Interstate 605,
- State Route 55
- State Route 57 and
- State Route 91

The CSMPs identified causes for congestion on these corridors and provided solutions. The CSMPs focus on each individual corridor’s problems and needs at the microscopic level, identifying and evaluating alternatives that are aimed at eliminating or reducing the impact of congested bottlenecks in the corridor.

Furthermore, the California Transportation Commission (CTC) required that CSMPs be developed for corridors with projects funded by the Corridor Mobility Improvement Account (CMIA), which was created by the passage of Proposition 1B in November 2006.

In preparing the CSMPs, the District worked in partnership with OCTA, Southern California Association of Governments (SCAG), and local cities along the corridors to develop a report for each route.



Exhibit 2 - Corridor System Management Plans in District 12

A study by the Milken Institute states that traffic congestion is costing California \$19 billion a year and by 2030, it will cost \$42 billion per year based on lost time spent in traffic and fuel costs⁷. The cost of congestion in Los Angeles and Orange County has been calculated at \$892 per person annually according to “Crashes vs. Congestion what’s the Cost to Society” report by the Automobile Club of Southern California⁸. According to the latest Caltrans’ Performance Measurement System (PeMS) database, 40% of freeway peak period congestion in Orange County is due to non-recurring events like rain, spills, or special events. Traffic congestion has resulted in costly impacts which the District can no longer build its way out of congestion by adding capacity to the State Highway System. The District’s vision is to maximize

⁷ <http://www.milkeninstitute.org/publications/publications.taf?function=detail&ID=38801175&cat=>

⁸ <http://exchange.aaa.com/wp-content/uploads/2012/07/AAA-Crashes-vs-Congestion-2011.pdf>

the benefit of the new technology developments that enhance the safety and mobility of people, goods, information and services in the County. Transportation Management Centers (TMC) are a major step towards realizing this vision. The District's TMC serves as the nerve center for the collection and dissemination of dynamic transportation management information in Orange County. In a collaborative effort by Caltrans, the California Highway Patrol (CHP), and local agencies, the TMC manages transportation through an advanced electronic system. This system integrates the use of fiber optics, computer networks, telephone lines, two-way radios, and other electronic components. Using this system, the TMC staff verifies and responds to incidents or unusual occurrences on the freeway system. Closed Circuit Television (CCTV) cameras are used to verify incidents, and Changeable Message Signs (CMS) are activated to alert motorists to adverse conditions.



District 12 Transportation Management Center is a model for state-of-the-art facility. As a nerve center for the highway system, it monitors freeway operations and communicates real time traffic data to the public.

Another methodology that the District traffic operations staff utilizes to measure congestion on the urban freeways is the statewide Highway Congestion Monitoring Program (HICOMP)⁹. The HICOMP report is aimed at providing congestion data on the County's freeway segments with the history of recurrent congestion¹⁰. The report does not include any data on conventional highways or local arterials.

With the development and implementation of PeMS¹¹, an internet-based tool to monitor conditions on the urban freeways, traffic data can now be automatically collected in real-time from the Vehicle Detector Stations (VDS) on major freeway corridors throughout California. As a result, in 2009, Caltrans established a standardized statewide methodology for measuring freeway traffic congestion using automatically collected traffic data from VDS. As traffic activates the VDS devices embedded in or placed alongside freeways, VDS collect traffic data

⁹ Source: Caltrans (<http://www.dot.ca.gov/hq/traffops/sysmgtpl/HICOMP/>)

¹⁰ For detail definition, refer to: Caltrans (<http://www.dot.ca.gov/hq/paffairs/faq/faq77.htm>)

¹¹ Source: Caltrans (<http://pems.dot.ca.gov/?redirect=%2F%3Fnode%3DState%38.0259,-121.4614,11>)

over all lanes, twenty-four hours a day, throughout the year. Communication equipment transmits loop occupancy duration and volume data from the roadside controllers to the local TMC every 30 seconds. The data are then sent to the PeMS, which runs diagnostics on the data and stores the data in 5-minute bins. The stored data can be analyzed to calculate a number of performance measures, and are used by engineers, planners, designers, consultants, commercial navigation firms, traffic media companies, and others interested in traffic conditions and performance.

The first Mobility Performance Report (MPR)¹², a new congestion report using data collected from every day of the year, was published by Caltrans in 2009. This report now replaces the HICOMP Report. The MPR 2009 presents freeway performance information in terms of annual vehicle hours of delay, lost productivity, bottleneck locations, and cost of congestion as quantified by extra fuel consumed, time lost, and emissions of carbon dioxide. This report provides information that will be useful to transportation system managers in setting priorities, determining effective strategies, and directing resources to improve mobility where it is most needed.

Finally, the Orange County Master Plan of Arterial Highways (MPAH)¹³ under the jurisdiction of OCTA has long been the foundation for monitoring the countywide traffic circulation system and it is use to support local land use policies for arterial highways in Orange County. The MPAH displays both existing and planned roadways within the county's arterial network. It is continuously updated by OCTA to reflect changes in traffic circulation as the result of rezoning and new local development projects. Recognizing that the state freeways and highways are key components of the MPAH, the District has formed a strong partnership with OCTA in maintaining consistency and balance between freeway improvement plans and the MPAH. In addition, the District continues to provide support for OCTA in its role as a Congestion Management Agency (CMA) to monitor and reduce the county's traffic congestion through the federally mandated Congestion Management Program (CMP)¹⁴. The CMP includes local roadways which provide a framework for coordinating local land use developments and determining gas tax fund eligibility for proposed transportation projects. Orange County's CMP

¹² Source: Caltrans (<http://www.dot.ca.gov/hq/traffops/sysmgtp/MPR/index.htm>)

¹³ Source: OCTA – MPAH Overview (http://www.octa.net/arterial_highways_overview.aspx)

¹⁴ Source: OCTA – Congestion Management Program (<http://www.octa.net/cmp.aspx>)

is ultimately adopted by the OCTA Board of Directors and submitted to SCAG to ensure consistency with the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

System Completion and Refinements

Parallel with the emphasis on maintenance and preservation of the State Highway System and congestion management, Caltrans' next strategy is to focus on the effort of completing and refining the network within existing right-of-way in order to maximize its performance; as well as, ensuring a smooth and balanced system. **Exhibit 3** displays critical freeway projects with various funding sources as envisioned by the district. **Exhibit 4** displays Trade Corridor Improvement Fund (TCIF) rail projects paralleling SR 91. They were developed based on our close collaboration with OCTA in its role as the Congestion Management Agency, and SCAG in its role as the Metropolitan Planning Organization (MPO) which includes Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura counties.

Freeway projects shown on these exhibits are included in the OCTA's Measure M2 Early Action Plan (EAP)¹⁵. The furthest projected project completions are for I-5 improvements from SR 73 to El Toro Road and SR 55 from I-405 to I-5, which are estimated to be constructed by mid-2020. These projects are also part of the 2011 Federal Transportation Improvement Program (FTIP) which represents the first six years of committed funding. Other financially constrained, long term freeway improvements beyond the M2 Early Action Projects list and FTIP are called for in SCAG's 2012-2035 RTP/SCS.¹⁶

The above discussed conceptual freeway improvements addresses county residents' top freeway and interchange concerns, as discussed in the 2006 OCTA Long Range Transportation Plan (LRTP)¹⁷ and carried forward in the 2010 LRTP¹⁸:

- Add lanes on Interstate 5 from State Route 55 to State Route 57 and from Alicia Parkway to Crown Valley Parkway
- Add lanes on State Route 55 from State Route 22 to Interstate 405

¹⁵ Source: OCTA – Measure M2 Early Action Plan – Updated in 2010 (<http://www.octa.net/pdf/eap-doc.pdf>)

¹⁶ Source: SCAG (<http://rtpscs.scag.ca.gov/Pages/2012-2035-RTP-SCS.aspx>)

¹⁷ Source: OCTA (http://www.octa.net/lrtp_2006.aspx)

¹⁸ Source: OCTA (<http://octa.net/Plans-and-Programs/Long-Range-Transportation-Plan/LRTP-2010/>)

- Improve interchanges and add lanes in each direction on State Route 91 from State Route 241 to State Route 71 and a westbound lane from State Route 57 to Interstate 5
- Add lanes on Interstate 405
- Add lanes on State Route 57 from Interstate 5/State Route 22 to Los Angeles County
- Connect carpool lanes at the Interstate 405/605/State Route 22 interchange
- Improve Interstate 5 interchange at Ortega Highway.

Highway improvement projects from the FTIP together with projects from Caltrans' Interregional Transportation Improvement Program (ITIP) make up the State Transportation Improvement Plan (STIP), which is Caltrans' key programming and funding document. STIP is discussed in more detail under the Transportation Funding section of this report.



Interstate 405 near John Wayne Airport

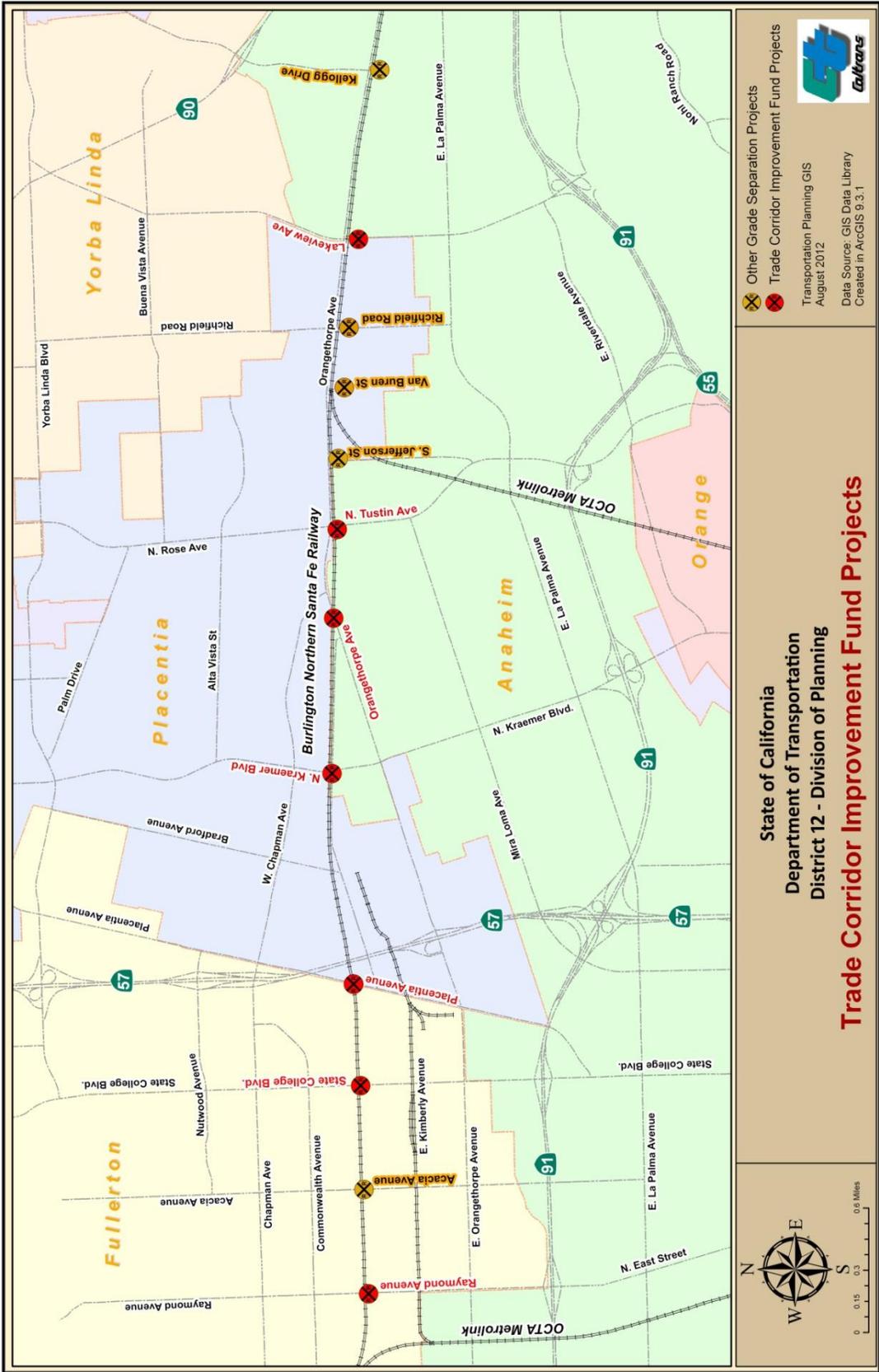


Exhibit 4 - Trade Corridor Improvement Fund Projects

VISIONS AND MOVING FORWARD

The State Highway System plays a critical role in the economic vitality of Orange County since it provides the infrastructure for moving people and goods effectively through the system. How well the State Highway System integrates with the local land use and its friendliness towards the environment will directly affect the well-being of every citizen in the county. As such, the District recognizes the importance of coordinating its plan of actions with all stakeholders. Finding common solutions for the critical issues facing the county, ranges from land use planning, freight movements, multi-modal strategies implementation, to the mandate of green house gas emission reduction. The District also recognizes the need to go beyond its traditional responsibility of being the owner and operator of the State Highway System and to actively participate in the regional dialogues in mapping out future directions for the mobility, economy, and sustainability of the county within the context of the Southern California region.

Alongside the three key system management strategies discussed in the previous pages, the District offers the following foresights to complement its commitment of maintaining, operating, and improving a world class highway system in Orange County.

Advocate new direction for land use planning

The District's vision is to become an advocate for bridging transportation planning and land use planning processes. Caltrans has prepared a state-level transportation blueprint to articulate the State's vision for an integrated, multimodal interregional transportation system that complements regional transportation plans and land use visions. The California Interregional Blueprint (CIB) integrates the State's long-range modal plans and Caltrans-sponsored programs with the latest technology and tools to enhance Caltrans' ability to plan for and manage the transportation system. SCAG and the California Air Resources Board (ARB) are two major stakeholders in this effort. With this concept, land use planning occurs at the beginning, allowing a range of visions to be included in the planning process.

Smart Growth is an urban planning and transportation concept that advocates compact, concentrated growth in walk-able urban centers to avoid sprawl. It entails transit-oriented, pedestrian and bicycle-friendly land uses, including complete streets and mixed-use development with a diverse array of housing choices. This concept aims to enhance quality of life, preserve

the natural environment, and reduce expenditures by ensuring that growth is fiscally, environmentally, and socially responsible by recognizing the connections between development and quality of life. Smart Growth proposes an urban vision of neighborhoods and communities that emphasize people rather than automobiles; a return to the principles that once made America's cities and towns great places to live.



Irvine Guideway Demonstration Project¹⁹

Smart Growth represents a major shift from drive-alone mode to travel by bus, fixed-rail systems, ferries, on foot, and by bicycle in new urban-growth areas. However, infrastructure supporting these modes must be in place that requires a major policy shift by local governments prior to implementation which is incorporated into Caltrans Smart Mobility Framework 2010.

In the process of identifying land use pattern, SCAG focuses on areas defined as High-Quality Transit Areas (HQTA). An HQTA is considered a walk-able transit village, consistent

¹⁹ Courtesy of the IBI Group:
(<http://www.ibigroup.com/Pages/Project.aspx?ProjectId=425&DisciplineId=3&PracticeId=44&pageName=AreaOfPractice.aspx&backString=AreaOfPractice.aspxxDisciplineID=3ppracticeID=44ppage=>)

with Sustainable Community Strategy²⁰, within one-half mile of a well-serviced transit stop, and includes transit corridors with minimum 15-minute or less service frequency during peak commute hours. The 2012-2035 RTP/SCS assumes that 51% of new housing developed between 2008 and 2035 will be within HQTAs, along with 53% of new employment growth. By aligning a high-quality transit network with new housing and jobs, the people of Southern California are offered more complete communities with better transportation and housing choices. This strategy also helps reduce the adverse impacts of automobile use on public health and the environment²¹.

In Orange County, an excellent example of the HQTA/Smart Growth concept is being implemented in the City of Fullerton. Housing, restaurants, retail, and other services around the Fullerton Transportation Center serve as models of transit-oriented design that encourages walking, bicycling, and transit use.

Promote new alternative energy and roadway technology

Alternative Energy

Since 1990, greenhouse gas emissions have increased by 10.5% in the United States and emissions rose by 3.2% from 2009 to 2010.²² Due to concerns about carbon emissions, air pollution, and energy dependence, California has been propelled by State Law to reduce emissions back to 1990 levels, per Assembly Bill 32, the California Global Warming Solutions Act of 2006. According to the Environmental Defense Fund, this is equal to taking 28 million vehicles off the road by 2020²³. California is nearly 100% dependent on petroleum for transportation with less than one% of registered vehicles being hybrids in California.²⁴

Air quality concerns have increased the importance of alternative fuels and advanced transportation technologies like electric vehicles. By increasing alternative fuel use, such as natural gas and electricity, consumers have fuel choices that compete with gasoline and diesel, broaden our supply base, and have lower environmental impacts.²⁵

²⁰ Refer to SCAG's 2012-2035 RTP/SCS for detailed discussion

²¹ Source: 2012-2035 RTP/SCS – Chapter 4 (<http://rtpscs.scag.ca.gov/Pages/2012-2035-RTP-SCS.aspx>)

²² Source: U.S. Environmental Protection Agency (<http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.htm>)

²³ Source: Environmental Defense Fund (http://www.edf.org/sites/default/files/8053_CalifScopingPlanSummary.pdf)

²⁴ Source: Edmunds AutoObserver (<http://www.autoobserver.com/2009/03/california-study-ties-hybrid-purchases-to-income-environmental-convictions.html>)

²⁵ Source: Air Resources Board (http://www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-09_report.pdf)

Other technologies like hybrids and battery electric vehicles will likely provide much more environmental and social benefit in a timely manner and with much less cost. Through advanced research and technology, Caltrans recognizes and supports developing alternative energy strategies as the District has converted its entire car fleet to alternative fuel technology. Cities such as Irvine, Anaheim, Fountain Valley, Garden Grove, Brea, and Seal Beach²⁶ have been progressive in building alternative fuel stations and infrastructure to service hybrid vehicles.

Infrastructure support for the new automobile technology

Limited economic research exists on the subject of alternative fuel infrastructure. While there are many discussions of how to respond to the carbon emissions associated with gasoline consumption, there are also major challenges with building an alternative fueling infrastructure which hinders the use of alternative fuels. Effective policies to spur the development of retail infrastructure for alternative fuels are therefore highly desirable.



Hydrogen Station on Campus Drive in the City of Irvine

At the moment, there is limited research examining the economic incentives for alternative fuel stations. Future policies, incentives and funding that offer support for the producers to build a robust refueling infrastructure should be considered. Risk, both technical and financial, is known to be an inherent barrier; however, strong committed public-private partnerships would reduce risks in the future.

²⁶ Source: CNGLocator.net (<http://www.cnglocator.net/CNGLocationsbyState/CaliforniaCNGStations.html>)

Reduce Greenhouse Gas Emissions in California

The California Greenhouse Gas law, also known as the Global Warming Solutions Act or Assembly Bill 32 (AB 32), was passed by the legislature in 2006. AB 32 requires the State of California to reduce greenhouse gas (GHG) emissions to 1990 levels, no later than 2020. Subsequently, Senate Bill 375 (SB 375)²⁷ was signed into law in 2008 to provide means for achieving the global warming goals set forth in AB 32. SB 375 would: (1) require the California Air Resource Board (ARB) to develop regional GHG emissions reduction targets for automobile and light truck sectors by 2020 and 2035, (2) require the MPOs to prepare a "Sustainable Communities Strategy" to reduce the amount of vehicle miles traveled (VMT) in their regions, and to attain ARB's targets, and (3) provide certain exemptions to the California Environmental Quality Act (CEQA) for housing projects and developments consistent with the new sustainable communities strategies. Voters'



Climate change could lead to more or less precipitation. Increased rain may cause serious erosion on coastal and mountain roadways, such as this slip out that closed State Highway 74 in Orange County

rejection of Proposition 23 in the November 2010 California

election, an initiative aimed at suspending Greenhouse Gas law, demonstrated Californians' determination to keep the environment safe and clean for future generation.

The reduction of GHG emissions clearly requires a coordinated effort of applying effective regional land use policies to meet housing needs and manage future growth. It also requires the application of sound transportation planning to manage traffic demand; as well as, additional investments in new technology and mass transportation infrastructure.

²⁷ Source: Official California Legislative Information (http://leginfo.ca.gov/cgi-bin/postquery?bill_number=sb_375&sess=CUR&house=B&author=steinberg)

Although ARB and the MPOs will take the lead in this task, Caltrans plays a significant role since the transportation sector alone accounts for 38% of the total GHG emissions, followed by electricity (23%), industry (20%), commercial and residential (9%), agricultural (6%), and others²⁸. As required by SB 375, Caltrans works closely with ARB and SCAG to develop new RTP guidelines for the travel demand model used by SCAG to measure the performance of its Sustainable Communities Strategy and to develop the RTP. All future District transportation projects will have to undergo analysis and consideration during the transportation planning/programming process to address and evaluate possible increased GHG emissions.



Great strides in air quality have been achieved, yet much work is left to be done. SB 375 provides the blueprint for greater actions to preserve clear blue skies for future generations.

With the passage of Senate Bill 391 (SB 391) in 2009, the goal of reducing GHG emission levels in California is further emphasized:

- To lower GHG from current levels to 1990 levels by 2020
- To lower GHG to 80% below 1990 by 2050

SB 391 requires Caltrans to identify a comprehensive, statewide, multimodal planning process to facilitate a transportation system that meets the objectives of mobility and congestion management. This system also needs to be consistent with the state's greenhouse gas emissions limits and air pollution standards. Furthermore, Caltrans is required to update its current CTP by December 31, 2015, and every five years thereafter. The main objective of CTP is to identify an integrated, multimodal system needed to achieve the maximum feasible GHG emission reductions as set forth by the above laws. For further discussion on CTP, refer to Chapter 4.

²⁸ Source: SCAG (http://www.scag.ca.gov/publications/pdf/2009/ClimateChange/ClimateChange_Full_lores.pdf)

Market new transportation concepts and strategies to the general public

In addition to federal requirements²⁹ (ISTEA 1991, TEA-21 1998, SAFETEA-LU 2005, and MAP-21 2012) that statewide long-range transportation plans be subject to comments by the public, Caltrans is committed to gaining public support for its transportation strategies and vision. The District strives to improve outreach efforts to its partners, businesses, and the residents of Orange County to share with them its plans and programs. This vision can be achieved through the following guidelines:

- Actively seeking and incorporating input from local partners in long-term (i.e. DSMP and TCR) and midterm (i.e. CSMP) transportation plans
- Providing easy access to electronic copies of these transportation plans for public review and input through formats such as the world-wide web or public meetings
- Actively promoting the policies, visions and roles of Caltrans through community outreach to neighborhoods, civic groups, and local businesses
- Maximizing the use of public media (i.e. radio, television, internet, Facebook) to inform the general public of Caltrans' roles, achievements, short and long-term freeway improvement plans, and other new transportation technologies being applied to the system

More than ever, the District's vision and plans to improve the mobility and efficiency of the Orange County highway system need to be transparent to receive support from the public. County residents should be well-informed and develop a sense of ownership of freeway improvements. The District aims to provide a reliable, easy-to-access system which is conducive to growth and prosperity.



Safeguarding taxpayer's investment by maintaining and preserving the State Highway System is our top priority.

²⁹ Source: Federal Highway Administration (http://www.fhwa.dot.gov/environment/interparties_leg.htm)

3 Analysis of Transportation System in Orange County



CHAPTER 3 – ANALYSIS OF TRANSPORTATION SYSTEM IN ORANGE COUNTY

3.1 State Highway System

In this section, the performance of the State Highway System in both existing and future conditions will be analyzed based on the traffic counts and the regional transportation model forecasts.



Interstate 5 south of Junction State Route 1

3.1a Analysis of Existing Condition

Using Highway Capacity Software and traffic counts, Caltrans traffic engineers calculated the Level of Service (LOS) to display current traffic conditions in the system. LOS represents traffic conditions at the peak hour, when traffic volume is highest. **Exhibit 5** depicts freeway lane configuration in Orange County for the existing condition as of year 2010. **Exhibits 6 and 7** depict the existing Level-of-Service (LOS) on the Orange County freeway system during peak periods, 6:00 AM to 9:00 AM and 3:00 PM to 7:00 PM. The morning peak period shows severe congestion at the following locations:

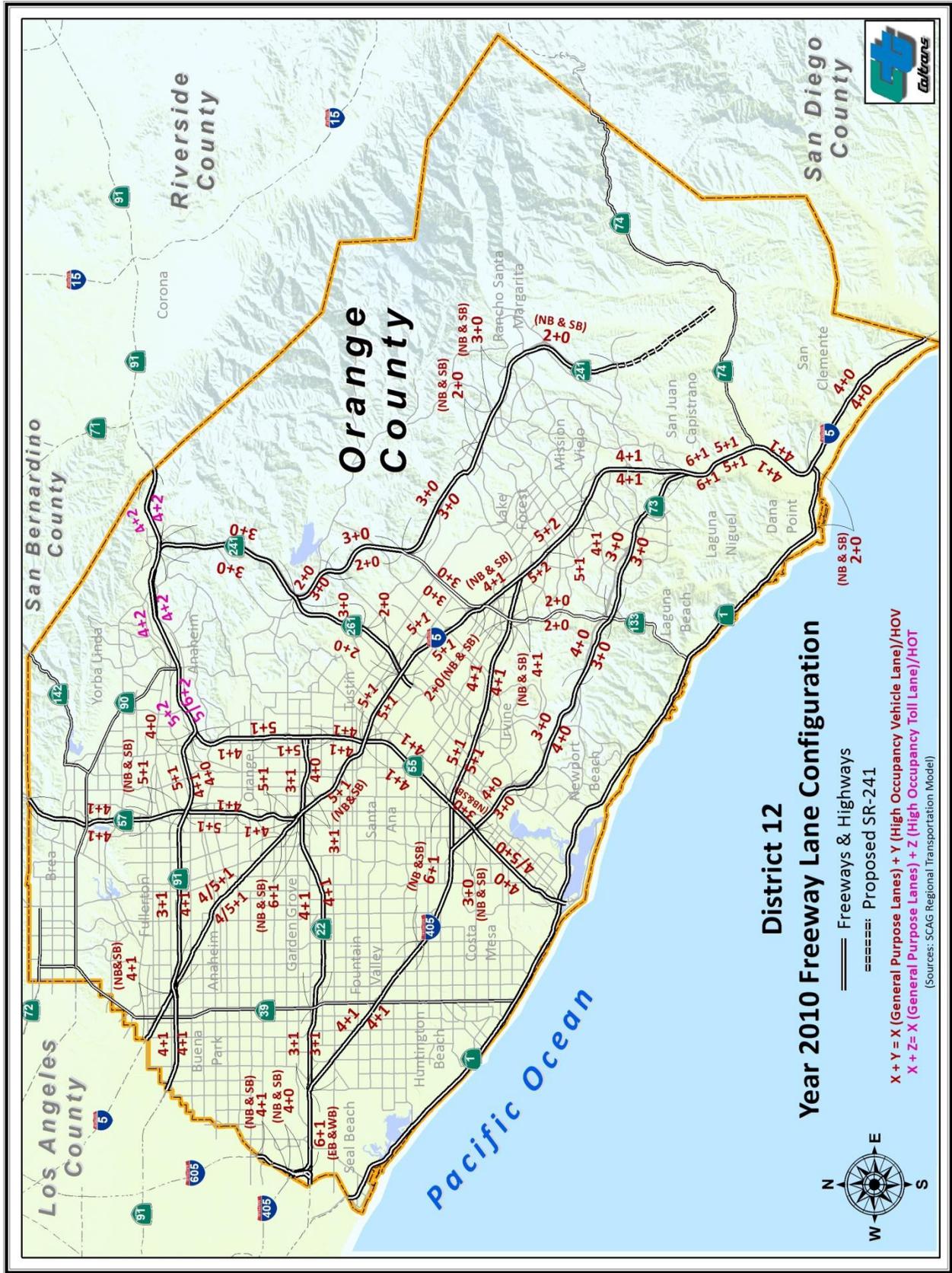
- Westbound traffic on SR 91
- Eastbound SR 91 from Euclid Street to SR 57
- Southbound traffic on SR 57

- Southbound SR 55 from SR 91 to I-405
- Northbound I-5 from Oso Parkway to El Toro Road and from Sand Canyon Avenue to SR 91
- Southbound I-5 from SR 91 to Euclid Street, from Disneyland Drive to Haster Street, from the Orange Crush to Culver Drive, and from Lake Forest Drive to Camino De Estrella
- Northbound I-405 from Goldenwest Street to the Los Angeles county line
- Southbound I-405 from the Los Angeles county line to Euclid Street
- Westbound SR 22 from Beach Boulevard (SR 39) to I-405
- Eastbound SR 22 from Harbor Boulevard to the Orange Crush

The afternoon peak period reflects deteriorating conditions at the following locations:

- Eastbound SR 91 from the Los Angeles County line to SR 57 and from Imperial Highway (SR 90) to the Riverside County line and beyond
- Northbound SR 57 from SR 91 to the Los Angeles County line and beyond
- Southbound SR 57 from Lambert Road to Yorba Linda Boulevard and from Lincoln Avenue to the Orange Crush
- Southbound SR 55 from SR 22 to I-5 and northbound SR 55 from SR 73 to SR 91
- Northbound I-5 from SR 73 to SR 91
- Southbound I-5 from the SR 22/SR 57 to Culver Drive, and from Lake Forest Drive to Avenida Pico
- Westbound SR 22 from Goldenwest Street to I-405, and eastbound SR 22 from Harbor Boulevard to Grand Avenue
- Northbound I-405 from I-5 to Beach Boulevard (SR 39) and southbound I-405 from the Los Angeles County line to Euclid Street

Note that the LOS information shown in these Exhibits depicts traffic conditions based on the year 2010 traffic counts when Orange County was in an economic recession. In an economic upswing, Orange County would have a vibrant economy that will exacerbate the traffic congestion.



Prepared by the Division of Planning - System Planning Branch (July 2014)

Exhibit 5 - District 12 Year 2020 Freeway Lane Configuration

Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

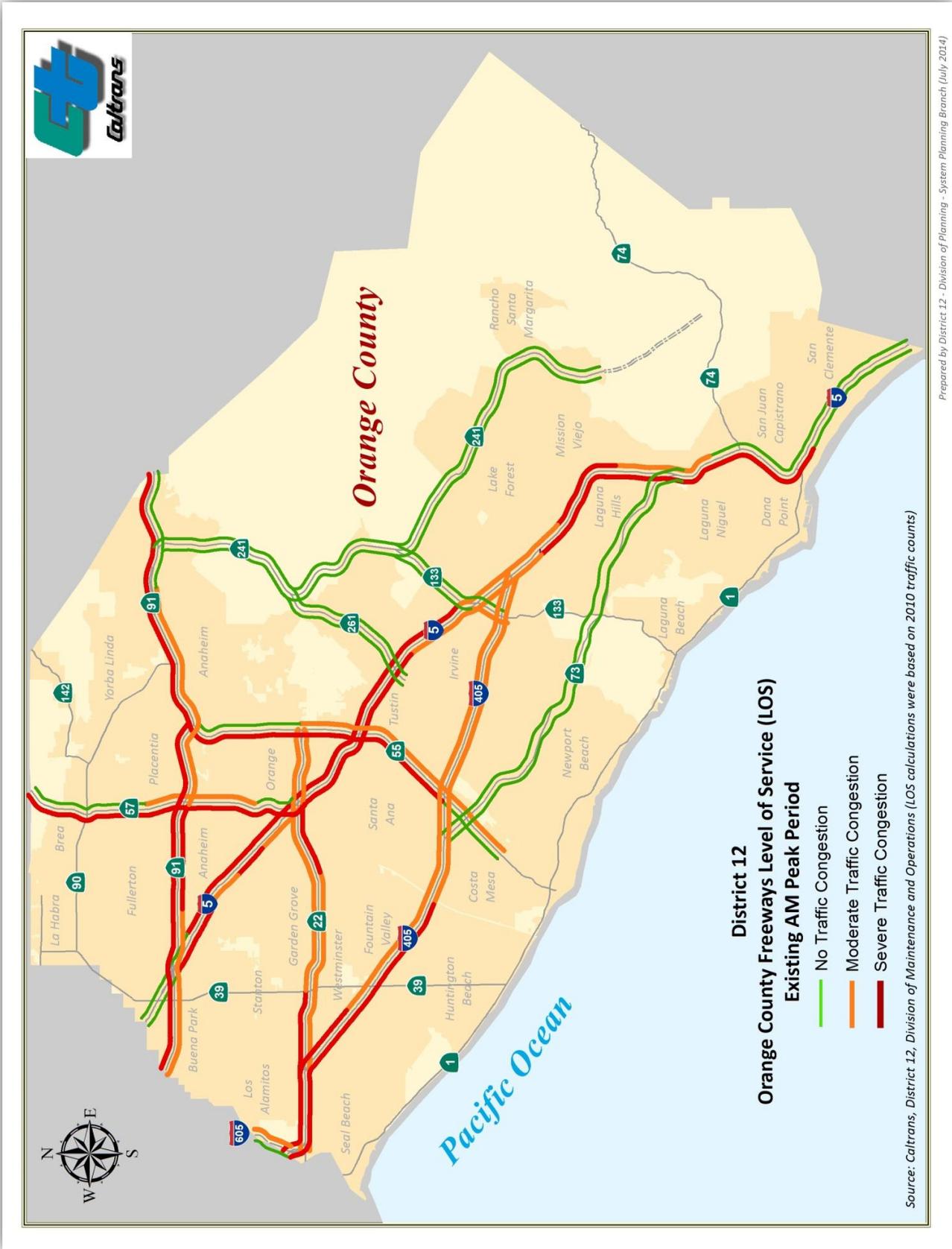


Exhibit 6 - District 12 Orange County Freeway Level of Service (Existing AM Peak)

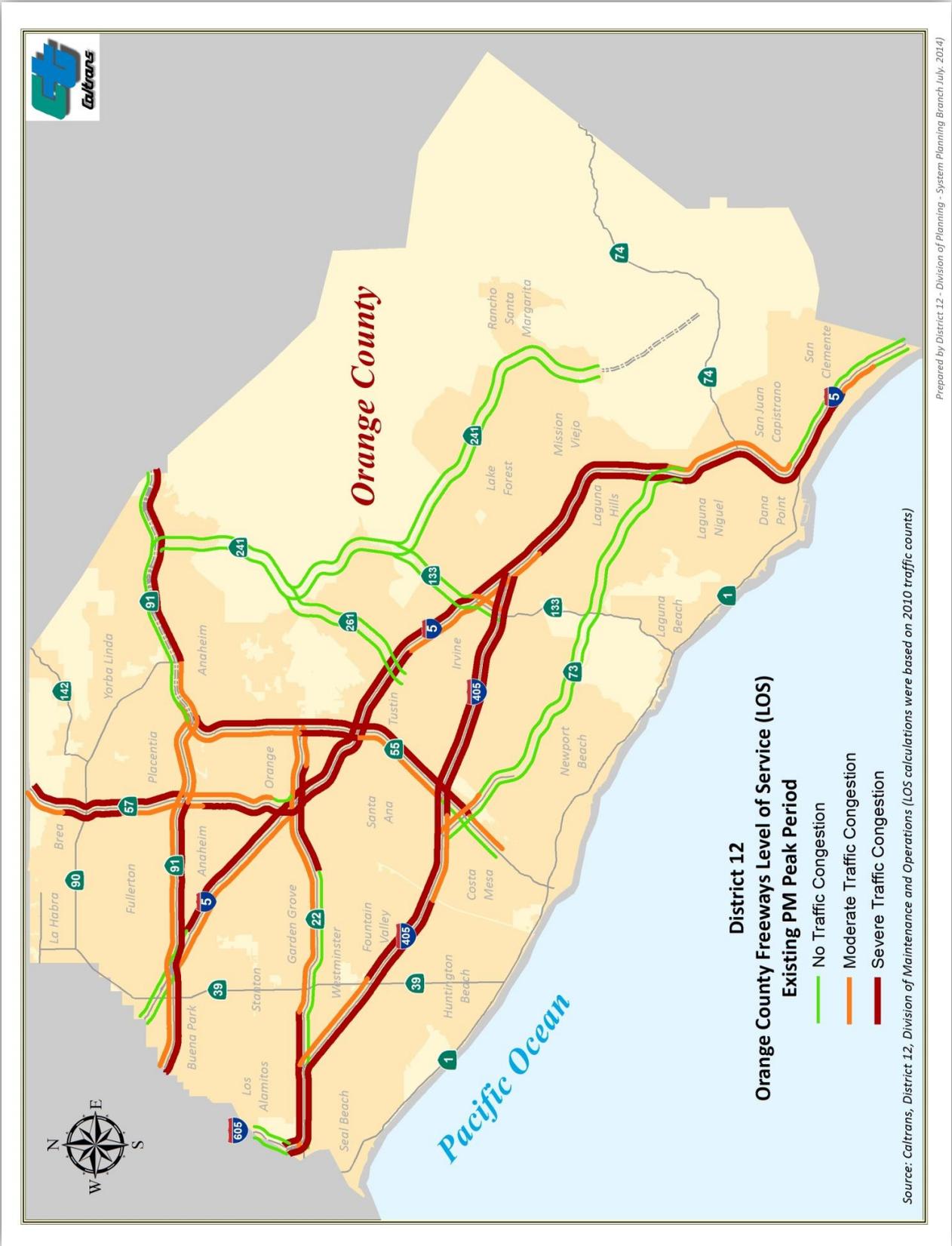


Exhibit 7 - District 12 Orange County Freeway Level of Service (Existing PM Peak)

3.1b Regional Transportation Model Outcome and Analysis of Future Condition

The future traffic conditions discussed in this report are based on SCAG's Regional Transportation Model outcome. The regional model provides a common foundation for transportation planning and decision making by SCAG and its partnering agencies. SCAG's model forecasts the impact of population and employment growth on the transportation system and evaluates potential transportation network improvements. This travel demand model plays a critical role in the analysis and development of the agency's Regional Transportation Plan (RTP), the Regional Transportation Improvement Program (RTIP) and the Air Quality Management Plan (AQMP). The regional model employs the traditional four-step modeling methodology and consists of the base year 2008 with the forecast year 2035. It was calibrated to the regional household survey for year 2001 and validated by the travel statistics for year 2008. The goal of this validation process is to ensure that the model reasonably simulates traffic volumes and transit usage in the year 2008³⁰. Caltrans contributed to calibration and validation of SCAG's model by providing financial and technical support.

Traffic conditions for the forecast year 2035 in this report are presented in two separate scenarios: **Baseline** and **Concept**. The baseline scenario consists of funded and programmed projects, while the concept scenario includes both baseline scenario projects and uncommitted funding projects.

The **Baseline Scenario** network includes key freeway projects from OCTA's Measure M2 Early Action Plan (EAP), the RTIP (represents the first six years of already-committed funding), and those from the RTP, which are scheduled to complete before year 2020. Refer to **Appendix E** for the list of freeway improvements in the Baseline Scenario.

Exhibit 8 depicts freeway network configurations based on the above-described criteria (Baseline projects are in blue) and **Exhibit 9** displays demand (volume) versus network capacity for the Year 2035 Baseline Scenario. The existing traffic conditions are displayed in LOS during morning and afternoon peak periods, but the forecasted condition is represented by the relationship between future demand and capacity during the Peak Period of the day, which carries the highest traffic volume. This is due to the fact that the existing LOS can be reliably

³⁰ Source: SCAG Regional Travel Demand Model and 2008 Model Validation

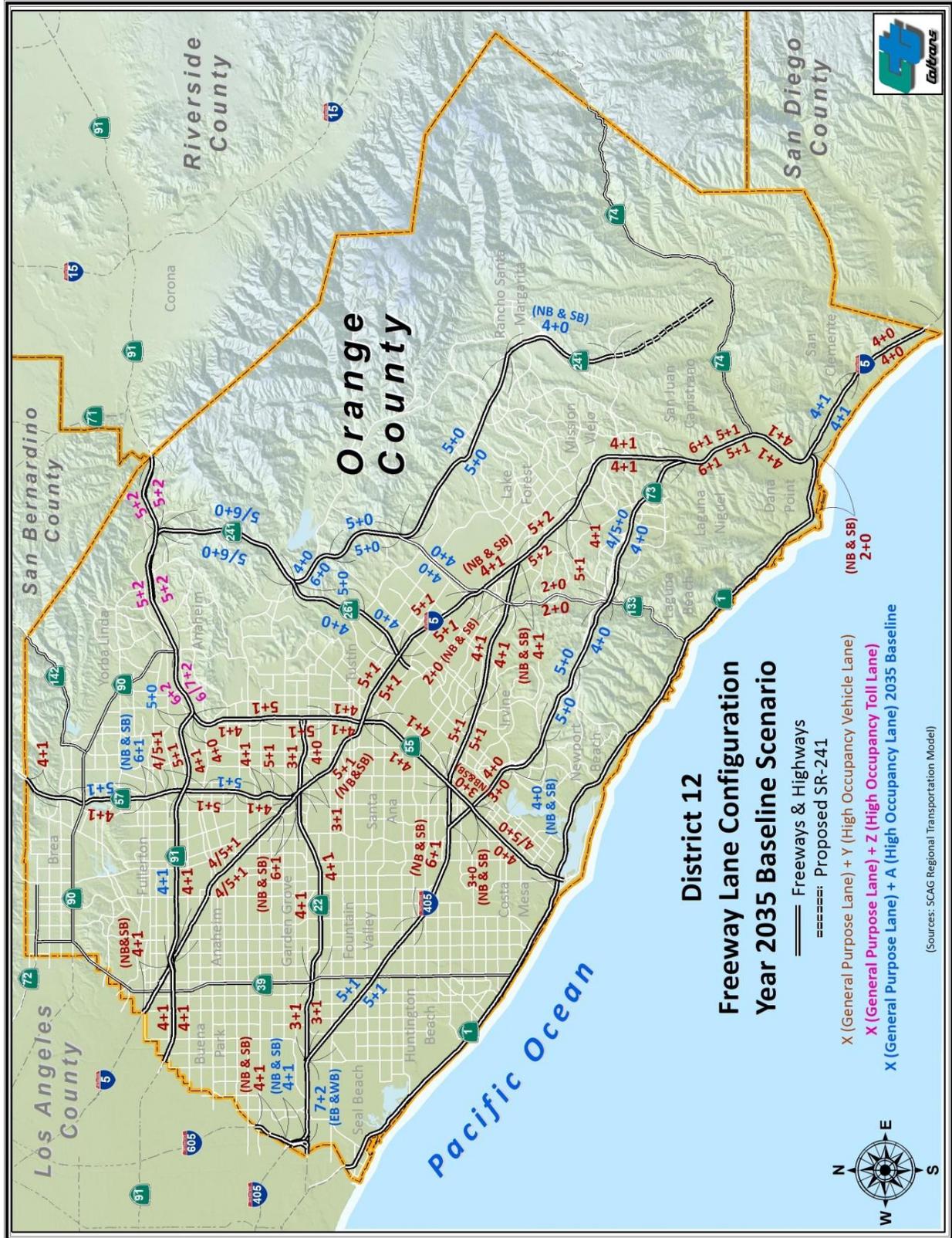
calculated based on traffic counts, while it is more realistic for the forecasted traffic condition to be measured by demand and capacity.

Freeway improvements in the Baseline Scenario are mainly on SR 91 between SR 55 and the Orange/Riverside County line, westbound SR 91 between SR 57 and I-5, northbound SR 57, and I-405 between SR 73 and the Orange/Los Angeles County line and the Toll Roads. Even with these improvements, the freeway system in year 2035 is forecasted to experience moderate to severe capacity deficiency on all major freeways in Orange County, except for the Toll Roads. This leads to the following interpretations:

- Freeway improvements simply cannot keep pace with projected population and employment growth in Orange County and the surrounding areas. The projected growth also impacts the arterial system in the same fashion, thus emphasizing the need for better coordination between Caltrans and our local partners in managing the traffic circulation system within the framework of the MPAH.
- Amendments to the MPAH to remove planned roadways without offsetting measures to alleviate congestion should be avoided. These roadways would play a critical role in providing alternate routes for drivers during incidents and construction activities on freeways. Also, they would provide more opportunities for non-motorized travel options. As such, the District encourages the completion and construction of these planned MPAH roadways.
- Major freeway improvements tend to attract traffic from congested local arterials. This points to the critical needs of:
 - Controlling the flow of local traffic onto freeways
 - Providing necessary improvements within the arterial system and at freeway interchanges
 - Faster incident/accident response time
 - Manage traffic demand on freeways

For the **Concept Scenario**, key freeway improvement projects are on I-5 between SR 73 and SR 91, I-405 between I-5 and SR 55, SR 55 between I-405 and SR 22, northbound SR 57, and the non-toll segment of SR 73. Note that these beyond-year-2020 freeway improvements are added to the projects tested in the Baseline Scenario. **Exhibit 10** depicts Concept Scenario's lane

configuration with added projects shown in green and Baseline Scenario's projects in blue. Concept Scenario freeway improvement projects are listed in **Appendix F. Exhibit 11** displays demand versus capacity for the Year 2035 Concept Scenario.



Prepared by the Division of Planning - System Planning Branch (August 2014)

Exhibit 8 - District 12 Freeway Lane Configuration Year 2035 Baseline Scenario

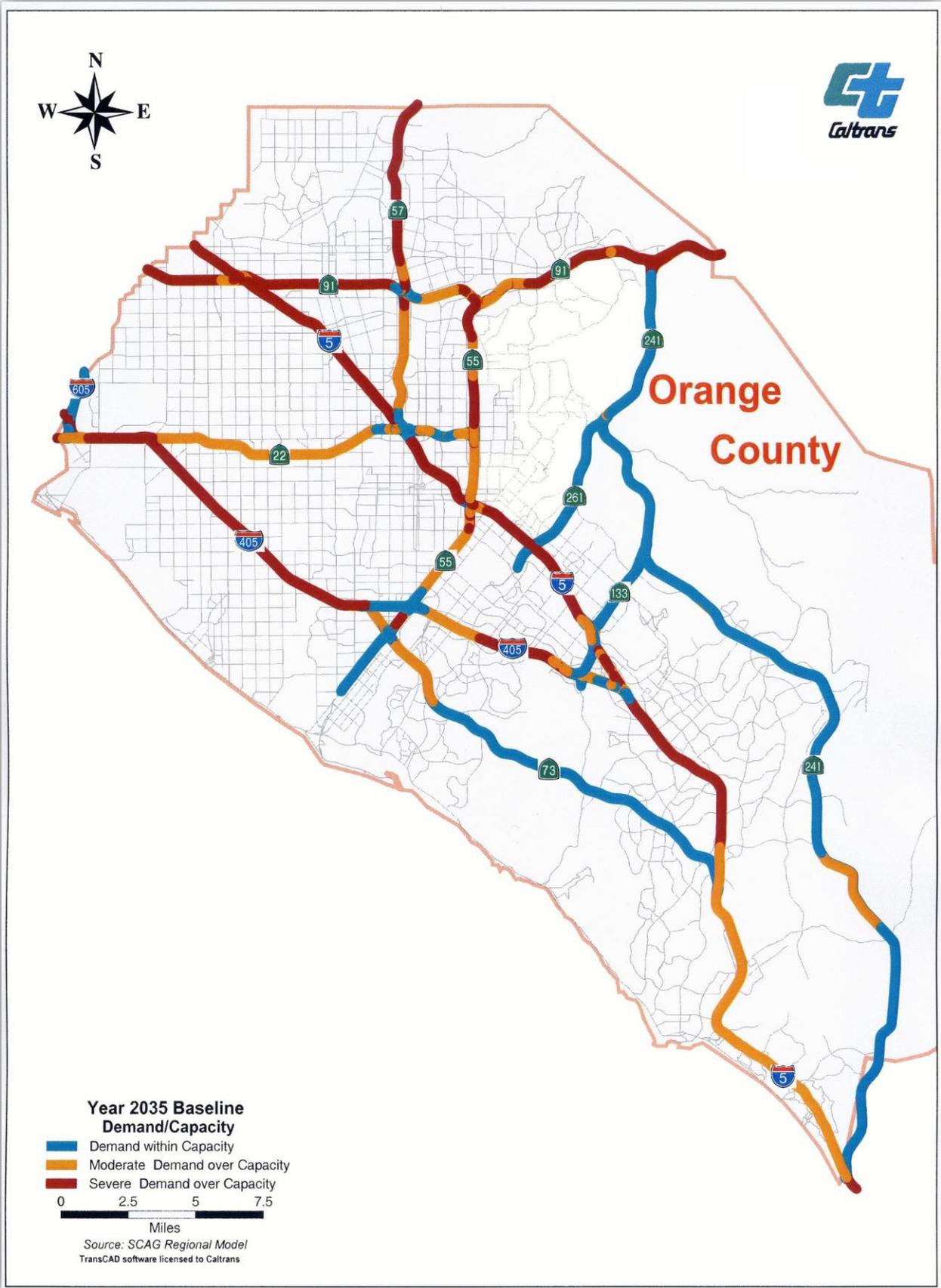
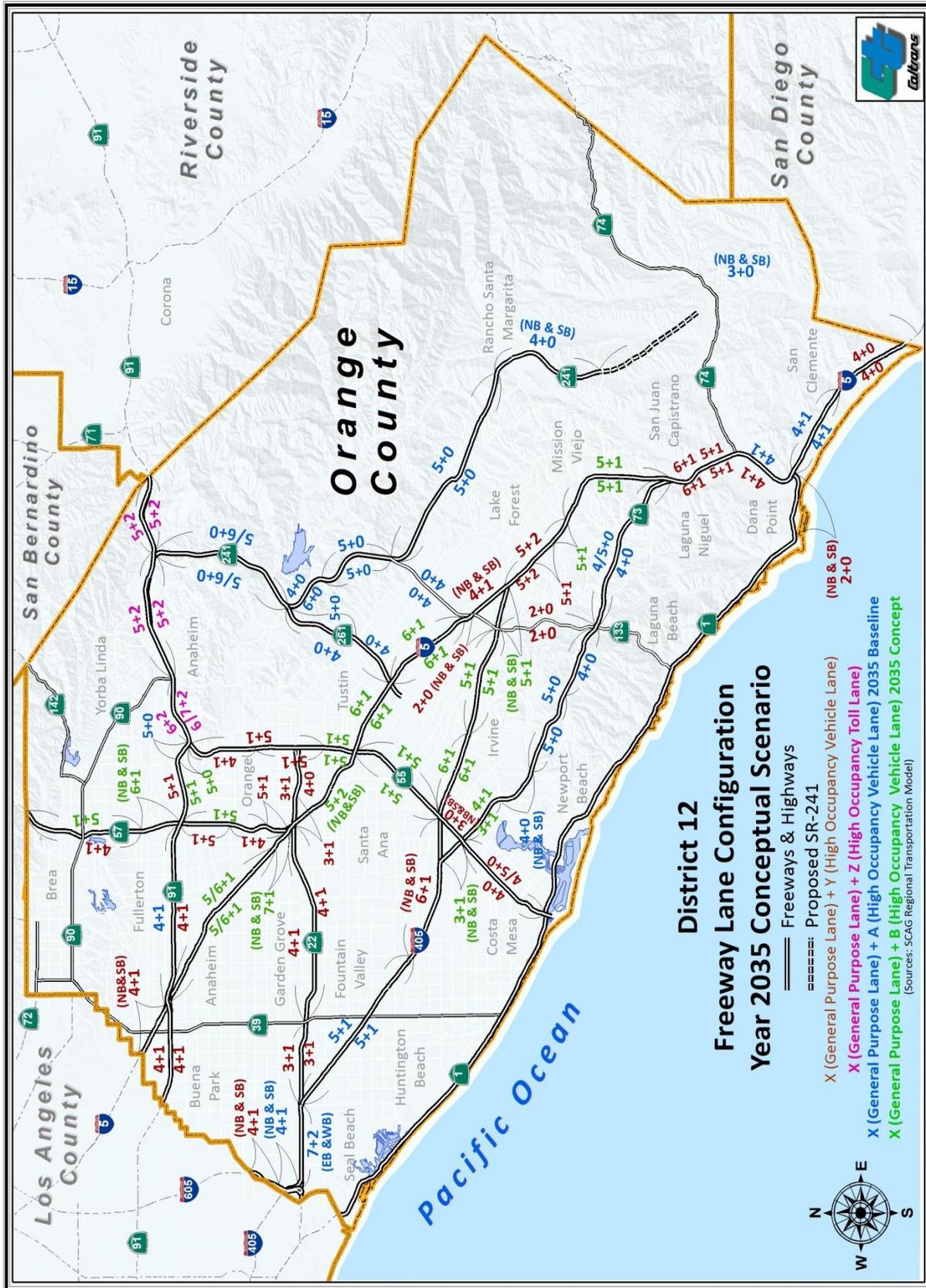


Exhibit 9 - Year 2035 Baseline Demand/Capacity

Provide a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability.



Prepared by the Division of Planning - System Planning Branch (August 2014)

Exhibit 10 - District 12 Freeway Lane Configuration Year 2035 Conceptual Scenario

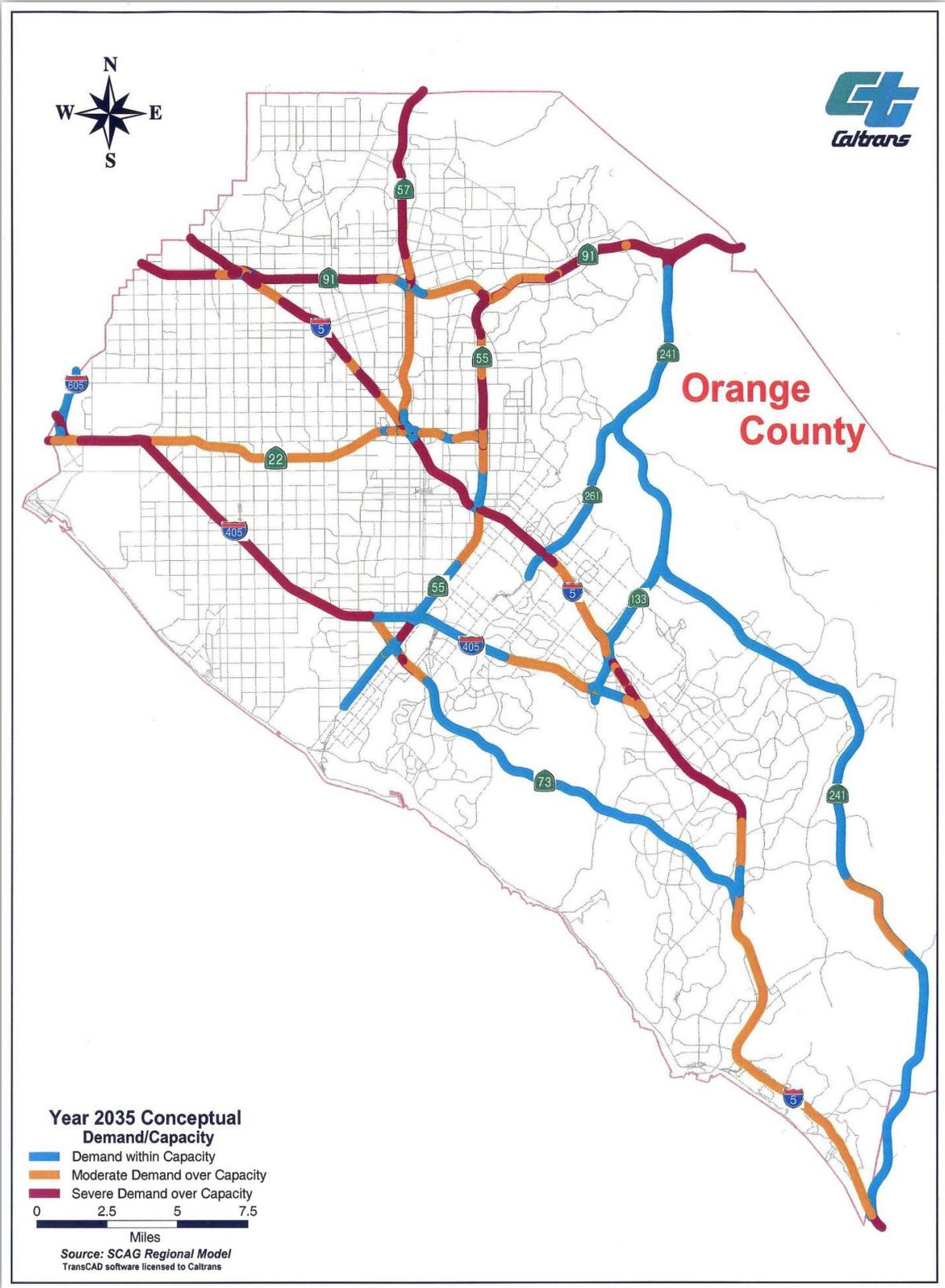


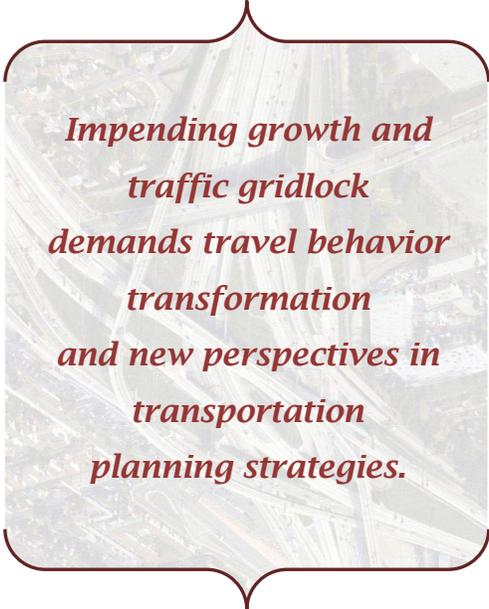
Exhibit 11 - Year 2035 Conceptual Demand/Capacity

According to the Concept Scenario's model run results shown in **Exhibit 11**, the system is forecasted to continue experiencing moderate to severe demand over capacity deficiency on most freeways, except the Toll Roads. However, there are noted improvements over the Baseline Scenario on the following freeway segments:

- SR 55 from I-405 to Edinger Avenue and from I-5 to 17th Street
- I-405 between I-5 and SR 55
- I-5 between SR 73 and La Paz Road
- I-5 between SR 57 and SR 91

Once again, Year 2035 forecasts in both Baseline and Concept Scenarios show that projects planned for the Orange County freeways according to SCAG's RTP and OCTA's M2 Early Action Plan, while providing improvements in the performance of the freeway system, would not meet future travel demand. In order to achieve a balanced system that serves the mobility needs of the County's residents, attention must be drawn to the following key areas:

- Implementing further operational improvements (i.e. Transportation Demand Management (TDM)) to reduce the effect of traffic chokepoints, thus improving the safety and mobility of the freeway system
- Working closely with local partners in the effort of controlling traffic flows entering the freeway system
- Pricing strategies-based on congestion and time of day
- Transit in HOV and Express Lanes
- Increasing the productivity of the existing HOV system by considering additional HOV capacity and implementing the Continuous Access Carpool approach
- Actively promoting the usage of the Toll Roads. An increase of Toll Roads ridership would improve traffic condition on I-5, I-405, and SR 55
- Interchange improvements
- Closure of critical gaps and capacity enhancement



Impending growth and traffic gridlock demands travel behavior transformation and new perspectives in transportation planning strategies.

As mentioned earlier, solutions for the freeway system must be consistent with improvements within the local arterial system and complemented by additional opportunities in mass transportation, such as increasing bus and commuter rail frequency to enhance the county’s economy.

3.1c Weekend Travel Conditions

Freeway weekend traffic volumes are generally less than weekday traffic volumes except at locations that serve recreational trips, such as I-5 at the Orange-San Diego County line. Weekend traffic volumes in the central part of the county are about five percent lower than weekday traffic for a 24-hour period, while weekend traffic volumes at the county’s perimeter exceed weekday traffic by almost 10%. **Exhibits 12 and 13** display typical weekday versus weekend traffic patterns on I-5 at the Orange/San Diego County line and at 17th Street.

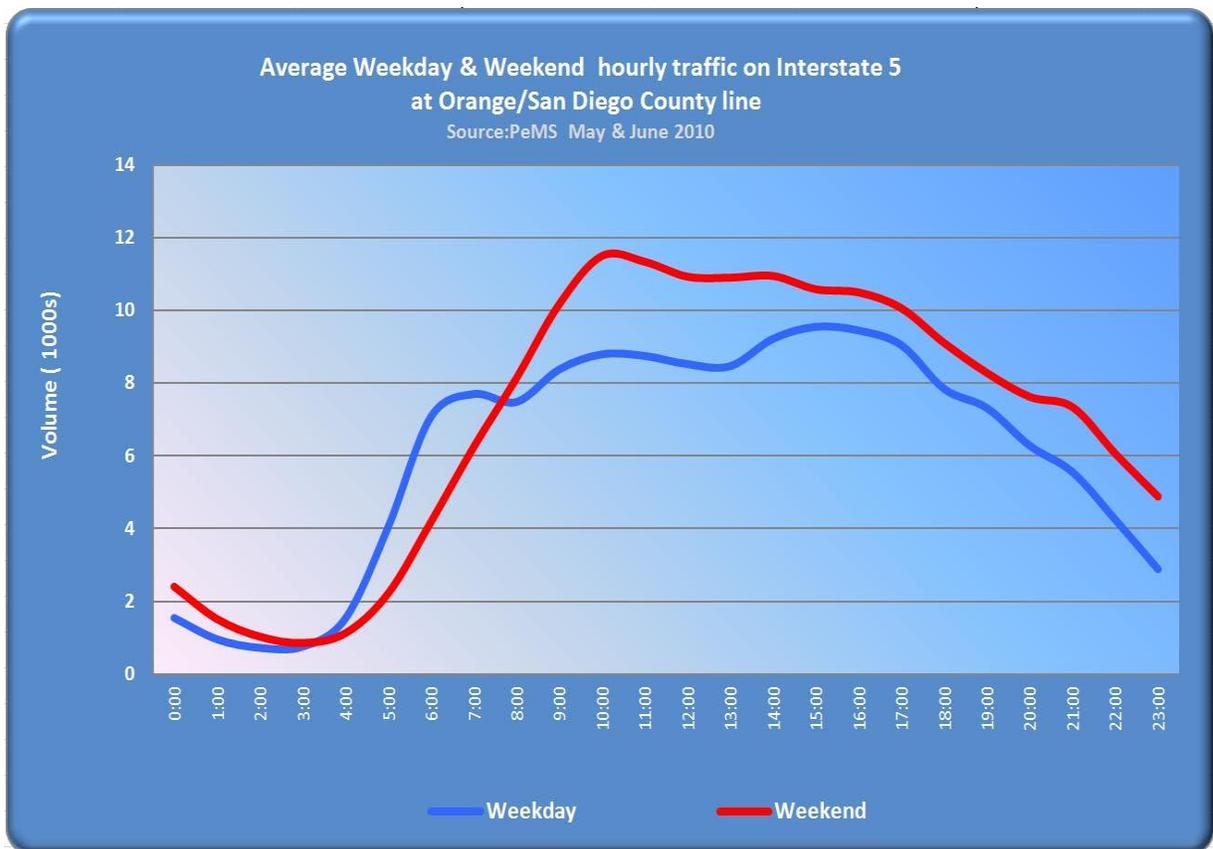


Exhibit 12 - Average Weekday & Weekend Hourly Traffic on I-5 at Orange/San Diego County Line

According to the exhibits, weekday traffic displays the two typical morning and afternoon peaks, while weekend traffic shows a single peak period during the day.

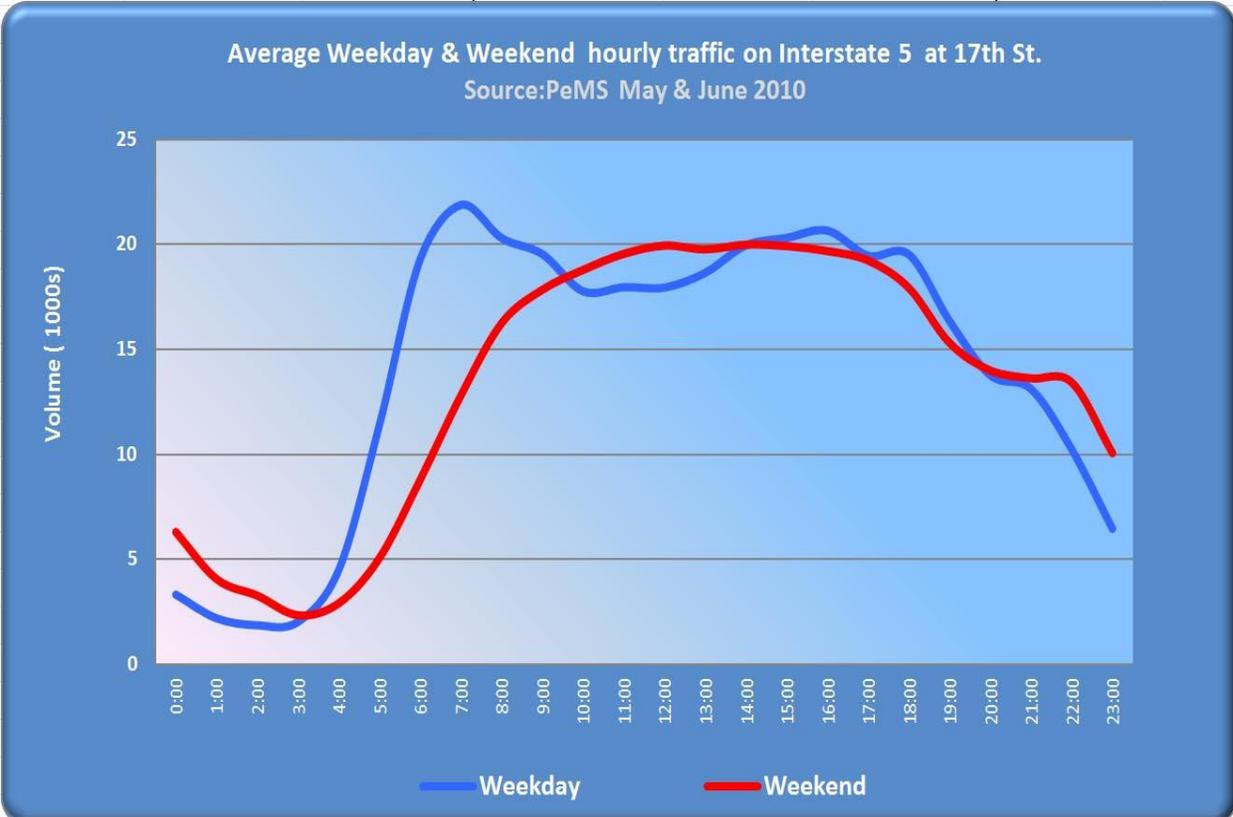


Exhibit 13 - Average Weekday & Weekend Hourly Traffic on I-5 at 17th Street

Exhibit 14 displays the relationship between Annual Average Daily Traffic (AADT) and the weekend traffic. For any segment of Interstate or State Highway System, AADT reflects the total traffic volume for the year divided by 365. As mentioned earlier, these conversion factors reveal that weekend traffic is lower than AADT, with the noted exception of I-5 near Orange/San Diego County line where the weekend counts are 10% higher than the AADT.



Exhibit 14 - Freeways Annual Average Daily Traffic to Weekend Traffic Conversion Factors Year 2012

3.1d Managed Lane Facilities

Managed lanes are a set of traffic lanes where operational strategies are put into practice in response to changing traffic conditions. The goals of these strategies are to optimize managed lane traffic flow at free-flow speed based pricing use of lanes, vehicle occupancy or clean air vehicle eligibility. HOV and High Occupancy Toll (HOT) lanes are examples of a managed lane facility. One method for implementing managed lane facilities is based on traffic congestion and pricing. To carry out this strategy, hourly traffic volumes on both managed and mixed flow lanes are continually monitored. When traffic volumes are consistently increasing and traffic conditions deteriorating, then adjustments are made to pricing to ensure the managed facility would operate at free-flow speed. With limited room for system expansion, managed lanes have become an important strategy to optimize the current freeway system. At this time, SR 91 Express Lanes and HOV lanes are the only managed lane facilities operating in Orange County.

Congestion pricing is a most powerful policy available to local jurisdictions to reduce unnecessary driving and finance improvements to our aging infrastructure. This policy has proven effective in cities around the world, allowing local governments to reduce automobiles in highly congested areas while generating revenue for transportation projects.

State Route 241 (Foothill/Eastern Transportation Corridor)

State Route 241 was the first toll road added to the State Freeway and Expressway System in 1993 and is managed by the Foothill/Eastern Transportation Corridor Agency (TCA). The original 7.5-mile segment extended from Portola Parkway north to Antonio Parkway, while the next two added segments are the northerly extension from Portola Parkway north to



SR 241 toll booths (Courtesy of the TCA)

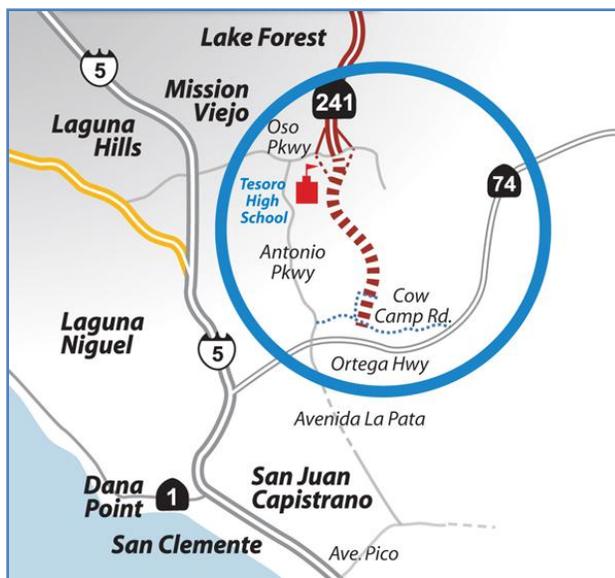
State Route 91 and the southerly extension from Antonio Parkway to Oso Parkway. The final segment to be completed would extend this toll road southerly from Oso Parkway in the City of

Rancho Santa Margarita to its connection with I-5, near the Orange and San Diego County line. The Environmental Impact Report for this project was certified and approved by the Board of Directors of the TCA in February 2006.

However, in 2008, the California Coastal Commission rejected the project on the grounds that it violates the Coastal Zone Management Act. TCA filed an appeal to the ruling under the federal Coastal Management Act. Subsequently, the Department of Commerce upheld the Coastal Commission ruling on December 18, 2008. The Department of Commerce reasoned that at least one viable alternative to the project existed and the toll road “*is not necessarily in the interest of national security.*” Given the forecasted traffic growth of as much as 60% in South Orange County, a sustained effort among the stake holders needs to be continued in searching for a viable solution that strikes a balance between congestion relief and environmental protection. To date, the conceptual alignment of Foothill South extension is still included in SCAG’s regional transportation analysis in regards to the development of the RTP as well as OCTA’s LRTP.

The Foothill Transportation Corridor was transferred to Caltrans for operations and maintenance on the opening date in 1993.

The State Route 241 Tesoro Extension³¹



Although the preferred alignment of the 241 Completion Project failed to be approved in 2008, there is a common agreement among most stakeholders that an agreeable solution for providing an alternative to Interstate 5 through South Orange County to improve mobility and reduce traffic congestion is necessary. In October 2011, after conducting an outreach program, TCA began work on a plan to extend the current 241 Toll Road from where it now ends at Oso

Parkway to Cow Camp Road in the vicinity of Ortega Highway. The Tesoro Extension project

³¹ Source: *The Toll Roads* (https://www.thetollroads.com/whats happening/tesoro_extension.php)

will provide additional northern access for communities located inland of I-5 and commuters traveling to Orange County business centers from the Inland Empire via Ortega Highway. This five-mile long segment, planned for construction, provides an important alternative route to I-5 through the construction of two lanes in each direction with a median wide enough for additional lanes or future transit options.

State Route 73 (San Joaquin Hills Transportation Corridor)

State Route 73 toll road was added to the State Freeway and Expressway System in 1996 and is managed by the San Joaquin Hills Transportation Corridor Agency. The first segment between I-5 and El Toro Road was opened in July 1996 and the next segment between El Toro Road and MacArthur Boulevard was opened in November 1996.

State Route 133 (Eastern Transportation Corridor, formerly SR 231)

The toll segment of State Route 133 between I-5 and SR 241 was added to the State Freeway and Expressway System in October 1998 and is managed by the Foothill/Eastern Transportation Corridor Agency.

State Route 261 (Foothill/Eastern Transportation Corridor)

State Route 261 was the latest segment of the Foothill/Eastern Transportation Corridor added to the State Freeway and Expressway System in February 1999 and is managed by the Foothill/Eastern Transportation Corridor Agency-

All the toll roads were transferred to Caltrans on their opening dates for operations and maintenance; however, TCA will continue to collect tolls until the bonds have matured.

Over the span of 16 years since the opening of the first segment of the Foothill Transportation Corridor the Toll Roads have played a significant role in the effort to reduce congestion on the freeway system. Although the 2007 recession has caused a drop in toll roads ridership (approximately 17 – 19%)³² in the past few years, overall, Orange County Toll Roads experienced a steady increase in usage, based on traffic counts³³ collected at the typical locations as shown on **Exhibits 15, 16 and 17**:

³² Source: *Los Angeles Times/Local*: “Recession slows use of Orange County’s toll roads”, February 1, 2011

³³ Source: Caltrans Traffic Data Branch (<http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm>)

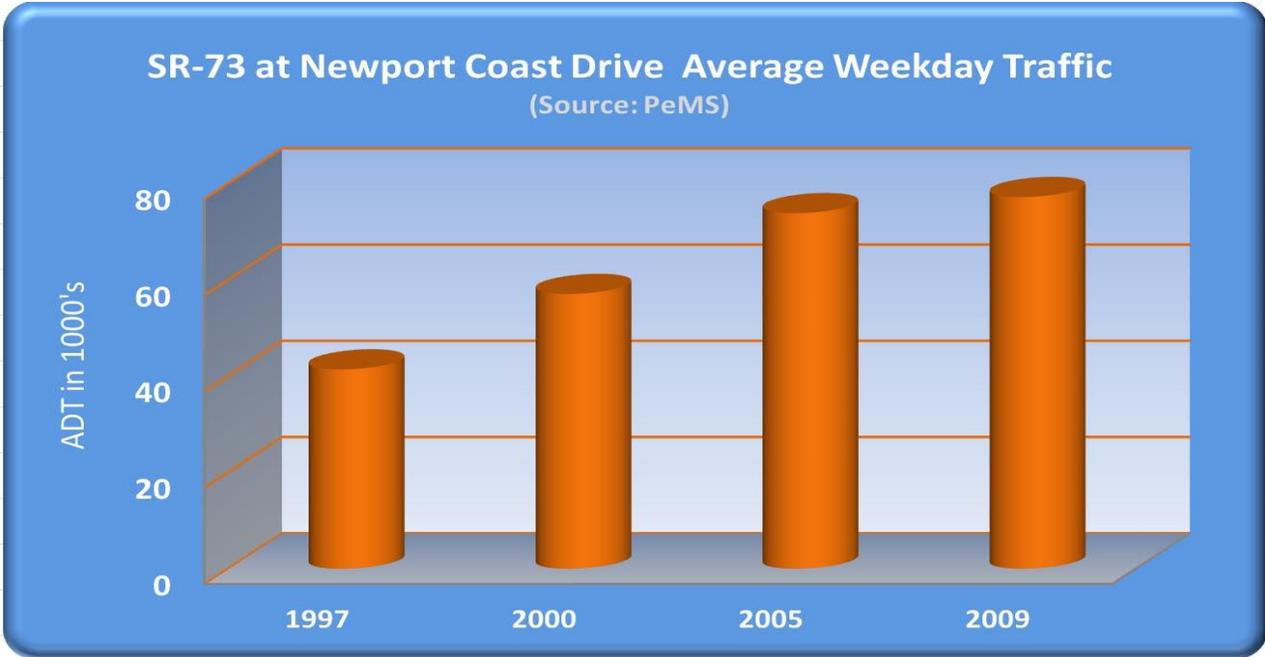


Exhibit 15 - SR-73 at Newport Coast Drive Average Weekday Traffic

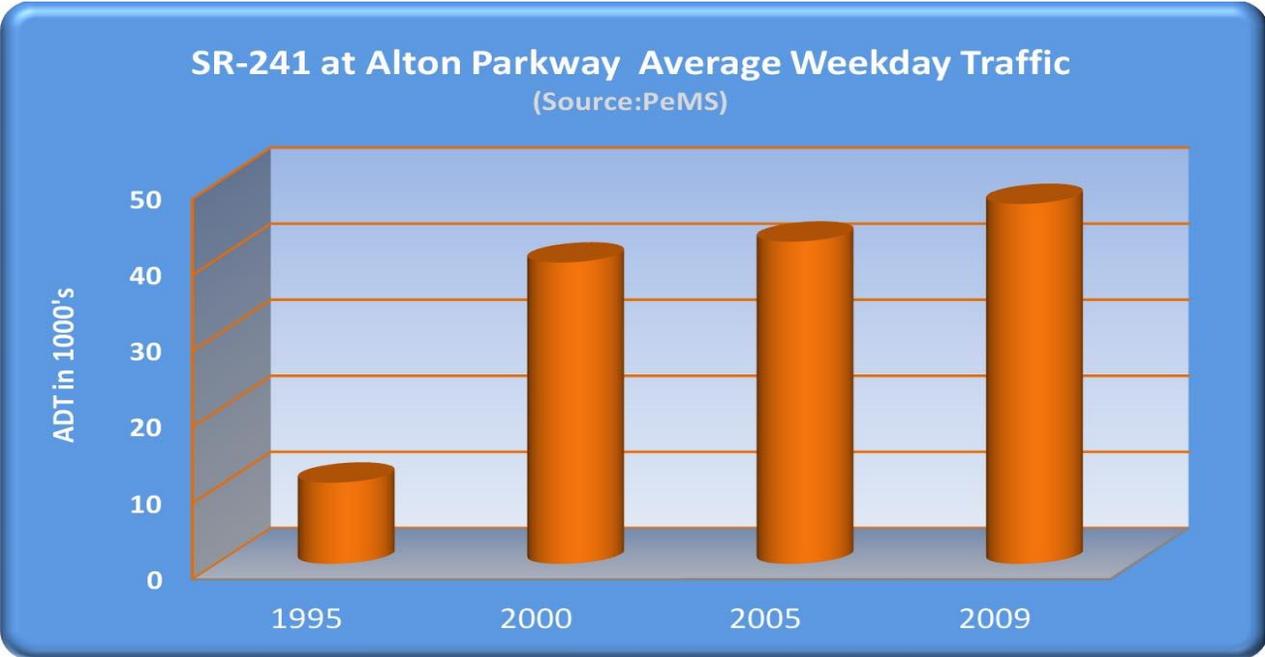


Exhibit 16 - SR-241 at Alton Parkway Average Weekday Traffic

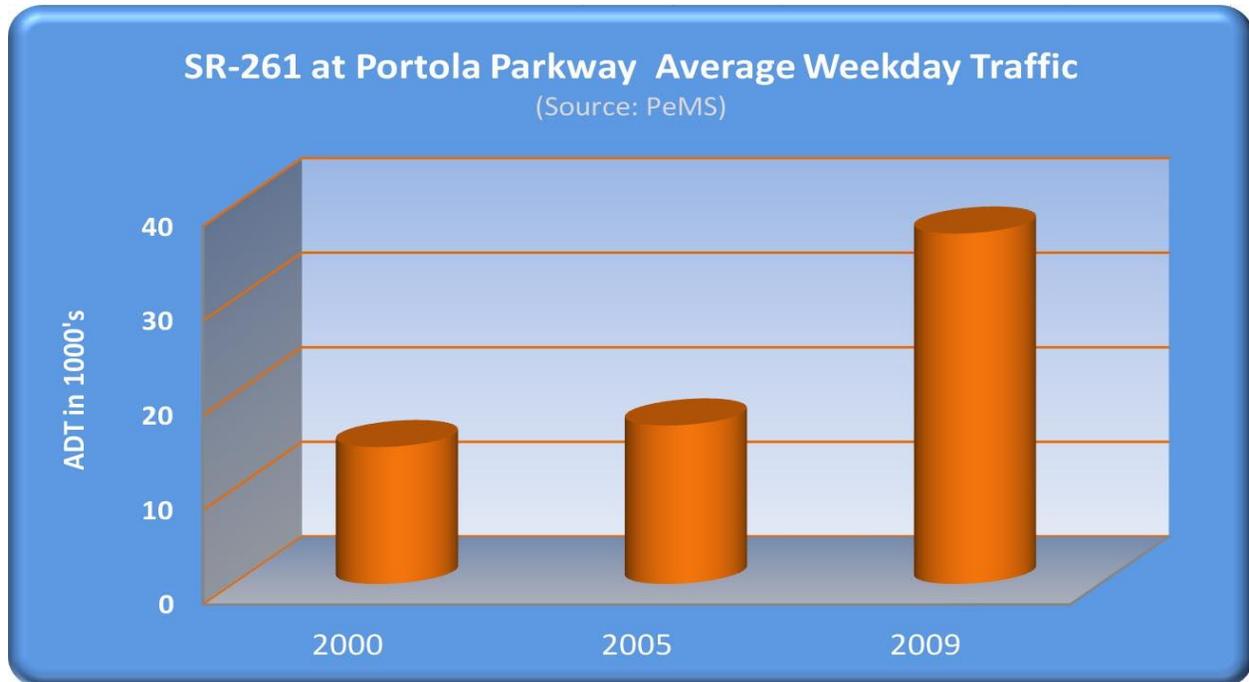


Exhibit 17 - SR-261 at Portola Parkway Average Weekday Traffic

High Occupancy Vehicle Facilities

High Occupancy Vehicle (HOV) lanes are designed to maximize throughput and maintain free flow conditions. They offer users a faster, more reliable commute, while reducing congestion in general purpose lanes. Built in the freeway medians, they are reserved for vehicles of two or more occupants, clean air vehicles and motorcycles. As some HOV lanes become congested, stakeholders should work together to find solutions, such as adding a second lane or increasing the occupancy requirement. **Exhibit 18** shows District 12's inventory of the current carpool lanes for five-year increments. Orange County's first HOV lane opened to traffic on SR 55 in 1985 and by the year 2007, there were HOV lanes on all Orange County freeways. The highest peak hour volume on Orange County's HOV lane network occurs on SR 55 at Warner Avenue with 1,800 vehicles during afternoon commute. In May 2007, the County's first Continuous Access HOV lanes opened to traffic on SR 22, which allows carpoolers to enter or exit at any point along the facility. In June 2009, Caltrans and OCTA completed the State Route 22 Continuous Access HOV Survey. This survey concluded that the SR 22 continuous access lanes have been successful, and many commuters want to see continuous access lanes on other Orange County freeways.

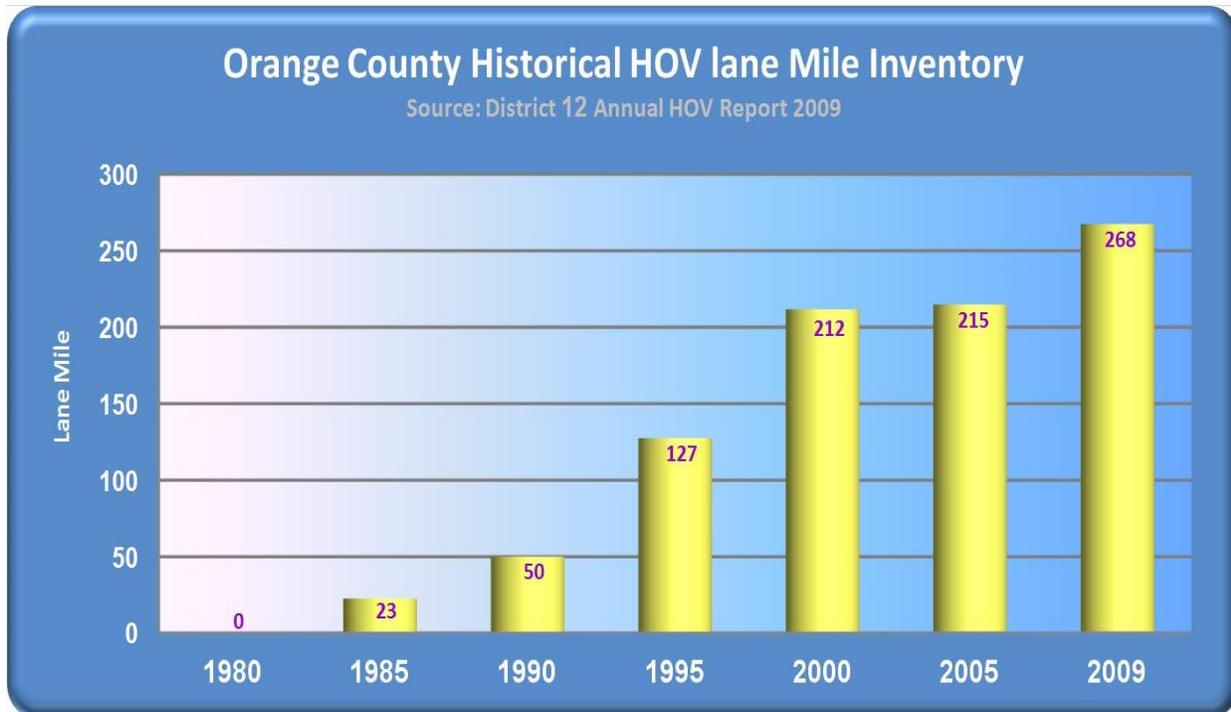


Exhibit 18 - Orange County Historical HOV Lane Mile Inventory

According to the data collected by District 12 Division of Traffic Operation, on average, there are approximately 1,500 vehicles using HOV lanes during the peak hours with an average occupancy rate of 2.2 persons per vehicle. The occupancy factor for the general purpose lane during the peak hour stands at 1.1 persons per vehicle per hour. Thus, two HOV lanes would transport as many people as three general purpose lanes. Although HOV lanes account for 17% of lane miles on the freeway system, on the average these lanes transport 24% of commuters during the peak periods. **Exhibit 19** displays Orange County's HOV-General purpose lane distribution and utilization during the peak hours.

There are seven direct HOV connectors and five HOV drop ramps in the freeway system. Construction on the direct HOV connector at I-405/I-605/SR 22 interchange started in late 2010 and is scheduled to be completed by the year 2014. This improvement will provide much needed relief at this interchange that currently serves over 400,000 vehicles daily.

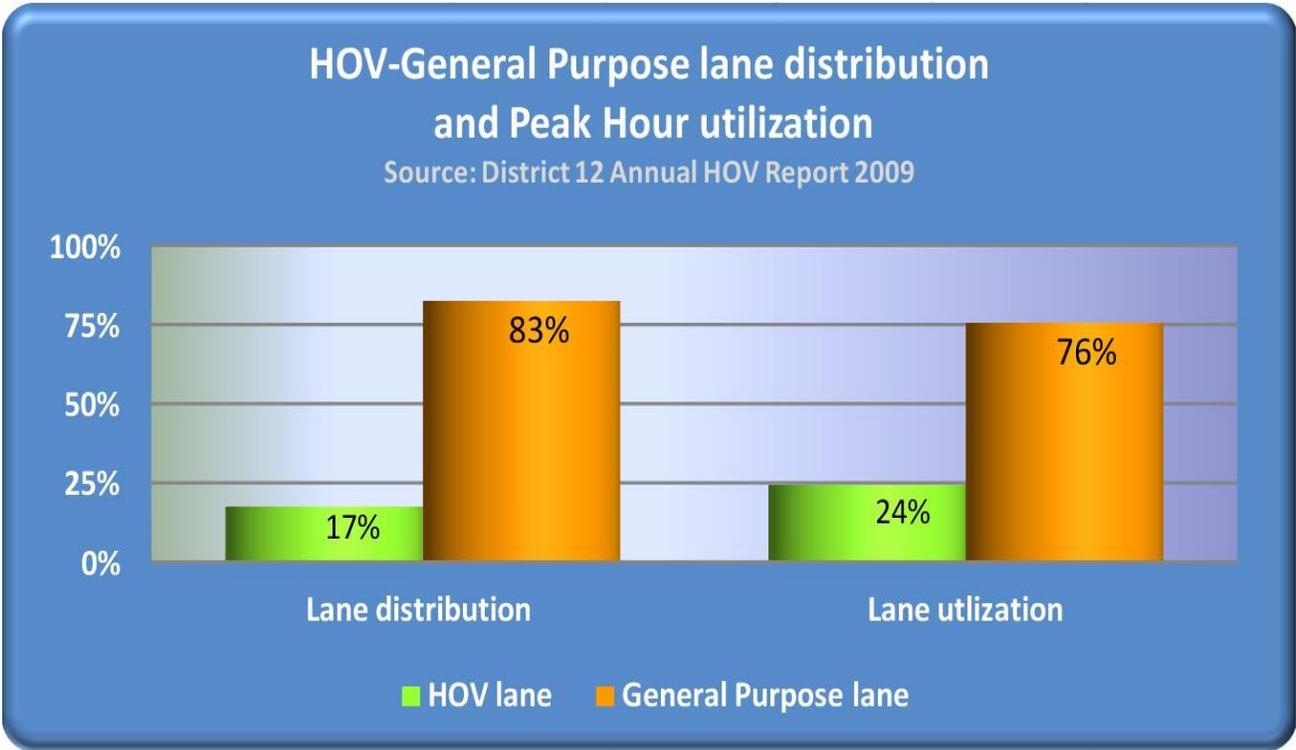


Exhibit 19 - HOV-General Purpose Lane Distribution and Peak Hour Utilization

Exhibits 20 and 21 display both existing and planned HOV/Managed Lane facilities in the county which includes locations of the HOV direct connectors and drop ramps.

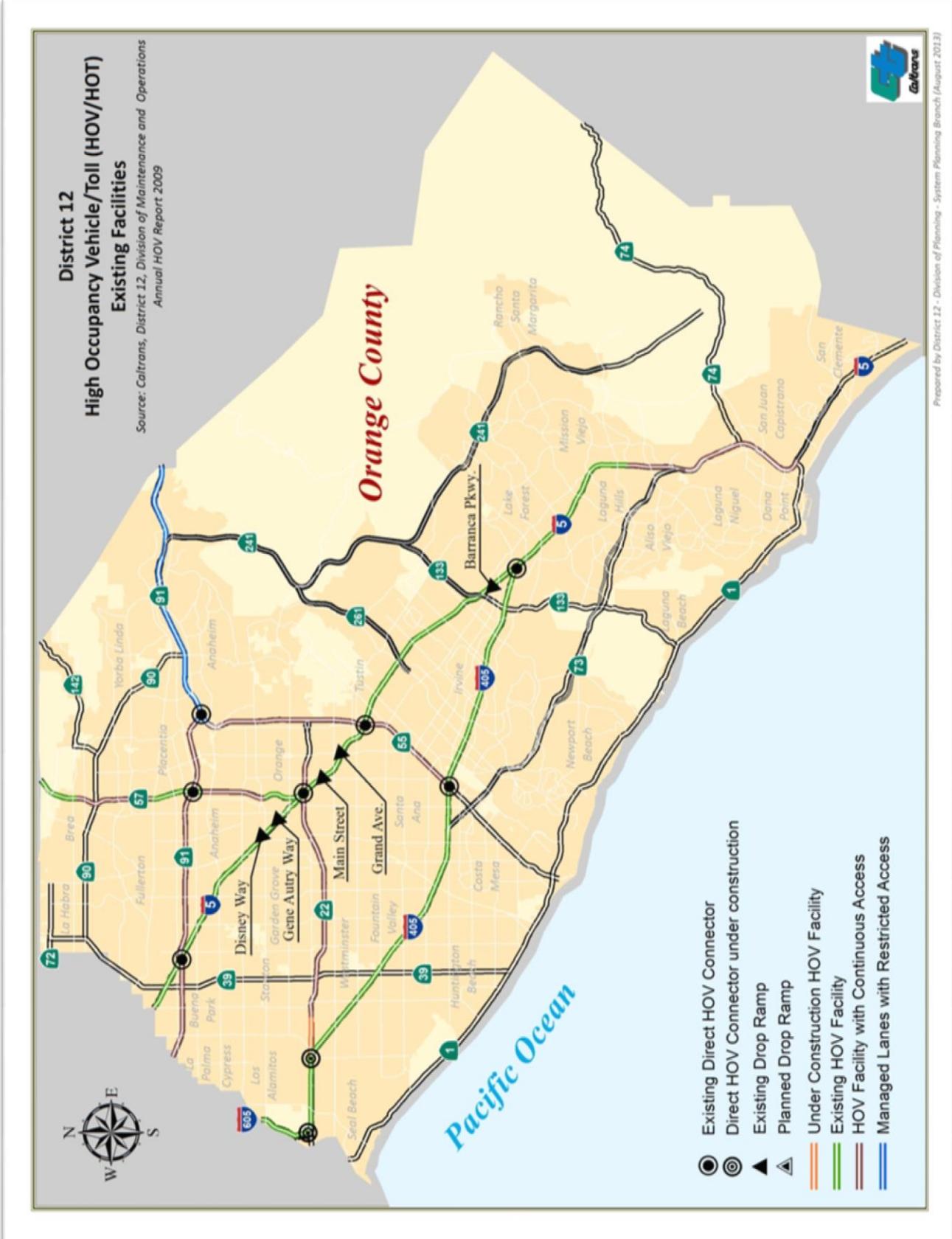


Exhibit 20 - District 12 High Occupancy Vehicle/Toll (Existing Facilities)

Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

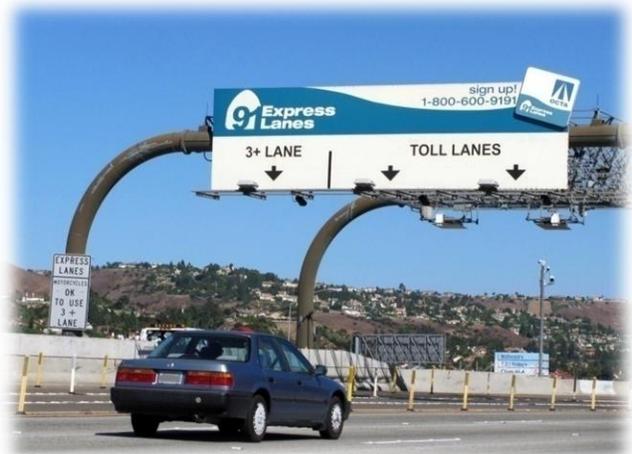
SR 91 Express Lanes

This fully automated, 10-mile long, four-lane toll facility, built in the median of SR 91 from SR 55 to the Orange County/Riverside County line, was opened to traffic on December 27, 1995³⁴. It is America's first toll road to employ variable congestion pricing. This project was originally developed and constructed in partnership with Caltrans by California Private Transportation Company (CPTC) as a result of Assembly Bill 680 in 1989. This legislation authorized Caltrans to enter into agreements with private entities for development, construction, and operation of transportation projects at private sector expense without the use of state funds. The 91 Express Lanes were intended for connecting fast-growing residential areas in Riverside and San Bernardino counties with employment centers in Orange and Los Angeles counties.



Afternoon traffic on Eastbound SR 91 at Lakeview Avenue

In April 2002, OCTA reached an agreement to purchase the private toll road project for \$207.5 million. In September 2002, AB 1010, Chapter 688 (2002) allowed OCTA to purchase the Toll Lanes from CPTC. The acquisition of the 91 Express Lanes cleared the way for future roadway improvements along this corridor which originally were prohibited by a non-competive provision in the agreement. This



Eastbound SR 91 Express Lanes

provision would not allow any improvements within a 1.5-mile zone along each side of the freeway. OCTA took possession of the Toll Lanes on January 3, 2003.

³⁴ Source: Caltrans – Office of Innovative Finance / State Route 91 (91 Express Lanes) (<http://www.dot.ca.gov/hq/paffairs/about/toll/rt91.htm>)

SR 91 Express lanes are located in the heart of the corridor connecting Inland Empire to Los Angeles and Orange County. An average of 40,000 vehicles utilizes the SR 91 Express weekdays to reduce typical longer commute time in this corridor. Average hourly traffic for the Express lane is shown in **Exhibit 22**.

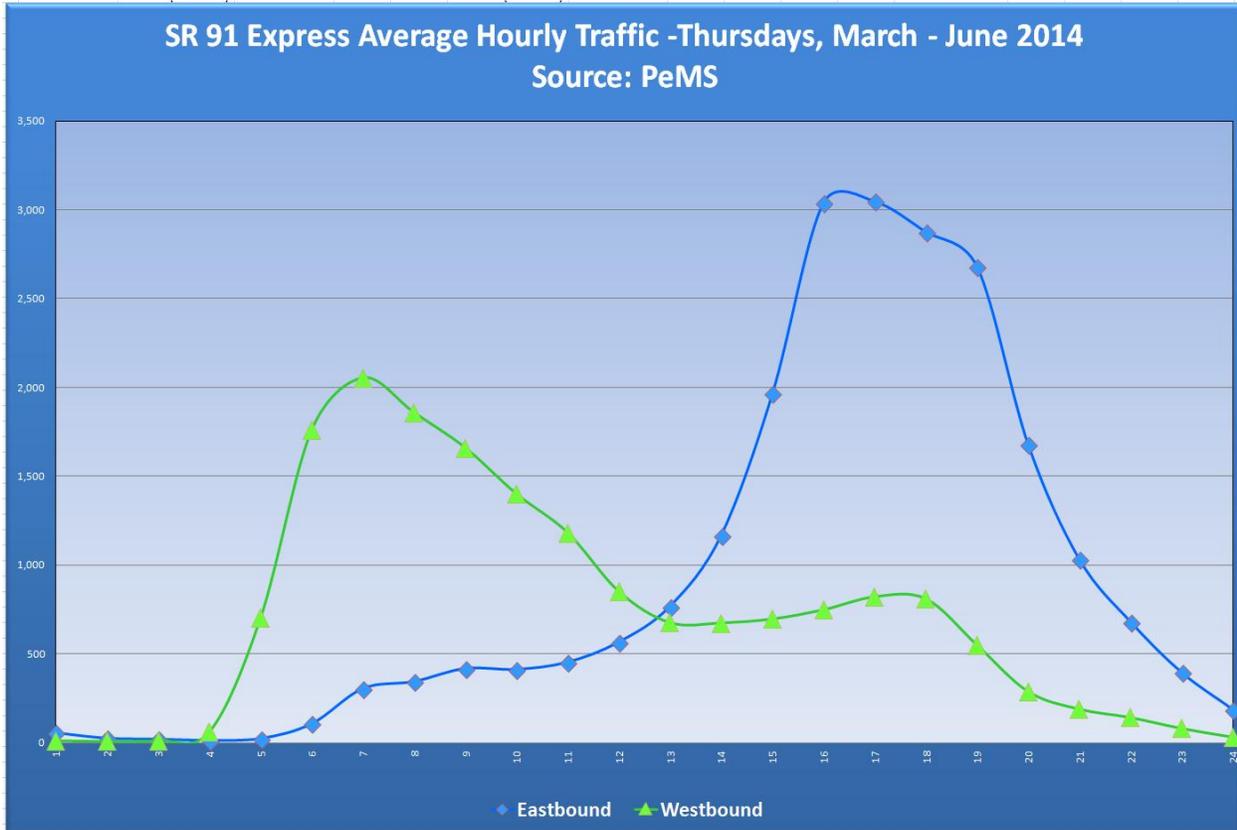


Exhibit 22 - SR 91 Express Average Hourly Traffic

Between Inland Empire Counties and Los Angeles and Orange County, there is a large disparity in median home prices. According to the Bureau of Census’s year 2012 statistics, Los Angeles and Orange County median home prices are higher in excess of \$200,000 than Inland Empire region. The Inland Empire median home price is \$218,000 while Los Angeles and Orange County prices are \$414,000 and \$509,000 respectively. Furthermore, there are insufficient employment opportunities in Riverside and San Bernardino County to sustain the resident population. SCAG data shows there is one employment prospect for every 2.81 persons in Inland Empire versus 2.27 for Los Angeles and Orange County. (**Exhibit 23**)



Exhibit 23 - Ratio of Population to Available Jobs - Year 2008

These collective factors force a large number of Inland Empire residents to make long commutes to Los Angeles and Orange County. State Route 91, is the single major freeway linking Inland Empire to South Los Angeles and Orange County and experiences congestion westbound in the morning and eastbound in the afternoon. SR 91 Express Lanes has been a successful venture due to highly congested freeway during the peak hours, lack of alternative routes, high housing prices in Los Angeles and Orange County, and an insufficient job market in the Inland Empire.

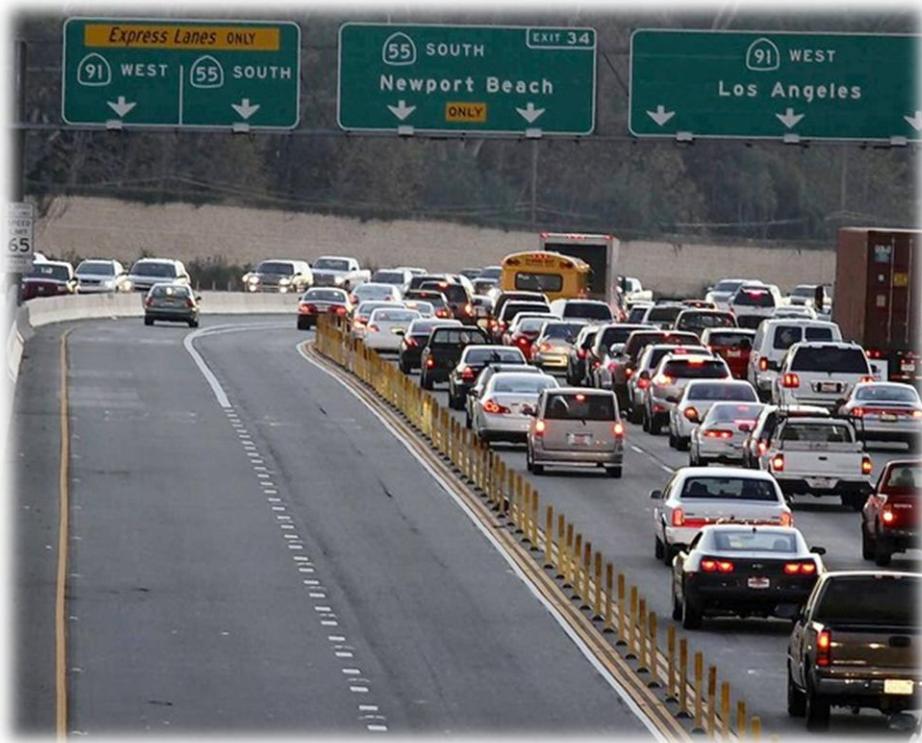
3.1e Maintenance of operating performance of the managed lane facilities

With the passage of Moving Ahead for Progress in the 21st Century Act (MAP-21) in July 2012, the maintenance and operation (i.e. minimum average speed) of managed lane facilities is now subject to new requirements. State agencies have 180 days after the date that the

operating performance has been degraded to bring the facility back into compliance according to the standard³⁵ specified by MAP-21. Adjustments to the facility operation include:

- Increasing the occupancy requirement for HOV lanes
- Discontinuing the usage of HOV facility by non-HOV vehicles (i.e. single occupant hybrid vehicles)
- Increasing the available capacity of the HOV facility
- Varying the toll to reduce demand on HOT facility

Not only that the performance of the managed lane facilities on the State Highway System is required to comply with the new law, it is also Caltrans' policy that the performance of these facilities should not be degraded.



SR 91 Express Lanes – Photo by Glenn Koenig,

Los Angeles Times/December 2010

³⁵ Source: Section 166 of title 23, United States Code (<http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscprelimview+uscprelim+32322+0++%28HOV%29%20%20AND%20%28USC%20w%2F10%20%28166%29%29%3ACITE>)

3.2 Multi-Modal Transportation System

3.2a Mass Transportation System

The OCTA was established in 1991 as a result of the consolidation of seven transportation agencies, so that the entire county could be served by a single agency. OCTA is a multi-modal transportation agency, which entails countywide bus and paratransit services, Metrolink commuter-rail service, the 91 Express Lanes toll facility, local arterial and road improvement projects, and motorist aid services. Today, Orange County's mass transportation includes:



- The OCTA bus network has 77 bus routes and nearly 6,200 bus stops³⁶
- There are 22 Park and Ride facilities³⁷
- Metrolink has 11 stations in Orange County operating on three separate lines: Orange County Line, Inland Empire-Orange County (IEOC) Line and 91 Line. They carry approximately 14,800 people daily between Orange County and the surrounding counties.³⁸ Refer to **Exhibit 25** for the current Metrolink routes serving Southern California
- Amtrak provides regional rail service to Los Angeles and San Diego³⁹

Exhibit 24 displays the County's average transit daily ridership dating back to 1973. Between years 2007 and 2011 there were nearly 55,000 fewer daily transit boardings due to the recent economic downturn..

All three combined Metrolink lines serving Orange County experienced an increase of 7.1% ridership for FY2011-12, compared to the previous year. Part of this increase is due to Metrolink operating six additional seasonal weekend trains the first quarter⁴⁰.

³⁶ Source: Orange County Transportation Authority (OCTA.net)

³⁷ Source: Caltrans, District 12 Regional Planning, Park & Ride Program

³⁸ Source: Metrolink Fact Sheet (Metrolinktrains.com)

³⁹ Source: Orange County Transportation Authority (OCTA.net)

⁴⁰ Source: Metrolink Fact Sheet (Metrolinktrains.com)

California’s voters in 2008 passed Proposition 1A to provide high speed rail service between northern and southern California. The estimated \$43 billion system would take travelers from Anaheim to San Francisco in less than three hours.⁴¹

The 351-mile Los Angeles-San Diego-San Luis Obispo (LOSSAN) rail corridor stretches from San Luis Obispo to San Diego, connecting major metropolitan areas of the southern and central California coast. The LOSSAN rail corridor is the second busiest intercity rail corridor in the nation supporting commuter, intercity, and freight rail services.⁴² SB 1225, passed on September 29, 2012, creates an intercity rail agency along this corridor.

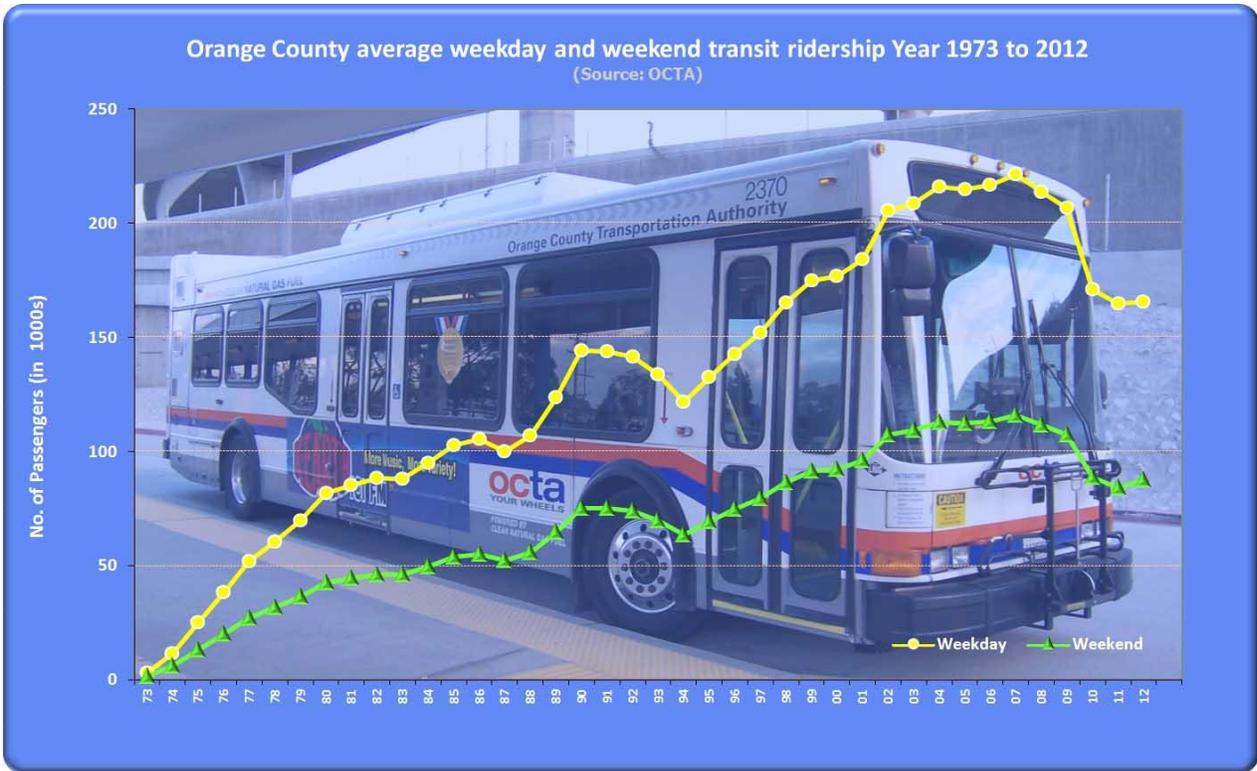


Exhibit 24 - Orange County Average Weekday and Weekend Transit Ridership (1973-2012)

⁴¹ Source: Orange County Register, December 2, 2010

⁴² Source: Keep San Diego Moving – TransNet (<http://www.keepsandiegomoving.com/lossan/lossan-intro.aspx>)

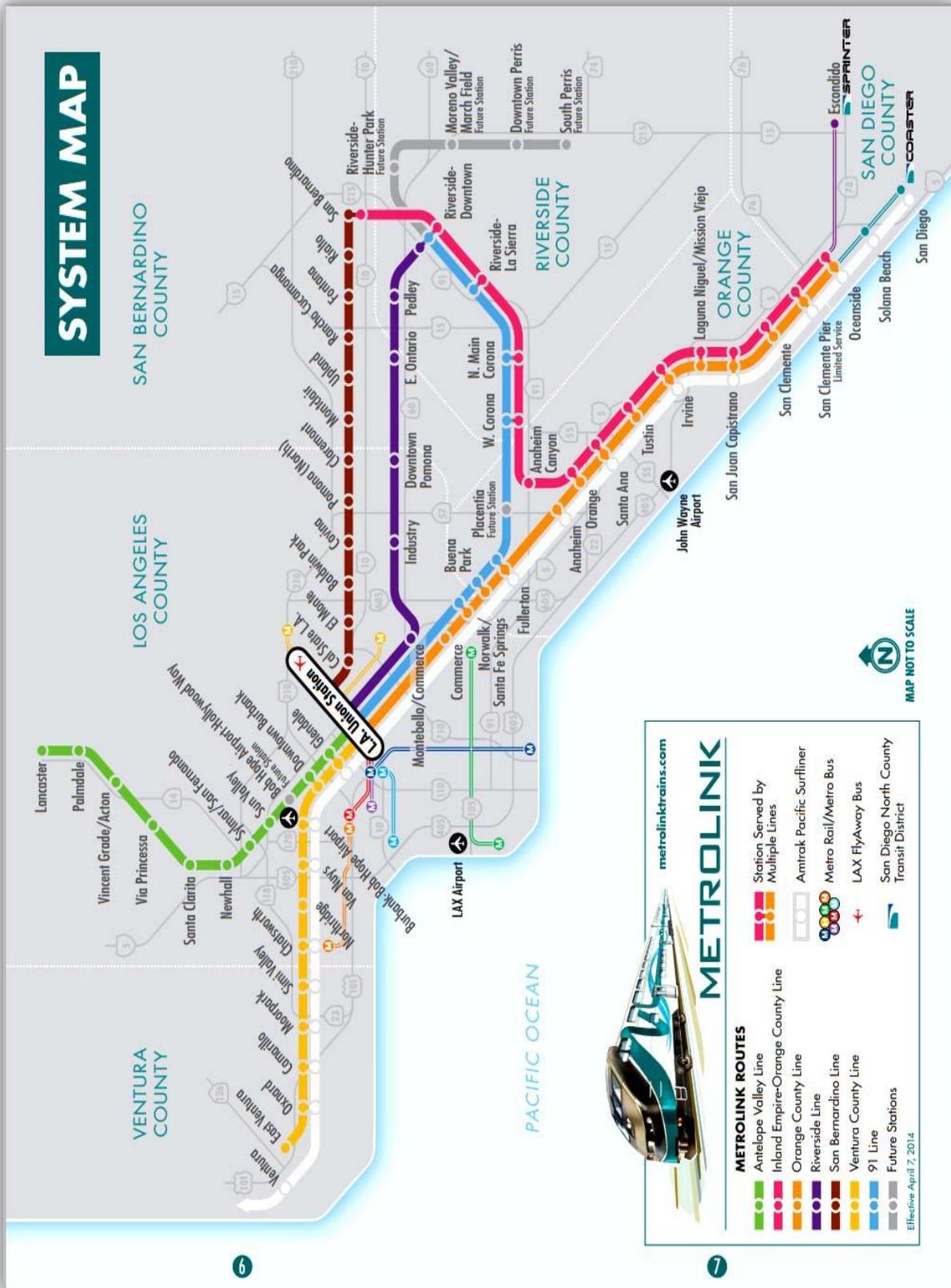


Exhibit 25 - Metrolink System Map

Provide a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability.

John Wayne Airport is the only commercial airport in Orange County and served nearly 9 million passengers in 2012. The City of Newport Beach and John Wayne Airport imposes limits of operation⁴³ with a cap of 10.8 million until 2015. These limits include hours of operations, noise abatement, and passenger limits. The airport is serviced by eleven commercial airlines including international flights since May 2011.



Interstate 405 by John Wayne Airport

The airport is in the top twelve of California cargo airports handling 16,000 tons of cargo annually. Yet, John Wayne Airport has little desire to nurture air cargo growth due to noise abatement programs and other limitations that constrain the ability for increased volume of cargo.⁴⁴

Due to the increase in passenger services and cargo traffic, there was demand for improved accessibility to the airport. Caltrans responded to this need by building a direct freeway access to and from SR 55. This direct access facility eliminates weaving movements of traffic between SR 55 and I-405 at the airport junction.

Mass Transportation Economics

According to an estimate by the Federal Transit Administration (FTA), the total capital investment backlog for the nation's transit system is approximately \$27.3 billion over six years⁴⁵. The FTA estimates that 30% of all transit assets are in poor or marginal condition. To bring the system into a state of good repair will cost a total of \$163.8 billion⁴⁶. One solution is to replace all existing mass transportation program funding sources with one broad-based, reliable, dedicated tax that grows with inflation. Basic levels can be funded through increased driver's license fees and liquor and gambling taxes. States, counties, and cities that invest more in Transit

⁴³ Source: John Wayne Airport (http://www.ocair.com/Improvements/About/settlement_agreement.htm)

⁴⁴ Source: Air Cargo Mode Choice and Demand Study, July 2, 2010 (<http://dot.ca.gov>)

⁴⁵ Source: Economic Policy Institute (www.epi.org)

⁴⁶ Source: Economic Policy Institute (www.epi.org)

Oriented Development (TOD) will be in a better position to capitalize on mass transportation opportunities and minimize sprawl. Mass transit authorities can and must generate new revenue streams over the long term to support operations and its network.

Integrating mass transit hubs or stations with TOD improves both a system's accessibility and the prosperity of private-sector developments. For joint development/TOD projects to be successful, mass transit officials must prove to the private sector that they are credible, reliable, and responsive to participants. Factors such as high gas prices and increasing demand for public transportation alternatives will likely encourage others to explore funding options in order to attract more investment. States, counties, and cities that invest more are going to be ahead of other localities that cannot offer the same amenities.

The majority of mass transportation systems are not self-supporting, so advertising revenue and government subsidies are usually required to cover costs. There are several practical reasons for government subsidies of public transit: it encourages ridership and subsequently lowers traffic congestion it also lowers pollution from single occupant vehicles, and reduces infrastructure costs needed to build and maintain more streets, highways, and freeways associated with increased traffic demand. These factors together contribute to a better quality of life.



Metrolink train at Fullerton Transportation Center

Usage of mass transportation is still growing slowly in Orange County due to the auto-centric land use patterns and limited service levels that do not meet existing demand. With the shortage of freeway improvement funding and a nearly built-out system, there is an urgent need to increase mass transportation ridership. Attracting the general public to mass transportation requires five major factors:

- **Safety and Connectivity:** A modernized, safe transit system with well connected rail and bus services

- Frequency: Transit headway must meet the demand of daily commuters, and be reliable for daily use
- Affordability: Transit fare must be reasonable, especially when fuel prices continue to rise
- Accessibility: Land use planning has to coordinate with transit planning by providing convenient access for transit users
- Transit on Freeways: Transit routing should take advantage of the available freeway network, such as HOV facilities. Also, freeway planning and design must support transit operations in providing non-stop service on the freeways

The freeway system improvements overall have been a tremendous success during the past two decades; however, major funding investments in the highway and mass transportation systems need to be balanced.



Commuters boarding Metrolink train at Irvine Transportation Center
(Photo: Courtesy of OCTA)

3.2b Non-Motorized Travel

Non-motorized travel modes include walking, bicycling, skateboarding and wheel chairing. Commuters and recreational users utilize these modes to access goods and services. Bicycles are used for single commutes or can complement bus and rail services. According to 2006-2008 American Community Survey (ACS) data, over 40,000 county residents walk or bike for their daily commute. The National Household Travel Survey (NHTS) indicates the region's residents biked or walked for 21% of all trips in 2009⁴⁷.

Orange County has an extensive network of bikeways that covers about 800 miles of roadways with another 700 miles planned. There are three classes of bikeways⁴⁸:

Class I - 251 miles of off-street paved bike paths that are set on separate right-of-way and can be utilized by bicyclists and pedestrians. Additional 207 miles are proposed to be added.

Class II - 692 miles of on-street striped and signed bicycle lanes on right of way used by motorists and cyclists. Additional 403 miles are proposed to be added.

Class III - 83 miles of on-street, shared-lane, signed bicycle routes, accommodating bicycles and autos in the same travel lane. Additional 72 miles are proposed to be added.

Caltrans views all transportation projects, regardless of the mode, as opportunities to improve safety, access, and mobility for all travelers in California. It recognizes bicycling and walking as integral elements of the transportation system. Providing safe mobility for all users, including motorists, bicyclists, pedestrians, and transit riders, contributes to the vision of "Providing a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability". Caltrans actively engages in implementing the Complete Streets policy in all planning, programming, design, construction, operations, and maintenance activities on the State Highway System. Economically, the Complete Streets policy can help revitalize communities, and provide commuters the option to lower transportation costs by using transit, walking or bicycling rather than driving. Successful long-term implementation of this policy is intended to result in:

- More transportation mode options for people

⁴⁷ Source: SCAG (<http://rtpscs.scag.ca.gov/Pages/2012-2035-RTP-SCS.aspx>)

⁴⁸ Source: OCTA (<http://www.octa.net/bikeways.aspx>)

- Less traffic congestion and greenhouse gas emissions
- More walk-able communities
- Fewer physical barriers for older adults, children, and people with disabilities

In accordance with Title II of the Americans with Disabilities Act (ADA) of 1990, Caltrans created the ADA Infrastructure Program under its Maintenance and Operations functions. The objective of the ADA Infrastructure Program is to provide a State Highway System that is equally accessible to persons with disabilities. Caltrans does not discriminate on the basis of disability and believes in providing equal access to all of its infrastructure,



Bicycle lane along Pacific Coast Highway in Newport Beach

programs, services, and activities. Caltrans is committed to working with its partners to identify and address access barriers to its infrastructure. Integrated multimodal projects are developed in balance with community goals, plans, and values, by addressing the safety and mobility of all travel modes.⁴⁹

⁴⁹ Source: Caltrans Deputy Directive DD-64-R1

3.3 Freight Movement

The freight movement system in the SCAG region is a complex series of interconnected infrastructure components which provides the backbone for the movement of goods between businesses and consumers. This system is comprised of the following major elements⁵⁰:

- **Seaports:** The Ports of Los Angeles and Long Beach represent the largest container port complex in the U.S., and the eighth largest in the world. In 2012 the ports handled 14.8 million twenty-foot equivalent units (TEUs) of containerized cargo and are anticipated to grow to 43 million by 2035. **Exhibit 26** displays the annual containerized cargo and the future forecasts.

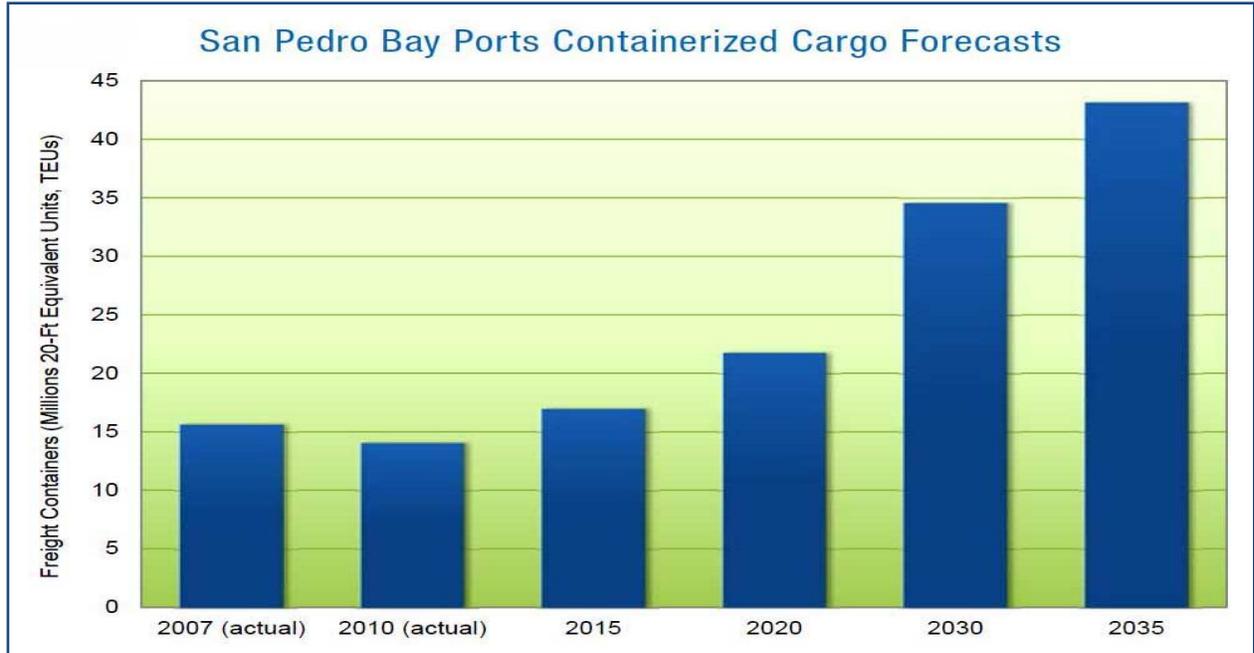


Exhibit 26 - San Pedro Bay Ports Containerized Cargo Forecasts

Air Cargo Facilities: The SCAG region is home to numerous air cargo facilities, including Los Angeles and Ontario International Airports, which combined for over 96% of the region's air cargo in 2010

- **Interstates, Highways, and Local Roads:** Segments of I-710, I-605, SR 60, and SR 91 carry the highest volumes of truck traffic in the region. I-5 in addition to SR 91 serves significant numbers of trucks in Orange County

⁵⁰ Source: SCAG (http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GoodsMovement.pdf)

- **Railroads:** Two Class I railroads, the Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) Rail lines, carry international and domestic cargo to and from distant parts of the country. BNSF Railway tracks run parallel to the SR 91 corridor in Orange County and connect to inland empire counties before heading toward eastern states
- **Warehousing and Distribution Centers:** As of 2008, the region had about 837 million square feet of warehousing space. Another 185 million square feet could be developed on vacant land that is zoned for warehousing

With such a range of infrastructure and with projected growth, there will be numerous challenges for freight movement planning, including:

- Air pollution and community impacts
- Roadway congestion and pavement deterioration
- Cargo-carrying rail shared with passenger rail
- Funding for infrastructure
- Technical and political consensus
- Competition from other shipping routes:
 - Panama Canal and East Coast
 - Mexican and Canadian ports

In May 2004, SCAG, San Diego County, and Caltrans began the development of a plan to deal with regional goods movement challenges. This plan, known as the Multi-County Goods Movement Action Plan (MCGMAP)⁵¹, identified freight movement constraints and included strategies that would lessen community and environmental impacts.

The MCGMAP study addressed the following issues:

- Reflect regional consensus



⁵¹ Source: MTA (<http://www.metro.net/images/Final%20TM3%20100606.pdf>)

- Be technically defensible
- Address a significant part of the regional air quality challenges and other environmental objectives, such as SB 375
- Relieve existing and anticipated congestion
- Support the regional economy

Using the MCGMAP as a foundation, SCAG completed additional analyses and identified strategies to relieve congestion, reduce delay and harmful emissions, and improve safety on major truck corridors. These policies are reflected in the 2008 RTP and carried forward to the 2012–2035 RTP/SCS.

With increased trade, Orange County will experience a projected growth in freight volume on the State Highway System. This will not only impact the transportation system, but also adversely impact air quality and the well-being of adjacent communities. Orange County has also become a vital component on the National Truck Network between Los Angeles and the Inland Empire and beyond. According to the 2012-2035 RTP/SCS, 17% of the regional truck trips use Orange County roadways.⁵²



Exhibit 27 - Orange County Year 2009 Selected Freeway Peak Hour Truck Usage

⁵² Source: SCAG (http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GoodsMovement.pdf)

Exhibit 27 displays truck traffic percentage during peak hour on selected freeway locations on the Orange County system including impacts to I-5, SR 57, and SR 91. According to SCAG 2012-2035 RTP/SCS, projected truck volumes on the freeway system will more than double by the year 2035⁵³.

The growth of eastbound rail freight along the Orangethorpe Corridor parallel to SR 91 hinders north-south local traffic. The Corridor consists of railroad crossings along the BNSF tracks in Anaheim, Fullerton, Placentia, and Yorba Linda. To improve freight and traffic mobility along this corridor, a list of projects was proposed and CTC adopted eight projects:

- Connect the auxiliary lanes through the interchange on westbound SR 91 between SR 57 and I-5
- Raymond Avenue Grade Separation (under construction)
- State College Boulevard Grade Separation (under construction)
- Placentia Avenue undercrossing (completed)
- N. Kraemer Boulevard Grade Separation (completed)
- Orangethorpe Avenue Grade Separation (under construction)
- Tustin Avenue/Rose Drive overcrossing
- Lakeview Avenue overcrossing



Heavy truck traffic from the ports of Los Angeles and Long Beach moving through the County takes great toll on the transportation system.

The next step is the construction phase. At a cost of \$428 million⁵⁴, these projects will have a multitude of economic enhancements and the highway system will be more efficient, less congested and will decrease associated emissions by reducing vehicle idling times. Due to the close proximity of the rail lines on SR 91, the grade separations are vital to keeping the highway system in free-flow condition. **Exhibit 4** shows a map of grade separation projects.

⁵³ Source: SCAG (http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GoodsMovement.pdf)

⁵⁴ Source: OCTA (<http://www.octa.net/pdf/Prop%201B%20TCIF%20Project%20Submissions.pdf>)

The grade separation improvements are located within the Alameda Corridor-East (ACE) Trade Corridor (see map on page 70)⁵⁵, locally referred to as the Orange County Gateway, where rail container traffic out of the Ports of Los Angeles and Long Beach travel through the county.

During the recession from 2007 to 2009, investment in infrastructure reduced from both public and private entities. Proposition 1B established the Trade Corridor Improvement Fund of \$2 billion which designates projects for investment in freight movement throughout the state. Los Angeles/Long Beach ports handle approximately 85% of the containerized cargo processed at California ports while Southern California's road and rail network carries approximately 75%⁵⁶ of all cargo exported from the state. There is some controversy about whether Southern California should be allocated its fair share of funding for these projects, instead funds distributed on a "reasonable geographical balance". The current formula for distribution is 60% to Southern California and 40% to Northern California. Due to the impact of the system on Southern California, the goods movement resources should allocate a larger portion of the bond money that is proportional to the volume of cargo traffic. California must be in a better position when economic growth continues.

⁵⁵ Source: Alameda Corridor-East Construction Authority (<http://www.theaceproject.org/index.htm>)

⁵⁶ Source: Los Angeles Times, November 7, 2007

3.4 Urban Traffic Management System

3.4a Intelligent Transportation System (ITS)

ITS describes any electronics, communications and Information Technology (IT) methodologies when applied to the operation of a transportation network that will enhance its efficiency and safety. ITS employs IT-based equipment to detect vehicles and traffic on the State Highway System. The

collected data are integrated into the central computer system at the Caltrans Traffic Management Center (TMC), processed, and information is relayed to travelers. Examples of ITS applications include the



“Amber Alerts” system and Changeable Message Signs (CMS) along the freeways to inform commuters of travel times and traffic incidents in the system, allowing motorists to make an informed decision to choose alternate routes. ITS can also be used as coordinated management strategies among agencies sharing the responsibility of managing traffic and responding to incidents along roadways. A whole array of ITS components are currently implemented on Orange County’s State Highway System such as traffic signals, Closed-Circuit Television (CCTV), CMS, ramp meters, weigh-in-motion devices, freeway service patrols, and the transportation management center. The District continues to look for opportunities to implement ITS elements to enhance the safety and efficiency of the system. An example of this is to apply ITS technology during construction and post-construction to assist in communicating roadway information to travelers.

In order to be an effective tool, ITS requires concerted coordination among stakeholders. Caltrans has long been engaged in developing a consensus-based Statewide ITS Architecture and System Plan for California. The Statewide ITS Architecture⁵⁷ and System Plan were developed based on regional ITS plans and architectures from the entire state. In Southern California,

⁵⁷ Source: Caltrans – Office of ITS Projects and Standards (<http://www.dot.ca.gov/hq/traffops/itsproj/>)

SCAG has developed a Regional ITS Architecture⁵⁸. The Statewide ITS plan does not replace regional ITS plans, it merely recognizes the need to address interregional coordination and state-level ITS needs. The deployment of all ITS elements needs to take regional, state and national ITS architecture standards consideration. All ITS elements need to have open interfaces, through which integration can be done with the central computer system. Furthermore, the Statewide ITS Architecture and System Plan fulfills a federal mandate and keeps California eligible for continued Highway Trust Funds for technology-based projects. District 12 operational and maintenance staff work closely with local partners to coordinate ITS activities; as well as, identify new needs and projects.

As discussed in the previous section, the regional transportation model forecast shows that future demand exceeds capacity on the State Highway System. More focus and investment in ITS technology would be necessary to provide additional solutions for relieving congestion, improving safety, and enhancing the performance of the State Highway System.

Recently, the Gateway Cities Council of Governments (GCCOG)⁵⁹, in partnership with Caltrans and through its collaboration with private sector representatives from the goods movement sector, developed an ITS Integration Plan for Goods Movement. This plan aims to identify ITS projects that help coordinate movement of goods through the port of Long Beach and the surrounding areas, lessen the adverse impact of goods movement within the region, and improve the private sector's business decision through the flow of information from the ITS system.

The District 12 TMC serves as the nerve center of the state freeways and highways in the county. Wireless technologies and self powered ITS elements are used to transmit traffic data to the TMC and display on the central computer system. Based on processed data, informed decisions can be made, such as activating the CMS and highway advisory radio, dispatching traffic management teams or notifying local agencies and media outlets.

⁵⁸ Source: SCAG- Intelligent Transportation System (<http://www.scag.ca.gov/its/>)

⁵⁹ Source: Gateway Cities Council of Governments (<http://gatewaycog.org/technology.html>)



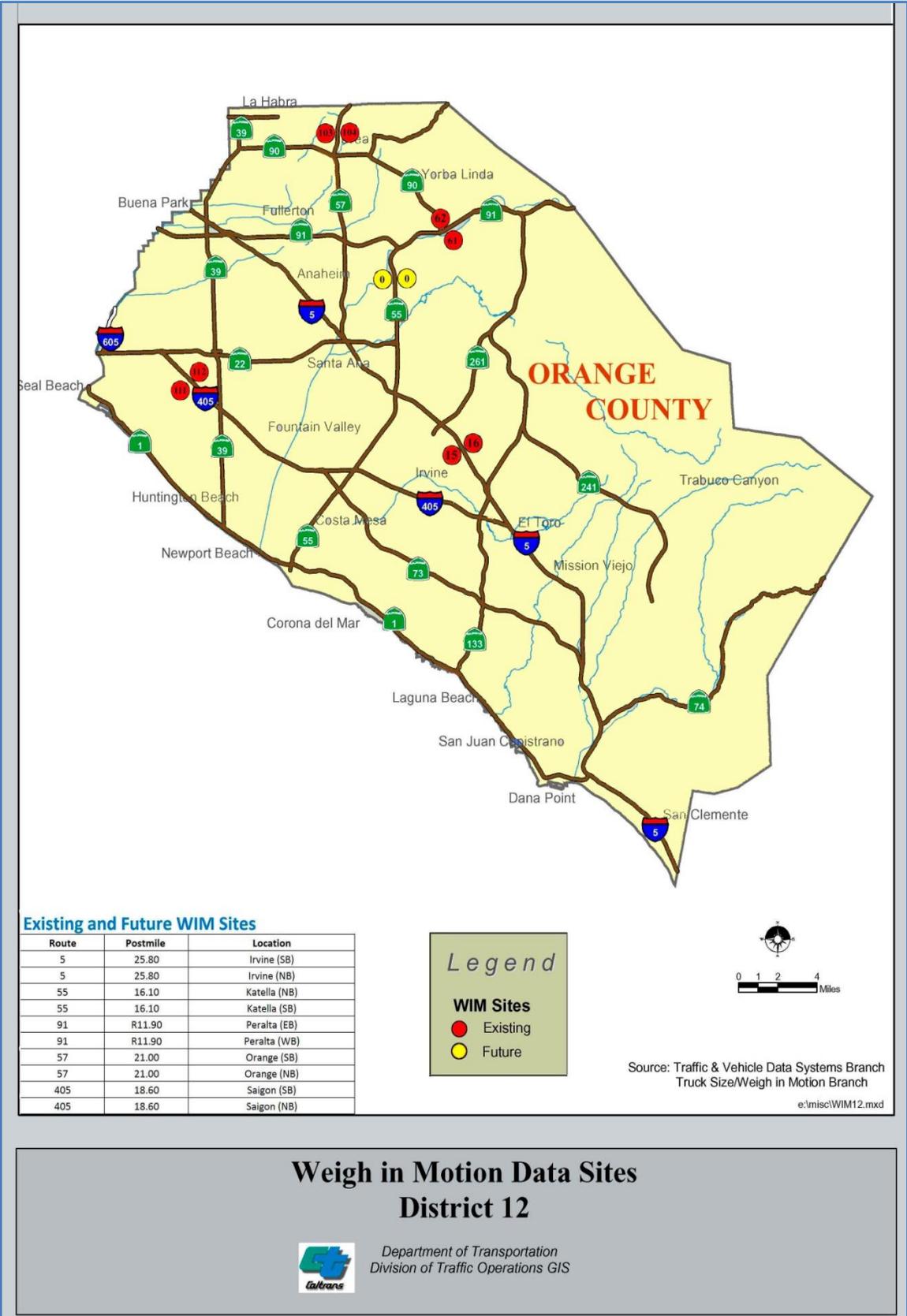
District 12 Transportation Management Center

Besides numerous Ramp Meter Stations (RMS [337],) traffic signals (486) and Traffic Monitoring Stations (TMS [560])) currently in operation⁶⁰, four other critical ITS components are in operation within the District 12 State Highway System:

- Changeable Message Signs (CMS)
- Closed-Circuit Televisions (CCTV)
- Fiber Optics
- Weigh-in-Motion (WIM) Facilities (Data collected through WIM include axle weights, axle spacing, vehicle classification and speed)⁶¹. See **Exhibit 28** for more information.

⁶⁰ Source: District 12 Division of Maintenance and Operations, TMC

⁶¹ Source: Caltrans – Office of Truck Services (<http://www.dot.ca.gov/hq/traffops/trucks/datawim/index.html>)



Weigh in Motion Data Sites District 12



Department of Transportation
Division of Traffic Operations GIS

Exhibit 28 - Weigh in Motion Data Sites in District 12

The ITS equipment in the field is always installed in a secure environment to prevent unauthorized use or breach of the system. **Table 1** provides a summary of ITS components currently in operation and projected needs within Orange County.

ITS Components	Existing	Under Construction	Projected Needs**
Video Cameras (CCTV & CPTC CCTV)	303		58
Changeable Message Sign (CMS)	58	6	10
Extinguishable Message Sign (EMS) *	2		
Highway Advisory Radio (HAR)	2		
Fiber Optics	176 miles	9 miles	46 miles

Table 1 - District 12 ITS Equipment Summary

* Extinguishable Message Sign (EMS) - are static message signs that are illuminated when specific conditions occur. It includes sign, foundations, control system and power, and EMS Software interface.¹

**Projected Needs represents un-programmed plans

Among the urban districts in Southern California, District 12 is one of the most complete in terms of its field ITS equipment infrastructure. District 12 is in a unique position at the forefront of technology, providing one of the most advanced ITS systems in the State. To meet future challenges, the District has developed the following plans and strategies for implementing ITS on the State Highway System:

- Internet Protocol (IP) Based Systems** – The intent of installing IP Based systems throughout the District is to allow communication to field elements via IP addressing. IP addressing assigns each field element an unique and individual IP address and allows Caltrans to effectively collect and relay information to its customers on their IP based devices (whether smart-phone, tablet, laptop, desktop, or a vehicle capable of receiving IP based information). This can include live video information from CCTV cameras, real time traffic map displays, real time CMS information, and real time HAR information. IP based addressing allows for Traffic Operations staff to modify signal timing and ramp metering timing directly from their smart-phones, tablets, laptops, and personal computers. It also allows staff to post information to CMS, and perform diagnostics from these same devices. District 12 currently has the infrastructure to allow IP addressing on all its field elements on the toll roads, on I-5 and Beach Boulevard (SR 39). Other IP-based applications include monitoring and controlling freeway lighting fixtures,

monitoring and controlling water irrigation system usage, and monitoring the conditions of Caltrans pump-houses.

- **Communication Systems (Fiber/Wireless)** – There are some minor gaps currently existing in fiber optic communications that need to be addressed, namely along the SR 73 between the SR 55 and I-405, the western end of SR 91, and Pacific Coast and Imperial Highways. While completing these gaps would provide District 12 with a fully connected fiber optic system, the District is also proposing to install a private wireless network. The private wireless network would serve as a backup to the fiber infrastructure that is currently in place, and would provide yet another means of communication in emergencies. Private wireless networks can also be utilized by toll collection companies to save on the costs involved in installing a dedicated fiber optic infrastructure for toll collection purposes.
- **Wi-Fi** – The implementation of Wi-Fi technologies along the freeway would be a great method of providing information to motorists. The concept involves around the ability of motorists to download freeway information (live video from CCTV cameras, live CMS messages, HAR information, and live map display information) directly to their IP addressable devices. In addition, a Caltrans owned Wi-Fi system would allow Traffic Operations and Maintenance staff to utilize their smart-phones to get status of CCTV cameras, change timing parameters on ramp meters/traffic signals, display new messages on CMS, get the status of lighting circuits, etc.
- **High Definition Cameras** – District 12 plans to upgrade all its field cameras to High Definition (HD). The planned transmission of video to smart-phones will go through severe video degradation if the video source is of low quality. Video server equipment will be necessary for the effective transmission of data, and video walls at the TMC will also need to be upgraded to HD as well.
- **Colored Light Emitting Diode (LED) CMS** – Installation of colored LED CMS on the State Highway System is in the District’s future plan. These CMS can be used for active traffic management purposes, in which individual lanes with specific information can be identified, such as distinguishing between HOT and HOV lanes.

- **Computer Network Upgrade** – District 12 will need to upgrade its network to a 100 GBPS (Gigabits per second) network to accommodate transmission of the HD video data along with all other data. The District is currently operating at a 10 GBPS network. This will require upgrades to equipment housed at the TMC and at the field hubs.
- **Camera Installations at Signals/Ramp Meters** – District 12 plans to install CCTV cameras to monitor traffic at signals and ramp meters. The District currently has an operational system on Beach Boulevard in which traffic signals are being monitored on an IP based system, and would like to replicate this at every ramp meter and signal county-wide.
- **Central System for Traffic Signals** – Caltrans recently procured a Central System for its Traffic Signals supplied by Transcore, a manufacturer of transportation-based Radio Frequency Identification (RFID) technology, based in Pennsylvania. District 12 served as one of three key districts in selecting the central system, and will be an active player in its installation and implementation. Caltrans will be installing this system throughout its various Districts statewide.
- **TMC to TMC Integration** – If IP addressing is a standard protocol, and if every TMC utilizes this form of communication, TMC to TMC integration will be possible. Currently, every District TMC functions independently without any way of standardizing their methodologies. District 12 plans to conduct its first integration project with District 7 in Los Angeles.
- **Battery Backup Banks** – In 2011, Orange County suffered a power outage in the entire southern portion of the county. The battery backups for approximately 24 affected traffic



CCTV camera along State Route 55

signals were almost completely drained without access to any available charged units. The plan at the time was to remove existing battery backups from other unaffected units to replace the drained units. District 12 plans to store charged battery backup units at various key locations within the District to avoid the problems it encountered in 2011.

3.4b Incident Management

Traffic incidents account for about 25% of traffic congestion and delay. When traffic incidents occur on the State Highway System, it is vital that the elements of the incident from the roadway are removed as quickly as possible in order to minimize traffic congestion, reduce chances for secondary crashes, reduce emergency workers' exposure time at the scene, and return the traffic flow to its normal condition. For incidents in which large vehicles such as freight trucks are involved, the clearance time can be several hours because of the size of the vehicles and the cargo these trucks carry.

Caltrans recognizes the importance of quick clearance of traffic incidents. The performance measure used to monitor incident management is the percentage of major incidents cleared in less than 90 minutes. (Major incidents occur when the California Highway Patrol (CHP) and Caltrans both respond to the incident.) The Division of Traffic Operations' Transportation Management Plan Guidelines⁶² identifies the following strategies for incident management on the State Highway System:

- **Transportation Management Center (TMC):** Since the TMC controls all fixed ITS elements, including the portable HAR and CMS, this strategy involves the use of the TMC for coordinating and managing the dissemination of traffic incident information
- **Traffic Management Team (TMT):** The TMTs' main responsibility is to assist in managing traffic during incidents and plan lane closure activities that are expected to result in significant vehicle queuing
- **Intelligent Transportation System (ITS):** ITS elements installed in the field are used as part of a traffic management plan. Traffic conditions detected by sensors can be automatically fed to traveler information outlets such as CMS, web sites, or TMC

⁶² Source: Caltrans, *Division of Traffic Operations - Transportation Management Plan Guidelines (June 2009)* (http://www.dot.ca.gov/hq/traffops/systemops/tmp_lcs/index.htm)

- **Surveillance Equipment:** This strategy involves the use of surveillance equipment, such as CCTV, loop detectors, probe vehicles, or cameras, to help identify traffic problems and to detect, verify, and respond to traffic incidents on the State Highway System
- **Helicopter and Aerial Surveillance:** Aerial surveillance, such as helicopters are especially useful in identifying and verifying traffic problems and incidents in highly urbanized areas
- **Tow/Freeway Service Patrol:** This strategy involves the use of dedicated on-site (or near-site) towing services to reduce the required time to remove vehicles involved in traffic incidents from the roadway
- **Dedicated Law Enforcement:** Caltrans contracts with the CHP to provide enhanced enforcement services. The visibility of the CHP alerts motorists that roadway incident is being cleared or road work is occurring, and that motorist behavior is under surveillance

3.4c Transportation Demand Management

Adding capacity to the roadways may reduce congestion in the short term; however, this approach is not a sustainable solution in the long-run. Transportation Demand Management (TDM) are strategies that result in more efficient use of available transportation systems and resources. TDM focuses on strategies to reduce traffic congestion by:

- Shifting demand from Single Occupant Vehicles (SOVs) to other modes of travel
- Shifting travel out of the peak period by implementing alternative work schedule policies
- Using CMS to inform the traveling public about accidents, congestion, delay, and providing information on less congested alternate routes⁶³

In the 1990s, Caltrans funded and managed a statewide TDM program, but this program was later delegated to the MPOs and local governments. However, Caltrans maintains the facilitator role in coordinating their services, especially ITS-funded pilot projects in TDM.

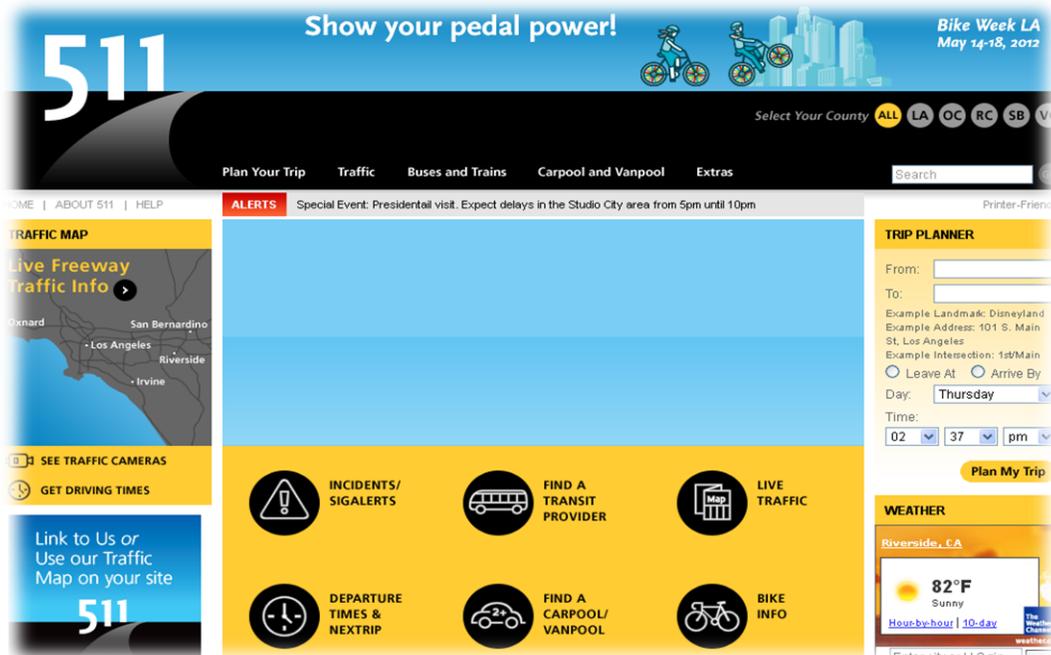
Some of the TDM measures implemented by Caltrans include:

- HOV Lanes, HOV to HOV freeway direct connectors, and HOV drop ramps
- Incorporating TDM strategies into project construction mitigation

⁶³ Source: National Cooperative Highway Research Program – Research Results Digest 348 (http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_348.pdf)

- Transportation Management Center
- Providing traffic information free of charge to private entities (i.e. Sigalert.com, TrafficGauge.com) and educational institutions (i.e. University of California at Berkeley and Irvine)
- *Go511*, which provides traffic conditions for freeways and information on transit services

Dial 511 to access real time road information for a less stressful commute!



The home page of “go511.com”

- Park and Ride facilities (**Exhibit 29**)
- Freeway Service Patrol (FSP)
- Implementation of employees’ flexible and alternative work schedule

3.4d Telecommuting Impact

Telecommuting is working from home or offsite locations through the use of computer networks, tablets, smart phones and telephones. This strategy contributes to the reduction of traffic congestion by eliminating the need for daily commute trips. Some of the impacts of telecommuting include:

- Reduction of daily commute trips and roadway congestion
- Improving air quality and roadway safety
- Time and monetary savings for telecommuter and employer



Traffic on SR 91 near SR 241 Junction

3.5 Environmental Considerations

Sustaining a world class transportation system requires compliance with state and national environmental laws, including the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The Federal Highway Administration (FHWA) uses the “umbrella” approach to comply with federal laws, regulations, and executive orders when planning for transportation projects. In July 2007, FHWA delegated responsibility for environmental compliance with NEPA to Caltrans. This delegation has allowed Caltrans to streamline delivery of environmental analyses which results in a more efficient planning in the project delivery process. California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007 and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6th, 2012, amended 23 USC 327 to establish a revised and permanent Surface Transportation Project Delivery Program. As a result, the Department entered into a memorandum of understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012 and terminates eighteen months from the effective date of FHWA regulations developed to clarify amendments to 23 USC 327 or on January 1, 2017. The NEPA Assignment MOU incorporates by reference the terms and conditions of the Pilot Program MOU. In summary, the Department continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and the Department assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to the Department under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.



The District is determined to keep Transportation-generated pollutants from impacting our pristine coastline by working with local partners.

Often, Caltrans combines the NEPA and CEQA processes, analyzes impacts to resources, and publishes findings in joint documents. Public participation is a cornerstone of the planning and alternative selection process. Through the scoping process, Caltrans identifies stakeholders and invites the general public to participate early in the project. Additionally, District 12 routinely partners with SCAG, OCTA, TCA, and cities within Orange County to deliver highway projects.

Southern California's abundant warm climate, employment opportunities, and growing affluence continue to attract new residents and families to the county. Unfortunately, with economic growth comes traffic congestion, degradation of air and water quality, and a loss of habitat for sensitive native animal and plant species. Planning for effective land use and anticipating impacts to protected resources is an important part of developing efficient highways and viable transportation corridors throughout Orange County and California.

3.5a Air Quality

Environmental planners and engineers work collaboratively to mitigate or minimize impacts to the environment as a result of growth. Air quality is very important to California residents and is an area of intense study for Caltrans. Air pollution generated from increased traffic, local industries, dust from construction activity, and the contribution of similar pollutants from surrounding regions exacerbates this issue. The South Coast Air Quality Management District (AQMD) recently received the Environmental Protection Agency's (EPA) approval of its 2007 State Strategy for California's State Implementation Plan (SIP) aiming to attain the 1997 8-hour Ozone and 24-hour PM_{2.5} standards. The AQMD, in collaboration with SCAG and ARB, is currently developing its 2012 AQMP, to meet the federal requirements and to incorporate the latest technical planning information. The 2012 AQMP sets forth a comprehensive plan to bring the South Coast Air Basin into attainment with the U.S. EPA health-based standards for the 2006 24-hour PM_{2.5} standards (35 µg/m³) by year 2014. The 2012 AQMP also demonstrated through the same control strategy on how AQMD will attain the (now revoked) 1-hour ozone standard (120 ppb) by year 2022. AQMP has formulated an Advisory Group to assist in the development of the 2016 AQMP that will demonstrate how we will attain the 2008 8-hour ozone standard (75 ppb) by year 2032 and the 2012 annual PM_{2.5} standard (12 µg/m³) by a future date as attainment deadline has not been determined.

These plans together with the transportation strategies and policies in the SCAG's RTP/SCS Air Quality Conformity policies form the foundation for improving transportation system performance while assuring timely attainment of air quality goals in Orange County and throughout Southern California.

3.5b Climate Change

Nearly 40% of California's GHG emissions are attributed to transportation. The State enacted AB32 in 2006 and SB375 in 2008 with the central purpose of reducing pollution by improving land use patterns and offering more housing and transportation choices to state residents.

Due to these legislative requirements, Caltrans is tasked with assessing potential GHG emissions and climate change impacts for projects through the environmental analysis process. This represents Caltrans' good faith effort to inform and educate the public and decision-makers during project delivery. Caltrans is firmly committed to implementing measures to help reduce the potential effects of GHG and climate change.

3.5c Water Quality and Storm Water Runoff

In a highly urbanized county with a growing population, water quality is a critical issue and Caltrans is committed to protecting this resource. The County is comprised of 13 watersheds and all of them fall within the jurisdiction of the Santa Ana and San Diego Regional Water Quality Control Boards (RWQCBs) which regulate surface and ground water quality through storm water and discharge permits. The RWQCBs adopt Basin Plans which recognize and reflect regional differences in existing water quality, the beneficial uses of these waters, and local water quality conditions and problems. The RWQCBs will identify specific water bodies that do not meet the beneficial uses and identify them as impaired. Some of the County's water bodies have been designated by the RWQCBs as impaired due to a combination of factors such as an excess of specific pollutants including but not limited to pesticides, toxins, nutrients, metals and pathogens. These impairments can lead to bacteria in beach waters or nutrients that cause blooms of macro algae and toxic constituents that degrade aquatic habitats. For all these reasons, Caltrans considers the role of the Regional Water Quality Control Boards important, along with sound planning practice and coordinated efforts with local partners.

Runoff from Caltrans facilities and activities are regulated under a National Pollutant Discharge Elimination System (NPDES) permit issued by the State Water Resources Control Board (SWRCB). This permit requires that Caltrans



Caltrans worker at a storm drain location along State Route 74

develop a Storm Water Program that effectively reduces the discharge of pollutants associated with the storm water drainage systems that serve highways and highway related properties, facilities and activities. The Caltrans Storm Water Program addresses discharges from construction sites, highway operations, and maintenance activities with the implementation of Best Management Practices (BMPs) that effectively minimize and/or eliminate pollutant sources typically found on transportation related facilities.

To help keep our coastline pristine, Caltrans has also developed a public education campaign titled “Don’t Trash California”. This anti litter campaign reaches out to the public for their help to reduce the amount of trash that is typically found on the State Highway System. This campaign has received awards recognizing Caltrans efforts from:

- The International Association of Business Communication
- State Information Officers Council
- American Advertising Federation Awards

In addition, Caltrans’ Storm Water Management Plan received the 2007 National Clean Water Act award from EPA for outstanding storm water management.

3.5d Transportation Noise Impact

Transportation projects may also substantially increase noise levels that may impact the environmentally sensitive areas, residents, and businesses. Caltrans' noise abatement policy, in addition to State and FHWA regulations, addresses the potential for noise level increase. As part of the general environmental review process associated with all projects, project sponsors are required to evaluate if the project would substantially increased noise levels (termed "noise impact"); and when feasible, consider attenuating the increased noise. The three basic types of projects involving noise abatement include:

- The construction of new highways or the reconstruction of existing highways
- The construction of noise abatement features to retrofit existing freeways through residential areas (Community Noise Abatement Program)
- The construction of noise abatement features to retrofit existing freeways to reduce the level of freeway traffic noise that intrudes into public and privately owned primary and secondary schools

Noise abatement features (which include noise barriers, land forms, and plantings) are planned, designed, constructed and maintained to be complementary and integrated features of the transportation corridor. Where plants are to be used as a cover or appliqué for aesthetics, graffiti control, and noise barriers, community involvement can assist in protecting the plants from vandalism. This may be accomplished through cooperative agreements between the Caltrans and local communities or the Adopt-a-Highway Program.

3.5e Additional Environmental Regulations

In addition to air and water quality issues, there are lesser-known federal and state laws to which Caltrans adheres. Following are some of these regulations:

- Uniform Relocation Act
- Endangered Species Act
- Farmland Protection Policy Act 1981
- Wetlands Conservation and Coastal Zone Act
- National Historic Preservation Act
- Section 4(f) of the U.S. Transportation Act

- Native American Graves Protection and Repatriation Act
- Public Resources Code 5024
- Health and Safety Code Section 7050.5
- Archeological Resources Protection Act
- Antiquities Act of 1906
- Land and Water Conservation
- Migratory Bird Treaty Act
- Coastal Zone Management Act of 1972
- Executive Order 11988, Floodplain Management
- Rivers and Harbors Act
- Marine Animal Protection Act
- Fish and Wildlife Coordination Act

If a project could affect any one of these protected resources, the District strives to mitigate or minimize the impacts. Caltrans has recognized the values of celebrated cultural and historical land uses, thereby applying the Context Sensitive Solutions strategies to the project delivery process, often through the application of aesthetic design themes.



State Route 133 Laguna Canyon Road recent widening

3.5f Integration of Environmental Factors into Transportation Planning

How environmental factors play a critical role in the transportation planning process and have been occasionally overlooked in the past. While transportation planning directly affects the highway system within the context of land use, environmental planning navigates the environmental laws governing how future projects can be built. Environmental planning not only encompasses aesthetics, noise and vibration, but also endangered species, air, and water quality. As the transportation and environmental planning processes identify potential areas of conflict with protected resources, transportation planners need to find solutions to achieve transportation goals, while complying with environmental laws and regulations.

4 Transportation Policies, System Planning Process and Procedures



Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

CHAPTER 4 – TRANSPORTATION POLICIES, SYSTEM PLANNING PROCESS AND PROCEDURES

4.1 Transportation Policies and Environmental Sustainability

4.1a Strategic Growth Plan

In January of 2006, the Governor and the Legislature, based on voter approval of Proposition 1B, launched the most ambitious rebuilding plan of California’s infrastructure in a half century. Strategic Growth Plan (SGP)⁶⁴ is designed to restore and expand our highway and transit systems. By investing and leveraging billions of dollars in the state’s infrastructure over the next 20 years, it can help maintain a vibrant economic growth, improve the environment, and ensure a high quality of life for generations to come. Proposition 1B authorizes the following programs:



Strategic Growth Plan Program	Plans and Actions	Responsible Agency(ies)
Highway Rehabilitation and Operational Improvements	CSMP Studies and Caltrans SHOPP projects (Refer to Appendix A-C); Measure M2 Freeway Plan	Caltrans / Divisions of Maintenance & Operations and Planning; and OCTA
Local Bridge Seismic Projects	Structure Maintenance and Investigations Studies	Caltrans Division of Maintenance & Operations
Railroad Grade Crossing/Freight Mobility	Grade separation projects and mainline rail capacity enhancement (Refer to Exhibit 4)	OCTA
Congestion Relief	HICOMP and HOV Reports, CSMPs, OCTA’s LRTP and CMP. Refer to Exhibit 3 for congestion relief major projects.	Caltrans and OCTA
Local Transit and Intercity Rail	Initiate Bus Rapid Transit (BRT) services, Invest in Metrolink and Go Local feeders, fixed route frequencies	OCTA
Local Streets and Roads	Master Plan of Arterial Highways (MPAH), Traffic Light Sync. Master Plan, Roadway Pavement Management Plan	OCTA
Transit Safety, Security, and Disaster Response	Funding allocation to improve protection against transit security and safety threats	Office of Emergency Services
State-Local Partnership	Freeway operational improvements through OCTA’s CMP and other studies (I-405, I-5 South County MIS), Caltrans Local Assistance Program.	OCTA and Caltrans

Table 2 - Strategic Growth Plan

⁶⁴ Source: State of California (http://www.bondaccountability.ca.gov/Strategic_Growth_Plan/)

4.1b Senate Bill 375

By the year 2020, California's population will surpass 44 million people, and will exceed 51 million people by 2035⁶⁵. There is an opportunity to accommodate this growth that is environmentally and economically sustainable, but it requires integration of planning processes for transportation, housing and land use. This new planning concept is set forth in Senate Bill 375⁶⁶, also known as the Sustainable Communities and Climate Protection Act of 2008. Benefits of integrated planning and sustainable development go far beyond simply reducing the greenhouse gas emissions that contribute to climate change and its damaging effects. Communities that are well designed provide housing for all income groups, and are supported by a range of transportation options that will have many other advantages. The transportation system can provide benefits through increased mobility, transportation choices and reduced congestion, and lower costs for community infrastructure. The implementation of SB 375 also provides greater housing choices and improves public health as a result of better air and water quality and improved access to employment. Additionally, it promotes natural resource conservation and economic benefits such as opportunities for reduced dependence on foreign oil.

SB 375 unifies transportation and land use planning to address GHG emission reductions.

Caltrans has always been at the forefront of the implementation of clean air technology to improve environmental quality in California. For the past two decades, District 12 has been methodically transitioning its entire fleet of over 600 vehicles, including passenger cars and light trucks, medium and heavy trucks, and



Hydrogen Fuel Station on Campus Drive in Irvine

⁶⁵ Source: California, Department of Finance (<http://www.dof.ca.gov/research/demographic/reports/projections/p-1/>)

⁶⁶ Sources: Caltrans (<http://www.dot.ca.gov/hq/tpp/offices/orip/sb375.html>); California Air Resources Board (http://arb.ca.gov/cc/sb375/staffreport_sb375080910.pdf)

off-road equipment to clean air technology such as hybrid/flex fuel, compressed natural gas, and retrofitted exhaust systems. In addition, electric vehicles are allowed to utilize HOV facilities at all times of the day through the issuance of two special decals by the Department of Motor Vehicles. The white decal is for vehicles that meet California's super ultra-low emission vehicle and on January 1, 2012 the Green Clean Air Vehicle (CAV)⁶⁷ decal was issued to the first 40,000 applicants who purchase or lease vehicles meeting California's Enhanced Advanced Technology Partial Zero Emissions Vehicle requirements. Per Assembly Bill 2013 (AB 2013) effective January 1, 2015 the green decal limit has been increased by 15,000 stickers.⁶⁸ However, infrastructure to support super ultra-low emission vehicles and CAV is still limited and will require further coordination between private and public entities. Hybrid/electric vehicles are more costly and varying fuel prices may cause investors to be reluctant to invest in needed infrastructure due to the unpredictable rate of return.

The District is also implementing SB375 in the SR 22/I-405/I-605 HOV Direct Connector project currently under construction and funded by the CMIA program. This HOV connector helps ease the transition of traffic from SR 22/ I-405 to the I-605 facility resulting in air quality improvement according to SB 375 guidelines. The project is scheduled for completion by the end of 2014.

⁶⁷ Source: California Department of Motor Vehicle (dmv.ca.gov/vr/decal.htm)

⁶⁸ Source: Air Resource Board, (arb.ca.gov/msprog/carpool/carpool.htm)

4.1c Senate Bill 391

In responding to challenges of climate change and population growth, SB 375 requires the metropolitan planning organizations to address GHG in their regional transportation plans. Additionally, there is a demand for the statewide transportation system that meets these challenges. SB 391 (Liu 2009) requires Caltrans to identify an integrated multimodal system needed to reduce GHG emissions. SB 391 states two main goals:

- To lower GHG from current levels to 1990 levels by 2020
- To lower GHG to 80% below 1990 by 2050

Other specific requirements of SB 391 are:

- Identify the statewide integrated multimodal transportation system
- Report to the legislature based on SB 375 sustainable communities strategies
- Develop the California Transportation Plan (CTP) by December 31, 2015, which identifies the integrated, multimodal system needed to achieve the maximum feasible greenhouse gas emissions reductions

In response to these requirements, Caltrans is preparing the California Interregional Blueprint (CIB).

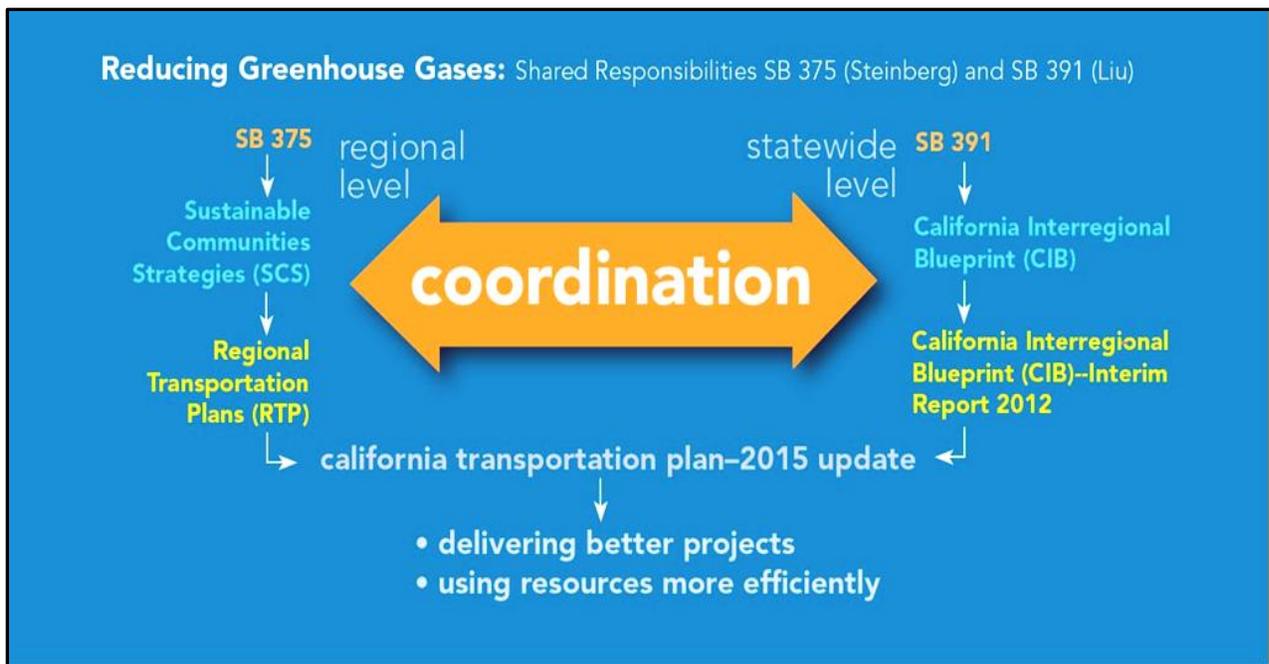


Exhibit 30 -Shared responsibilities between SB 375 and SB 391

4.1d California Interregional Blueprint (CIB)

CIB is a state-level transportation blueprint to articulate the State's vision for an integrated, multimodal, interregional transportation system that complements regional transportation plans and land use visions. The CIB⁶⁹ will integrate the State's long-range modal plans and Caltrans-sponsored programs with the latest technology and tools to enhance Caltrans' ability to plan for and manage the transportation system. It provides the basis for the next update to the California Transportation Plan 2040 (CTP 2040) to be completed by 2015. It also serves to expand the understanding of interaction between land use and transportation investments in meeting critical climate goals. The ultimate benefit of this effort will be stronger partnership with regional and local agencies and tribal governments, and better data for improved decision making at the state, regional, and local level. The CIB outcome includes the following plans and strategies:

- Provide a multimodal, integrated vision for the State's interregional transportation system based on data and analysis that will set a baseline of system performance for future planning and project delivery efforts
- Create an assessment of statewide transportation investment needs to inform future policy and financing discussions and decisions
- Promote the importance of a seamless, interregional transportation system and increase productivity of the system by improving linkages to regional and local systems
- Provide an initial statewide evaluation of the impact of planned actions by Caltrans and MPOs to reduce GHG emissions

4.1e California Transportation Plan 2040 (CTP 2040)

The CTP is a statewide, long range plan for year 2040, which defines goals, policies and strategies for the future mobility of California with a minimum 20-year horizon. This current plan approved in 2005 is a requirement of the federal and state legislation, and must be updated every five years. The ultimate vision of this plan is to develop, through collaboration with Caltrans' partners and the general public, a prosperous economy, a quality environment and social equity for California.

⁶⁹ Source: Caltrans (<http://www.californiainterregionalblueprint.org/>)

To achieve the vision, CTP entails the following six goals:

Prosperous economy:

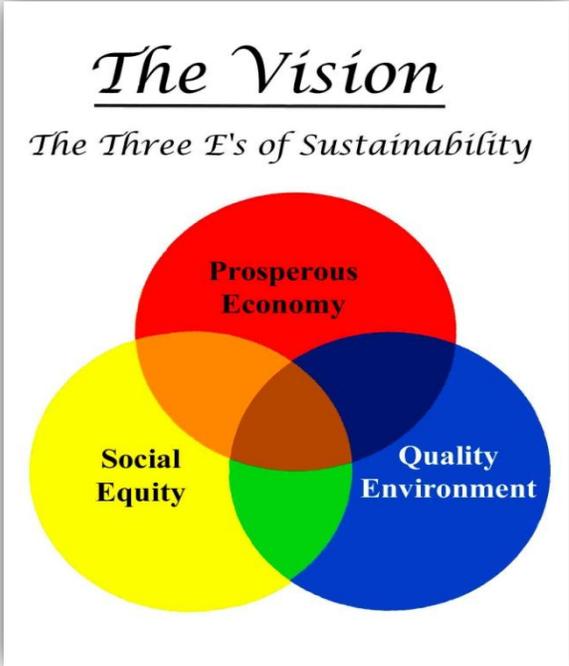
- 1. Improve mobility and accessibility
- 2. Preserve the transportation system
- 3. Support the economy

Social Equity:

- 4. Enhance public safety and security
- 5. Reflect community values

Quality Environment:

- 6. Enhance the environment



It evaluates the social, economic, and technological trends and demographic changes for the next 20 years and the influence on travel behavior. The CTP proposes a balanced approach to the projected increase in demand for mobility and accessibility. By providing a common framework for decision makers at all levels of government and the private sector, the CTP seeks to guide transportation decisions and investments that will enhance the economy, support the communities and safeguard the environment for the benefit of all.

The CTP was developed through considerable public outreach and consultation with transportation partners and stakeholders. Caltrans encouraged Californians to share their transportation concerns and visions for a brighter future. It also sought guidance from public and private sector transportation experts, decision makers, and policy advisory groups. The public’s input and the experts’ guidance shaped the CTP, and the draft report was then released for public review and comment.

4.1f SCAG Regional Transportation Plan (RTP)

SCAG is the federally designated MPO for the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The agency is responsible for developing the Regional Transportation Plan (RTP)⁷⁰, and this plan is updated every four years. The RTP is a 25-year roadmap for providing a vision for transportation investments in the region using an assessment of regional growth and economic trends. Transportation investments in the region that receive state and federal funds or require federal approvals must be consistent with the RTP and included in SCAG's FTIP. The FTIP is a six-year program and is coordinated with the STIP every two years. The 2012–2035 RTP/SCS provides a blueprint for improving the quality of life for region's residents by providing more choices for where people will live, work, play, and how they travel. RTP/SCS's planned transportation systems aims to provide improved access to jobs, leisure, education and healthcare. The plan's emphasis on transit and non-motorized transportation usage will lead residents to live a healthier and more dynamic lifestyle. The 2012-2035 RTP/SCS also addresses growth, congestion, and mobility issues for the year 2035 and sets the following goals:

- Maximize mobility and accessibility for all people and goods in the region
- Ensure travel safety and reliability for all people and goods in the region
- Preserve and ensure a sustainable regional transportation system
- Maximize the productivity of the transportation system
- Protect the environment, improve air quality and promote energy efficiency
- Encourage land-use and growth patterns that complement the transportation investments

4.1g Context Sensitive Solutions

Context Sensitive Solutions (CSS)⁷¹ is a theoretical and practical approach to transportation decision-making and design that takes into consideration the communities through which streets, roads, and highways pass (the context). CSS seeks to balance the need to move vehicles efficiently and safely with other desirable outcomes, including historic preservation, environmental sustainability, and creating vital public spaces. Caltrans recognizes the value of

⁷⁰ Source: SCAG (<http://rtpscs.scag.ca.gov/Pages/default.aspx>)

⁷¹ Source: Caltrans (<http://www.dot.ca.gov/hq/tpp/offices/ocp/css.html>)

main streets to communities and understands that planners and designers need to address community values when developing highway improvements. It is committed to early and continuous public participation to incorporate a community's values into the planning and design of projects. Caltrans develops integrated multimodal projects in balance with community goals, plans, and values, and addresses the safety and mobility needs of bicyclists, pedestrians, and transit users in all projects. Within Caltrans, CSS has become an integral part of transportation planning and Project Delivery processes. All of the long-term planning documents such as

DSMP, Transportation Concept Report (TCR), Corridor System Management Plan (CSMP) and the planning grant process must include the CSS strategies. In addition, CSS elements should also be considered in the process of developing Project Initiation Documents and Project Reports. CSS consideration carries on through all phases up to maintenance and operations as Caltrans continues its effort to minimize impacts to communities and the environment.

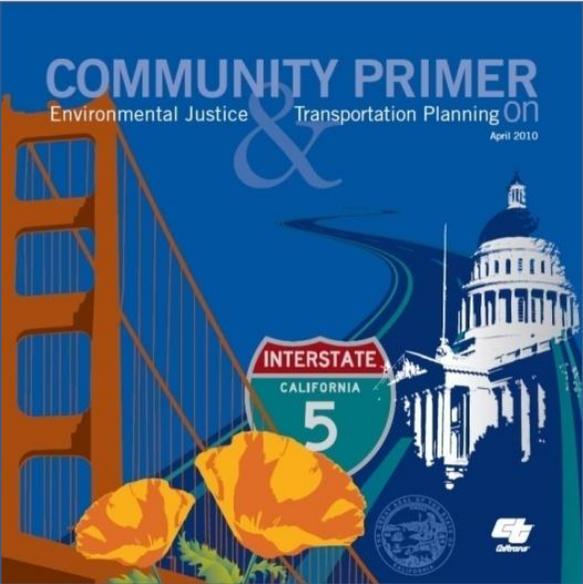


Orange County Great Park – Comprehensive Park Design

The District is currently involved in several projects that incorporate CSS strategies. These projects range from installing flashing beacon lights and signs on Pacific Coast Highway for beach pedestrians to consulting with the Native American Heritage Commission in identifying the cultural resources within the Bolsa Chica area where the shoulder embankment requires protection from erosion. A recent SR 74 Lower Ortega Highway widening project encompasses the addition of new sidewalks, and preserving the existing equestrian path with minimal or no impact on future signal/pedestrian crossing.

4.1h Title VI and Environmental Justice

The United States Department of Transportation (DOT) must ensure nondiscrimination under Title VI of the Civil Rights Act of 1964. In 1997, Caltrans issued the “DOT Order to Address Environmental Justice⁷² in Minority Populations and Low-Income Populations” to summarize and expand upon the requirements of Presidential Executive Order 12898 on Environmental Justice. Title VI and Environment Justice have become an important component in the transportation planning process. Effective transportation decision making depends upon understanding and incorporating the unique needs of different socioeconomic groups.



Caltrans Director’s Policy Number 21, dated November 5, 2001 defines how Caltrans incorporates Title VI and Environmental Justice into its programs, policies, and activities from the early stages of transportation planning and investment decision-making through construction, operations and maintenance. The intent of the policy is that minority and low-income populations are treated fairly and without discrimination from transportation decisions.

Environmental Justice encompasses three basic principles:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process,
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

⁷² Source: Federal Highway Administration – Environmental Justice (<http://www.fhwa.dot.gov/environment/ej2000.htm>)

4.1i Smart Mobility

Caltrans started developing the Smart Mobility Framework (SMF) when it was selected by the EPA as one of six 2008 recipients of “Smart Growth Implementation Assistance” grants. “Smart Mobility 2010”⁷³ is an action plan created from a collaboration of federal, state and local planning agencies to implement an integration of transportation and land use planning processes. This new approach brings together long-range plans and provides short-term pragmatic actions to implement multi-modal and sustainable transportation strategies in California. The goal of Smart Mobility is meeting the transportation needs of people and freight while enhancing California's economic, environmental, and human resources. The SMF rests on six principles: location efficiency, reliable mobility, health and safety, environmental stewardship, social equity, and robust economy. To respond to the above principles, Smart Mobility strategies must be applied to all the following areas:



Anaheim Regional Transportation Intermodal Center (ARTIC) project under construction

- Land use and transportation planning activities
- Transportation programming by all levels of government
- Evaluation and screening tools for plans, programs, and projects
- Public-private partnerships for investments in infrastructure and land development projects
- Community engagement that determines how Smart Mobility can be implemented throughout the state in ways that are responsive to local values, priorities and conditions.

A collaborative effort by the City of Anaheim, Caltrans, OCTA, Metrolink, and Amtrak in the development of the Anaheim Regional Transportation Intermodal Center (ARTIC) project is an excellent example of Smart Mobility. This mixed-used activity center is a transportation

⁷³ Source: Caltrans Smart Mobility Framework: (<http://www.dot.ca.gov/hq/tpp/offices/ocp/smf.html>)

hub where freeways, major arterials, bus routes, and Orange County's rail system converge. ARTIC will be serving the residents of the entire Southern California metropolitan area and will be an innovative passage into the future for the region.

4.1j Environmental Sustainability

Nearly all transportation projects affect environmental quality and can have adverse impacts on air and water quality, threatening the health of the public. While emissions have decreased due to improved vehicle emission controls, future traffic growth is expected to counteract these reductions. In addition, pollutants washing off roadways and freeways end up in Orange County waterways and beaches daily. The District is determined to increase collaborative efforts with SCAG, OCTA, and other public and private partners to ensure a clean environment for future generations.

Orange County Measure M2 allocates the much needed funding to cope with the above mentioned environmental challenges to keep Orange County as pristine as possible. In addition to mitigating direct impacts from transportation projects on a project by project basis, OCTA provides the following two programs:

- The Freeway Environmental Mitigation Program⁷⁴ provides for comprehensive environmental mitigation caused by freeway improvements. An agreement between OCTA, Caltrans and state and federal resource agencies was signed in January 2010, which allocates funding to acquire land and finance restoration projects. This offers higher-value environmental benefits such as habitat protection, connectivity and resource preservation in exchange for streamlined project approvals for the 13 Measure M2 freeway projects
- The Environmental Cleanup Allocation Program⁷⁵ helps improve water quality in Orange County from transportation-generated pollution. This plan treats the more visible form of pollutants, such as litter and debris that collects on the roadways and in storm drains. Also included is the funding for projects such as constructed wetlands and detention/infiltration basins

⁷⁴ Source: OCTA (<http://octa.net/Measure-M/Environmental/Freeway-Mitigation/Overview/>)

⁷⁵ Source: OCTA (<http://octa.net/Measure-M/Environmental/Water-Quality/Overview/>)

Together, Freeway Environmental Mitigation and Environmental Cleanup Allocation programs have projected budgets exceeding \$600 million over the life of the measure M2⁷⁶.

4.2 System Planning Process

California's State Highway System needs long range planning documents to guide the logical development of transportation systems as required by CA Gov. Code §65086 and as necessitated by the public, stakeholders, and system users. The objective of system planning is to ensure that investments in the state highway and multimodal transportation systems will meet future needs for mobility, accessibility, and safety. Another objective is to identify at the earliest stage: capacity and operational improvements, alternative modes of transportation, and new technologies that will improve regional and interregional mobility. System planning therefore lays the groundwork for informed investment decisions.

Caltrans system planning process produces five interrelated documents:

- District System Management Plan (DSMP)
- Transportation Concept Report (TCR)
- Corridor System Management Plan (CSMP)
- Transportation System Analysis and Evaluation (TSA&E)
- Project Initiation Document (PID)
- State Planning and Research (SP&R) Studies



System planning is at the foundation for planning, design and construction of all major highway improvement projects.

4.2a District System Management Plan

The DSMP is a strategic and policy planning document that presents how the district envisions the transportation system will be maintained, managed, and developed over the next twenty years. It is the first-level system planning in the District, which is based on the guidelines and principles as set forth in the Caltrans' CTP and Interregional Transportation Strategic Plan (ITSP).

⁷⁶ Source: OCTA (http://www.octa.net/pdf/12F_100_Freeway_Mitigation_Program_Fact_Sheet.pdf) & (<http://www.octa.net/pdf/ecapfactsheet/pdf>)

The DSMP was developed with input from regional and local transportation planning agencies, and air quality management districts. It considers the entire transportation system regardless of jurisdiction, and addresses all modes and services which move people, goods and information. The plan evaluates each mode of transportation and analyzes major issues in order to establish strategies in support of Caltrans' mission. These strategies set the foundation for the policies and visions of Caltrans and bring the District's planning efforts into perspective.

DSMP includes a listing of major state highway and transit improvements needed to maintain regional mobility, reduce traffic congestion, and improve system-wide connectivity within the District. It solidifies the project list based on the recommendations of CSMPs, TCRs, and other needs identified by functional advisors in the District. Although the project list is not financially constrained, most of the projects are included in the adopted, fiscally-constrained regional transportation plans of MPO's.

4.2b Corridor System Management Plan

Californians recognized the critical need to reduce congestion on the State Highway System and approved new transportation funding through the "Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act", known as Proposition 1B, in November 2006. Along with new funding came the responsibility to ensure that money is used efficiently and produces measurable results. Every corridor must have a CSMP to be eligible to receive funds from Proposition 1B.

The CSMP provides for the integrated management of travel modes and roadways to facilitate the efficient and effective mobility of people and goods within the most congested transportation corridors. It is a complex, multi-jurisdictional and multi-modal planning document that identifies future needs within corridors experiencing or expected to experience high levels of congestion.

A CSMP does not replace regional or local transportation plans but it is intended to provide a corridor strategy for integration and coordination, so that agencies can implement actions for more efficient system operations.

Page of this report provides a list of completed CSMPs within the District.

4.2c Transportation Concept Report

TCR is a long-range planning document that describes the current characteristics of a specific transportation corridor and establishes 20-year planning concepts. The TCR defines thresholds for Caltrans to develop the transportation corridor in terms of LOS and type of facilities, and broadly identifies the improvements needed to reach those objectives.

Considering reasonable financial constraints and projected travel demand over a 20-year planning period, the TCR identifies conceptual improvement options for a transportation corridor. TCRs address environmental, physical, fiscal, economic, local, social, and legislative conditions. These documents provide periodic review and appraisal for each route and are updated on a regular basis.

District 12 is in the process of updating TCRs for all state routes in Orange County. TCRs for SR 1, SR 73, SR 74, SR 133 and SR 261 have been completed in the last two years. The updates of I-5, I-405, I-605 and SR 39 reports are planned for the 2014/2015 fiscal year, and the rest will follow in subsequent years.

4.2d Project Initiation Document

The project initiation phase is the first formal phase in developing a solution for a specific transportation problem, and it is subsequent to the system and regional planning process. The outcome of this phase is a PID that establishes a well-defined purpose and need statement, and proposed project scope tied to a reliable cost estimate and schedule. PID is the documentation of existing information, initial assumptions, identified risks, and constraints that drives the development of the project work plan. PIDs are used to obtain approval for inclusion of a project into a programming document or conceptual approval of a project funded by others. Ultimately, any major work on the State Highway System regardless of how it is funded requires an approved PID.

4.2e How does DSMP fit into the larger picture?

DSMP is a strategic policy document that outlines the District's visions and strategies for the future of the State Highway System. It provides guidance for TCRs and CSMPs in the analysis of the existing conditions and future demand; in conjunction with, identification of deficiencies. Subsequently, these two documents will provide a set of conceptual alternatives aiming to address these deficiencies. The outcome of TCR and CSMP is a list of projects

integrated with projects from the RTPs, ITSP, and other planning documents to form the DSMP Project List. At this stage in the process, the DSMP continues to provide guidance for the DSMP Project List. Once selected, these projects undergo the programming process with the preparation of the required PID.



4.3 System Planning Procedures

Following are discussions of the key departmental procedures that are being applied and considered during the development of system planning documents:

4.3a Level of Service

LOS is defined as a qualitative measure of operational performance of a roadway facility or segment. The LOS system uses letters A through F, with A as the best traffic condition and F as the worst congestion. Highway Capacity Manual 2000 states that the LOS of “a basic freeway segment can be characterized by three performance measures: density in terms of passenger cars per mile per lane (pc/mi/ln), speed in terms of mean passenger-car speed, and volume-to-capacity (v/c) ratio. Each of these measures is an indication of how well traffic flow is being accommodated by the freeway.” Simply stated, the LOS of each roadway segment can be categorized as follows according to the Manual⁷⁷:

Criteria	LOS				
	A	B	C	D	E
Free Flow Speed (FFS) = 65 mi/h					
Maximum density (pc/mi/ln)	11	18	26	35	45
Maximum speed (mi/h)	65.0	65.0	64.6	59.7	52.2
Maximum v/c	0.30	0.50	0.71	0.89	1.00
Free Flow Speed (FFS) = 60 mi/h					
Maximum density (pc/mi/ln)	11	18	26	35	45
Maximum speed (mi/h)	60	60	60	57.6	51.1
Maximum v/c	0.29	0.47	0.68	0.88	1.00
Free Flow Speed (FFS) = 55 mi/h					
Maximum density (pc/mi/ln)	11	18	26	35	45
Maximum speed (mi/h)	55.0	55.0	55.0	54.7	50.0
Maximum v/c	0.27	0.44	0.64	0.85	1.00

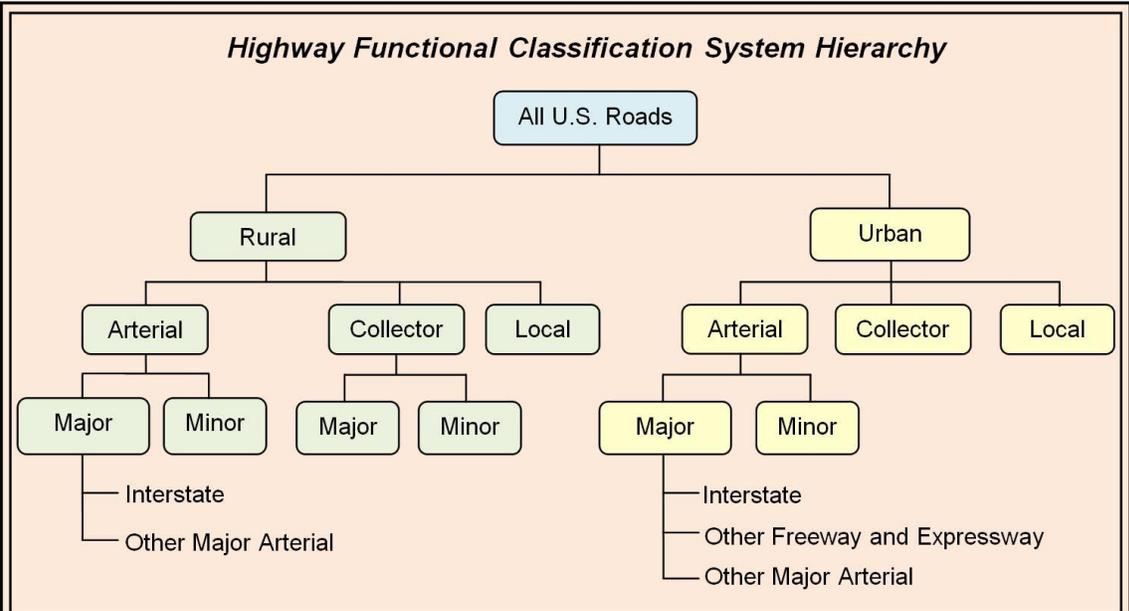
Table 3 - Level of Service (LOS) Criteria

⁷⁷ Source: Transportation Research Board (<http://www.trb.org/Main/Public/Home.aspx>) - Highway Capacity Manual 2000 - Chapter 23 - Basic Freeway Segments Methodology

The LOS methodology has been used by Caltrans in preparing system planning documents, creating project development documents, and reviewing local development (Intergovernmental Review) process. For system planning documents such as TCR, LOS is used to analyze the performance of a facility based on its existing traffic condition; as well as, the forecasted condition. This methodology only applies to the vehicular LOS and does not account for total number of people traveling on a state highway facility. Subsequently, various alternatives and solutions are introduced and evaluated in order to achieve the Concept LOS. Concept LOS represents the acceptable future performance of a highway facility that Caltrans strives to achieve in the horizon year. A new California law calls for replacing LOS with Vehicle Miles Traveled (VMT) measurement in traffic impact analysis, supporting the state’s goals of encouraging infill development and mode shift.

4.3b Highway Functional Classification System and Urban Freeways

According to the California “Streets and Highways Code”, Section 23.5, a freeway is defined as “a highway in respect to which the owners of abutting lands have no right or easement of access to or from their abutting lands or in respect to which such owners have only limited or restricted right or easement of access.” All highways in the United States are functionally classified based on a common classification system to provide consistency



Source: FHWA Functional Classification Guidelines

Exhibit 31 - Highway Functional Classification System Hierarchy

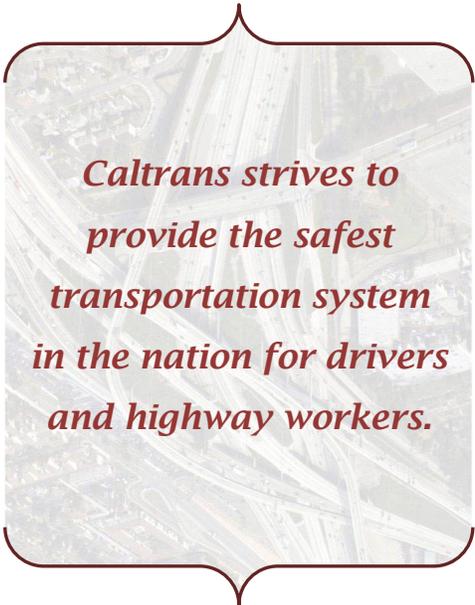
throughout the national highway network. The Federal Highway Administration (FHWA) established these criteria through its Highway Functional Classification System (HFCS):

The primary responsibility of developing and updating the statewide highway functional classification in rural and urban areas rests on the individual state’s department of transportation, but these classifications are subject to FHWA’s approval. The urban major arterial system is considered the most important as it includes Interstate highways, freeways and expressways, and other major arterials. FHWA defines this system as the one that serves “*the major centers of activity of a metropolitan area, the highest traffic volume corridors, and the longest trip desires; and should carry a high proportion of the total urban area travel on a minimum of mileage. The system should be integrated, both internally and between major rural connections.*” The functional classification directly relates to the Federal-aid Urban System, which was established by the Federal-Aid Highway Act of 1970. Based on this Act, all of the routes included in the urban system, excluding local streets, are eligible for Surface Transportation Program (STP)⁷⁸ funds and other federal highway funding.

In District 12, each of the cities has identified major and minor collectors for the functional classification system, and based on these categories, funding is allocated on a hierarchical system in which major arterials are allocated the highest level of funds and collectors the least.

4.3c Safety of the Transportation System

Orange County consists of 1660 freeway and toll lane miles, and while this amounts to about 20% of the entire Orange County system lane miles, the highways carry 55% of the county’s Vehicle Miles Traveled (VMT). The VMT is projected to grow by 23% by the year 2035⁷⁹. **Exhibit 32** displays the lane miles and VMT comparisons between freeways and local arterials.



Each year, Californians travel billions of miles on the roadway system and incidents occur due to various reasons. The Traffic Accident

⁷⁸ Source: Federal Highway Administration (<http://www.fhwa.dot.gov/safetealu/factsheets/stp.htm>)
⁷⁹ Source: SCAG Transportation Demand Modeling (<http://www.scag.ca.gov/modeling/index.htm>)

Surveillance and Analysis System (TASAS) database maintained by Caltrans' Division of Transportation System Information (TSI) is Caltrans' tool to monitor incident data on the State Highway System.

Safety for the traveling public and Caltrans workers has always been and remains the first and foremost focal point in all Caltrans activities, from the early transportation planning process, through design and construction phases, to maintenance and operational functions.

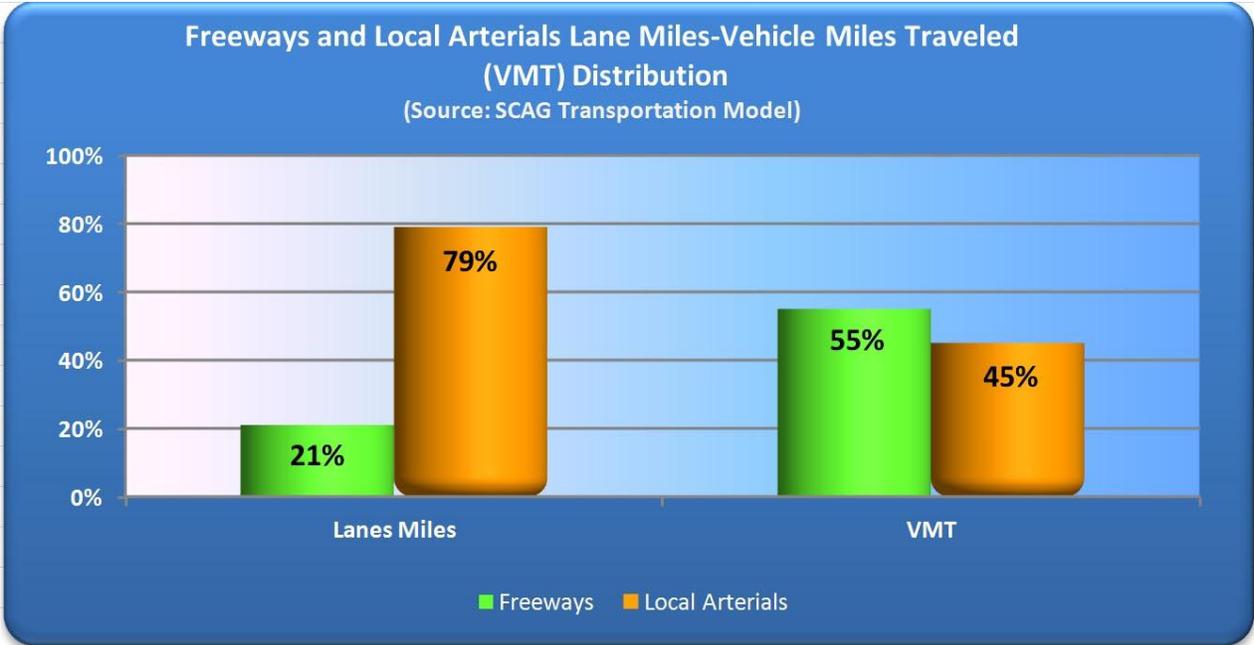


Exhibit 32 - Freeways and Local Arterials Lane Miles-Vehicle Miles Traveled Distribution

In 2005, the “Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users” (SAFETEA-LU)⁸⁰ was signed into law. This Act established a new Highway Safety Improvement Program (HSIP) aimed at reducing fatalities on the roadway system. The HSIP requires States to develop and implement a strategic highway safety plan and submit annual reports to FHWA that describe at least five percent of their most hazardous locations, progress in implementing highway safety improvement projects, and their effectiveness in reducing injuries and fatalities. In response to this requirement, Caltrans’ Office of Traffic Safety prepared a comprehensive study and implementation plan called California’s Strategic Highway Safety Plan (SHSP)⁸¹. This data-driven plan provides a coordinated framework for reducing serious injuries and fatalities on California’s public roads. Further information on the SHSP can be accessed via the Office of Traffic Safety web site. In July 2012, MAP-21 was signed into law. It continues to uphold the successful HSIP with an average annual funding of \$2.4 billion, including \$220 million per year for the Rail-Highway Crossing program. Also, MAP-21 requires that the SHSP continue to be updated on a regular basis as it remains a statewide coordinated plan on safety performance.⁸²

4.3d Public Participation

Section 1202 of MAP-21 emphasizes the role of public participation in the statewide transportation planning process. It states that:

(3) PARTICIPATION BY INTERESTED PARTIES.

(A) IN GENERAL. In developing the statewide transportation plan, the State shall provide to

(i) nonmetropolitan local elected officials or, if applicable, through regional transportation planning organizations described in subsection (m), an opportunity to participate in accordance with subparagraph (B)(i); and

(ii) citizens, affected public agencies, representatives of public transportation employees, freight shippers, private providers of transportation, representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation

⁸⁰ Source: Federal Highway Administration (<http://www.fhwa.dot.gov/map21/summaryinfo.cfm>)

⁸¹ Source: Caltrans – Highway Safety Improvement Program (<http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm>)

⁸² Source: Federal Highway Administration (<http://www.fhwa.dot.gov/map21/summaryinfo.cfm#top>)

facilities, representatives of the disabled, providers of freight transportation services, and other interested parties a reasonable opportunity to comment on the proposed plan.

(B) METHODS. In carrying out subparagraph (A), the State shall, to the maximum extent practicable

(i) develop and document a consultative process to carry out subparagraph (A)(i) that is separate and discrete from the public involvement process developed under clause (ii);

(ii) hold any public meetings at convenient and accessible locations and times;

(iii) employ visualization techniques to describe plans; and

(iv) make public information available in electronically accessible format and means, such as the World Wide Web, as appropriate to afford reasonable opportunity for consideration of public information under subparagraph (A).⁸³

⁸³ Source: Federal Highway Administration (<http://www.gpo.gov/fdsys/pkg/BILLS-112hr4348enr/pdf/BILLS-112hr4348enr.pdf>)

Under MAP-21, public involvement continues to be required, and remains a critical component of the planning process. In developing the core system planning documents, DSMP, TCR, and CSMP, the District actively seeks input from local and regional partners, adjacent Caltrans districts and the general public. **Exhibit 33** indicates the regional strategic coordination plan in developing these system planning documents. Caltrans believes that by engaging public participation early in the transportation planning process, the citizens of Orange County would have a better understanding of Caltrans’ working procedures and support the system’s proposed improvements.

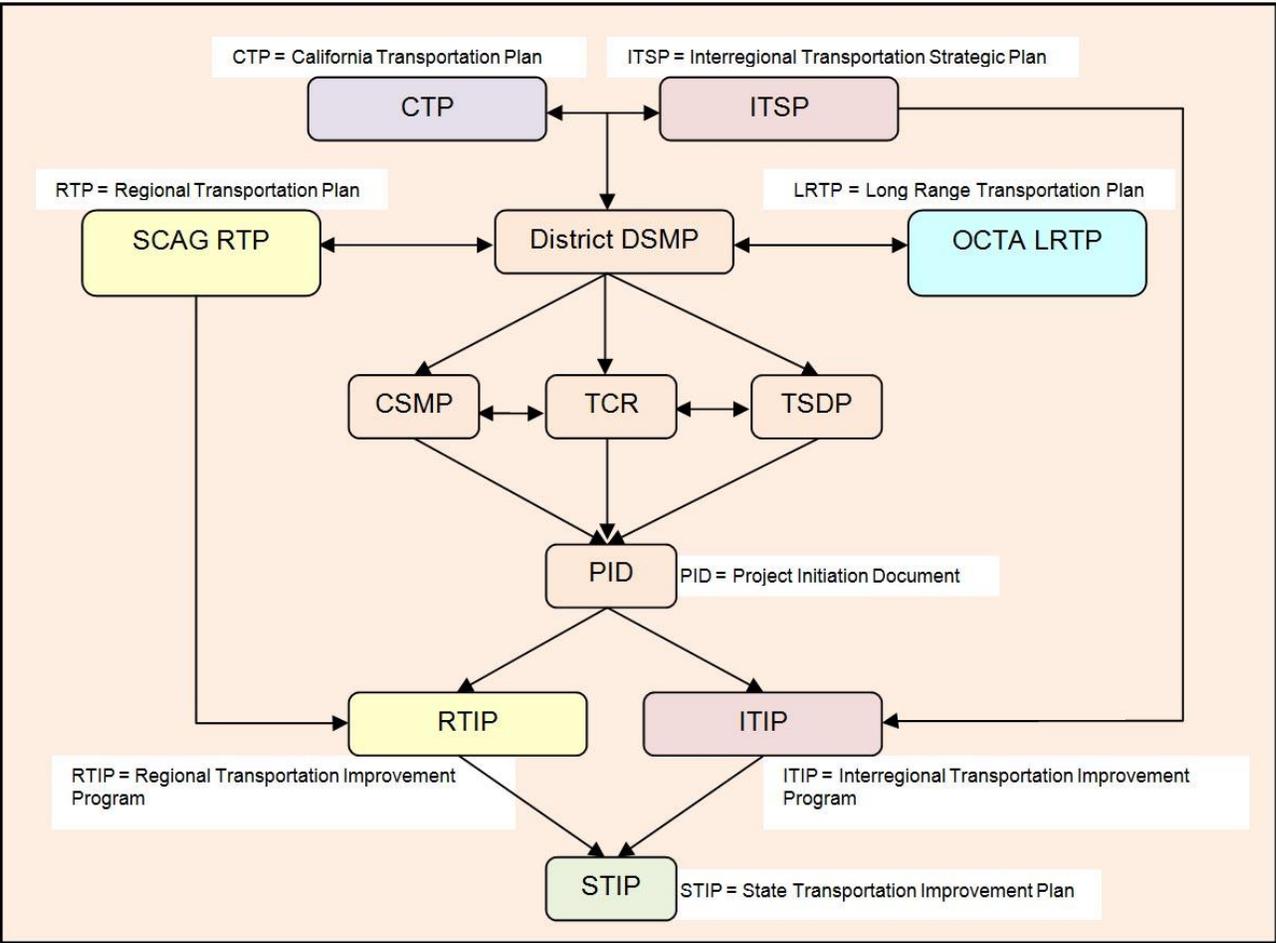


Exhibit 33 - Regional Strategic Coordination Plan

5 District Profile and Local Characteristics



Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

CHAPTER 5 – DISTRICT PROFILE AND LOCAL CHARACTERISTICS

5.1 County History

Native Americans lived in today’s Southern California and sustained their lives by hunting and gathering. In 1769, the Spanish Government sent Catholic missionaries and soldiers to California to formally colonize the territory. Don Gaspar de Portola led the first land expedition through Orange County that summer, and in November 1776 Father Junipero Serra founded the Mission in San Juan Capistrano. In 1821, Mexico declared its independence from Spain and annexed California.

In 1846 during the Mexican-American War, United States military forces invaded and seized California and, following the discovery of gold in 1849, California was admitted to the Union. German immigrants founded the City of Anaheim in 1857 and the first pioneers settled in two years later. The economic growth in the region led to the County of Orange officially being formed in 1889. Agriculture dominated Orange County economy until the 1950s, although the oil industry also played a key role in the region’s development.



Mission San Juan Capistrano circa 1912

Four military bases were established in Orange County during World War II and by the end of the conflict, many veterans settled in the area, helping boost the economy at an unprecedented rate. Disneyland opened its first theme park in the City of Anaheim in 1955, and since then, tourism and the service industry began to dominate the local economy. In 1963, the Orange County population surpassed one million people. Southern Orange County development started in the 1960s and except for the eastern mountains, the region is highly urbanized. Today Orange County is home to 34 cities with the population topping 3.1 million people and projected to surpass 3.6 million by the year 2035.

5.2 District History

Orange County was originally under the jurisdiction of Caltrans District 7, which covered the counties of Los Angeles, Orange, and Ventura, until 1988. In the late 1970s, the county started to evolve from being Los Angeles County’s bedroom community to becoming a metropolitan area with its own employment centers. As Orange County became more affluent and politically influential, its citizens stipulated more control over land use and transportation decisions. Caltrans District 12 was formed in 1988 under Assembly Bill 696 (AB 696) in response to this change. The District is unique as it serves a single county covering 798 square miles of land.

5.2a Transportation History

El Camino Real, which connected California’s Missions, was the first thoroughfare joining Orange County to the rest of California in the late 1700s, while settlers developed horse trails and wagon roads for local travel. In the early 20th century, the Pacific Electric Railway built three lines between Orange County and Los Angeles. By the 1920s, new roads led to new communities in Orange County and freeway construction began with the opening of I-5 in the 1950s. The majority of the freeway system was completed by the end of the 1980s. The first HOV lane opened to traffic on SR 55 in 1985 and today HOV facilities exist on every freeway in the county.



In response to traffic congestion and lack of transportation funding, Orange County voters approved Measure M1 in 1990 and renewed M2 in 2006. Measure M funds have played a major role in adding capacity to all freeways over the past twenty years. Four toll roads were constructed in the mid-1990s to accommodate population growth in the previously undeveloped areas. These facilities were planned, financed, managed, and built by TCA and maintained by Caltrans. In late 1995, California Private Transportation Company (CPTC) built four toll lanes in the median of State Route 91 between SR 55 and Riverside County line. SR 91 Express Lanes were the first privately funded and fully automated toll road built in California. OCTA purchased

the SR 91 Express Lanes in 2003 and converted this facility to a Managed Lanes facility in which single drivers pay full fares and carpoolers pay discounted rates.

5.2b Toll Roads Non-Compete Provision⁸⁴

Orange County's population growth in the 1970's and 1980's along with funding shortage to build new freeways facilitated the concept of building toll roads. The public joint-powers Foothill/Eastern Transportation and San Joaquin Hills Transportation Corridor Agencies were formed in 1986 to plan, manage, finance, and construct toll facilities in the county. The original agreement between Caltrans and Transportation Corridor Agencies included a Non-Compete provision, which limited Caltrans' authority to construct state highway projects or improvements within the Non-Compete zones, extending five miles on each side of a toll facility shown in **Exhibit 34**. According to this provision, Caltrans would have been required to make compensation to the TCA for its potential loss of toll revenue if the District chose to move forward with its planned highway improvements. In addition, any highway improvement project in the County's Master Plan of Arterial Highways, any planned Measure M project, and all projects necessary to improve public safety were exempted from TCA's Non-Compete provision. This provision expired in 2012, since TCA did not complete the planned toll road system, thus allowing the District to make needed system improvements without compensation to TCA.

⁸⁴ Sources: *The Toll Roads – 241 Completion* (<http://www.ftcsouth.com/>);
District Cooperative Agreement Nos: 12-081(4/7/95), 12-079(2/16/93), 12-210(5/13/93)

5.2c Highway System Inventory

The Orange County highway system consists of three interstate freeways, six state routes, four toll roads and seven conventional highways. The exceptions are SR 73 and SR 133, as these two facilities are combined as freeway, toll road, and conventional highway.

Facility	Route	Centerline Miles	Lane Miles	HOV Centerline Miles	HOV Lane Miles
Freeways	Interstate 5	44.4	487.5	37.7	81.2
	Interstate 405	24.0	267.9	24.1	48.6
	Interstate 605	1.6	15.6	1.6	3.2
	State Route 22	14.6	110.2	10.9	21.8
	State Route 55	17.9	156.0	11.3	22.6
	State Route 57	11.9	120.1	11.7	23.4
	State Route 73	4.2	28.1	N/A	N/A
	State Route 91	22.9	189.8	22.3	66.9
<i>HOV mileage includes Managed Lane data</i>	State Route 133	2.1	6.3	N/A	N/A
Toll Roads	State Route 73	13.8	96.6	N/A	N/A
	State Route 133	2.3	17.0		
	State Route 241	24.5	136.3		
	State Route 261	6.2	30.7		
Conventional Highways <i>**Excluding the relinquished segments</i>	State Route 1**	26.6	121.2	N/A	NA
	State Route 39**	20.9	140.3		
	State Route 72	0.5	2.0		
	State Route 74	16.6	41.8		
	State Route 90**	8.4	51.7		
	State Route 133	9.2	31.3		
	State Route 142	5.6	16.3		
Totals		278.2	2066.6	119.6	267.7

Table 4 -Highway System Inventory (Source: District 12 Division of Maintenance & Operations)

Table 4 contains the list of freeways, toll roads and conventional highways together with centerline and lane miles. The freeway lane miles have increased to 1,382 miles since 1990, as a result of construction of several projects funded by Measure M. Centerline miles and lane miles for freeways and toll roads during the past four decades are presented in **Exhibits 35** and **36**.

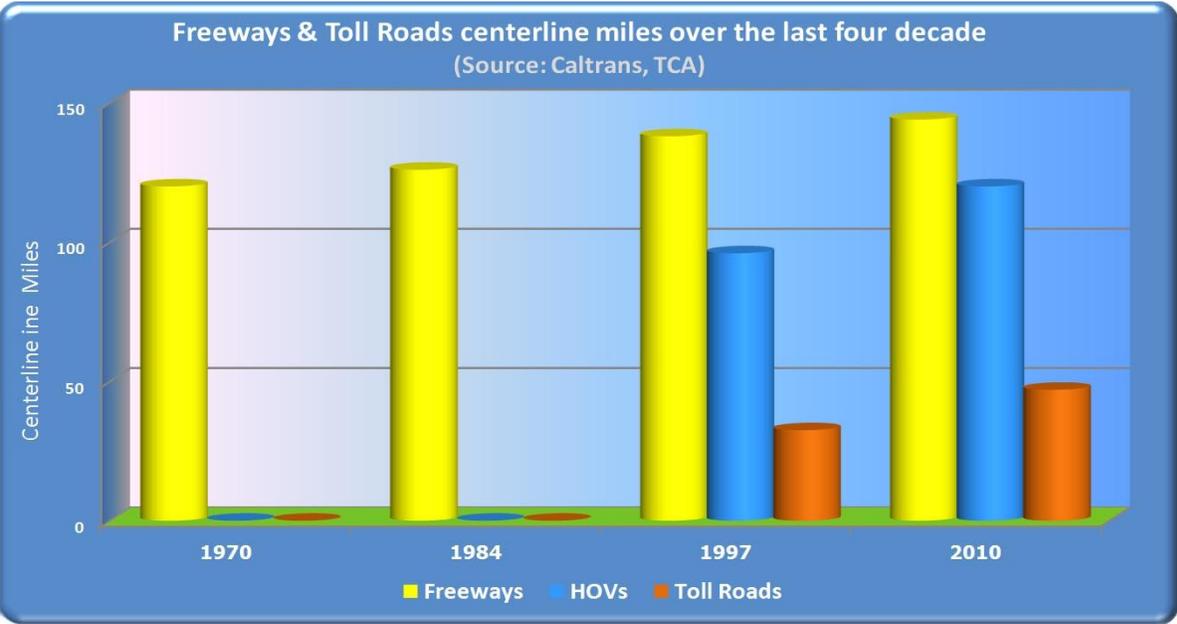


Exhibit 35 - Freeways & Toll Roads Centerline Miles Over the Last Four Decades

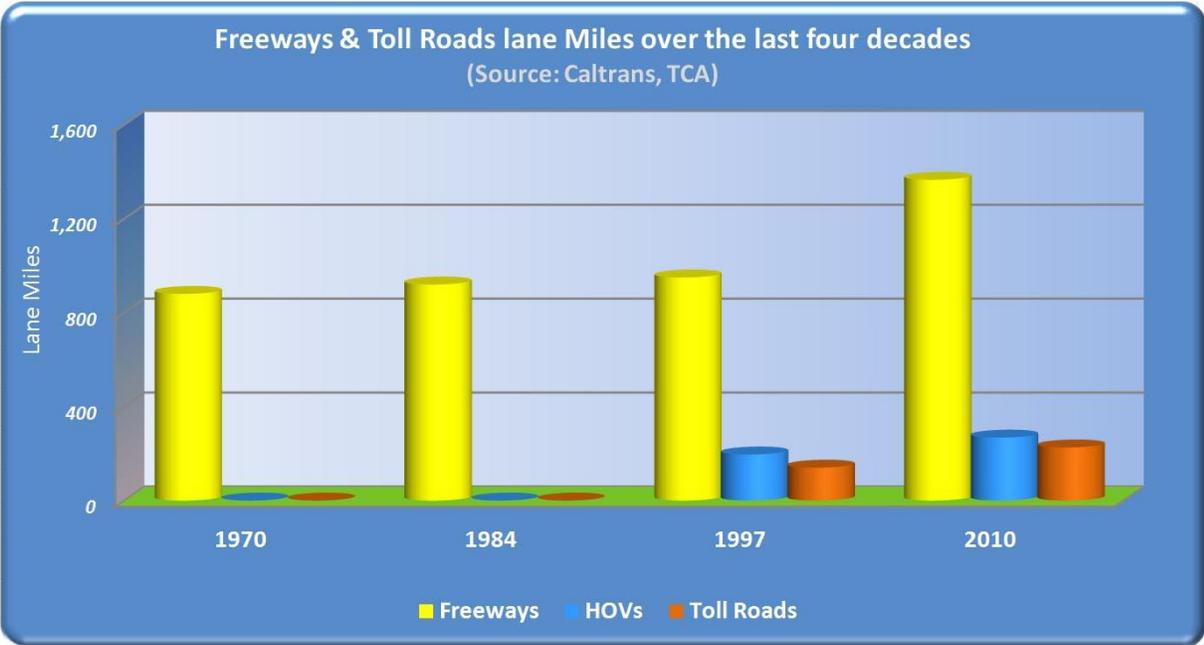


Exhibit 36 -Freeways & Toll Roads Lane Miles Over the Last

5.3 District 12 Partners

Caltrans, Southern California Association of Governments, Orange County Transit Authority, Transportation Corridor Agency, and Federal Highways Administration are a primary part of a network of state, regional and local transportation planning agencies. Caltrans’ DSMP and OCTA’s LRTP provide input to SCAG’s RTP, CTP, and the Federal Transportation Improvement Program. To qualify for state and federal funding, planned and programmed projects must be consistent with, and included in, SCAG’s RTP, Regional Transportation Improvement Program, STIP, and FTIP. Listed below are some of the regional planning documents used in DSMP preparation.



5.4 Orange County Transportation Authority

The Orange County Transportation Authority (OCTA) was established in 1991 as a result of the consolidation of seven transportation agencies (Orange County Transportation Commission, Orange County Transit District, Consolidated Transportation Service Agency, Orange County Local Transportation Authority, Orange County Service Authority for Freeway Emergency, Orange County Congestion Management Agency, and Orange County Service Authority for Abandoned Vehicles) so that the entire county could be served by a single transportation agency. OCTA is a multi-modal transportation agency that provides; countywide bus and paratransit services, Metrolink commuter-rail service; the 91 Express Lanes toll facility; constructs local arterial and road improvement projects; and operates motorist aid services. OCTA is also the responsible agency for planning and implementing multi-modal transportation systems and projects. One of the major funding sources for county transportation projects is OCTA Measures M1 and M2. In response to traffic congestion and transportation funding shortfall, Orange County voters approved Measure M1, a half cents sales tax in 1990 for twenty years. County residents renewed this measure as M2 in the year 2006 referendum for additional thirty years. OCTA administers a variety of Measure M funding programs for freeways, local arterial, and transit service improvements. Measure M funds have played a major role in adding

capacity to all freeways over the past twenty years. OCTA prepares the following planning documents to address mobility and future transportation demand in the county.

5.4a Long Range Transportation Plan

OCTA prepares the Long Range Transportation Plan (LRTP) every four years and serves as the agency's blueprint for improving the transportation system for the next 25 years. LRTP provides an inventory of the existing network, projects the future needs for county residents, and develops a plan to ensure that the transportation system will meet the challenge of supporting a vibrant economy. The LRTP is part of a larger ongoing planning process in Southern California, statewide and nationally. These efforts are consistent with SCAG's Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS), Caltrans' California Interregional Blueprint (CIB), California Transportation Plan (CTP), and the Federal Transportation Improvement Plan (FTIP). The projects in the LRTP projects are submitted to SCAG to be modeled and analyzed in the RTP/SCS to address the county's and the region's future transportation demands and to comply with CEQA conformity requirements.

5.4b Transit System Study (TSS)

OCTA initiated the Transit System Study (TSS) in 2011 to address bus and train services in response to Orange County's growing population and constrained funding. The study's main objective was to maximize efficiency of transit services based on ridership. To achieve this, OCTA conducted a market analysis rooted in the following guiding principles:

- Invest in higher ridership transit routes
- Decrease investment in low performing services



Metrolink train at Fullerton Transportation Center (photo: Courtesy of OCTA)

- Integrate city shuttles that connect with Metrolink rail (Go Local program) and community circulators with the fixed-route network
- Provide service where a sufficient market for transit exists
- Reduce transit riders wait time

5.4c Master Plan of Arterial Highways

Orange County Environmental Management Agency (OCEMA) was responsible for coordinating the County's general plan with the transportation element until 1995. Since then, the MPAH under the jurisdiction of OCTA has been an important element of transportation planning that coordinates land use policies with the transportation system. OCTA works with the cities and the County of Orange to develop a dependable inter-community arterial highway system that will effectively serve existing land use and future developments. MPAH ensures that cities and the county implement compatible transportation networks using similar standards and assumptions. Local developments and projects are required to be consistent with MPAH for OCTA funding eligibility. OCTA also works with Caltrans, TCA, local cities, the County, and SCAG to facilitate planning and implementation of an integrated regional transportation system.

5.5 Southern California Association of Governments

Southern California Association of Government is the federally designated Metropolitan Planning Organization (MPO) for the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. An MPO is authorized by the federal government to develop plans for transportation, growth management, and air quality in a region. The agency is responsible for developing the Regional Transportation Plan (RTP) every four years for a 25-year roadmap providing a vision for transportation investments in the region by using an assessment of growth and economic trends. The Sustainable Communities Strategy (SCS) is a newly required element of the RTP derived from Senate Bill 375 (SB 375) that was enacted to reduce greenhouse gas mobile emissions through integrated transportation, land use, and environmental



*Embracing diversity
has garnered
economic
opportunities for
Orange County.*

planning. The SCS integrates land use and transportation strategies to attain Air Resources Board (ARB) emissions reduction targets. The 2035 RTP/SCS addresses growth, congestion, and mobility issues for the year 2035 and sets the following goals:

- Maximize mobility and accessibility for people and goods
- Ensure travel safety and reliability for people and goods
- Preserve and ensure a sustainable transportation system
- Maximize the efficiency and productivity of the transportation system
- Protect the environment, improve air quality and endorse energy efficiency
- Encourage land-use and growth patterns that complement the transportation investments

5.6 Transportation Corridor Agencies

Orange County's booming economy and population growth during the late 1970s and early 1980s, together with the lack of funding to build new freeways, paved the way for the concept of charging tolls to finance road construction. The public joint-powers Foothill/Eastern Transportation Corridor Agency and San Joaquin Hills Transportation Corridor Agency were formed in 1986 to manage financing, constructing and operating toll facilities. This was followed by the passing of Senate Bill 1413 in 1987, giving the Transportation Corridor Agencies (TCA) the power to construct new roads as toll facilities and issue bonds backed by future toll revenues and development impact fees. Construction of Toll Roads in Orange County was completed in the 1990s including the current 420 constructed lane miles within the following four facilities

5.7 Demographic Data

5.7a Population and Housing

With more than 3.1 million people, Orange County is the third most populous county in California behind Los Angeles and San Diego counties. There are approximately one million housing units in the County and by the year 2035, the number of housing units will approach 1.2 million. According to the Center for Demographic Research at California State University, Fullerton (CDR) and SCAG, the year 2035 population will surpass 3.6 million people. **Exhibits 37 and 38** display past county population and housing trends and future projections.

5.7b Ethnicity

Orange County is composed of 34 cities and unincorporated areas. According to the U.S. Census Bureau’s 2010 American Community Survey Profile, 44% of the population is Caucasian, 34% Hispanic, 18% Asian/Pacific Islander, 2% African American, and 2% other. International immigration mainly from Asia and Latin America has contributed to Orange County’s growth in the last 30 years, shifting county’s proportion of foreign born residents from 6% in 1970 to 30% in 2010.⁸⁵

5.7c Employment

Orange County was a bedroom community for Los Angeles County well into the 1980s. In the last twenty years, the county developed major employment centers where people from Los Angeles, Riverside, and San Bernardino Counties commute to work. In Orange County there were 1.6 million workers in 2011, and according to CDR this number will increase by 24% to 1.9 million in the year 2035 (Refer to **Exhibit 39**).

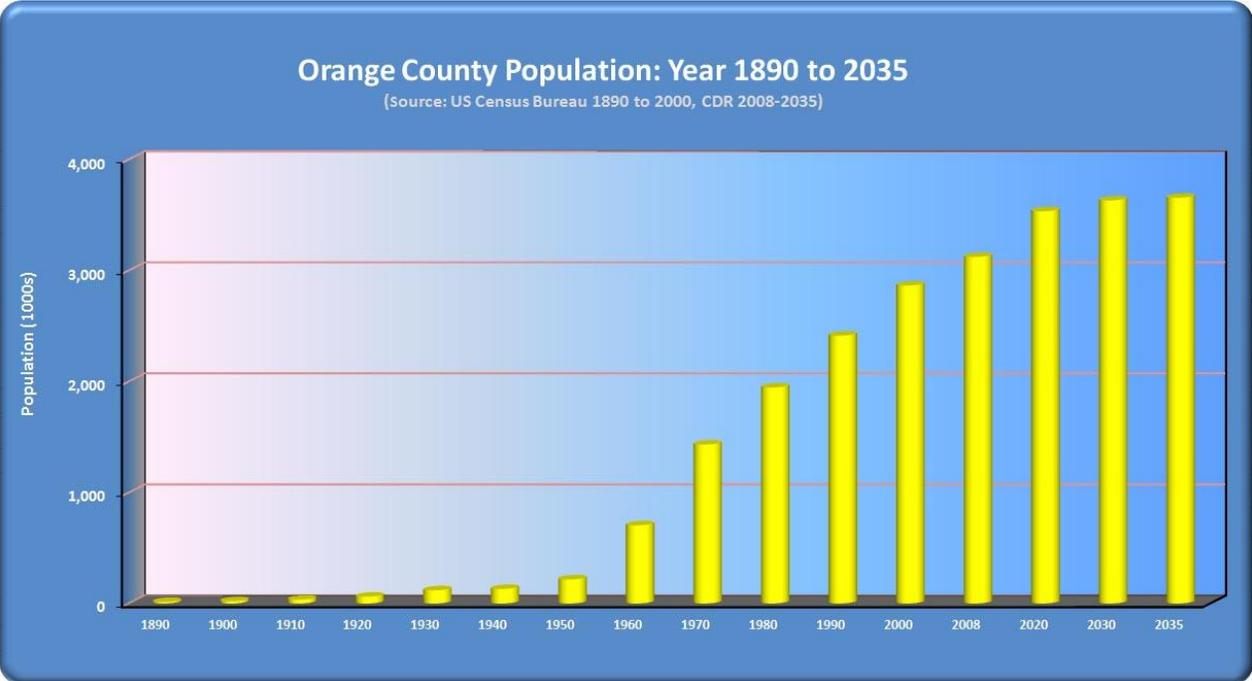


Exhibit 37 - Orange County Population from Year 1890 to 2035

⁸⁵ Source: Center for Demographic Research (<http://www.fullerton.edu/cdr>)

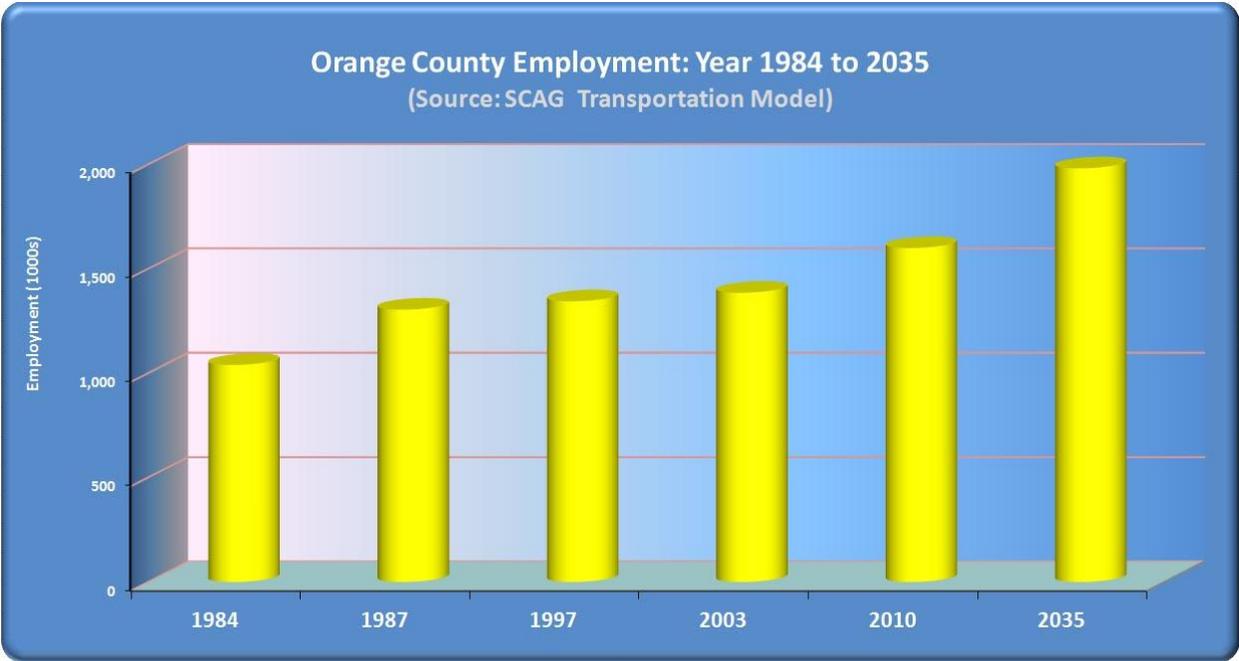


Exhibit 38 - Orange County Employment from Year 1984 to 2035

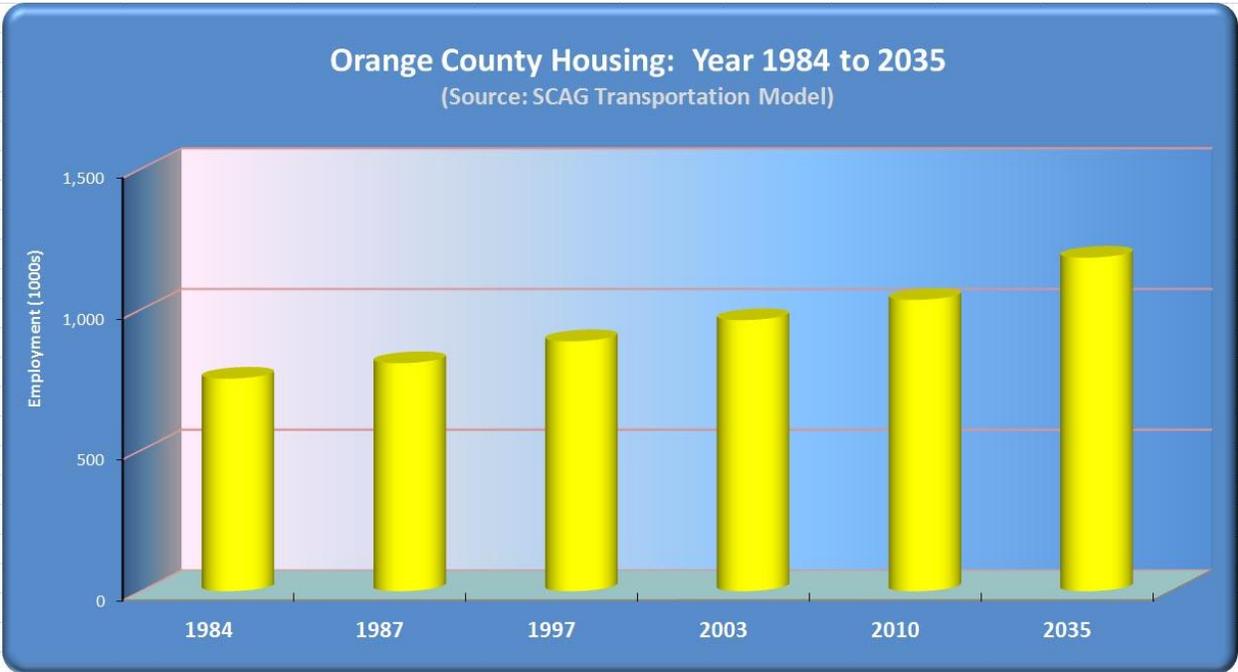


Exhibit 39 - Orange County Housing from 1984 to 2035

Exhibits 40 and 41 show a reverse commute pattern from 1980 to 2008 between Orange and Los Angeles Counties. In the 1980s, 67% of work trips originated from Orange County were destined to Los Angeles County; however this trend reverses to 48% due to Orange County’s emerging economic influence.

State Route 91, connecting Orange and Riverside/San Bernardino counties, experiences daily heavy congestion westbound in the morning and eastbound in the afternoon. This is due to relatively affordable housing market within Inland Empire counties' that are not matched by employment growth. The following exhibits reiterate that Orange County has evolved into a major metropolitan center, attracting commuters from surrounding counties.

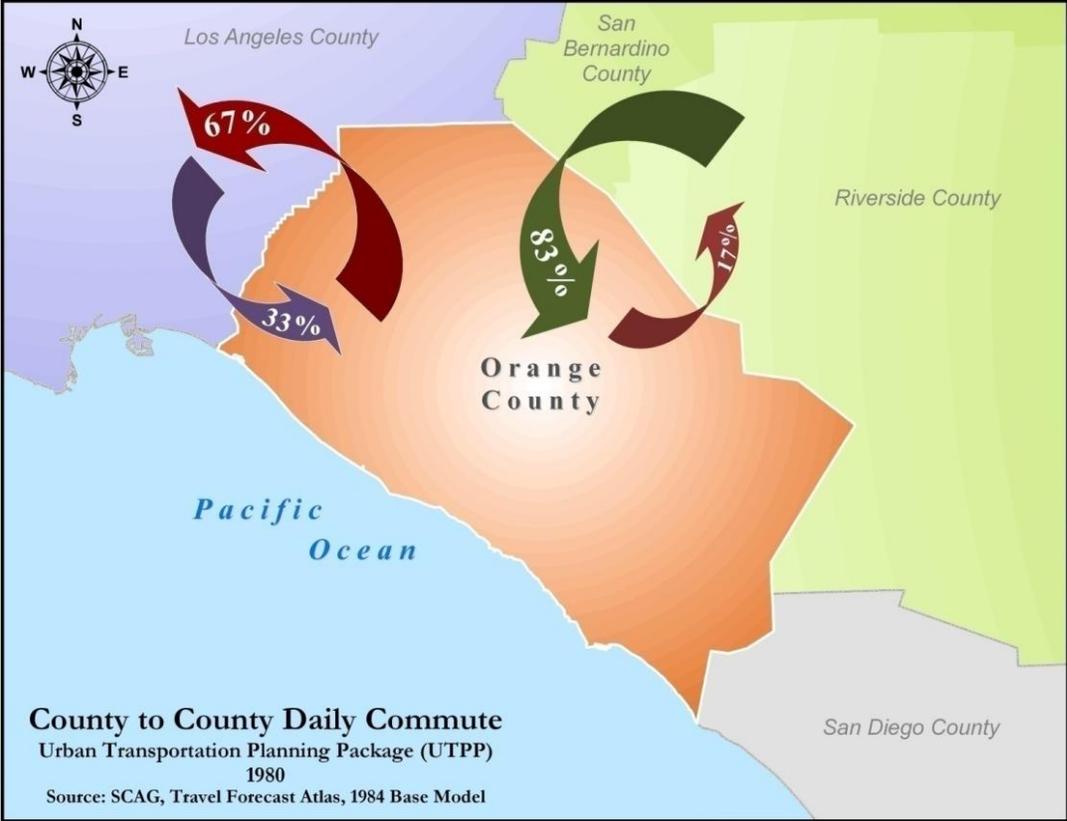


Exhibit 40 -County to County Daily Commute (1980)

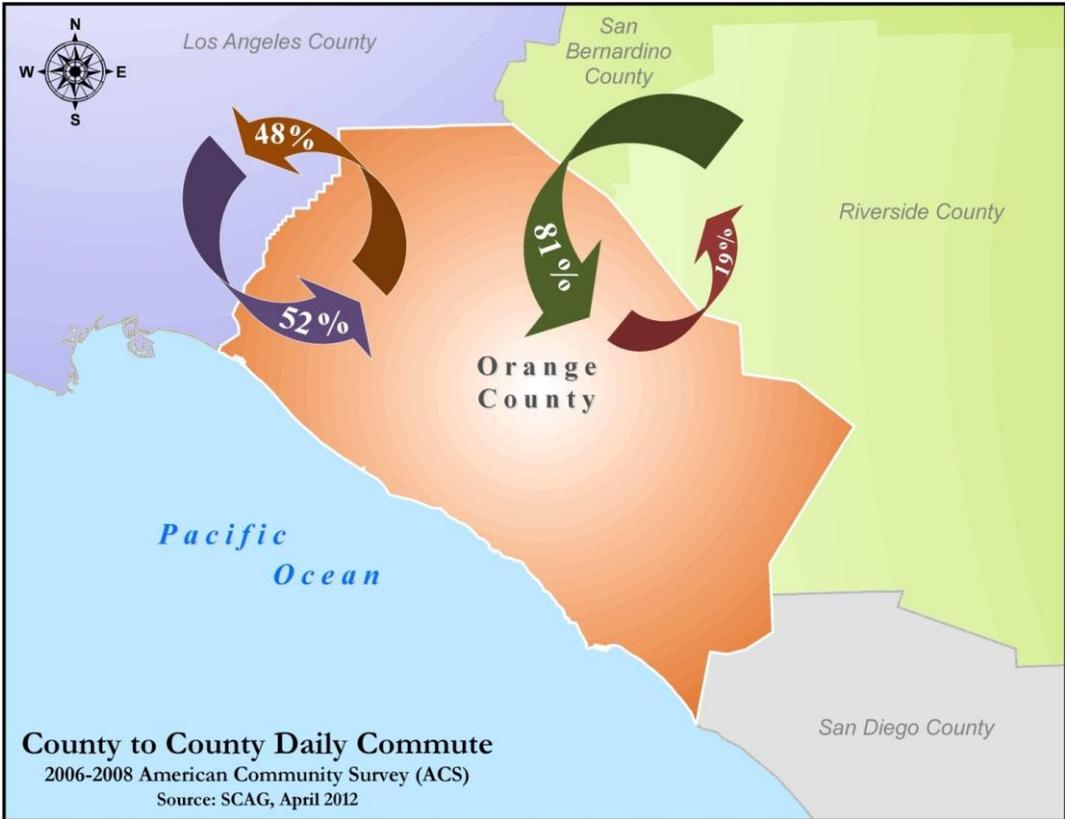


Exhibit 41 - County to County Daily Commute (2006-2008 American Community Survey)

5.8 Local Economy

According to the Orange County Workforce Indicators Report 2013/14 (WIR)⁸⁶, the county “enjoys a diverse economy” with trade, transportation and utilities being the leading categories among its employment mix⁸⁷:

- Trade, Transportation and Utilities 18.4%
- Professional and Business Services 18.0%
- Leisure and Hospitality Services 12.9%
- Government 11.8%
- Educational and Health Services 10.9%
- Manufacturing 10.3%
- Financial Activities 7.9%
- Information and Other Services 5.0%
- Construction 4.6%
- Farm, Mining and Logging 0.2%

Similar to most major counties in the nation, Orange County’s economy was severely affected by the 2008 economic meltdown. Although the county’s unemployment rate hovers around 5.5% in the first quarter of 2013, it is still well below the state average of 7.8% and level with the national average at 6.3%⁸⁸. The civilian work force remains at approximately 1.6 million with per capita income of \$55,200 while the median family income is \$73,400. Major employers in Orange County include: Walt Disney Company, University of California, Irvine (UCI), County of Orange, and St. Joseph Health System⁸⁹.

As Orange County’s economy recovers from the recent recession, the county’s industrial sector employment is projected to grow by 13.3% from 2010 to 2020 with Ambulatory Health Care Services, Food Services, and Administrative and Support Services enjoying the largest projected growth. This forecast is much lower than the 13.4% growth, reported in the previous

⁸⁶ Source: Orange County Business Council (<http://www.ocbc.org/wp-content/uploads/2013-WIR-Final-use-this-small.pdf>)

⁸⁷ Source: County of Orange – 2013 Facts & Figures (http://bos.ocgov.com/finance/ff2013/pages_frm.asp?OPT=facts_full)

⁸⁸ Source: State of California - Data.bls.gov/timeseries/lms1460000000

⁸⁹ Source: County of Orange (http://bos.ocgov.com/finance/ff2013/pages_frm.asp?OPT=facts_full)

forecast of 2006-2016⁹⁰. One of the brightest spots in Orange County's economy is its diversified high tech economy compared to regions with similar demographics. The Orange County 2013/14 Community Indicators⁹¹ reports that Orange County is among the most diverse high tech economies in the nation, boasting the High-tech "Cluster Diversification Index" of being second in the nation behind only the Boston metropolitan area. This is an important indicator since, if one high-tech sector suffers a decline, other sectors can help sustain the local economy.

According to the CDR, Orange County's Gross County Product (GCP) was estimated at \$195.3 billion in 2012 and \$197.1 billion in 2013. With Long Beach and San Pedro Ports nearby, Orange County will continue to experience economic growth due to an increase in exports to China, Japan and South Korea, which are the Los Angeles/Orange region's top export markets. The Los Angeles/Orange County region is also the top exporter to Canada and Mexico, the U.S.'s partners in the North American Free Trade Agreement (NAFTA).



Interstate 405 near State Route 39 (SR 39, Beach Blvd)

Of 798 square miles of land in Orange County, 29% is dedicated to residential housing and 28% reserved for government or for the public, including parks and open spaces. Transportation occupies 13% while commercial and industrial account for 12% of land use. The rest is either reserved for agriculture or uncommitted. Orange County is also home to 11 public and 10 private colleges/universities; as well as, two major military installations (Los Alamitos Joint Forces Training Base, and Seal Beach Naval Weapons Station). Major tourist attractions include Disneyland and California Adventure Amusement Parks, Angel Stadium, Knott's Berry Farm, South Coast Plaza Shopping Center, Orange County Performing Arts Center, the old Mission in San Juan Capistrano, and the beach communities of Dana Point, Huntington Beach, Newport Beach, Laguna Beach, Seal Beach, and San Clemente.

⁹⁰ Source: Orange County Business Council's Workforce Indicators Report 2013-2014

⁹¹ Source: Orange County 2013-14 Community Indicators (<http://www.oc.ca.gov/ceocommunity.asp>)

5.9 Transportation Funding

Money is allocated to the transportation programs through a variety of special funds, each with its own purposes and restrictions in funding. California has separate transportation programs for roads and bridges, congestion relief, and transit; as well as, for safety, maintenance, rehabilitation, and improvements.

California has an Excise Tax, a tax per unit sold, for a gallon of gasoline and the base excise tax has been 18 cents per gallon since 1994. This tax is the only source of revenue that is allocated for maintenance and operations of the State Highway System. There has been three periods when there was no increase in this excise tax for 20 years. Currently, it is entering the longest period of time without a change to the excise tax since its inception in 1923. The taxes collected on fuel in California are the highest in the nation, although not all states distribute funding in the similar manner.



With the current state of funding, the State’s aging State Highway System will continue to overwhelm available resources. Since 1994, even with the economic crisis of 2008, the buying power of the tax decreased approximately 42% in terms of the State Highway Construction Price index which has not been able to keep pace with escalating maintenance and rehabilitation costs. Inflation has eroded the value of per gallon tax revenues, 18 cents in 1994 is currently worth 11 cents today⁹². If excise tax in California had been indexed to inflation in 1994, it would be 31 cents per gallon today, whereas three other states have indexed their gasoline taxes to the Consumer Price index, Florida, Massachusetts and Maryland.

The current transportation tax structure is dependent on gallons of fuel purchased. However, as vehicles become more fuel efficient, less gasoline is consumed on a per mile basis. Fuel efficiency results in decreased funding, if both inflation and fuel economy are applied to the base excise tax of 18 cents the purchasing power of the excise tax has been reduced by 50% from 1994. See **Exhibit 42**.

⁹² Source: Legislative Analyst’s Office (http://www.lao.ca.gov/analysis_2008/transportation/trans_anl08.pdf)

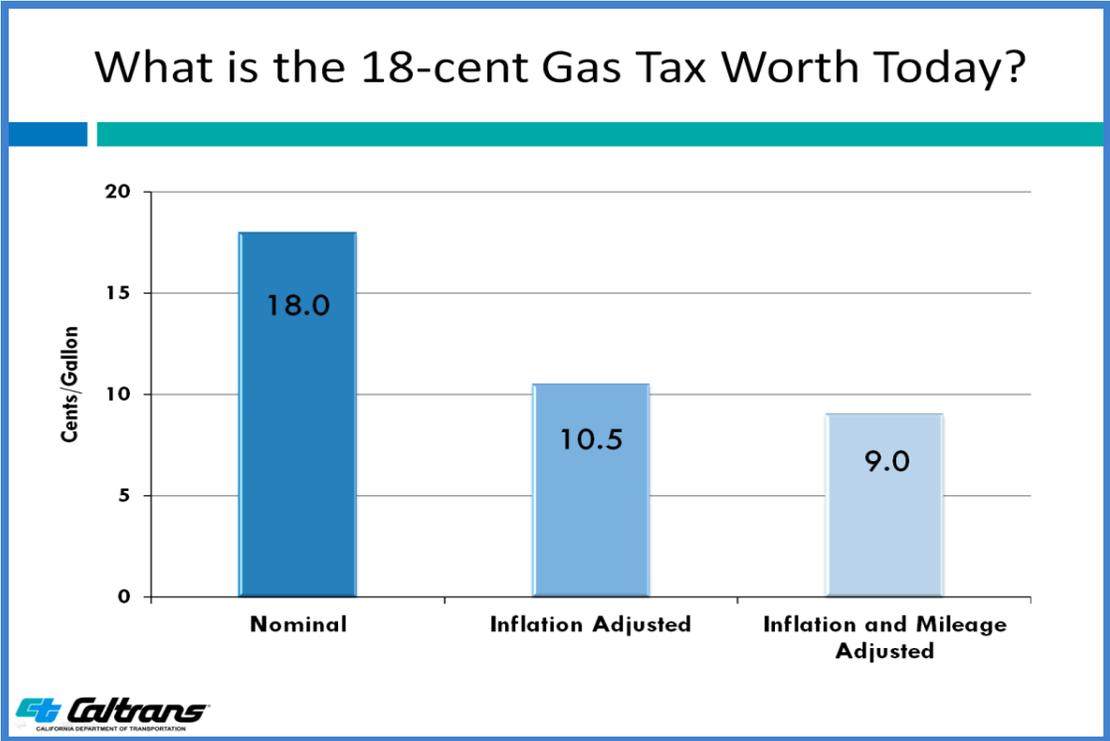


Exhibit 42 - Gas Tax

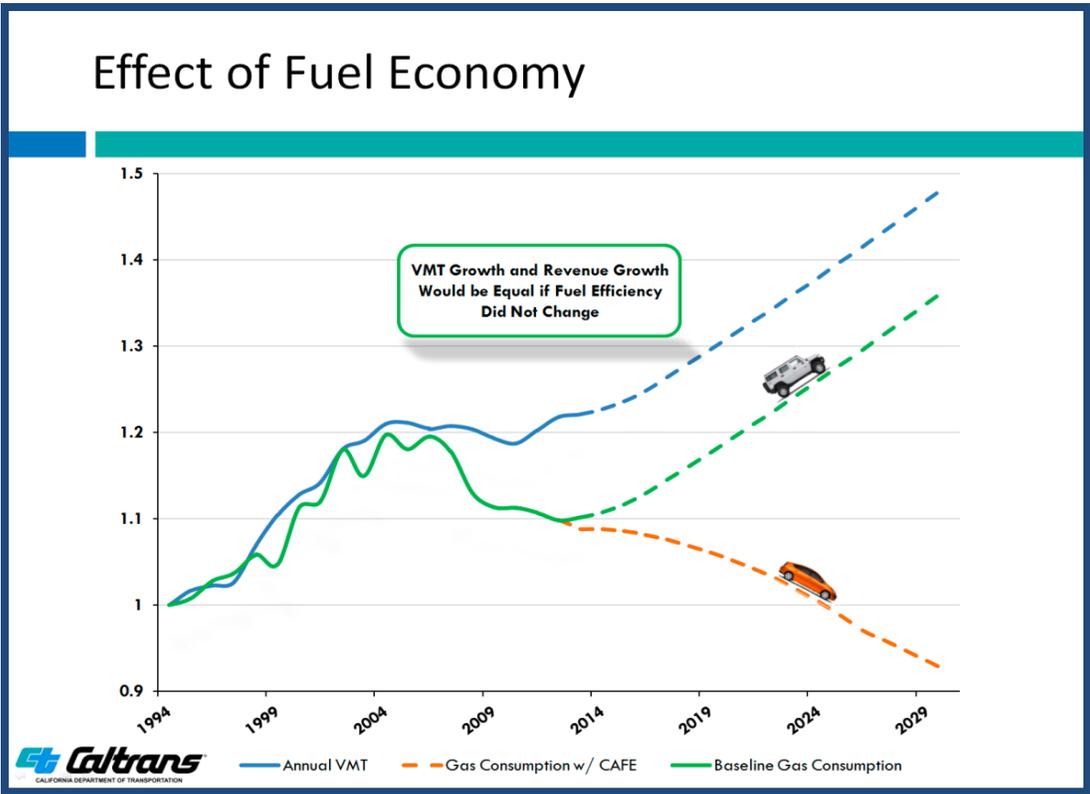


Exhibit 43 - Effect of Fuel Economy

California can expect further revenue impact losses from fuel economy. Although increase fuel economy improves the environment and dependence on a finite energy source, it also results in less revenue for roadway maintenance and operations. California cannot continue to base its transportation revenue on fuel consumption, as estimates show that the decrease in revenue of fuel efficiency will soon outpace inflation. Revenue losses due to increase fuel efficiency could be as high as \$16 billion by 2030. Essentially, all modes of transportation will be affected by funding shortfall including, the State Highway System, intercity rail, and local transit services. See **Exhibit 43**

The California Transportation Commission faces challenges in allocating funds to the various transportation projects statewide to meet the increasing demand, which entails a complex system. With the passing of SB 45, the role of FTIP has become increasingly dominant with regional transportation agencies receiving 75% of the funds, while leaving only 25% of funds to Caltrans for the ITIP. This funding disparity makes it difficult for Caltrans to meet regional and interregional transportation needs.⁹³ Different priorities in the allocation of FTIP funds can lead to an imbalance in the highway system improvements. An example is the bottleneck situation on I-5 at the Orange/Los Angeles County line, where I-5 on the Orange County side is significantly wider than the segment in Los Angeles County. Caltrans' vision for the future is to continue working collaboratively with RTPAs and MPOs to develop a cohesive and complete highway system for the benefit of the public.

Exhibit 44 provides an overview of transportation funding resources and processes. **Appendix G** provides a more detailed display of the funding process.

California splits its share of state highway gas tax funds between two distinct highway programs: the STIP and the SHOPP. The SHOPP is a fiscally constrained four-year program of projects dedicated to the maintenance and preservation of the State Highway System and responsible by Caltrans. Since 2004, the SHOPP project needs consumes all the state and federal gas tax revenue since the fund is not indexed to inflation and it's currently below a level necessary to keep the roadway system in a good state of repair. Caltrans annual target for the 2015 financially constrained ten Year SHOPP Plan is estimated at \$2.3 billion dollars.⁹⁴

⁹³ Source: State Environmental Resource Center (<http://www.serconline.org/transFund/allocation.html>)

⁹⁴ Source: Caltrans (<http://www.dot.ca.gov/hq/transprog/shopp.htm>)

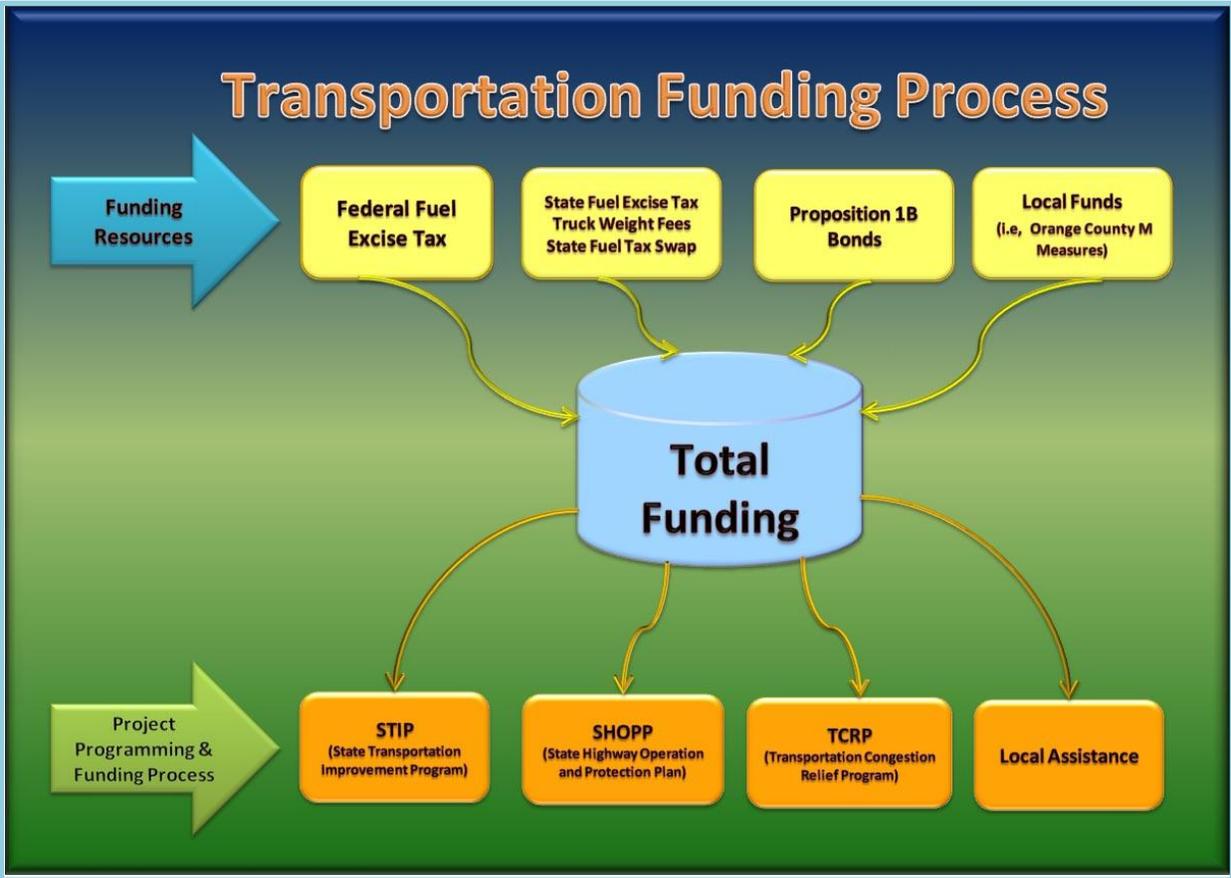


Exhibit 44 - Transportation Funding Process

As a result, potential impacts include delays of needed projects, an inability to repair new or ongoing deterioration of the highways, and possible cost increases. The majority of new projects that will be programmed in the next four-year SHOPP will address safety needs, emergency needs, or legal and regulatory mandates.

The STIP is a program of projects over a five-year time frame and it is intended to relieve congestion and improve interregional mobility primarily through construction of new freeway lanes, interchanges, and roads. The STIP receives the steadiest source of revenue from the Transportation Investment Fund (TIF), which is derived from a portion of the fuel tax on gasoline and diesel. By law, TIF revenues cannot be used to fund SHOPP projects. The current STIP project list in Orange County is available on Caltrans’ Office of Capital Improvement Programming⁹⁵ website.

⁹⁵ Source: Caltrans – Office of Capital Improvement Programming (<http://www.dot.ca.gov/hq/transprog/ocip.htm>)

Proposition 1B, the Highway Safety, Traffic Reduction, Air Quality and Port Security Act of 2006, is a \$19.9 billion in general obligation bond designated for highway and street repair and reconstruction, traffic congestion improvements, port goods movement and security, mass-transit projects, traffic safety, and air quality programs. The bond funds have been distributed according to existing state transportation funding formulas, which entails a highly competitive process of the CTC.

Taxes on gasoline and diesel fuels, including local Orange County measures, are the largest sources of revenue for transportation work on the State Highway System. Other sources include bond proceeds, state General Fund transfer, federal programs and earmarks, development mitigation fees, and federal stimulus funds. Annual state and federal gas taxes and fuel tax revenues available to the state highway programs was approximately \$12 billion in recent years.⁹⁶ During the past 20 years the total revenue collected by county sales tax measures (M1) was about \$4.1 billion, with 75% for use on the freeways and streets and 25% earmarked to transit and rail.

At the local level, Orange County Measure M2 authorizes OCTA to construct specific transportation improvement and traffic congestion relief projects by continuing the existing half-cent sales tax for thirty years from the expiration of the Measure M1 on March 31, 2011.

The Measure M2 Transportation Investment Plan is a 30-year, approximately \$14 billion program designed to reduce traffic congestion, strengthen the economy and improve quality of life by upgrading key freeways, fixing major freeway interchanges, maintaining streets and roads, synchronizing traffic signals countywide, building a visionary rail-transit system, and protecting the environment from runoff that pollutes Orange County beaches and waterways. The transportation investment plan is focused solely on improving the transportation system and includes tough taxpayer safeguards, including a Taxpayer Oversight Committee,⁹⁷ requires annual audits, and regular, public reports on project progress.

SAFETEA-LU has transitioned into MAP-21. The most significant change in MAP-21 is the streamlining of the transportation programs into five core highway programs:⁹⁸

⁹⁶ Source: Legislative Analyst's Office (www.lao.ca.gov)

⁹⁷ Source: OCTA - Taxpayer Safeguards and Audits (<http://octa.net/M2TaxpayerSafeguards.aspx?EntryId=537>)

⁹⁸ Source: Federal Highway Administration – MAP 21 (<http://www.fhwa.dot.gov/map21/summary.cfm>)

1. National Highway Performance Program
2. Surface Transportation Program
3. Metropolitan Planning Program
4. Congestion Mitigation and Air Quality Improvement Program
5. Highway Safety Improvement Program

The entire program has been allocated \$118 billion for two years and California will be allotted \$3.5 billion for each year of the program.⁹⁹ MAP-21 was kept intact by a series of nine consecutive extensions, since the September 2009 expiration of SAFETEA-LU. With MAP-21, funding levels will remain at the current level until 2014.

⁹⁹ Source: Federal Highway Administration – MAP-21 (<http://www.fhwa.dot.gov/map21/summary.cfm>)

6

Conclusion

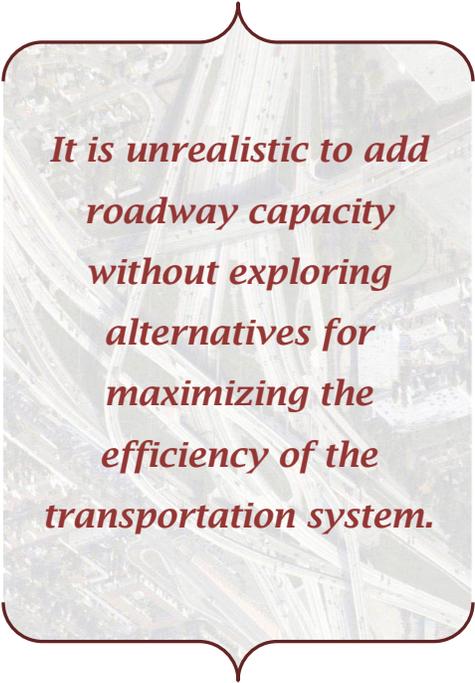


Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

CHAPTER 6 - CONCLUSION

Goals and polices serve as guidelines, assisting in efforts to improve the transportation infrastructure, its efficiency and operation as a means of improving the quality of life in the region. The DSMP provides the framework and guides the decision making process, for implementing the District’s overall goals and policies for the next 20 years and beyond. It is a policy document; outlining the direction District 12 will be taking in transportation system planning, developed in partnership with OCTA, SCAG, and other transportation agencies. First and foremost, the guiding policy in the preparation of this document has been the following Statement of Purpose adopted by Caltrans and described below.

Provide a safe sustainable, integrated and efficient transportation system to enhance California’s economy and livability.



To this end, it is unrealistic to continue to add new capacity to the freeway system to solve the congestion problem without exploring alternatives for maximizing the efficiency of the existing highway facilities not only through exploring an extensive network of managed lanes but also through improvements to other modes; in addition to, the implementation of Transportation Demand Management and Traffic System Management.

The DSMP has addressed the methods and strategies that will be used over the next twenty years to reduce congestion and increase air quality throughout the region. There must be an increasing utilization of rail and bus transit, and managed lanes to provide the necessary transport of people and freight. Emphasis on use of the automobile will decline as commuters and the general traveling public is offered increasingly safe and convenient alternative modes of travel. Technology will be of great assistance in obtaining the maximum utility of existing and future facilities.

In addition, Caltrans must continue to be at the forefront to support new technology. Successful implementation of new technology and its infrastructure support combined with the reduction of greenhouse gas emissions back to the 1990 levels that has been mandated by law will result in a cleaner environment.

The plan supports a sustainable transportation system that preserves the environment, is resilient and takes into account how we build and the materials we use. It's a system that manages and operates using policies and strategies that meet society's present needs without compromising the ability of future generations to meet their own needs. While there is no standard definition for transportation system sustainability, it is largely defined through impacts of the system on the economy, environment, and general social well-being; measured by system effectiveness and efficiency, and the impacts of the system on the natural environment.

A shortfall of \$296 billion is estimated for State Highway System's transportation needs between 2011 and 2020.

Areas of Emphasis and Special Needs

The District is exploring ways to integrate the information included in this document to generate a consistent transportation system that would enable a determination of greatest need for future transportation investments on the State Highway System. Caltrans is in the process of updating system planning documents for all state routes, including Corridor System Management Plans and Transportation Concept Reports. This includes updating the District System Management Plan Project List to identify a reasonable and effective list of multimodal transportation improvements (infrastructure capital outlay), traffic operation strategies, freight mobility opportunities, and transportation demand and system management options to improve statewide, interregional and regional mobility.

There are several key issues that must be addressed in the District and the entire state. California is faced with new legislation at the federal level that impacts all areas of the economy including transportation.

On July 6, 2012, President Obama signed into law P.L. 112-141, the Moving Ahead for Progress in the 21st Century Act, (MAP-21) which funds the surface transportation programs at

Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

over \$105 billion for fiscal years 2013 and 2014. MAP-21 is the first long-term highway authorization enacted since 2005. It transforms the policy and programmatic framework for investments to guide the growth and development of the country's vital transportation infrastructure. MAP-21 builds on and refines many of the highway, transit, bike, and pedestrian programs and policies established in 1991.

MAP-21 creates a streamlined, performance-based, and multimodal program to address the many challenges facing the U.S. transportation system. These challenges include improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery.

The latest Needs Assessment of the California Transportation Commission was completed in 2011. The Summary of Findings indicates that for a Ten year period from 2011 to 2020 the total cost of all system preservation, system management, and system expansion projects is nearly \$538.1 billion. Of this total, the cost of system preservation projects (both rehabilitation projects and maintenance costs) during the study period is \$341.1 billion. The cost of system expansion and system management projects was estimated to be \$197.0 billion.

The total estimated revenue from all sources during the ten-year study period is \$242.4 billion. This represents about 45% of the overall estimated costs of projects and programs that were identified in the needs analysis, and leads to a shortfall of about \$295.7 billion over the ten-year period. This is an enormous issue that is being addressed by all levels of government to determine appropriate options to deal with the transportation needs.

Impacts from climate change significantly affects transportation infrastructure. While more study is needed to specify how vulnerable these impacts are and necessary steps to take to reduce that infrastructure vulnerability, it is clear that transportation agencies in this region should not ignore these impacts.

Trucks, air, and rail are the predominant modes in moving freight and are operating on an increasingly congested highway network. Increasing the use of other modes to move goods is a sound compliment to strategies designed to address future highway congestion. Encouraging the use of rail freight, air, truck, and other modal options increases the efficiency of the overall inland distribution system but they must have sufficient capacity and be economically viable to

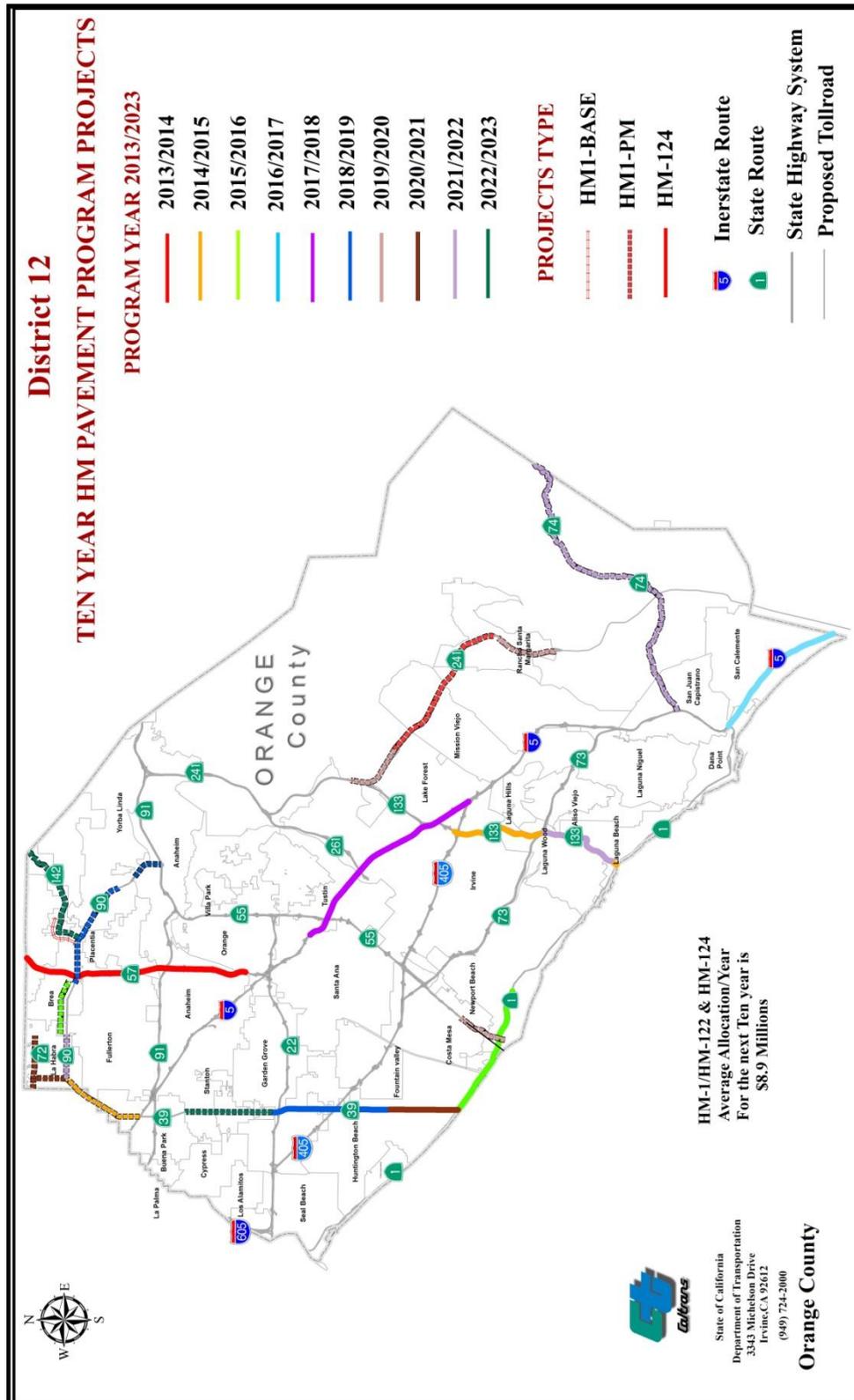
perform that role. Planned investments in the freight mobility network within the region aimed at removing operational bottlenecks and increasing system capacity should be advanced expeditiously. Caltrans is in the process of updating its Goods Movement Action Plan (California Freight Mobility Plan) that will implement MAP-21 to transition freight mobility to a performance and outcome-based program. California will invest resources in projects to achieve individual targets that collectively will make progress toward national goals. One major component of this program is freight movement and economic vitality that will improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.

Evaluating and proposing strategies to enhance transportation system mobility is an ongoing process, requiring agencies to work together towards the goals of integrating travel modes and providing sufficient capacity for future needs. With implementation of the plan, the District will begin to reap the benefits of improved performance, increased safety, connectivity, and sustainability. The ground transportation system will become more reliable, better integrated, and more environmentally friendly. In the end, it is these measures that will determine the true success of this plan.

APPENDICES

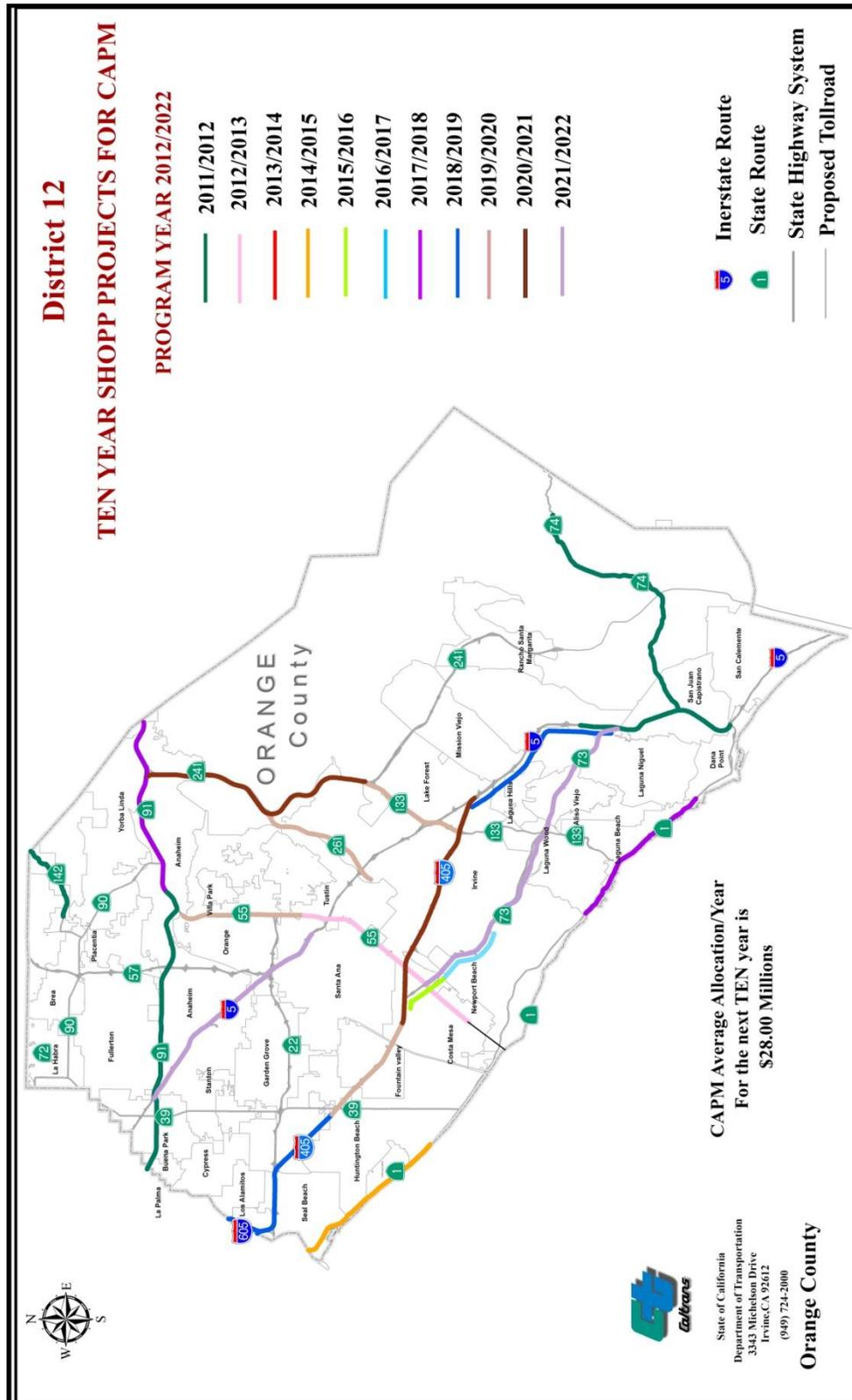
Appendix A

District 12 10-Year HM Pavement Program Projects



Appendix B

District 12 10-Year SHOPP Projects for CAPM



Appendix C

District 12 – Detailed List of 2014 Ten Year SHOPP Projects¹⁰⁰

PID Cycle	Route	Post Miles	Project Location	Project Description	EFIS No.
2014	1	11.49 - 11.85	Near Laguna Beach, from north of Irvine Cove Drive to Moro Ridge Road.	Storm water mitigation.	1213000186
2014	1	9.39 - 9.39	In Laguna Beach, at Route 133 (Broadway Street).	Replace bridge. Financial Contribution Only (FCO)	1213000086
2014	5	12.49 - 23.25	Route 5 from 5/73 to Route 5/133 Interchange	Upgrade right side barrier, end treatments and bridge railing connections	TBD
2014	5	23.24 - 34.50	Route 5 from 5/133 to the Santa Ana River Bridge	Upgrade right side barrier, end treatments and bridge railing connections	TBD
2014	5	23.96 - 23.96	District 12 Transportation Management Center in Orange County	Develop and Deploy advanced reports to support Traffic Management System (TMS) and CHP - PHASE 1	1214000037
2014	5	33.30 - 34.50	Enhance highway worker safety with access gates and other measures.	Enhance highway worker safety with access gates and other measures.	1213000100
2014	5	34.50 - 37.40	In Santa Ana and Anaheim from Santa Ana River to Harbor Blvd.	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2014	5	37.40 - 40.90	In Anaheim from Harbor Blvd to La Palma Ave.	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2014	5	40.90 - 41.90	In Anaheim from La Palma Ave Magnolia Ave.	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2014	5	41.90 - 43.10	In Anaheim, Fullerton and Buena Park Magnolia Ave to Stanton Ave and on Route 91 from Stanton Ave to Btookhurst St (PM 2.8/3.8)	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2014	5	41.90 - 43.10	In Anaheim, Fullerton and Buena Park from Magnolia Ave to Stanton Ave and on Route 91 from Stanton Ave to Brookhurst St (PM 2.8/3.8)	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2014	5	44.38 - 44.38	Various routes	Replacing the current PTZ analog CCTVs to HD CCTVs with 20 megapixel 180 degree	TBD

¹⁰⁰ Source: District 12 – Division of Planning, Project Studies Branch.

PID Cycle	Route	Post Miles	Project Location	Project Description	EFIS No.
2014	5	R23.96 - R023.96	In Irvine at the Traffic Management Center (TMC) at Sand Canyon Avenue.	Upgrade the existing audio-visual (AV) system.	1213000182
2014	22	R0.917 - R1.20	Route 22 from LA County Line for Routs 22, 405, & 605 to Valley View Street	Upgrade right side barrier, end treatments and bridge railing connections	TBD
2014	39	12.40 - 17.40	In the City of Anaheim, from Lincoln Ave. to Rosecrans.	Cold plane 3 inches and replace with 1" dense graded AC (DGAC) and 2" of rubberized AC-gap graded (RAC-G)	1200020177
2014	39	9.80 - 10.66	In Stanton, from south of Bever Place to south of Katella Avenue. Rehabilitate drainage system to alleviate flooding.	Upgrade drainage systems to alleviate flooding	1200000211
2014	55	0.00 - 17.90	In Newport Beach, Costa Mesa, Santa Ana, Tustin, Orange and Anaheim, from Finley Avenue to Route 91.	Upgrade metal beam guardrail (MBGR) and clean-up clear recovery zone.	1212000092
2014	73	22.50 - 25.70	In and near Irvine and Newport Beach, from Bonita Canyon Road/New Ford Road to north of Campus Drive.	Rehabilitate Pavement.	1213000068
2014	73	26.10 - 28.00	From Rte 55 to I 405	Install Fiber Optics and CCTV	1212000057
2014	90	0.06 - 7.95	In La Habra, Fullerton, Brea, and Placentia, from Route 39 (Beach Blvd.) to west of Rose Drive.	Americans with Disabilities Act (ADA) improvements.	1213000236
2014	91	13.80 - 13.80	Near Anaheim, at the westbound Peralta Weigh Station.	Rehabilitate Commercial Vehicle Enforcement Facility (CVEF).	1214000187
2014	91	5.20 - 6.40	In Anaheim and Placentia from State College boulevard to La Palma Avenue; also on Route 57 from south of La Palma Avenue to south of Orangethorpe Avenue.	Enhance highway worker safety with access gates, miscellaneous paving and other measures.	1213000101
2014	91	R0.00 - R2.80	In La Palma and Buena Park, from Los Angeles County line to Stanton Avenue. Transportation Management Systems.	Transportation Management Systems.	1214000038
2014	133	7.80 - 13.70	In and near Irvine, from south of Route 405 to north of Route 241.	Enhance highway worker safety with access gates, miscellaneous paving, and other measures.	1213000102
2014	142	0.80 - 2.90	On Route 142 from Imperial Highway to Carbon Canyon Regional Park entrance / Santa Fe Road	Resurface conventional highway lanes	1214000066
2014	261	0.00 - 0.10	In Irvine, at Walnut Avenue pumping plant.	Construct groundwater transmission line.	1200000218
2014	405	0.20 - 8.70	In and near Irvine and Costa Mesa, from Route 5 to Route 55.	Upgrade existing communication cables with fiber optic cables, install new electronic equipment and upgrade CCTV system.	1212000058

PID Cycle	Route	Post Miles	Project Location	Project Description	EFIS No.
2014	22	R9.10 - R9.10	Haster/Garden Grove Blvd	Drainage System Restoration Mitigate flooding by installing a new drainage system at the ramp termini	TBD
2016	1	7.93 - 10.53	On SR-1 from Ledroit St to Boat Canyon Dr in Laguna Beach	Upgrade Sidewalk & pedestrian facilities to ADA standards	1214000041
2016	5	10.30 - 10.50	Northbound Route 5 slope	Slope stabilization and Slope Re-Vegetation for source control	TBD
2016	5	12.80 - 21.40	In Mission Viejo and Laguna Hills	Slab Replacement and Grind	1213000197
2016	5	20.80 - 32.50	In Orange county at various locations	Upgrade Crash cushions	1212000116
2016	5	29.60 - 44.40	Both directions of I-5 between SR-55 and LA County line	Replace overhead signs that lost reflectivity with new high "Retro-Reflective Signs"	TBD
2016	5	31.00 - 33.30	In Santa Ana from 4th St to Broadway	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	1214000054
2016	5	34.00 - 42.38	In Orange county, from 57 to 91 on route 5	Upgrade right side barrier, end treatments and bridge railing connections	TBD
2016	5	R23.96 - R23.96	District 12 Transportation Management Center	Upgrade ATMS to support Arterial Management	TBD
2016	55	12.00 - 13.40	In Orange and Tustin from 17th St to La Veta and on RT 22 from RT 55 to Tustin Ave PM 12.6/13.1	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	1214000053
2016	55	13.20 - 17.80	In Orange from La Veta to Route 91	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	1214000056
2016	55	R5.99 - 10.45	From 405 to I-5	Upgrade Fiber Optics	TBD
2016	55	Various	55 0031, 55 320K, 55 620F	Rail Upgrade	1212000099
2016	57	16.39 - 20.88	On SR-57 from Orangethorpe Avenue to Lambert road	ADA Improvements	1214000042
2016	73	10.00 - 28.02	Rte. 73 from Rte. 5 to Rte. 405	MBGR Upgrade	1214000093
2016	74	0.04 - 1.80	On SR-74 from SR-74/I-5 to San Juan Capistrano City Limit	ADA Improvements	TBD
2016	90	6.87 - 7.38	Kraemer Bl. To SR 142	Install CMS	1200020203
2016	90	Various	District 12 Transportation Management Center	Improve Arterial Detection system along Imperial Hwy and Carbon Canyon	TBD
2016	91	0.02 - 0.02	Carmenita Road Pedestrian Overcrossing	Replace Pedestrian Bridge ADA	TBD
2016	91	9.80 - 19.00	On Route 91 from Lakeview Avenue to Orange County/Riverside County Line	Slab Replacement, Grinding AC shoulder, ramps	1213000196
2016	91	R0.00 - R3.70	In Orange county, from LA/ORCA county line to Route 5	Upgrade right side barrier, end treatments and bridge railing connections	TBD

PID Cycle	Route	Post Miles	Project Location	Project Description	EFIS No.
2016	91	R13.60 - R13.60	Peralta Weigh Station on State Route 91 Eastbound	Peralta EB Weigh Station - Renewing and upgrading the facility	1214000050
2016	91	R3.72 - 6.11	In Orange county, from Route 5 to Route 57	Upgrade right side barrier, end treatments and bridge railing connections	TBD
2016	133	3.42 - 13.66	In Orange county, from south of 133 to Rte 241	Upgrade right side barrier, end treatments and bridge railing connections	1214000077
2016	142	3.50 - 4.70	On Route 142	Address sediment transport from slopes adjacent to SR-142 to areas outside of State Right-of-Way	1214000095
2016	241	33.60 - 33.75	Slope stabilization	Slope stabilization and Slope Re-Vegetation for source control	TBD
2016	405	11.40 - 16.90	In Costa Mesa/Fountain Valley	Remove and replace AC	TBD
2016	405	16.90 - 24.20	In Huntington Beach	Slab Replacement and Grind	TBD
2016	405	7.00 - 25.00	In Orange County Route 405	Bridge Preventive Maintenance	TBD
2016	405	7.30 - 11.80	In Irvine and Costa Mesa from Von Karman to Harbor Blvd.	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	1214000055
2018	1	22.9 - 33.49	Rte 1	ADA Improvements / Curb Ramps	TBD
2018	1	4.60 - 12.21	On Route 1 from Via Mentone to El Moro Elementary School	ADA Improvements / Curb Ramps	TBD
2018	5	0.00 - 12.26	From San Diego County Line to Rte 73	Upgrade Fiber Optics and CCTV	TBD
2018	5	0.00 - 12.49	Route 5 from San Diego County Line to Route 5/73 Interchange	Upgrade right side barrier, end treatments and bridge railing connections	TBD
2018	5	1.60 - 1.70	55-0203	Upgrade to current seismic standards	TBD
2018	5	23.20 - 30.30	from Rte 133 to SR 55	Upgrade Fiber Optics and CCTVS	1213000143
2018	5	34.50 - 37.40	In Santa Ana and Anaheim from Santa Ana River to Harbor Blvd.	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2018	5	37.40 - 40.90	In Anaheim from Harbor Blvd to La Palma Ave	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2018	5	40.90 - 41.90	In Anaheim from La Palma Ave to Magnolia Ave	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2018	39	15.15 - 15.91	On Beach Blvd. from Manchester Ave. to Craig Street	Mitigate flooding by installing a new drainage system	TBD
2018	55	11.80 - 17.80	In Tustin , Anaheim, NB/SB from 17th Street to SR 91	Remove and replace AC	TBD
2018	55	17.20 - 17.20	SR-55 at Lincoln & Santiago Canyon	Construct roundabout to address backup to the mainline downstream of the NB SR-55 ramp intersection at Lincoln.	TBD

PID Cycle	Route	Post Miles	Project Location	Project Description	EFIS No.
2018	55	6.20 - 7.90	55-438, 55-416, 55-410R/L, 55-409	Join seals, polyester concrete	TBD
2018	57	10.80 - 12.50	In Orange from Route 5 to Katella Ave	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2018	57	11.30 - 15.40	In Anaheim from Chapman Ave to La Palma Ave	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2018	57	16.20 - 21.10	In Placentia, Fullerton and Brea from Orangethorpe Ave to Lambert Road	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2018	73	26.50 - 26.60	55 0539L Route 73/55 Separation 55 0539R Route 73/55 Separation	Bridge Rail Upgrade - Upgrade non-standard rails	TBD
2018	74	13.29 - 13.29	In Orange County at Route 74, Bridge 55-0064	Bridge Rail Upgrade	TBD
2018	91	0.30 - 0.30	EB SR-91 at Orangethorpe	Add Aux lane and widen the off-ramp	TBD
2018	133	8.28 - 9.20	SB SR-133 between SB-5 to NB-405	Add Aux lane	1214000130
2018	133	8.30 - 13.60	In Irvine, NB/SB From 405 to SR 241	Remove and Replace AC pavement, ramps	TBD
2018	241	27.30 - 39.00	In Unincorporated OC and Anaheim From 133 to SR 91	Remove and Replace AC pavement, ramps	TBD
2018	261	0.00 - 6.30	In Irvine	Remove and Replace AC	TBD
2018	405	0.90 - 3.90	In Irvine from Irvine Center Dr. to University Dr.	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2018	405	11.45 - 11.45	55-257,55-258,55-429,55-262	Join seals, polyester concrete	TBD
2018	405	3.90 - 6.40	In Irvine from University Dr. to San Diego Creek	Relocate facilities away from traffic, construct roadside paving, access gates and trails to improve worker safety	TBD
2018	605	0.00 - R1.60	In Seal Beach	Slab Replacement and Grind	TBD
2018	5	19.95 - 30.30	Lake Forest Drive to I-5/SR Interchange	Collision Severity Reduction MBGR Upgrade	TBD
2018	57	13.30 - 13.30	Ball Road Ave	Operational Improvements Widen the off-ramp at the termini - Within R/W, CE level Env. Doc	TBD
2018	57	21.10 - 21.70	Lambert Ave to Tonner Canyon	Storm water slope stabilization and/or Slope Re-Vegetation for source control	TBD
2020	1	14.00 - 22.00	In Orange County in Newport Beach	ASBS project	TBD
2020	1	21.00 - 29.00	Orange county Beaches, Hunting beach	TMDL	TBD
2020	5	26.70 - 26.70	NB I-5 on ramp from SB Culver Drive	Widen NB on-ramp from 1 lane to 2 lane ramp	TBD
2020	5	43.90 - 43.90	NB I-5 off-ramp to Artesia parkway	Widen the off-ramp at the termini adding additional left turn lane	TBD

PID Cycle	Route	Post Miles	Project Location	Project Description	EFIS No.
2020	5	R23.96 - R23.96	District 12 Transportation Management Center	Advanced Transportation Management System upgrades and integration of events and incidents management, lane closures, and alternate routes. Phase 2	1214000036
2020	133	0.01 - 0.84	On SR-133 from PCH to Woodland Dr.	ADA Improvements	TBD
2020	405	3.80 - 3.80	Jeffry/University on-ramp to SB 405	Widen the on-ramp to add the 3rd lane	TBD
2022	5	R23.96 - R23.96	District 12 Transportation Management Center	Upgrading the current network server to 100 Gig Ethernet network	TBD
2022	5	R23.96 - R23.96	District 12 Transportation Management Center	Upgrade the existing Corridor Adaptive Ramp Metering System	TBD
2022	39	0.00 - 22.00	District 12 Transportation Management Center	Improve Arterial Detection system on Beach Blvd	TBD
2022	55	0.00 - 6.00	Orange County, Costa Mesa.	TMDL	TBD
2022	55	Various	All Routes	Install HD cameras for traffic signals	TBD
2022	57	0.00 - 22.55	From Rte 5 to LA county line	Upgrade Fiber Optics and CCTVS	TBD
2022	57	17.00 - 21.00	In Orange County Brea/Fullerton area	Slope Re-Vegetation for source control	TBD
2022	57	Various	District 12 Transportation Management Center	Create a TMC/EOC Redundant System For Business Continuity	TBD
2022	91	0.00 - 18.9	from Riverside County Line to LA county line	Upgrade Fiber Optics and CCTVS	TBD
2022	405	Various	District 12 Transportation Management Center	Deploy fixed CCTVs on 350 on ramp locations in the county	TBD

Appendix D

Major Projects in Orange County:

(PA & ED, Final Design, PSR and Construction, **Shown on Exhibit 3**):

Caltrans District 12 Projects:

1. All Routes M2 Freeway mitigation Program (\$243 M)
2. I-5: HOV Access Improvements (5.6M, 14.70/31.60)
3. I-5: Interchange improvements at SR 55 \$8 M, 29.6/31.10)
4. SR 22: Separate NB/SB I-5 Configuration to relieve congestion from City Dr. to SR 22/SR 57 Interchange (\$61 M, 9.70/10.50)
5. SR 57: High Speed Rail Oversight (\$5 M, 12.00/12.40)
6. SR 74: Add 4 foot shoulder East of Antonio Parkway/La Pata Rd & East of Conrock Entrance (\$13M, 2.93/5.06)
7. SR 133: Add interchange at Trabuco Road (\$70, 10.00/11.00)
8. SR 241 : Add lanes South of Santa Margarita Parkway North of Bake Parkway (\$62.5 M, 18.50/22.50)
9. SR 241: Add 3 general purpose lanes between SR 133 confluence & 0.6 mile North of SR 261 Confluence ((\$34.4 M, 27.60/32.30)
10. SR 241: Construct overcrossing at SR 241/SR 261 interchange (\$8.1 M, 32.90/32.90)
11. SR 241 : Interchange improvements at Weir Canyon Road (\$9.9 M, 37.20/37.50)
12. SR 241: Prepare PSR/PR, PS&E & Construction of Mountain Park overcrossing 1/2 miles south of SR 91/241 interchange (\$4.9 M, 38.40/38.40)
13. SR 261 : Interchange improvements at Chapman Ave SR 241/261 & Santiago Canyon Road (\$44 M, 0.00/0.00)
14. I-405: Auxiliary lanes extension South of Sand Canyon to southbound Culver Drive off-Ramp ((\$15.8 M, 2.60/6.50)
15. I-405: Add Auxiliary lane from University on-ramp to Sand Canyon off-ramp ((\$11.20 M, 3.10/3.80)
16. I-405: Widen overcrossing at Talbert Avenue (\$4, 13.40/13.40)

American Recovery and Reinvestment Act (ARRA):

17. SR 91 EB lane addition from SR 241 to SR 71, \$80.5 million (CMIA/ARRA), Completed 09/2011
18. 22/405 HOV Direct Connectors, \$93 mil (ARRA/CMAQ), Construction Scheduled for year 2014 Completion

M2020:

19. SR 55, Add one lane in each direction from I-405 to I-5, \$137 million, PA&ED Phase (Currently under review)
20. SR 55, Add one lane in each direction from I-5 to SR 22, \$95 million, PSR Phase Complete 1/2014

21. I-405, Add one lane in each direction from SR 55 to I-5, \$240 million, PSR Phase Complete 6/2013
22. I-5, El Toro Road Interchange, \$38 million, PSR Development Phase
23. SR 57, Add northbound lane from Orangewood to Katella NB, \$25 million, PSR Phase Complete 2/2014
24. SR 57, Add a truck climbing lane from Lambert to County Line Widening, \$ 110 million, PSR Completed
25. SR 91, Add Westbound auxiliary lane, SR 55 to Tustin Ave, \$42 million, Design Phase 4/2013
26. SR91, Add one lane in each direction from SR 57 to SR55, \$264 million, PSR 12/2012
27. I-605, Katella Interchange Improvement, \$20 million, PSR Pending

Five-Year Early Action Plan:

28. I-5 PCH to Pico, Add HOV Lane, \$244 million, Design Phase Complete 12/2013
29. I-5, Add one lane in each direction from SR 73 to El-Toro, \$550 million, PA & ED Phase Complete 7/2012
30. I-5, Add one lane in each direction from I-405 to SR 55, \$233 million, PA & ED Phase Complete 4/2016
31. I-5, Add one HOV lane in each direction from SR 55 to SR 57, \$42 million, PA & ED Phase Complete 11/2013
32. I-405, Add one mixed-flow lane and one HOT lane in each direction from SR 73 to I-605, \$1.7 billion, PA & ED Phase Complete 3/2015
33. SR 91, Add one lane in each direction from SR 241 to Pierce St. in the city of Riverside and construct express toll lanes from SR241 to I-15 in Riverside County (RCTC Project), \$2 Billion, ROD approved 10/2012

TCIF:

34. SR 91, Westbound lane addition, SR 57 to I-5, \$73.5 million (TCIF/M2), PS&E Completed 12/2012
35. Grade Separation off system, \$481 million (TCIF/OCTA), Various Stages (**Refer to Exhibit 4**)

CMIA (\$383.5 million CMIA; \$757.5 million total cost of projects):

36. SR 57 Add northbound lane from, Katella to Lincoln, \$30 million (CMIA/M2), Construction Completed 4/2014
37. SR 57, Add northbound lane from, Orangethorpe to Yorba Linda, \$49 million, Construction Completed 2/2014
38. SR 57, Add northbound lane from Yorba Linda Blvd. to Lambert Road, \$52 million (CMIA/M2), Construction Completed 2/2014
39. I-405/605, HOV Direct Connector, \$140 million (CMIA/OCTA/Cities), Construction Scheduled for Completion 12/2014
40. SR 91, Eastbound and Westbound lane addition from SR 55 to SR 241, \$77.5 million (CMIA/STIP), Construction Completed 9/2013

Santa Ana Freeway (I-5) Gateway Project: \$335 million, the final link in the original Measure M's freeway improvement program, Construction Completed 1/2011

STIP: (\$446M RIP + \$16.2M IIP Programmed):

41. I-5 / Ortega Highway Interchange improvements, \$78 million (STIP/Local), Construction Complete 3/2015
42. I-5 / Camino Capistrano Interchange improvements, \$19 million (STIP), Construction Completed 3/2013

TOLL ROAD:

43. SR 91 and Toll Road 241 Direct Connectors, \$135 million, PSR/PDS Completed 1/2012

SR 241 Tesoro Extension, from Oso Parkway to Cow Camp near Ortega Highway, \$200 million, PA&ED Phase Complete 5/2013

Appendix E

List of Key Freeway Improvements – Year 2035 Baseline Scenario

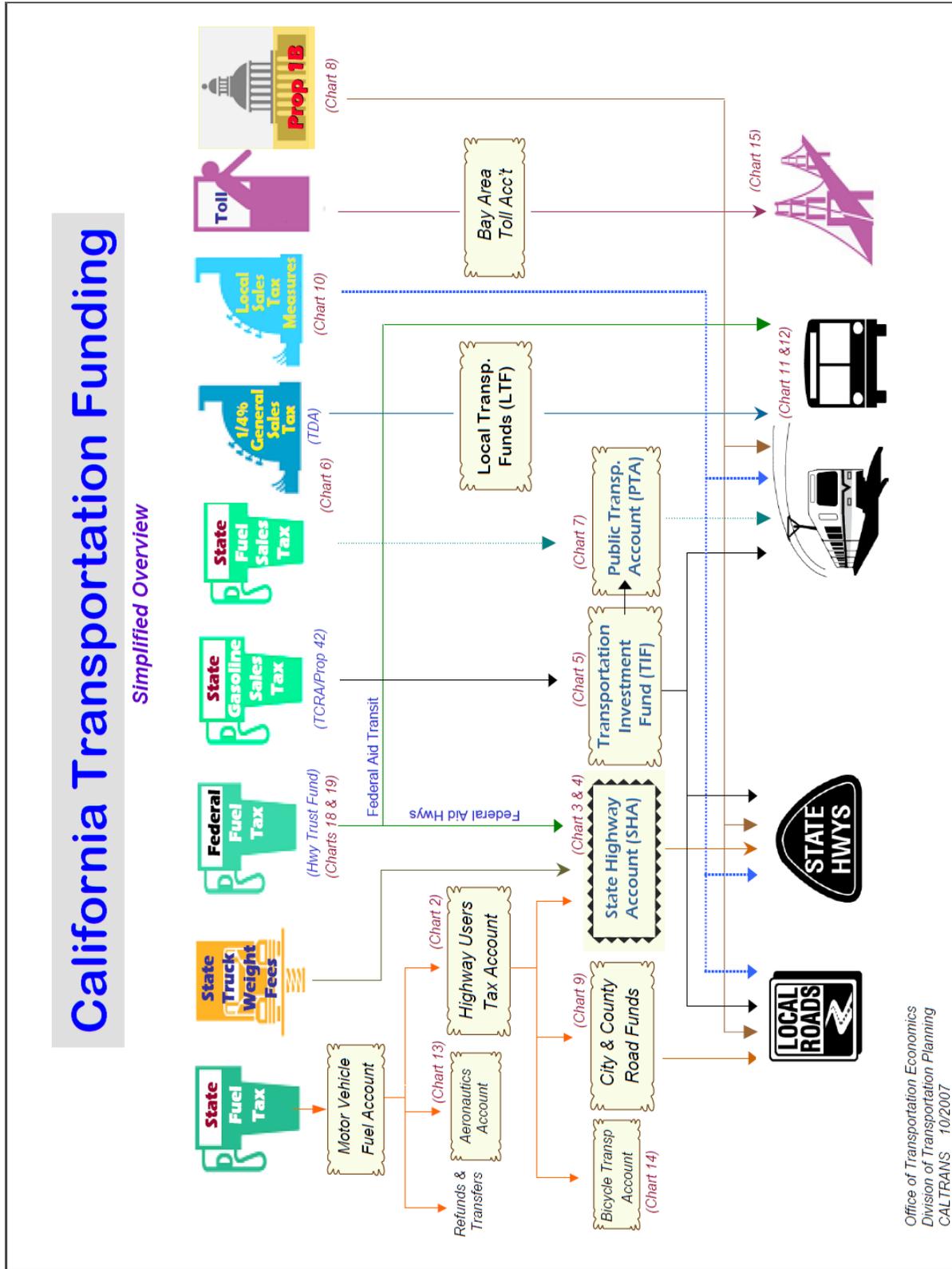
Route	From:	To:	Improvements	Source	RTP ID
I-5	Avenida Pico	SR 1	Add one HOV lane in each direction	RTIP/OCTA	2H01143
I-405	SR 73	Los Angeles County line	Add one lane in each direction	RTIP/OCTA	Ora 030605
SR 22	SR 22/I-405/I-605		Direct HOV Connector	RTP	Ora000193 & Ora000195
SR 55	Alton Ave.		Construct HOV access ramp	RTIP	550
SR 55	Edinger Ave.	Dyer Rd.	Add a Southbound auxiliary lane	RTIP	Ora030603
SR 55	Dyer Rd.	MacArthur Blvd.	Add a Southbound auxiliary lane	RTIP	Ora030610
SR 57	SR 91	Lambert Rd.	Add a Northbound one lane	RTIP/OCTA	Ora 120332
SR 57	Katella Ave.	Lincoln Blvd.	Add a Northbound one lane	RTIP/OCTA	Ora 120333
SR 57	Orangewood	Katella Ave.	Add a Northbound one lane	RTP	2M0735A
SR 73	I-5	SR 73	Multiple improvements (additional lane, climbing and aux. lanes)	RTIP	10254
SR 74	Calle Entradero	Antonio Parkway	Widen from two to four lanes	RTIP	Ora 120507
SR 91	SR 55	Weir Canyon Rd.	Add an Eastbound one lane	RTIP/OCTA	Ora 030601
SR 91	Weir Canyon	SR 90	Add an Westbound one lane	RTIP/OCTA	Ora 120336
SR 91	SR 241	SR 71	Add an Eastbound one lane	RTIP/OCTA	Ora 030603
SR 91	SR 55	Tustin Ave.	Add one Westbound auxiliary lane	RTP	2M01125
SR 91	SR 57	I-5	Add an Westbound one lane	RTIP/OCTA	2M01126
SR 91	SR 241	I-15	Add one lane in each direction	RTIP/OCTA	2M0737
SR 133	SR 241	I-5	Multiple improvements (additional lane, climbing and aux. lanes)	RTIP	Ora050
SR 241	SR 261	SR 91	Multiple improvements (additional lane, climbing and aux. lanes)	RTIP	Ora050
SR 241	Oso Parkway	SR 261	Multiple improvements (additional lane, climbing and aux. lanes)	RTIP	Ora051
SR 241	Oso Parkway	I-5 (County line)	Foothill South extension	RTIP/OCTA	Ora 052
SR 261	SR 241	I-5	Multiple improvements (additional lane, climbing and aux. lanes)	RTIP	Ora050

Appendix F

List of Key Freeway Improvements – Year 2035 Concept Scenario (In addition to improvements from the Baseline Scenario)

Route	From:	To:	Improvements	Source	ID No.
I-5	La Paz Rd.	Oso Pkwy.	Extend auxiliary lane through interchange	RTP/OCTA	2M01108
I-5	Alicia Pkwy.	La Paz Rd.	Extend auxiliary lane through interchange	RTP/OCTA	2M01110
I-5	Barranca Pkwy.		HOV drop ramp completion	RTP	2H0702
I-5	SR 55	SR 57	Add one HOV lane in each direction	RTP/OCTA	2H0703
I-5	SR 133	SR 55	Add one lane in each direction	RTP/OCTA	2M0731
I-5	SR 57	SR 91	Add one lane in each direction	RTP/OCTA	2M0732
I-5	SR 73	El Toro Rd.	Add one lane in each direction	RTP/OCTA	2M0730
I-405	SR 133	Irvine Center Dr.	Add Southbound auxiliary lane	RTP	2M04130
I-405	Jeffrey Rd.	Culver Dr.	Add Northbound auxiliary lane	RTP/OCTA	2M04131
I-405	Von Karman Ave.		Add HOV drop ramp	RTP	2H01148
I-405	I-5	SR 55	Add one lane in each direction	RTP/OCTA	2M0728
SR 55	I-405	SR 22	Add one lane in each direction	RTP/OCTA	2M0733
SR 57	Lincoln Blvd.	Orangethorpe Ave.	Add one lane in Northbound direction	RTP/OCTA	2M0735B
SR 57	Lambert Rd.	Tonner Canyon Rd.	Add one Northbound truck climbing lane	RTP/OCTA	2TK01116
SR 73	I-405		I-405 direct HOV connector	RTP	2H0706
SR 73	I-405	MacArthur Blvd.	Add one HOV lane in each direction	RTP/OCTA	2H0707
SR 91	SR 57	SR 55	Add an Eastbound mixed flow lane	RTP/OCTA	2M0736

Appendix G Transportation Funding Process



Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

ACRONYMS

<i>AADT</i>	<i>Average Annual Daily Traffic</i>
<i>AB</i>	<i>Assembly Bill</i>
<i>AC</i>	<i>Asphalt Concrete</i>
<i>ACE</i>	<i>Alameda Corridor-East Trade Corridor</i>
<i>ACS</i>	<i>American Community Survey</i>
<i>ADA</i>	<i>Americans with Disabilities Act</i>
<i>APCS</i>	<i>Automated Pavement Condition Survey</i>
<i>AQMD</i>	<i>Air Quality Management District</i>
<i>AQMP</i>	<i>Air Quality Management Plan</i>
<i>ARB</i>	<i>Air Resources Board</i>
<i>ARTIC</i>	<i>Anaheim Regional Transportation Intermodal Center</i>
<i>BMP</i>	<i>Best Management Practices</i>
<i>BNSF</i>	<i>Burlington Northern Santa Fe Railway</i>
<i>BRT</i>	<i>Bus Rapid Transit</i>
<i>CAPM</i>	<i>Capital Preventive Maintenance</i>
<i>CAV</i>	<i>Clean Air Vehicle</i>
<i>CBTP</i>	<i>Community Based Transportation Planning</i>
<i>CCTV</i>	<i>Closed-Circuit Television</i>
<i>CDR</i>	<i>Center for Demographic Research</i>
<i>CEQA</i>	<i>California Environmental Quality Act</i>
<i>CHP</i>	<i>California Highway Patrol</i>
<i>CIB</i>	<i>California Interregional Blueprint</i>
<i>CMA</i>	<i>Congestion Management Agency</i>
<i>CMAQ</i>	<i>Congestion Mitigation and Air Quality</i>
<i>CMIA</i>	<i>Corridor Mobility Improvement Account</i>
<i>CMP</i>	<i>Congestion Management Program</i>
<i>CMS</i>	<i>Changeable Message Sign/Changeable Message Signs</i>
<i>CPTC</i>	<i>California Private Transportation Company</i>
<i>CSMP</i>	<i>Corridor System Management Plan</i>
<i>CSS</i>	<i>Context Sensitive Solutions</i>
<i>CTC</i>	<i>California Transportation Commission</i>
<i>CTP</i>	<i>California Transportation Plan</i>
<i>DOT</i>	<i>Department Of Transportation</i>
<i>DSMP</i>	<i>District System Management Plan</i>
<i>EAP</i>	<i>Early Action Plan</i>
<i>EMS</i>	<i>Extinguishable Message Sign</i>
<i>EPA</i>	<i>Environmental Protection Agency</i>

<i>FFS</i>	<i>Free Flow Speed</i>
<i>FHWA</i>	<i>Federal Highway Administration</i>
<i>FSP</i>	<i>Freeway Service Patrol</i>
<i>FTA</i>	<i>Federal Transit Administration</i>
<i>FTIP</i>	<i>Federal Transportation Improvement Program</i>
<i>GBPS</i>	<i>Giga Bit Per Second</i>
<i>GCCOG</i>	<i>Gateway Cities Council of Governments</i>
<i>GCP</i>	<i>Gross County Product</i>
<i>GHG</i>	<i>Green House Gases</i>
<i>GPR</i>	<i>Ground Penetrating Radar</i>
<i>HAR</i>	<i>Highway Advisory Radio</i>
<i>HD</i>	<i>High Definition</i>
<i>HFCS</i>	<i>Highway Functional Classification System</i>
<i>HICOMP</i>	<i>Highway Congestion Monitoring Program</i>
<i>HM</i>	<i>Highway Maintenance</i>
<i>HOT</i>	<i>High Occupancy Toll</i>
<i>HOV</i>	<i>High Occupancy Vehicle</i>
<i>HQTA</i>	<i>High Quality Transit Areas</i>
<i>HSIP</i>	<i>Highway Safety Improvement Program</i>
<i>I-5(typical)</i>	<i>Interstate 5</i>
<i>IEOC</i>	<i>Inland Empire Orange County</i>
<i>IGR</i>	<i>Intergovernmental Review</i>
<i>IP</i>	<i>Internet Protocol</i>
<i>ISTEA</i>	<i>Intermodal Surface Transportation Efficiency Act</i>
<i>IT</i>	<i>Information Technology</i>
<i>ITIP</i>	<i>Interregional Transportation Improvement Program</i>
<i>ITS</i>	<i>Intelligent Transportation System</i>
<i>ITSP</i>	<i>Interregional Transportation Strategic Plan</i>
<i>LED</i>	<i>Light Emitting Diode</i>
<i>LOS</i>	<i>Level of Service</i>
<i>LOSSAN</i>	<i>Los Angeles-San Diego-San Luis Obispo Rail Corridor</i>
<i>L RTP</i>	<i>Long Range Transportation Plan</i>
<i>MAP-21</i>	<i>Moving Ahead for Progress in the 21st Century Act</i>
<i>MCGMAP</i>	<i>Multi-County Goods Movement Action Plan</i>
<i>MPAH</i>	<i>Master Plan of Arterial Highways</i>
<i>MPO</i>	<i>Metropolitan Planning Organization</i>
<i>MPR</i>	<i>Mobility Performance Report</i>
<i>NAFTA</i>	<i>North American Free Trade Agreement</i>
<i>NEPA</i>	<i>National Environmental Policy Act</i>
<i>NHTS</i>	<i>National Household Travel Survey</i>

<i>NPDES</i>	<i>National Pollutant Discharge Elimination System</i>
<i>OCEMA</i>	<i>Orange County Environmental Management Agency</i>
<i>OCTA</i>	<i>Orange County Transportation Authority</i>
<i>PaveM</i>	<i>Pavement Management System</i>
<i>PCC</i>	<i>Portland Cement Concrete</i>
<i>PeMS</i>	<i>Performance Measurement System</i>
<i>PID</i>	<i>Project Initiation Document</i>
<i>RFID</i>	<i>Radio Frequency Identification</i>
<i>RTIP</i>	<i>Regional Transportation Improvement Program</i>
<i>RMS</i>	<i>Ramp Meter Station</i>
<i>RTP</i>	<i>Regional Transportation Plan</i>
<i>RTPA</i>	<i>Regional Transportation Planning Agency</i>
<i>RTP/SCS</i>	<i>Regional Transportation Plan/Sustainable Community Strategy</i>
<i>RWQCB</i>	<i>Regional Water Quality Control Board</i>
<i>SAFETEA-LU</i>	<i>Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users</i>
<i>SB</i>	<i>Senate Bill</i>
<i>SCAG</i>	<i>Southern California Association of Governments</i>
<i>SGP</i>	<i>Strategic Growth Plan</i>
<i>SHA</i>	<i>State Highway Account</i>
<i>SHOPP</i>	<i>State Highway Operation and Protection Program</i>
<i>SHS</i>	<i>State Highway System</i>
<i>SHSP</i>	<i>Strategic Highway Safety Plan</i>
<i>SOV</i>	<i>Single Occupant Vehicles</i>
<i>SR 1(typical)</i>	<i>State Route 1</i>
<i>STIP</i>	<i>State Transportation Improvement Plan</i>
<i>STP</i>	<i>Surface Transportation Program</i>
<i>SWRCB</i>	<i>State Water Resources Control Board</i>
<i>TASAS</i>	<i>Traffic Accident Surveillance and Analysis System</i>
<i>TCA</i>	<i>Transportation Corridor Agencies</i>
<i>TCIF</i>	<i>Trade Corridor Improvement Fund</i>
<i>TCR</i>	<i>Transportation Concept Report</i>
<i>TDM</i>	<i>Transportation Demand Management</i>
<i>TEA-21</i>	<i>Transportation Equity Act for 21st Century</i>
<i>TEU</i>	<i>Twenty-foot Equivalent Unit</i>
<i>TIF</i>	<i>Transportation Investment Fund</i>
<i>TMC</i>	<i>Transportation Management Center</i>
<i>TMS</i>	<i>Traffic Monitoring Station</i>
<i>TMT</i>	<i>Traffic Management Team</i>
<i>TOD</i>	<i>Transit Oriented Development</i>

<i>TSA&E</i>	<i>Transportation System Analysis and Evaluation</i>
<i>TSDP</i>	<i>Transportation System Development Program</i>
<i>TSI</i>	<i>Transportation System Information</i>
<i>TSS</i>	<i>Transit System Study</i>
<i>UCI</i>	<i>University of California Irvine</i>
<i>UP</i>	<i>Union Pacific Railway</i>
<i>UTPP</i>	<i>Urban Transportation Planning Package</i>
<i>VDS</i>	<i>Vehicle Detector Station</i>
<i>VMT</i>	<i>Vehicle Miles of Travel</i>
<i>WIM</i>	<i>Weigh-in Motion</i>
<i>WIR</i>	<i>Workforce Indicators Report</i>

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