



I-5 CMCP

Comprehensive Multimodal Corridor Plan



I-5 CMCP



COMPREHENSIVE MULTIMODAL CORRIDOR PLAN

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I-5 COMPREHENSIVE MULTIMODAL CORRIDOR PLAN

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November 18, 2022

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I accept this Comprehensive Multimodal Corridor Plan for the I-5 corridor as a document informing the regional transportation process.

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Disclaimer

The information, opinions, commitments, policies, and strategies detailed in this document are those of Caltrans District 3 and do not necessarily represent the information, opinions, commitments, policies, and strategies of partner agencies or other organizations identified in this document.

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- Sacramento County Department of Transportation
- Sacramento Metropolitan Air Quality Management District
- Sacramento Regional Transit
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List of Acronyms

§	Section
AB	Assembly Bill
AQMD	Air Quality Management District
ATP	Active Transportation Program
BMC	Bus Mobility Center
CalEPA	California Environmental Protection Agency
CalSTA	California State Transportation Agency
Caltrans	California Department of Transportation
CAPTI	Climate Action Plan for Transportation Infrastructure
CDT	Caltrans Core Development Team
CFMP	California Freight Mobility Plan
CMCP	Comprehensive Multimodal Corridor Plan
CNG	Compressed Natural Gas
COVID-19	Coronavirus disease 19
CSRP	2018 California State Rail Plan
CTC	California Transportation Commission
CTP	California Transportation Plan
DOTP	Division of Transportation Planning
DPLAS	Division of Planning, Local Assistance, and Sustainability
EO	Executive Order
GHG	Greenhouse Gas Emissions
GIS	Geographic Information System
HCD	Housing and Community Development
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
HPI	Healthy Places Index
HQ	Headquarters
HSIP	Highway Safety Improvement Program
I	Interstate
INFRA	Infrastructure for Rebuilding America
IPEDS	Integrated Postsecondary Education Data System
IRRS	Interregional Road System
ITS	Intelligent Transportation Systems
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NCES	National Center for Education Statistics
NHFP	National Highway Freight Program
NHS	National Highway System
NSFHP	National Significant Freight and Highway Projects
NSFLTP	Nationally Significant Federal Lands and Tribal Projects
P&R	Park and Ride
PHD	Person-Hours of Delay
PM	Post Mile
Rail Plan	California State Rail Plan 2018
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
RMDP	Ramp Metering Development Plan

RTP	Regional Transportation Plan
ROW	Right of Way
SACOG	Sacramento Area Council of Governments
SacRT	Sacramento Regional Transit
SACSIM	Sacramento Activity-Based Travel Simulation Model
SMAQMD	Sacramento Metropolitan Air Quality District
SB	Senate Bill
SCCP	Solutions for Congested Corridors Program
SHS	State Highway System
SMF	Smart Mobility Framework
SMP	Strategic Management Plan
SR	State Route
STBG	Surface Transportation Block Grant Program
STIP	State Transportation Improvement Program
TAC	Technical Advisory Committee
TCEP	Trade Corridor Enhancement Program
TDM	Travel Demand Management
TMA	Transportation Management Association
TIGERweb	Topologically Integrated Geographic Encoding and Referencing
TIRCP	Transit and Intercity Rail Capital Program
UC	University of California
US	United States
USDOT	United States Department of Transportation
VHD	Vehicle Hours of Delay
VHT	Vehicle Hours of Travel
VMT	Vehicle Miles Traveled
YCTD	Yolo County Transportation District
ZEV	Zero-Emission Vehicle

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Executive Summary

Purpose and Need

The Sacramento/Yolo Interstate 5 (I-5) CMCP will assist local, regional, and state agencies as they address with the infrastructure, livability, economic, and sustainability needs related to the transportation system.

This system planning document is part of the long-range transportation planning process. The system planning process fulfills California Department of Transportation (Caltrans) statutory responsibility as owner/operator of the State Highway System (SHS) (Government Code Section [§] 65086) by identifying future improvements to the SHS. Through system planning, Caltrans focuses on developing an integrated multimodal transportation system that meets Caltrans goals of safety and health; stewardship and efficiency; sustainability, livability, and economy; system performance; and organizational excellence.

The main purpose of the I-5 CMCP is to create an effective and efficient decision-making process focusing on developing solutions that increase accessibility and mobility, improve safety, and enhance the quality of life and environment within the study corridor. This process will determine what specific improvements to the existing transportation network are necessary to achieve the desired outcomes of corridor users, stakeholders, and the public agencies that own and operate corridor facilities. The CMCP provides the framework for agencies along the corridor to strategize future improvements and position partners to be more competitive and eligible for state, regional, and federal funding applications such as the Senate Bill (SB) 1 Solutions for Congested Corridors Program (SCCP) which requires a CMCP.

Vision Statement

Provide a safe, efficient, accessible, and connected transportation system that emphasizes public transit, walking, and biking to enhance transportation options to reduce our overall dependence on the automobile. These objectives will be achieved through collaboration, creativity, and sustainability with transportation partners and the public.

Corridor Characteristics

- The corridor is the primary link for the greater Sacramento region serving as an important link for the movement of agricultural products and goods movement between the Sacramento Valley, ports of Sacramento and Stockton, and major distribution centers such as the Sacramento International Airport and Amazon Distribution Center.
- The corridor serves local, regional, and interregional traffic of people and goods across an urban, suburban, rural, and open space landscape.



FIGURE 1 | I-5 CMCP STUDY AREA MAP

- The corridor is a critical north-south connector for the region that connects to several local, regional, and interregional highways that carry an increasingly large amount of vehicular and goods movement traffic.
- Motorists traversing the corridor experience increasing delays and unreliable travel times.
- Barriers and gaps exist in the corridor active transportation network.

I-5 CMCP Corridor Study Area Overview

The I-5 corridor serves a variety of transportation needs ranging from daily commute travel between Sacramento and Yolo counties to goods movement and recreational travel throughout Northern California. The I-5 CMCP incorporates the complete I-5 corridor in Sacramento County and a portion of Yolo County. Beginning at the San Joaquin/Sacramento County line and ends north of the City of Woodland at the I-5/County Road (CR) 18 overpass. This CMCP will help inform the issues on the corridor and to assist in planning appropriately for all modes of transportation and facility types, some of which include passenger rail, freight rail line, ports, local arterial roadways, bicycle, and pedestrian facilities.

Improvement projects will enhance corridor operations, increase travel choices, and close gaps in the existing multimodal transportation system. **Figure 3** illustrates a subset of the over 100 proposed multimodal transportation projects included in the I-5 CMCP (see **Table 34** for a full list of projects). The purpose of the proposed projects is to reduce vehicle miles traveled (VMT), greenhouse gas emissions (GHG), and improve livability in the community through operational strategies such as managed lanes, technological advancements, and increased multimodal options. The CMCP projects include improvements to roadways, transportation systems management programs/strategies, transit service and facilities, and active transportation facilities. Improvement projects will improve corridor operations, increase travel choices, and close gaps in the existing multimodal transportation system.



Figure 2 | I-5 Corridor City of Sacramento Photo by Fox 40 News

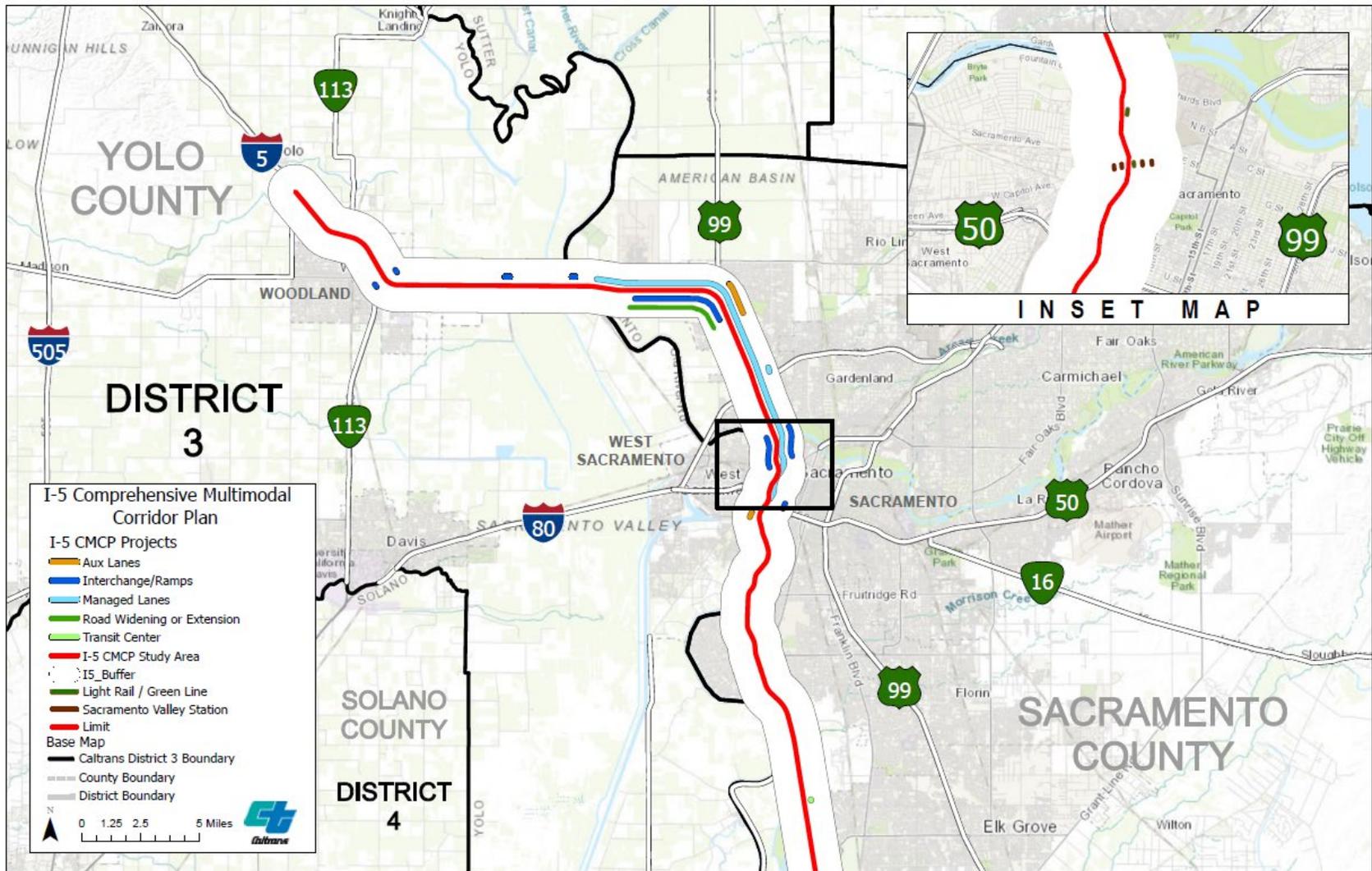


Figure 3 | I-5 CMCP Study Area and a Subset of Proposed Corridor Projects

Can corridor travelers easily complete these trips using these options?

	Distance	Private Vehicle	Ace Rail Rail	Ace Rail Bus	Light Rail	Bus	Walking	Bicycling
Peak hour commute from Woodland to Downtown	20+ mi	Yes	No	No	No	Yes	No	No
Peak hour commute Elk Grove to Downtown	10+ mi	Yes	Yes	No	Yes	Yes	No	No
Peak hour commute from Elk Grove to Sacramento County Line	10+ mi	Yes	No	No	No	No	No	No
Off Peak Travel between Woodland to Sacramento County Line	40 mi	Yes	No	No	Yes	Yes	No	No
Travel between US-50 to I-80	4 mi	Yes	Yes	No	Yes	Yes	Yes	Yes
Travel between I-80 to Airport	10 mi	Yes	No	Yes	No	Yes	No	No

A shuttle bus is proposed to connect the Natomas/Sacramento Airport Station to the Sacramento International Airport

Possible, but requires use of infrequent service and/or multiple connections, making it impractical for commute travel.

Figure 4 | Sacramento and Yolo County Existing Travel Options

Public Engagement

The public engagement process for the I-5 CMCP was to inform, collaborate, and solicit input from key stakeholders and the public on the plan for future corridor improvements:

- 37 agencies along the corridor made up the stakeholder group, which met on a quarterly basis. A subset of the stakeholder group was identified to create the TAC that met monthly.
- Two public engagement activities were held on the I-5 CMCP website to solicit virtual input and feedback.
- Altogether, the outreach activities attracted over 1,701 participants.

Corridor Projects

The multimodal corridor guidelines of Caltrans and the California Transportation Commissions (CTC) recommend a number of performance measures for multimodal corridor planning. The I-5 CMCP has utilized many of these key performance measures to assess current and future transportation system conditions. A number of key performance measures were used to measure the current transportation system as well as to assess potential transportation improvements. The performance measures were assessed using the available transportation model (Sacramento Activity-Based Travel Simulation Model [SACSIM19]) in various separate scenarios. A qualitative analysis was also completed on the individual projects to help understand the potential effectiveness of those projects to improve the transportation system for all users.

Projects modeled for performance in the CMCP were fiscally constrained or programmed at the time of the CMCP's development and completion. All CMCP implementation priority projects be they constrained or unconstrained/conceptual, are subject to change and possible inclusion in the Regional Transportation Plan (RTP) managed by the Metropolitan Planning Organization (MPO) in the corridor plan study area through regular 4-year updates.

To reduce and potentially mitigate induced VMT and GHG emissions from certain VMT and GHG inducing projects, the I-5 CMCP includes various types of active transportation projects as follows:

- Construction of new river and freeway crossings.
- Additional transit/rail/light rail tracks, layover/platform facilities, operation assistance, and/or track modifications for higher speeds.
- Intelligent transportation system (ITS) elements like transit signal priority to increase service frequency and improve travel time reliability.
- Road diets on local arterials to reduce the number of vehicular lanes to accommodate low stress pedestrian and/or bicycle facilities.

With these types of multimodal projects, the overall CMCP induced VMT and GHG will be reduced and/or mitigated, but a more specific project level analysis would need to be completed for each project.

Altogether, the I-5 CMCP includes over 100 multimodal transportation improvement projects (see **Figure 5**) along the study corridor, including 54 active transportation projects, 50 transit, 11 freeway, 17 arterial and several freight and conceptual projects (see **Table 34** for full list of projects). **Figure 3** illustrates a subset of the projects along the I-5 corridor.

100+ Multimodal Transportation Improvement Projects



54 Active
Transportation
Projects



50 Transit Projects



11 Freeway Projects



17 Arterial Projects

Figure 5 | Multimodal Transportation Improvement Projects

Plan Performance

Table 1 and **Figure 6** illustrates the demand modeling analysis summary for the I-5 CMCP which shows a 6% increase in VMT but at the same time shows a 23% reduction in vehicle hours of delay (VHD) and 1% reduction in vehicle hours of travel (VHT). The reduction in delay helps with the goal of reducing GHG. The slight increase in VMT can be addressed by analyzing unfunded projects and quantifying the VMT reduction that can be achieved. With the reduction in VMT that can be achieved, this will also allow for further reduction in VHD and VHT. Below is an overview of the scenarios analyzed in this CMCP.

- **Existing** | This scenario represents year 2019 and its existing conditions.
- **No-Build | Baseline** | The purpose of this scenario is to establish the future conditions as of 2040 along the corridor, given implementation of all known funded projects through 2040 with growth in traffic to 2040. This scenario estimates future traffic volumes for 2040 only as a result of population and employment growth to show how the corridor would perform without improvements except for the projects that are currently under construction and projects that are fully funded and will be implemented by 2040. The following future build scenarios utilize the projects in the no build scenario with the addition of a managed lane.
- **Future Build Scenario 1 | HOV 2+** | This scenario assesses the changes resulting from completing an HOV 2+ lane along the I-5 corridor study area.
- **Future Build Scenario 2 | HOT 2+** | This scenario assesses the changes resulting from the addition of a HOT 2+ lanes along the I-5 corridor study area. This scenario includes all the projects included in Scenario 1 and it converts the HOV lanes in Scenario 1 to HOT 2+ lanes.
- **Future Build Scenario 3 | HOT 3+** | This scenario assesses the changes resulting from a HOT 3+ lane along the I-5 corridor study area. This scenario is similar to Scenario 2 but this different occupancy requirements for HOT lanes.

Table 1 | Daily VMT/VHT/VHD Comparison by Scenarios

Scenario	VMT	VHT	VHD	Avg. Speed	Diff. VMT from Baseline	Diff. VHT from Baseline	Diff. Delay from Baseline	Diff. Speed from Baseline
Existing	4,456,700	81,100	13,210	51.2	-	-	-	-
No-Build (Baseline)	4,906,800	94,620	18,680	51.4	-	-	-	-
Scenario 1 (HOV 2+)	5,203,400	94,650	14,000	53.5	296,600	30	-4,670	2.1
Scenario 2 (HOT 2+)	5,185,300	94,200	13,820	54.2	278,500	-420	-4,860	2.8
Scenario 3 (HOT 3+)	5,132,200	94,400	14,870	53.8	225,400	-220	-3,810	2.4

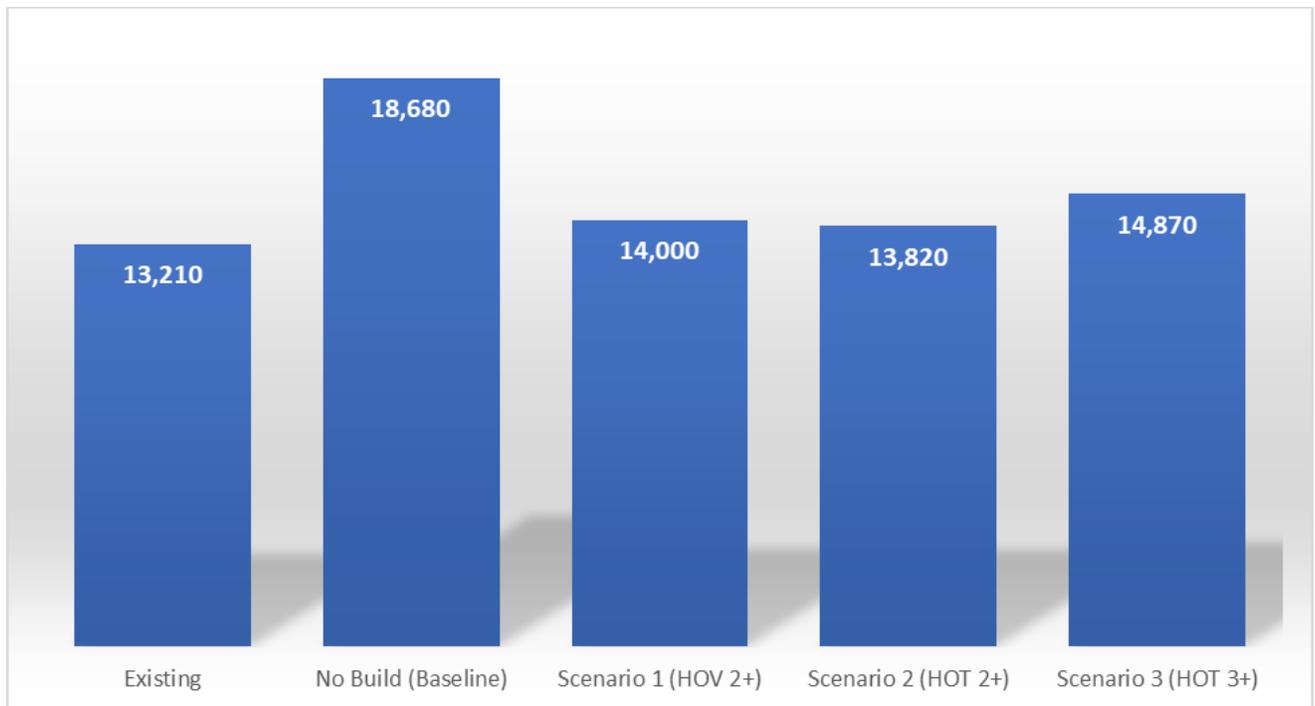


Figure 6 | Vehicle Hours of Delay Comparison by Scenario

Performance Measures

Figure 7 illustrates the performance measures of the I-5 CMCP. Specific performance measures were developed based on CTC requirements and refined based on public engagement and stakeholder collaboration.

<p>Safety</p> <ul style="list-style-type: none"> The CMCP includes operational improvements such as auxiliary lanes and interchange improvements that are designed to improve safety of the system The CMCP also identifies a network of active transportation facilities and projects that will improve safety and accessibility for bicyclists and pedestrians. 	<p>Air Pollution and Greenhouse Gas Emissions Reduction</p> <ul style="list-style-type: none"> Multimodal projects and programs such as Capitol Corridor improvements and express bus projects will decrease emissions and GHG emissions
<p>Efficiency</p> <ul style="list-style-type: none"> Multimodal strategies such as passenger rail, transit and active transportation will promote mode shift and improve freeway efficiency Many operational improvements such as managed lanes, auxiliary lanes and ramp metering also offer significant congestion relief benefits 	<p>Economic Prosperity</p> <ul style="list-style-type: none"> The projects and programs included in the I-5 CMCP will provide congestion relief benefits and reduce truck and freight rail travel times The CMCP includes improvements at truck scales and projects to provide more truck parking, supporting safe and efficient movement of trucks
<p>Reliability</p> <ul style="list-style-type: none"> Projects that offer safety and efficiency benefits often improves freeway reliability as well When implemented at the right locations, auxiliary lanes and bus-on-shoulder operations will improve express bus service reliability 	<p>Asset Management</p> <ul style="list-style-type: none"> The I-5 CMCP recommends new and improved existing bicycle and pedestrian infrastructure at freeway crossings and local road junctions It also includes projects to modernize and fill gaps in existing Traffic Operations System (TOS) assets at on ramps and freeway-to-freeway connectors to reduce congestion
<p>Multimodal Accessibility</p> <ul style="list-style-type: none"> Infrastructure and operational improvements to the transit system will improve reliability and accessibility to high quality transit options along I-5 	<p>Efficient Land Use</p> <ul style="list-style-type: none"> Service expansion/enhancement of transit and rail services will promote mode shift Improvements at major transit and rail stops/stations will support more efficient land use

Figure 7 | I-5 CMCP Performance Measures

State and Local Responsibility

Improvements to the transportation network are the responsibility of both Caltrans and partner agencies. However, with responsibility comes opportunity to leverage funding sources and collaborate on projects in a manner that benefit both Caltrans and local agencies. Local developments that add cumulative impacts to this corridor or the regional and local transportation network may necessitate local jurisdictions to provide nexus based, proportional fair share funding for future transportation improvements and mitigations.

Strategic Management and Performance

The Caltrans Strategic Management Plan (SMP) is the road map of Caltrans role, expectations, and activities; and includes performance measures to bring about transparency, accountability, sustainability, and innovation. The SMP highlights Department goals which are: Health; Stewardship and Efficiency; Sustainability, Livability and Economy; System Performance; and Organizational Excellence.

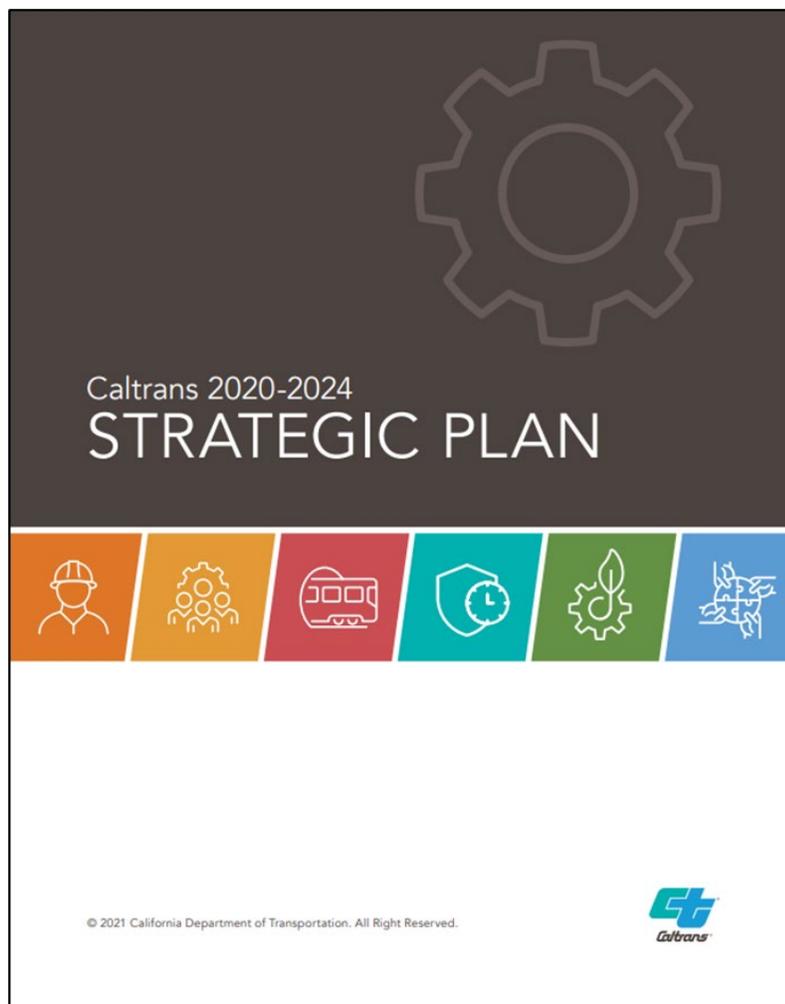


Figure 8 | Caltrans Strategic Management Plan

Chapter 1 | Introduction

1.1 | Interstate 5 Corridor Overview

The corridor area traverses Sacramento and Yolo counties.

I-5 serves local, regional, and interregional traffic of people and goods across an urban, suburban, rural, and open space landscape in Sacramento and Yolo counties. The corridor begins at the Sacramento/San Joaquin County line and heads north to the cities of Elk Grove and Sacramento as it crosses unincorporated areas of Sacramento County. North of the City of Sacramento limits, the route crosses the Sacramento International Airport in unincorporated Sacramento County as it approaches Yolo County and the City of Woodland where the corridor study area ends just north of the city limits. The corridor is a crucial north-south connector for the region that several local, regional, and interregional highways access. These highways include United States (US) 50, I-80, State Route (SR) 99, and SR 113.

I-5 serves as the transportation backbone of not only California, but also the Pacific Northwest. I-5 is the only Interstate that connects both Mexico and Canada. It is the main north-south interstate highway through California's central valley which connects the northern California to Southern California. Parallel to I-5 through the central valley is the SR 99 corridor, which runs parallel to I-5 on the eastern side of the Sacramento Valley leading up to the Sacramento Region.

As I-5 approaches the City of Elk Grove, drivers begin to enter the Sacramento metropolitan region while passing along the easter edge of the Stone Lakes National Wildlife Refuge. Drivers then cross into the City of Sacramento limits, paralleling the Sacramento River as it crosses US 50 on the southern edge of downtown Sacramento,

Specific to the greater Sacramento region, the I-5 corridor serves as an important link for the movement of agricultural products and goods movement between the Sacramento Valley, ports of Sacramento and Stockton, and major distribution centers such as the Sacramento International Airport and Amazon Distribution Center. The location of the Sacramento International Airport and Amazon Distribution Center has an impact to City of Woodland in Yolo County as traffic crosses the I-5 causeway leading into Sacramento County, and vice versa with the Natomas community in the City of Sacramento.

Within Yolo County, drivers would cross the Sacramento River and approach the City of Woodland along the I-5 causeway. The City of Woodland provides access to SR 113 which connects drivers to I-80 to the south. This connection is critical for some commuters who are driving to the Sacramento International Airport from areas in Yolo County, instead of connecting to I-5 at the US 50 interchange.

1.2 | Sacramento County

Sacramento County is home to the California State Capitol and has a population of approximately 1.55 million people over an area of 994 square miles¹. The county is bordered by Contra Costa and San Joaquin counties on the south, Amador and El Dorado counties on the east, Placer and Sutter counties on the north and Yolo and Solano counties on the west. Sacramento County boasts one of the strongest commerce economies in the state, facilitated by the Sacramento International Airport and direct access to the San Francisco Bay Area to the west and the Tahoe Basin at the Nevada State line to the east.

¹ Sacramento County "Demographics and Facts" <https://www.sacounty.net/Government/Pages/DemographicsandFacts.aspx>

City of Elk Grove is a suburb community south of Sacramento and has approximately 176,000 residents¹. The city has a median household income of \$93,780 in 2019². The City of Elk Grove lies south of the City of Sacramento, with I-5 acting as the western boundary of the city. The city is surrounded by agricultural land to its east and south, and the Sacramento River Delta to its southwest.

City of Sacramento is a city of approximately 510,000 residents where I-5 travels from the north to south on the eastern side of the city boundaries and has a median household income of \$62,335 in 2019. While the Sacramento River acts as the westernmost boundary of the city, I-5 is the main freeway that goes through the western portion of the city. I-5 has two major freeway junctions within city limits, these being the junction of I-5 and US 50, to the south of downtown Sacramento, and the junction of I-5 and I-80 in the northern end of Sacramento in the Natomas community.

1.3 | Yolo County

Yolo County lies to the west of Sacramento County and the Sacramento River. Yolo County has a population of approximately 220,000 people over an area of 1,014 square miles³. The county is bordered by Solano County to the south, Napa and Lake counties to the west, Colusa and Sutter counties to the north, and Sacramento County to the east. Yolo County has four incorporated cities, these being the City of Davis, City of West Sacramento, City of Winters, and City of Woodland which is the county seat.

City of West Sacramento is located to the west of I-5 and downtown Sacramento and separated by the Sacramento River. It covers approximately 21 square miles with a total population of about 53,519. The community is centrally located in a desirable environment, surrounded by rich agricultural land and quick access to the Sacramento region.

City of Woodland is located in the northern portion of the I-5 corridor. I-5 comes from the east of Woodland and then turns northwest, passing just north of the main residential areas. The City of Woodland is in the northeast part of Yolo County and is a short drive from Sacramento International Airport. Woodland is 15 square miles in size and has an estimated 60,548 residents.

² United States Census Bureau, "Quick Facts, Sacramento County"

<https://www.census.gov/quickfacts/fact/table/elkgrovecitycalifornia,sacramentocitycalifornia,sacramentocountycalifornia/PST045219>

³ United States Census Bureau, "Quick Facts, Yolo County"

<https://www.census.gov/quickfacts/fact/table/westsacramentocitycalifornia,woodlandcitycalifornia,yolocountycalifornia/PST045219>

Chapter 2 | Corridor Goals, Objectives, and Performance Measures

The purpose of the subsequent sections is to tie in the policies and objectives of the statewide plans with those of the CMCP. As discussed previously, the purpose of the CMCP, similar to other Caltrans and State plans and policies, is to provide a safe, efficient, accessible, and connected system of transportation that emphasizes multimodal options, reduces GHG, and VMT. This is achieved through collaboration, creativity, and sustainability with our partners.

2.1 | Multimodal Corridor Planning Guidance

This CMCP was developed based on the adopted CTC CMCP guidelines and Caltrans Corridor Planning Guidebook (February 2020). These corridor planning guides provide the framework for assessing transportation improvement projects as part of the Road Repair and Accountability Act of 2017, or SB 1. SB 1 requires that funding shall be available for projects that make specific performance improvements and are part of a comprehensive corridor plan designed to reduce congestion in highly traveled corridors by providing more transportation choices for residents, commuters, and visitors to the area, while preserving the character of the local community and creating opportunities for neighborhood enhancement projects. The I-5 CMCP closely follows both the CTC and Caltrans corridor planning guides.

Based on the CTC and Caltrans guidance, objectives of the comprehensive multimodal corridor planning process may include but are not necessarily limited to:

- Define multimodal transportation deficiencies and opportunities for optimizing system operations.
- Identify the types of projects necessary to reduce congestion, improve mobility, and optimize multimodal system operations along highly traveled corridors.
- Identify funding needs.
- Further state and Federal ambient air standards and GHG reduction standards pursuant to the California Global Warming Solutions Act of 2006 (Division 25.5, commencing with §38550, of the Health and Safety Code) and SB 375 (Chapter 728, Statutes of 2008).
- Preserve the character of local communities and create opportunities for neighborhood enhancements.
- Identify projects that achieve a balanced set of transportation, environmental, and community access improvements.

2.2 | Corridor Planning Process Guide

The Caltrans Corridor Planning Process Guide (February 2020) assists in the development of updating or creating new corridor plans, studies, and documents. Caltrans develops multimodal transportation corridor plans with partners that help identify transportation improvements resulting in a range of concepts and projects that are consistent with Caltrans goals and policies. The Guide outlines a planning approach to develop multimodal transportation plans through an Eight-Step Corridor Planning Process (see **Figure 9**).

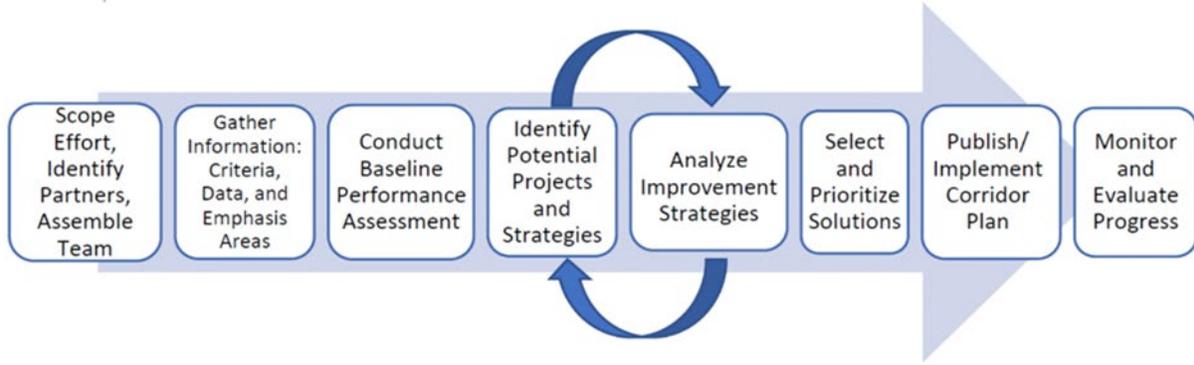


FIGURE 9 | EIGHT STEP CORRIDOR PLANNING PROCESS

A key element of the CMCP is to reduce congestion in highly traveled and highly congested corridors through performance improvements. A set of transportation performance metrics is applied to measure projects or groups of projects which result in performance improvements in the study area. Some of these metrics can be assessed using quantitative data such as transportation model output, while others are qualitatively evaluated based on project type, project location, and other factors. This is consistent with the CTC guidelines which state “in recognition that data availability and modeling capabilities vary by agency based on available resources, the Commission expects agencies to address plan and project performance qualitatively and quantitatively to the degree reasonable given technical and financial resources available during the planning process. As part of the comprehensive multimodal corridor planning process, a plan-level corridor performance assessment must be conducted and documented to clearly outline system performance and trends.” The evaluations provided in this plan clearly document the conditions, including congestion levels, in the overall study area. Per the CTC and Caltrans CMCP guidelines, it is critical to create multimodal corridor plans that closely match the local and regional goals and objectives for transportation planning.

The I-5 CMCP is built on a variety of guidance documents, stakeholder input, and regional and State

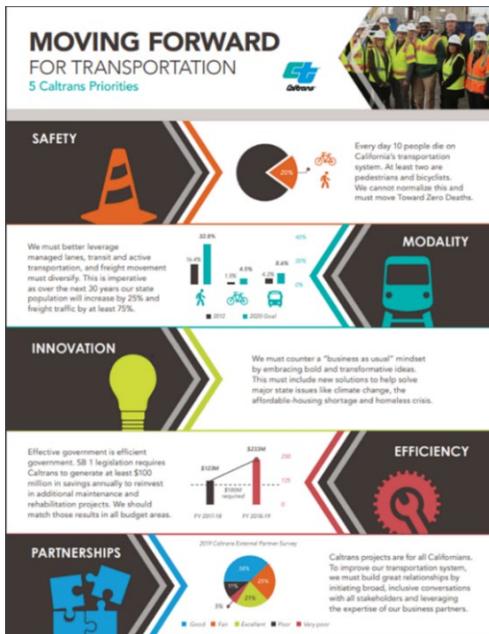


Figure 10 | 5 Caltrans Priorities

plans and policies and exemplifies the five Caltrans priorities from Moving Forward to Transportation (<https://dot.ca.gov/-/media/dot-media/about-caltrans/documents/director-5-topic-fact-sheet-a11y.pdf>) These key priorities are the focus of the I-5 CMCP, consistent with Climate Action Plan for Transportation Infrastructure (CAPTI), and its project recommendations.

The purpose of the system planning process is to identify the existing and future route conditions and needs for a corridor. This I-5 CMCP is a complex, multi-jurisdictional planning document that identifies future needs within the corridor that is currently experiencing high levels of congestion, and is a foundation document that supports the partnership-based, integrated management of various travel modes (transit, cars, trucks, bicycles) and infrastructure (rail, roads, highways, information systems, bike routes) in a corridor to improve mobility along the corridor.

2.3 | Climate Action Plan for Transportation Infrastructure

The California Transportation Agency (CalSTA) adopted CAPTI⁴ on July 12, 2021, which is an overarching framework and statement of intent for aligning State transportation infrastructure investments with California’s climate, health, and social equity goals with priority given to “fix-it-first” as stated in SB 1. The CAPTI serves as statewide policy to meet the Governor’s Climate goals and directs CalSTA, Caltrans, and the CTC to address climate change as described in Executive Orders (EO) N-79-20 and N-19-19.

The CAPTI investment framework consists of:

- Investing in networks of safe and accessible bicycle and pedestrian infrastructure
- Addressing social and racial equity by reducing public health and economic harms and maximizing community benefits
- Building toward an integrated, statewide rail, and transit network
- Investments in light, medium, and heavy-duty Zero-Emission Vehicle (ZEV) infrastructure
- Making safety improvements to reduce fatalities and severe injuries of all users towards zero
- Promoting projects that do not significantly increase passenger vehicle travel
- Promoting compact infill development while protecting residents and businesses from displacement
- Protecting natural and working lands
- Assessing physical climate risk

CAPTI strategies include cultivating and accelerating sustainable transportation by leading with State investments and advancing State transportation leadership on climate and equity through improved planning and project partnerships. CAPTI efforts will support the California Transportation Plan (CTP) 2050 goals to meet State climate change targets, mandates, and policies. CAPTI is also closely aligned with Caltrans 2020-2024 SMP which showcases a fundamental shift for Caltrans to lead climate action as a top priority.

2.4 | California Transportation Plan 2050

The CTP 2050, adopted by Caltrans in 2021, presents a vision for California’s future transportation system and articulates strategic goals, policies, and recommendations to improve multimodal mobility and accessibility while reducing GHG. The CTP is committed to addressing the immediate threats of Coronavirus disease 19 (COVID-19), long-standing systemic injustice, California’s firm commitment to combat climate change and the many risks it poses to our infrastructure and communities.

SB 391 requires the CTP to address how the state will achieve maximum feasible emissions reductions in order to attain a statewide reduction of GHG to 1990 levels by 2050. The CTP outlines advancements in clean fuel technologies, continued shifts toward active transportation, transit, and shared mobility; efficient land use development practices; and how continued shifts to telework can collectively reduce transportation emissions to support these goals.

The CTP 2050 also reinforces long-held values such as improving system safety, improving mobility and accessibility, advancing environmental health and justice, and enhancing quality of life. In long-range planning, it is crucial that the strategies, goals, and projects identified for each corridor further the goals of CTP 2050. This will result in reducing GHG while improving transportation for all users.

⁴ <https://calsta.ca.gov/-/media/calsta-media/documents/capti-2021-calsta.pdf> fation Infrastructure

2.5 | Caltrans Smart Mobility Framework 2020 Guide

The Smart Mobility Framework (SMF) guides implementation of multimodal transportation strategies in support of compact and sustainable communities through a broad range of transportation and housing choices. Smart Mobility 2010: A Call to Action for the New Decade, provided concepts and tools to incorporate smart mobility principles into all phases of transportation decision-making. This was developed in partnership with the US Environmental Protection Agency (EPA), the Governor’s Office of Planning and Research, and the California Department of Housing and Community Development (HCD).

In December of 2020, the Caltrans 2020 SMF guide introduced strategies, performance measures, and analysis methods for implementing smart mobility, organized around five themes: network management, multimodal choices, speed suitability, accessibility and connectivity, and equity. The guide also describes the application of five “place types” to identify transportation planning and project development priorities across the state. These place types describe existing geographic areas based on location, land use, density, and other characteristics:

- Central Cities
- Urban Communities
- Suburban Communities
- Rural Areas
- Protected Lands and Special Use Areas

Each of the place types correspond to transportation planning priorities and serves as a guide, not a rule, for development of recommendations. Planners consider the specific characteristics of a given planning area in addition to local, regional, and State plans when recommending strategic transportation system investments.

SB 743 directs use of VMT, as a metric in place of Level of Service, to better measure transportation-related environmental impacts of any project and promote the reduction of GHG, the development of multimodal transportation networks and a diversifying land uses. The SMF guide incorporates the intention of SB 743, as well as social equity and environmental justice, which are integral to all planning decisions. The SMF guides Caltrans and stakeholder agencies in assessing how plans, programs, and projects support Smart Mobility.

2.6 | Vulnerability Assessment

In 2019, Caltrans completed a Climate Change Vulnerability Assessment for each District that identifies segments of the SHS vulnerable to climate change impacts including precipitation, temperature, wildfire, storm surge, and sea level rise. These studies involved applying climate data to refine the agency’s understanding of potential climate impacts to the SHS, and Caltrans coordinated with various state and federal agencies and academic institutions to obtain the best available climate data for California. Discussions with professionals from various engineering disciplines helped identify how changing climate hazards may affect highways, including their design. The assessment allowed Caltrans to begin to understand how climate change may affect the highway and identified a subset of SHS assets on which to focus future adaptation efforts.

2.7 | Adaptation Priorities Report

Released in 2020, the Adaptation Priorities Report for each District picked up where the 2019 Climate Change Vulnerability Assessments left off. These reports include a prioritized list of assets that are potentially exposed to climate change impacts in each Caltrans District. The prioritization methodology in the reports considers, amongst other things, the timing of the climate impacts, their severity and extensiveness, the conditions of each asset (a measure of the sensitivity of the asset to damage), the number of system users affected, and the level of network redundancy in the area. Prioritization scores are generated for each potentially exposed asset based on the above factors and then used to rank their potential exposure to climate change impacts.

2.8 | Transit Planning

California EO N-79-20 (Newsom) highlights the need to build towards an integrated, statewide rail and transit network, consistent with the 2018 California State Rail Plan (CSRP), in order to provide seamless and affordable multimodal travel options for all.

California's transit systems face challenges due to sprawling and low-density land use patterns. When destinations are far apart, it becomes harder to efficiently serve more people with fewer vehicles, resulting in worsening chronic roadway congestion. Aside from major urban areas, many transit systems routes and scheduling are not well-connected or coordinated and required varying or inconvenient payment methods.

2.9 | Equity and Transit

Local planning efforts need to include all aspects and modes of travel involved in a trip to ensure mobility for seniors, people with disabilities, and lower income communities. Lower-income communities of color own fewer cars and have a greater reliability on transit to fulfill their transportation needs. Unreliable transit networks, in terms of time and frequency, creates a burden for individuals reliant on the transit system. As the population ages, the share of Californians living with a disability is expected to increase. Seniors and other people with disabilities often rely on public transit to meet daily travel needs.

2.10 | Improving Transit

Looking to the future, Caltrans, along with the California Air Resources Board and CalSTA formed the California Integrated Travel Project (Cal-ITP) to improve transit scheduling coordination, payment methods, and trip-planning data by creating industry standards for California's transit providers.

2.11 | Bicycle Planning

The CMCP was developed in cooperation with the public and local and regional partners to ensure that the recommended bicycle improvements on the SHS complement proposals for local and regional networks. The CMCP considers all types of bicycle trips but prioritizes bicycle trips to daily necessities such as to work, school, shopping, recreational, or connection to transit. The CMCP helps inform future investments on the State and local transportation bicycle network. This is critical as many funding programs require consideration of complete streets improvements as part of a project. Programs such as the State and regional Active Transportation Program (ATP) fund complete street projects that include strategies to increase biking trips or enhance safety.

2.12 | Broadband

Broadband service has become an essential element of communication, an engine of economic activity as it provides educational opportunity, civic engagement, access to health care, teleworking, and much more. Income, education, disability status, age, race, and ethnicity all correlate with broadband availability and use. Residents in less populated areas generally have less access to broadband services. State highway right of way (ROW) can be a source of expanding the broadband network which could provide increased accessibility to tribal land, rural communities, and priority populations.

California Governor’s EO S-23-06, Twenty-First Century Government, directed establishment of the California Broadband Task Force to bring together Caltrans, public, and private stakeholders to identify opportunities to facilitate broadband installation across the State. Assembly Bill (AB) 1549 of 2016 requires Caltrans to notify broadband deployment organizations on construction methods suitable for broadband installation through Caltrans website. This would bring together private and public partnership for opportunities to increase advanced communication technologies. In 2018, Caltrans developed the “Incorporating Wired Broadband Facility on State Highway Right-of-Way User Guide,” providing guidelines on Caltrans processes for wired broadband providers to incorporate wired broadband facilities in State highway ROW.

In 2021, the California Advanced Services Fund provided \$645 million for the California Public Utility Commission to provide broadband access to no less than 98% of California households in each region.⁵ It has funded 17 regional broadband consortia across the State that have identified “Strategic Broadband Corridors” which are now used as part of Caltrans planning efforts to provide broadband services to areas currently without broadband access and build out facilities in Equity Priority Community areas. Caltrans encourages developing partnerships with stakeholders and the regional broadband consortium during planning, environmental scoping, and project development to integrate broadband into projects.

2.13 | Caltrans Equity Statement

State Departments of Transportation are bound by law to consider the needs of residents with low incomes, communities of color, people with limited English proficiency, seniors, the disabled, and other communities, and individuals when developing transportation plans.⁶

Caltrans acknowledges that communities of color and priority populations have experienced fewer benefits and a greater share of negative impacts associated with our State transportation system. Some of these disparities reflect a history of transportation decision-making, policies, processes, planning, design, and construction that put up barriers, divided communities, and amplified racial inequities, particularly in our Black and Brown neighborhoods.⁷

Caltrans recognizes our leadership role and unique responsibility to eliminate barriers and provide more equitable transportation for all Californians. This understanding is the foundation for intentional decision-making that recognizes past and stops current harms from our actions.

⁵ California Advanced Services Fund

⁶ The US Department of Transportation Title IV program <https://www.transportation.gov/mission/departments-transportation-title-iv-program>

⁷ California State Transportation Agency Secretary David Kim’s Statement on Racial Equity, Justice and Inclusion in Transportation. <https://calsta.ca.gov/press-releases/2020-06-12-statement-on-racial-equity>

To ensure our processes and projects address equity, Caltrans is developing public outreach methodologies for increasing participation from priority populations members and local community-based organizations as part of our planning and project development processes.

2.14 | Environmental Justice

Information used in identifying potential environmental justice issues are documented in corridor plans to address the fair treatment and meaningful involvement of all people in transportation projects regardless of race, color, national origin, or income. This applies to the Caltrans processes, from the early stages of transportation planning and investment decision making, through construction, operations, and maintenance phases. Title VI of the Civil Rights Act of 1964 states "No person in the US shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." EO 12898, issued in 1994, gave a renewed emphasis to Title VI and added low-income populations to those protected by the principles of environmental justice⁸.

There are three fundamental principles at the core of environmental justice:⁹

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations 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.

2.15 | California Climate Investments Priority Populations

According to SB 535, priority populations are disproportionately affected by environmental pollution, low income, high unemployment, low levels of home ownership, high rent burden, sensitive populations¹⁰, or low levels of educational attainment. In AB 1550, low-income communities are census tracts with median household incomes at or below 80 percent of the statewide median income or with median incomes at or below the threshold designated as low income by the US HCD. Both SB 535 and AB 1550 include a requirement to direct a portion of funds to reduce GHG in priority populations and low-income communities.

2.16 | Priority Populations

Priority populations refers to communities that were previously termed as underserved community. The equity measure analyzes scenarios and defines priority populations based on variables that includes minority populations, low-income areas, less English proficient populations, seniors (age 75 and older), zero-vehicle households, single-parent households, people with disabilities, and rent-burdened households.

⁸ <https://www.transportation.gov/transportation-policy/environmental-justice/environmental-justice-strategy>

⁹ https://www.fhwa.dot.gov/environment/environmental_justice/

¹⁰ <https://www.epa.gov/expobox/exposure-assessment-tools-lifestages-and-populations-highly-exposed-or-other-susceptible>

2.17 | 2018 California State Rail Plan 2018

The 2018 California State Rail Plan (CSRP) is a strategic plan with operating and capital investment strategies that guide the coordination and development of a statewide travel system. The CSRP is an important element in the comprehensive planning and analysis of statewide transportation investment strategies detailed in the CTP 2040. In concert with CTP 2040 and other plans, the CSRP will help improve air quality, invigorate cities, and provide increased mobility for California in the future. State, local, and regional transportation plans build off the CSRP to increase regional rail capacity, develop transit networks, and set land use recommendations that benefit from enhanced connectivity. Federal and State grant awards and funding decisions will consider project alignment with the 2040 Passenger Rail Vision and strategies reflected in the CSRP. The CSRP is currently being updated with an anticipated completion date by end of 2022.

Consistent with federal and State laws, the CSRP proposes a unified statewide rail network that integrates passenger and freight service, connects passenger rail to other transportation modes, and supports smart mobility. The CSRP aims to capture an increasing percentage of travel demand by rail. The rail system has the potential capacity to provide more service, with more efficient performance with longer trains, more frequent services, better connectivity, and greater ease of access. Addressing these areas will grow the number of riders and reduce average costs per passenger. More trains, with shorter headways and faster travel times, can be more competitive with automobiles and airlines, thus motivating travelers to use rail and transit more frequently. This will provide another option for travelers to be less dependent on automobiles and air travel.

2.18 | California Freight Mobility Plan 2020

The guiding vision of the California Freight Mobility Plan (CFMP) 2020¹¹ is to guide freight sustainability in California from three perspectives: economic vitality, environmental stewardship, and social equity. The CFMP has seven goals to ensure California's freight transportation system continually works towards greater efficiency, less-pollution, and higher-capacity in its freight facilities, equipment, and operations. The CFMP was developed by the California Freight Advisory Committee, a group of representatives from private and public sector freight stakeholders from airports, seaports, railroads, shippers, carriers, and industry workforce. The CFMP analyzed California's freight system from seven regional perspectives to highlight the uniqueness and the different needs of each region. The CFMP also includes project lists for each region that serve as a basis for the SB 1 Trade Corridor Enhancement Program (TCEP) funding.

2.19 | Interregional Transportation Strategic Plan 2021

The Interregional Transportation Strategic Plan (ITSP) 2021¹² provides guidance for the identification and prioritization of projects to improve interregional movement of people, vehicles, and goods and achieve a sustainable, integrated, and efficient transportation that enhances California's economy and livability. The California State Legislature recognized the importance of interregional travel and the need for the State to target investments in key corridors through the designation of the Interregional Road System (IRRS). As part of this effort, 93 important interregional routes identified in the 1989 Blueprint Legislation (a ten-year transportation funding package created by AB 471, SB 300, and AB 973).

¹¹ <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/cfmp-2020-final/final-cfmp-2020-chapters-1-to-6-remediated-a11y.pdf>

¹² <https://dot.ca.gov/programs/transportation-planning/multi-modal-system-planning/interregional-transportation-strategic-plan>

SB 45 1997 dedicates 25 percent of State Transportation Improvement Program (STIP) funding to interregional highways and passenger rail, and 75 percent to regional transportation improvements. The State portion of interregional improvement funds is programmed in the Interregional Transportation Improvement Program (ITIP) every two years. The goals and objectives of the ITSP apply to a subset of the IRRS and intercity rail corridors, thereby guiding investments decisions to prioritize projects of the ITIP. The ITIP was updated in 2021 and there is an addendum under development that will be completed in 2022.

2.20 | Corridor Goals and Objectives

As previously discussed, the CTC and Caltrans guiding documents contain recommended corridor planning goals, objectives, performance metrics, and evaluation criteria for assessing transportation improvement projects at the corridor level. These goals, objectives, and performance measures are shown below in **Table 2**.

TABLE 2 | PERFORMANCE METRICS

Goals	Objectives	Performance Metrics
1. Safety	1.1 Reduce the number of incidents within the Corridor	<ul style="list-style-type: none"> • Number/severity/type of collisions on freeways • Number/severity/type of bicycle collisions • Number/severity/type of pedestrian collisions
2. Transportation Efficiency	2.1 Reduce recurring delay along the I-5 Corridor	<ul style="list-style-type: none"> • VHD • Person-Hours of Delay (PHD)
	2.2 Improve productivity along the I-5 Corridor	<ul style="list-style-type: none"> • Person throughput • Freight throughput • Transit Ridership
	2.3 Increase vehicle occupancy by mode	<ul style="list-style-type: none"> • Vehicle occupancy rate • Percentage of non-Single Occupancy Vehicles (SOV) compared to SOV by mode • Share of alternative modes
3. System Reliability	3.1 Improve freeway travel time reliability	<ul style="list-style-type: none"> • Travel time by mode • Buffer time index, or the amount of extra "buffer" time needed to be on-time 95 percent of the time • Planning time index is the ratio of the 95th percent peak period travel time to the free flow travel time
	3.2 Reduce non-recurring delay along the I-5 Corridor	<ul style="list-style-type: none"> • Response time of non-recurring incidents (planned) • Clearing time of non-recurrent incidents (collisions)
	3.3 Improve transit on-time performance	<ul style="list-style-type: none"> • Transit on-time performance • Number of transit operational improvements
4. Multimodal Accessibility and Connectivity	4.1 Improved access and connections to existing or future multimodal transportation hubs	<ul style="list-style-type: none"> • Number of transit access improvements including new connection points • Number of active transportation improvements at transportation hubs
	4.2 Reduce gaps in the bicycle network	<ul style="list-style-type: none"> • Bicycle lane miles by facility classification, • Bike/ped freeway crossing spacing/density
	4.3 Reduce gaps in the pedestrian network	<ul style="list-style-type: none"> • Pedestrian walkway miles, including bike/pedestrian overcrossings
5. Air Pollution and GHG Reduction	5.1 Reduce VMT and/or VHD	<ul style="list-style-type: none"> • Total VMT and VHD • Per capita VMT and VHD
	5.2 Reduce criteria pollutants	<ul style="list-style-type: none"> • Emissions of criteria pollutants, including carbon monoxide (CO), lead, nitrogen dioxide (NO2), ozone (O3), particulate matter, GHG, and sulfur dioxide (SO2)
	5.3 Reduce GHG	<ul style="list-style-type: none"> • Emissions of GHG

Goals	Objectives	Performance Metrics
6. Economic Prosperity	6.1 Increase freight efficiency	<ul style="list-style-type: none"> Freight throughput
	6.2 Promote access to jobs	<ul style="list-style-type: none"> Share of jobs accessible in congested conditions
	6.3 Reduce per-capita delay on freight network	<ul style="list-style-type: none"> Per-capita delay on freight network
7. Modern Infrastructure and Asset Management	7.1 Close gaps in Transportation Operation Systems (TOS) elements, such as Ramp Metering, Vehicle Detection Sites, Closed-Circuit Television Cameras and Changeable Message Signs	<ul style="list-style-type: none"> Number of TOS elements installed Presence of fiber-optic
	7.2 Ensure good TOS element health	<ul style="list-style-type: none"> TOS elements uptime percentage Percentage of TOS elements inspected or maintained within the last X number of years
	7.3 Improve pavement conditions	<ul style="list-style-type: none"> Pavement condition index rating
	7.4 Upgrade facilities to meet best practice in design of multimodal facilities	<ul style="list-style-type: none"> Number of bike facility upgrades from unclassified, Class 3 and Class 2 to Class 2 enhanced and Class 4 Bike/ped freeway crossing spacing/density Number of transit operational improvements
8. Efficient Land Use	8.1 Reduce reliance on single occupancy vehicles	<ul style="list-style-type: none"> Non-SOV mode share Non-vehicle mode share
	8.2 Reduce trip length and overall trip making	<ul style="list-style-type: none"> Per capita VMT

Chapter 3 | Demographics, Land Use, and Trip Generators

The following sections discuss demographic characteristics, land use, and major trip generators along the corridors. These factors provide background on existing and future travel patterns along the corridors based on how residents and commuters utilize the freeways. The demographic data utilized included in this chapter came from the 2019 Census Bureau database to stay consistent with the most current data available for the smart mobility framework analysis at the end of this chapter. This is also consistent with the use of 2019 data as the base year for the modeling analysis in this CMCP.

3.1 | Sacramento County

Sacramento County is heart of the Sacramento region and lies next to various counties such as Yolo, Placer, and El Dorado. It is the location of major interregional junctions with routes such as I-5, I-80, US 50, and SR 99.

Sacramento County has a total population of 1.5 million (2019). The median household income is \$67,151 (2019), about 11 percent lower than the median income for all California households. Most people in Sacramento County commute by driving alone, and the average commute time is 26.6 minutes.

According to the National Center for Education Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS), the largest colleges and universities in Sacramento County are the California State University, Sacramento (total enrollment of 31,902 in 2018)¹³, American River Community College (total enrollment of 31,366 in 2018)¹⁴ and Sacramento City College (total enrollment of 21,379 in 2018).¹⁵

The five largest ethnic groups in Sacramento County are White (Non-Hispanic) (44.1 percent), Asian (Non-Hispanic) (15.8 percent), White (Hispanic) (12.6 percent), Black or African American (Non-Hispanic) (9.54 percent), and Some Other Race (Hispanic) (7.52 percent). 34 percent of the people in Sacramento County speak a non-English language, and 90.7 percent are US citizens¹⁶

TABLE 3 | SACRAMENTO COUNTY DEMOGRAPHIC DATA¹⁷

Sacramento County	
Total Population (2019)	1,524,553
White	57.3%
American Indian and Alaska Native	0.7%
Asian	15.7%
Native Hawaiian and other Pacific Islander	1.1%
Some other race	7.9%
Two or more Races	7.5%

¹³ National Center for Education Statistics, "California State University - Sacramento" <https://nces.ed.gov/ipeds/datacenter/institutionprofile.aspx?unitId=110617>

¹⁴ National Center for Education Statistics, "American River College" <https://nces.ed.gov/ipeds/datacenter/institutionprofile.aspx?unitId=109208>

¹⁵ National Center for Education Statistics, "Sacramento City College" <https://nces.ed.gov/ipeds/datacenter/institutionprofile.aspx?unitId=122180>

¹⁶ United States Census Bureau, "Quick Facts, Sacramento County, California". <https://www.census.gov/quickfacts/sacramentocountycalifornia>

¹⁷ United States Census Bureau, "Quick Facts, Sacramento County, California". <https://www.census.gov/quickfacts/sacramentocountycalifornia>

Sacramento County	
Hispanic or Latino (of any race)	23.2%
Population Density (people/square mile)	1,579.41
Total households (occupied housing units)	543,025
Average household size	2.76
Owner-occupied housing units	56.4%
Renter-occupied housing units	43.6%
Households with No vehicles available	6.6%
Median household income (dollars)	\$67,151
Mean travel time to work (minutes)	27.8

City of Sacramento

Sacramento is the capitol of California and located east of the Sacramento River. Located in Sacramento County, it has a population of 513,624 spanning 97.92 square miles. Sacramento is the largest city in Sacramento County by land area as well as the most populous city along the I-5 CMCP corridor. It is directly adjacent to West Sacramento, separated by the Sacramento River.

The city began revitalizing its downtown core area in 2015 renaming the Sacramento Downtown Plaza with Downtown Commons (DOCO). DOCO is anchored by the Golden 1 Center, and revitalization focused on infill developments such as the Railyard Specific Plan that included a Kaiser Permanente Medical Center opening in 2018 and new Major League Soccer stadium to open in 2023.

Demographics

Sacramento has a population of 500,930 (2019). The educational level for persons 25 years or older with a high school graduate degree or higher is 84.7 percent, with 32.6 percent of persons 25 years or older having a bachelor's degree or higher. The median household income in Sacramento is \$62,335 (2019), about 17 percent lower than the median income for all California households and the lowest of all cities along the I-5 corridor.

TABLE 4 | CITY OF SACRAMENTO DEMOGRAPHIC DATA¹⁸

City of Sacramento	
Total Population (2019)	500,930
White	46.3%
Black or African American Alone	13.2%
American Indian and Alaska Native	0.7%
Asian alone	18.9%
Native Hawaiian and other Pacific Islander	1.7%
Some Other Race	11.7%
Two or More Races	7.4%
Hispanic or Latino	28.9%
Not Hispanic or Latino	71.1%
Population Density (people/square mile)	5,079.91
Total Households (occupied housing units)	185,331
Average Household Size	2.66

¹⁸ United States Census Bureau, "Quick Facts, City of Sacramento, California". <http://www.census.gov/quickfacts/sacramentocitycalifornia>

Owner-Occupied Housing Unit	48.5%
City of Sacramento	
Renter-Occupied Housing Units	51.5%
Households with No Vehicles Available	8.6%
Median Household Income (dollars)	\$62,335
Mean Travel Time to Work (minutes)	26.2

Land Uses and Major Trip Generators

Sacramento includes a series of hub communities of urban/suburban design, commercial land uses in dense urban and suburban communities, commercial uses in dense urban centers and office parks as well as industrial uses such as Land Park neighborhood in South Sacramento and East Sacramento which includes the “Fabulous Forties” neighborhood. There are also several institutional uses and sports venues such as the Golden 1 Center which is a multi-use complex that is home to the Sacramento Kings and various concerts, conventions, and other entertainment events. The venue is the primary economic anchor for the Sacramento Downtown Commons¹⁹ which also includes mixed land uses such as restaurants, hotels, and commercial land uses on the former Downtown Plaza shopping center which is within proximity of the I-5 corridor.

North of the American River and Sacramento Downtown is the Natomas community. The Natomas community is a major center of employment, retail, and entertainment facilities that is the subject of recent development, including the redevelopment of the former Sacramento Kings arena. Below is a list of major trip generators in the vicinity of the corridor, some of which are outside of the CMCP limits, but influence travel within the corridor.

Major Trip Generators in the Corridor

- Downtown Sacramento
- Golden 1 Center
- Sacramento Convention Center
- California State University, Sacramento
- Sacramento City College
- Mercy General Hospital
- Sutter Hospital

City of Elk Grove

The City of Elk Grove is a mid-sized city with a population of 170,825 residents and covers approximately 42.19 square mile²⁰. Elk Grove is the second largest city in Sacramento County and is located just south of the City of Sacramento along I-5 and SR 99. I-5 is the western boundary of Elk Grove and SR 99 crosses the city on its eastern boundary. The city becomes more rural while continuing northeast along Grant Line Road and east along Calvine Road. The city is primarily residential development with commercial land use on the main arterial roads throughout the city. East of Elk Grove is Deer Creek and the Cosumnes River. South of the city is rural agricultural land and the Cosumnes River Preserve. West of the city and I-5 is the Stone Lakes National Wildlife Refuge and the Sacramento River.

¹⁹ https://en.wikipedia.org/wiki/Golden_1_Center

²⁰ United States Census Bureau, “Quick Facts, Elk Grove, California”. <https://www.census.gov/quickfacts/fact/table/elkgrovecitycalifornia/PST045219>

Elk Grove’s median income is \$93,780 which is higher than the state medium income of \$75,235²¹.

Demographics

Elk Grove has a population of 170,825 residents and they account for approximately 8.9% of Sacramento County’s total population of 1,524,553. The educational level for persons 25 years or older with a high school graduate degree or higher is 90.5 percent, with 36.9 percent of persons 25 years or older having a bachelor’s degree or higher. The median income is \$90,770 and the reported percentage of persons in poverty is 8.1 percent²².

TABLE 5 | CITY OF ELK GROVE DEMOGRAPHIC DATA²³

City of Elk Grove	
Total Population (2019)	170,825
White	45.2%
Black or African American Alone	11.5%
American Indian and Alaska Native	0.6%
Asian	28.8%
Native Hawaiian and other Pacific Islander	1.8%
Some Other Race	3.9%
Two or More Races	8.2%
Hispanic or Latino	18.5%
Not Hispanic or Latino	81.5%
Population Density (people/square mile)	4,047.9
Total Households (occupied housing units)	53,182
Average Household Size	3.20
Owner-Occupied Housing Unit	74.9%
Renter-Occupied Housing Units	25.1%
Households with No Vehicles Available	3.2%
Median Household Income (dollars)	\$93,780
Mean Travel Time to Work (minutes)	32.7

Land Uses and Major Trip Generators

Elk Grove’s land uses are largely residential with some commercial land uses located along the main arterial roads, as well as along I-5 and SR 99. Some of the major trip generators include the Laguna Creek Parkway, the Stone Lakes National Wildlife Refuge, the Elk Grove Regional Park, and Cosumnes River College.

Major Trip Generators in and around Woodland

- Apple Distribution Center (Laguna Blvd)
- Cosumnes River College
- Cosumnes River Preserve
- Elk Grove Regional Park

²¹ Elk Grove City, “Visitors, About Elk Grove”. https://www.elkgrovecity.org/visitors/about_elk_grove

²² United States Census Bureau, “Quick Facts, Elk Grove, California.” <https://www.census.gov/quickfacts/fact/table/elkgrovecitycalifornia/PST045219>

²³ United States Census Bureau, “Quick Facts, Elk Grove, California.” <https://www.census.gov/quickfacts/fact/table/elkgrovecitycalifornia/PST045219>

- Laguna Creek Parkway
- Sacramento Regional Wastewater Treatment Plant
- Stone Lakes National Wildlife Refuge

3.2 | Yolo County

Yolo County borders Sacramento, Solano, Napa, Sutter, Lake, and Colusa counties. Yolo County is west of Sacramento County where I-5 begins to connect to the Sacramento metropolitan region. It is directly west of the state’s capitol of Sacramento and northeast of the Bay Area counties of Solano and Napa. The county is approximately 1,014.73 square miles, the eastern two-thirds of the county consists of nearly level alluvial fans, flat plains, and basins, while the western third is largely composed of rolling terraces and steep uplands used for dry-farmed grain and range. The elevation ranges from slightly below sea level near the Sacramento River around Clarksburg to 3,000 feet along the ridge of the western mountains.

Yolo County has a population of 217,352 (2019). The median household income is \$70,228 (2019), about seven percent lower than the median income for all California households.²⁴ Most people in Yolo County commute by driving alone, and the average commute time is 24 minutes. According to NCES IPEDS, the largest colleges and universities in Yolo County are Woodland Community College (total enrollment of 6,313 in 2019-2020)²⁵ and the University of California, Davis (UC Davis) (total enrollment of 41,236 in 2019-2020).²⁶ Yolo County borders Sacramento, Solano, Napa, Sutter, Lake, and Colusa counties.

TABLE 6 | YOLO COUNTY DEMOGRAPHIC DATA²⁷

Yolo County	
Total Population (2019)	217,352
White	69.3%
Black or African American	2.7%
American Indian and Alaska Native	0.6%
Asian	14%
Native Hawaiian and other Pacific Islander	0.4%
Two or More Races	6.3%
Hispanic or Latino	31.6%
White alone, not Hispanic or Latino	68.4%
Population Density (people/square mile)	214.2
Total Households (occupied housing units)	74,296
Average Household Size	2.81
Owner-Occupied Housing Unit	51.6%
Renter-Occupied Housing Units	48.4%
Median Household Income (dollars)	\$70,228
Mean Travel Time to Work (minutes)	24.0

²⁴ US Census American Community Survey: 2019 ACS 5-Year Data Profile

²⁵ National Center for Education Statistics, “Woodland Community College”
<https://nces.ed.gov/ipeds/datacenter/institutionprofile.aspx?unitId=455512>

²⁶ National Center for Education Statistics, “University of California – Davis”
<https://nces.ed.gov/ipeds/datacenter/institutionprofile.aspx?unitId=110644>

²⁷ United States Census Bureau, “Quick Facts, Yolo County, California”. <https://www.census.gov/quickfacts/yolocountycalifornia>

City of West Sacramento

West Sacramento is a mid-sized city with a total population of 53,151 (2019), West Sacramento covers 21.43 square miles, with Davis to the west and Sacramento to the east. The city is primarily residential land uses with a mixture of light industrial area and commercial areas. The primary trip generators in the city include the Port of West Sacramento, Sutter Health Park for the Sacramento River Cats (Triple A affiliates for the San Francisco Giants), and the West Sacramento waterfront. The Port of West Sacramento is an inland port situated 90 miles from the San Francisco Bay, where ships enter before proceeding up the Sacramento River to the Port. Exports from West Sacramento include “bagged and bulk rice, cement, lumber, fertilizers, and project cargoes like wind generators.”²⁸

Demographics

West Sacramento had a population of 53,151 (2019), accounting for about 25 percent of Yolo County’s total population.

The educational level for persons 25 years or older with a high school graduate degree or higher is 83.5 percent, with 29.9 percent of persons 25 years or older having a bachelor’s degree or higher (2019). West Sacramento’s median household income (2019) is \$70,699, about six percent lower than the median income for all California households.

TABLE 7 | CITY OF WEST SACRAMENTO DEMOGRAPHIC DATA²⁹

City of West Sacramento	
Total Population (2019)	53,151
White	66.3%
Black or African American	5.3%
Asian	10.7%
Native Hawaiian and other Pacific Islander	1.1%
Some Other Race	6.3%
Two or More Races	9.9%
Hispanic or Latino (of any race)	30.1%
Not Hispanic of Latino	69.9%
Population Density (people/square mile)	2,475.59
Total Households (occupied housing units)	18,577
Average Household Size	2.84
Owner-Occupied Housing Units	56.9%
Renter-Occupied Housing Units	43.1%
Households with No Vehicles Available	8.0%
Median Household Income (dollars)	\$70,699
Mean Travel Time to Work (minutes)	24.7

Land Uses and Major Trip Generators

West Sacramento land uses include commercial, mixed uses near the Sacramento River waterfront, suburban development, and light industrial use near the Port of West Sacramento. Specific key attractions include Sutter Health Park, and the West Sacramento’s waterfront. Below is a list of major

²⁸ City of West Sacramento, “Port of West Sacramento”. <https://www.cityofwestsacramento.org/government/departments/city-manager-s-office/port-of-west-sacramento>

²⁹ United States Census Bureau, “Quick Facts, City of West Sacramento, California.” <https://www.census.gov/quickfacts/westsacramentocitycalifornia>

trip generators in the vicinity of the corridor, some of which are outside of the CMCP limits but influence travel within the corridor.

Major Trip Generators in and around West Sacramento

- The Bridge District
 - Sutter Health Park home of the River Cats (AAA affiliate of the San Francisco Giants)
- The Washington District
- Sacramento River Waterfront
 - Provides water related activities including boating, fishing, and paddle boarding
- Port of West Sacramento
 - Rowing club hosts NCAA championship races

City of Woodland

The City of Woodland is a mid-sized city with a population of 59,710 residents and covers approximately 15.31 square mile³⁰. Woodland is the county seat for Yolo County and is located to the north of Davis and to the northwest of Sacramento. It is also located just eight miles to the west of Sacramento International Airport, which has made it an important distribution and manufacturing center³¹. The city is primarily residential land with light commercial and industrial areas towards the northeast portion of the city, along I-5. The land surrounding Woodland is largely agricultural and plays an important economic role for the city³².

Demographics

Much of Woodlands residential area is to the southwest of I-5 and to the west of SR 113. The educational level for persons 25 years or older with a high school graduate degree or higher is 82.3 percent, with 27.3 percent of persons 25 years or older having a bachelor's degree or higher. The median income (2015-2019) is \$69,612 and the reported percentage of persons in poverty is 11.2 percent³³.

TABLE 8 | CITY OF WOODLAND DEMOGRAPHIC DATA³⁴

City of Woodland	
Total Population (2019)	59,710
White	75.0%
Black or African American	1.9%
American Indian and Alaska Native	1.2%
Asian	7.8%
Native Hawaiian and other Pacific Islander	0.2%
Some Other Race	9.6%
Two or More Races	4.3%
Hispanic or Latino	48.3%
Not Hispanic or Latino	51.7%

³⁰ United States Census Bureau, "Quick Facts, Woodland, California". <https://www.census.gov/quickfacts/fact/table/woodlandcitycalifornia/PST045219>

³¹ City of Woodland, "Residents, About Us" <https://www.cityofwoodland.org/850/About-Us>

³² City of Woodland, "Residents, About Us" <https://www.cityofwoodland.org/850/About-Us>

³³ United States Census Bureau, "Quick Facts, Woodland, California". <https://www.census.gov/quickfacts/fact/table/woodlandcitycalifornia/PST045219>

³⁴ United States Census Bureau, "Quick Facts, Woodland, California". <https://www.census.gov/quickfacts/fact/table/woodlandcitycalifornia/PST045219>

City of Woodland	
Population Density (people/square mile)	3,900.06
Total Households (occupied housing units)	20,584
Average Household Size	2.87
Owner-Occupied Housing Units	54.4%
Renter-Occupied Housing Units	45.6
Households with No Vehicles Available	7.7%
Median Household Income (dollars)	\$69,612
Mean Travel Time to Work (minutes)	22.9

Land Uses and Major Trip Generators

The city's light industrial and commercial land is mostly located immediately adjacent to I-5. Several large corporations have distribution centers located here including Target, Walgreens, SC Johnson, Nugget, and Rite Aid.

Major Trip Generators in and around Woodland

- Sacramento International Airport
- Yolo County Fair Grounds
- Woodland Community College
- Multiple Distribution Centers
- California Agricultural Museum

3.3 | Priority Populations

With the development of the CTP 2050, Caltrans has identified equity as one of the strategic goals for the transportation system in California. CTP 2050 aims to advance social equity by actively directing support, resources, and protections to priority populations, and ensuring that the highest quality transportation options are available to those most in need. To help advance the equity goal, Caltrans is committed to working with local partners to improve the lives of residents in priority populations to provide a transportation network that accommodates all users, while providing a safe and reliable transportation network that serves all people and respects our shared environment.

The State of California, as of 2022, does not have a uniform definition of what constitutes a priority population, previously termed as underserved communities. Generally, priority populations refer to communities throughout California which are impacted disproportionately from a combination of economic, health, and environmental burdens. These include poverty, high unemployment, air and water pollution, presence of hazardous wastes and a high incidence of asthma and heart disease. In 2012, SB 535 was passed, which requires that, in addition to reducing GHG, a quarter of the funding received from Cap-and-Trade auction proceeds must be spent towards projects that provide meaningful and assured benefits to priority populations. This requirement was further modified by AB 1550 (2016) where a minimum of 25 percent of the proceeds be invested in projects that are located within and benefiting individuals living in priority populations.

Pursuant to SB 535 requirements, the California Environmental Protection Agency (CalEPA) has been directed to identify priority populations in the State. In response, CalEPA developed CalEnviroScreen, a tool that helps identify California communities by census tract that are disproportionately burdened by and vulnerable to multiple sources of pollution, based on geographic, socioeconomic, public health and environmental hazard criteria.

Identifying Priority Populations within the Corridor

To identify priority populations within the corridor, the Caltrans Core Development Team (CDT) reviewed and analyzed data from CalEnviroScreen and the California Healthy Places Index (HPI). CalEnviroScreen uses a series of thresholds to identify a community's potential for being defined as a priority population. See below for factors considered by CalEnviroScreen in determining a priority populations.³⁵

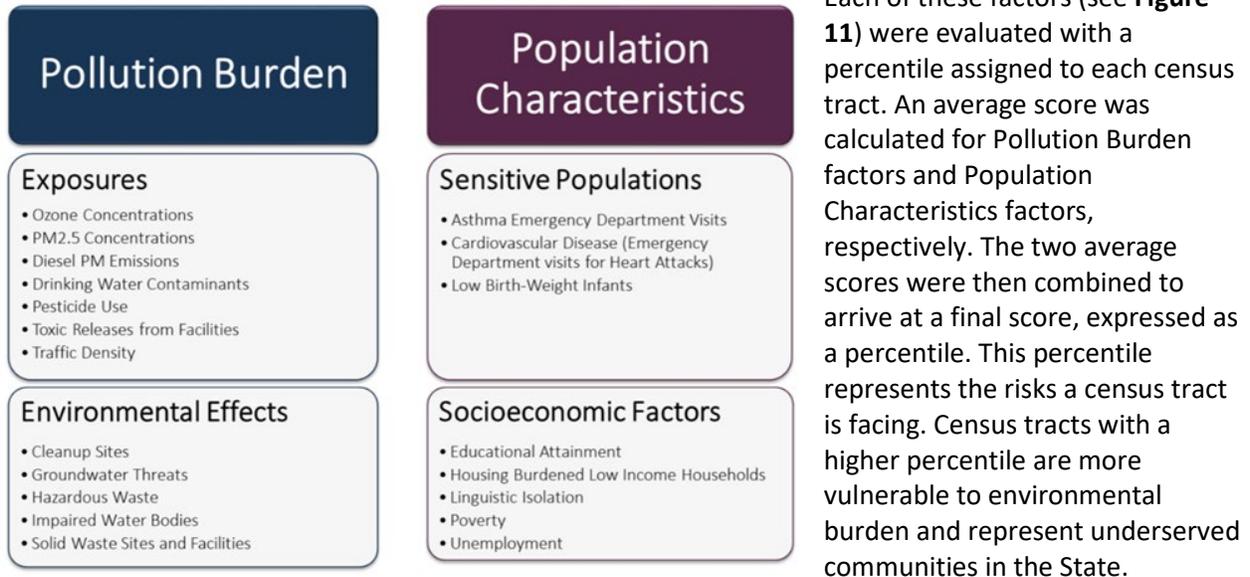


Figure 11 | CalEnviroScreen Factors

The CDT used the following methodology/steps to identify priority populations based on CalEnviroScreen data:

- Import the CalEnviroScreen shapefiles into Geographic Information System (GIS) to show all census tracts in Sacramento and Yolo counties
- Filter census tracts by percentile, those scoring 70 percent or greater were retained.
- Apply a two-mile buffer around the I-5 CMCP study area.
- Census tracts with a percentile of 70 percent or greater that are located within the two-mile buffer are identified as priority populations.

Census tracts identified using the above method represent CalEnviroScreen priority populations in the corridor. See **Figure 12** and **Appendix I** for the locations of these census tracts and associated data for different factors from CalEnviroScreen.

³⁵ <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>

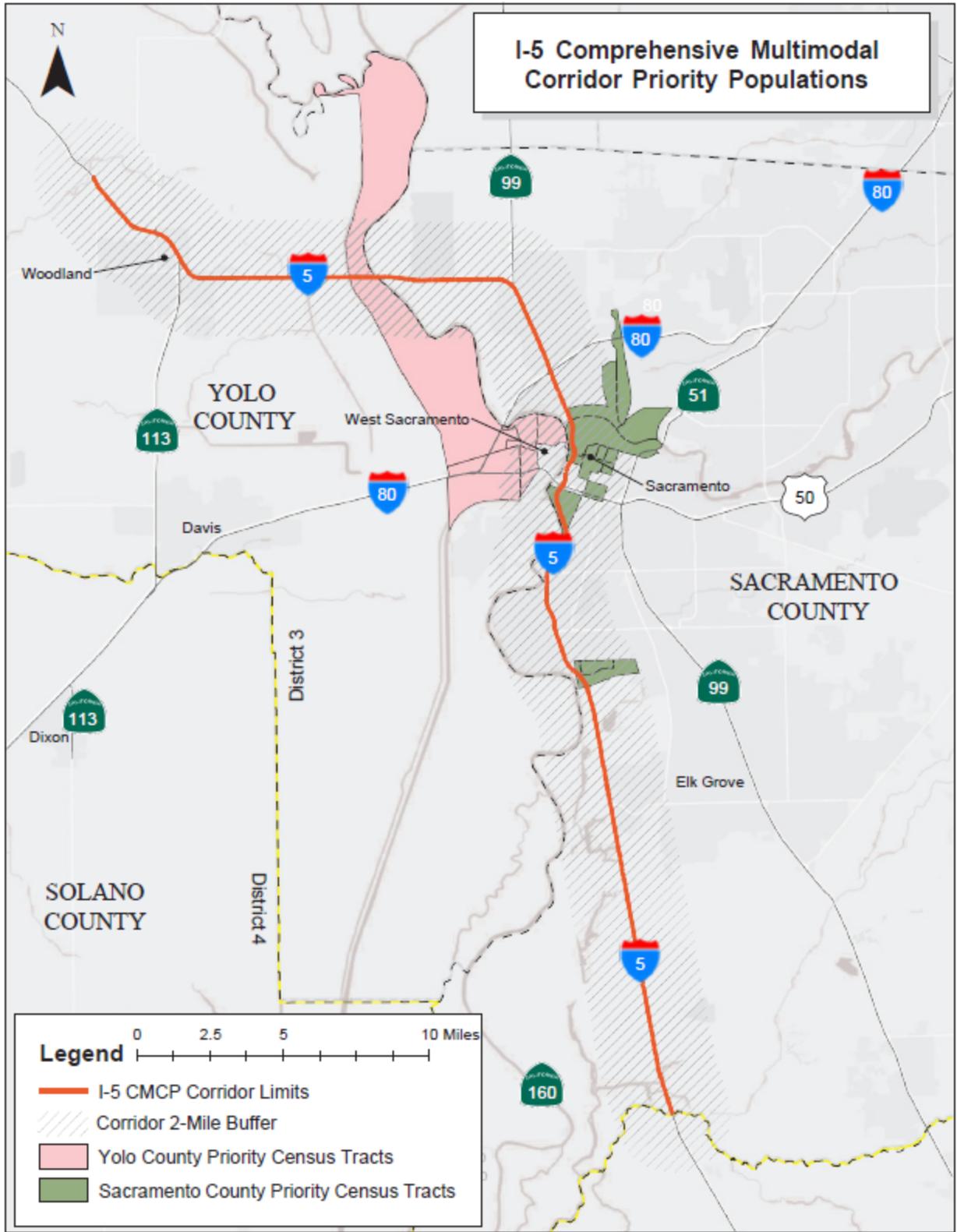


Figure 12 | Priority Populations Census Tracts Map

There is a total of 19 census tracts along the corridor that meet the priority populations selection criteria. The majority of these census tracts are found in Sacramento County, including the only two census tracts that scored above the 95th percentile, representing the most vulnerable communities along the corridor. Yolo County has four census tracts that meet the same criteria, three of which are in West Sacramento, the highest percentile being 93 percent.

California Healthy Places Index

In addition to CalEnviroScreen, the CTC's 2018 CMCP Guidelines recommends the California HPI, an interactive data and mapping tool that provides a detailed snapshot of the social determinants of health at the census tract level across California. HPI was developed by the Public Health Alliance of Southern California and the Virginia Commonwealth University's Center on Society and Health in collaboration with health departments and data experts across the State. Much like CalEnviroScreen³⁶, which uses environmental, health, and socioeconomic information to help identify priority populations that are most affected by many sources of pollution, the HPI uses this information to help predict health outcomes and life expectancy within these communities.

To be included in the California HPI, census tracts must meet eligibility criteria based on a population size of 1,500 or greater, and less than 50 percent of the population living in group quarters. The US Census Bureau classifies all people not living in housing units (house, apartment, mobile home, rented rooms) as living in group quarters. Group quarters include living arrangements such as college dormitories, military barracks, nursing homes, and correctional facilities. Some census tracts within the I-5 corridor have been excluded from the HPI due to not satisfying at least one of these criteria.

The California HPI combines 25 community characteristics into a single indexed HPI Score. The HPI score for each census tract is then ranked and a percentile assigned to show how a census tract compares to the rest of the State. **Appendix II** shows the HPI scores and percentiles for census tracts identified through the priority population's selection process described before. A smaller HPI score, and a higher percentile indicate a census tract is more vulnerable compared to others. There are seven census tracts in Sacramento County, one in Yolo County and one in Solano County that received a percentile greater than 90th.

Caltrans Smart Mobility Framework Guide 2020

The SMF guides implementation of multimodal transportation strategies in support of compact and sustainable communities through a broad range of transportation and housing choices. *Smart Mobility 2010: A Call to Action for the New Decade*, developed in partnership with the US EPA, the Governor's Office of Planning and Research, and the California HCD, provided concepts and tools to incorporate smart mobility principles into all phases of transportation decision-making.

As discussed in Chapter 2 of this CMCP, the SMF introduced strategies, performance measures, and analysis methods for implementing smart mobility. **Table 9** shows detailed characteristics of each of the five place types described in the SMF guide.

³⁶ CalEnviroScreen. <https://oehha.ca.gov/calenviroscreen>

TABLE 9 | PLACE TYPE CHARACTERISTICS

Type	Description	Metrics
Central Cities	High density, mixed-use places with well-connected grid street networks, high levels of transit service, and pedestrian supportive environments.	<ul style="list-style-type: none"> • Average population density: 40,000 • Average transit mode share: 33% • Average road density: 28
Urban Communities	Moderately dense places, mostly residential but with mixed-use centers. Housing is varied in density and type. Transit is available to connect neighborhoods to multiple destinations. Fine-grained network of streets with good connectivity for pedestrians and bicyclists.	<ul style="list-style-type: none"> • Average population density: 15,500 • Average transit mode share: 10% • Average road density: 26
Suburban Communities	Primarily lower density residential with a high proportion of detached housing. Some interspersed retail and services, but little mixing of housing with commercial uses. Street networks often have poor connectivity. Low levels of transit service, large amounts of surface parking, and inconsistent pedestrian networks.	<ul style="list-style-type: none"> • Average population density: 6,800 • Average transit mode share: 3% • Average road density: 19
Rural Areas	Very low-density places with widely spaced towns separated by farms, vineyards, orchards, or grazing lands. Includes rural towns that provide a mix of housing, services, and public institutions in compact form that serve surrounding rural areas. May include tourist and recreation destinations which can significantly affect land uses, character, and mobility needs. Very limited modal choices.	<ul style="list-style-type: none"> • Average population density: 340 • Average transit mode share: 1% • Average road density: 3.5
Protected Lands and Special Use Areas	Lands protected from development by virtue of ownership, long-term regulation, or resource constraints. Also includes large tracts of single use lands that are outside of, or poorly integrated with, their surroundings.	<ul style="list-style-type: none"> • Not Applicable

Each of the place types correspond to transportation planning priorities and serves as a guide, not a rule for development of recommendations. Planners consider the specific characteristics of a given planning area in addition to local, regional, and State plans when recommending strategic transportation system investments.

Smart Mobility Framework Place Types Within the I-5 Corridor

The land use and transportation system characteristics of place types strongly influence travel behavior. Locations with higher density, and mixed-use development patterns, coupled with well-connected multimodal transportation systems, encourages shorter trips and travel by non-automobile modes, both of which tend to reduce VMT.

The three main metrics used to determine place type are population density, transit mode share, and road density. Population density and transit mode share numbers were obtained from the US Census. The American Community Survey 5-Year Data includes total population and transit mode share at the city, census tract, and block group levels. Land area data is available from Topologically Integrated Geographic Encoding and Referencing (TIGERweb), a web-based mapping service provided by the US Census Bureau. Population density is defined as persons per square mile, calculated by dividing total

population by the study area. Road density is calculated as the ratio of total length of all roads to the land area within the specified area. The total length of all roads is obtained by intersecting TIGERweb line shapefiles from the US Census Bureau with each study area boundary, using a GIS mapping application.

For the I-5 Corridor, place type analysis was conducted at the city level for all cities along the corridor. Areas between these cities were not analyzed as they are known to be mainly rural areas and protected lands. A deeper analysis at the census tract level was performed for the downtown areas of the cities of Sacramento, Elk Grove, and Woodland. The results are included in **Table 10**. The area of downtown Sacramento was identified based on mapping information from the City of Sacramento Central City Specific Plan (CCSP)³⁷. These respective downtown areas were then cross referenced with mapping data from the US Census Bureau to identify which census tracts are in these areas, and the place type analysis was then conducted on those census tracts.

TABLE 10 | SMART MOBILITY FRAMEWORK PLACE TYPE METRIC

Geography	SMF Place Type Metric				SMF Place Type
	Land Area (sq. mi.)	Pop. Density	Road Density	Transit Mode Share (%)	
Elk Grove	42.19	3626.81	15.72	2.4	Suburban Community
Sacramento	98.61	5079.91	20.21	3.3	Suburban Community
Downtown Sacramento	9.46	5506.39	20.46	4.85	Suburban/Central City
West Sacramento	21.46	2475.59	14.29	1.9	Suburban Community
Woodland	15.30	3624.73	17.04	2.3	Suburban Community

For some areas, there was a need for professional judgment of place type because the metrics do not match a single place type category. Using the place type metrics alone, downtown Sacramento was identified as a Suburban Community. This is because although downtown Sacramento has high road density, it has low population density and low transit mode share. The low population density and transit mode share is because downtown Sacramento consists of mostly commercial and office land uses and is lacking in housing. However, the Sacramento CCSP acknowledges this lack of housing and puts forth a planning framework for increasing housing options in the downtown area. Because of this, and the fact that downtown Sacramento has the high road density to support high transit mode share given a higher population density, it can be assumed that the population density and transit mode share will increase as housing options are added and thus the area has been identified as a Central City. The Caltrans SMF Guide 2020 also lists downtown Sacramento as an example of a Central City.

Transportation Project Priorities

Place types are a tool to classify neighborhoods, towns, cities, and larger areas for purposes of making investment, planning, and management decisions that advance smart mobility and help determine transportation needs. The SMF identifies transportation project priorities for each place type to achieve

³⁷ City of Sacramento Central City Specific Plan. <http://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/Major-Projects/Central-City-Specific-Plan/Final-docs/CCSP-April2018-spread-layout-1.pdf?la=en>

greater location efficiency and garner smart mobility benefits in the future. **Table 11** lists the transportation project priorities for the place types along the I-5 corridor.

TABLE 11 | SMART MOBILITY FRAMEWORK TRANSPORTATION PROJECT PRIORITIES

Place Type	Transportation Project Priorities
Central Cities	<ul style="list-style-type: none"> • Direct service by high capacity and high-speed transit serving local and regional destinations and state-wide destinations • Creation and improvement of major transportation hubs connecting modes for intercity and international travel as well as intra- and inter-regional movement • Coordination of transit and related systems to provide convenient multimodal trips • Pedestrian facilities with high amenity levels • Extensive network of bicycle facilities • Shared mobility opportunities • Complete Streets facility treatments • Limited parking to reduce demand • Projects providing service, facility, and connectivity improvements to provide an equivalent level of activity connectedness to all population groups • Design and speed compatibility with surroundings • Operating strategies to optimize use of existing roadway capacity
Urban Communities	<ul style="list-style-type: none"> • Pedestrian facilities with high amenity levels • Extensive network of bicycle facilities • Convenient opportunities for multimodal transfers and transit transfers • Design and speed compatibility with surroundings • Shared mobility opportunities • Complete Streets facility treatments • Limited parking to reduce demand
Suburban Communities	<ul style="list-style-type: none"> • Improvements to network connectivity to reduce route/trip lengths and opportunities to encourage non-SOV trips • Complete Street facility treatments near schools and areas with an opportunity to transition to Urban Community place types • Transit, on-demand transit, or rideshare implementation attached to employment centers where appropriate • Access management and speed management on arterial streets

Chapter 4 | Multimodal Facilities and Needs

As a multimodal transportation corridor, the I-5 corridor serves the movement of people and goods with a variety of transportation modes. This chapter describes public transit services, park and ride (P&R) facilities, bicycle and pedestrian bicycle facilities, private commuter shuttle services, and micro/shared mobility options as available transportation modes within the I-5 corridor. It also identifies programmed, planned and in some cases visionary multimodal projects within the corridor. In addition, the chapter summarizes the ZEV and Broadband infrastructure, Transportation Systems Management and Operations strategies and equipment that are currently deployed within the corridor and examines the networks and major trip generators for freight movement.

Caltrans has adopted Deputy Directive 64-R2³⁸ to incorporate complete streets into all phases of project development. At the regional and county levels, Sacramento, and Yolo counties both have complete streets requirements in order to meet Sacramento Area Council of Governments (SACOG) ATP funding requirements created under SB 99 in 2013.³⁹

4.1 | Transit Services

A number of public transit agencies provide services within the I-5 corridor. Some agencies are specialized in one type of service, while others provide a variety of transit services. The following section outlines the express bus service, local bus service, light rail, American Track/Capitol Corridor, and transit centers.

Express Bus Service

The Yolo County Transportation District (YCTD) fleet of Yolobus buses consist of 44 transit size coaches powered by Compressed Natural Gas (CNG), six highway coaches that run on clean diesel and 10 cutaway buses and vans that primarily serve the elderly and disabled. Yolobus services Yolo County (covering West Sacramento, Davis, and Woodland). YCTD has six bus routes servicing Sacramento County. These are 42A and 42B (provide access to Sacramento International Airport), 45 and 45X (provide access between Sacramento and Woodland), and 43/43R (provide access between downtown Davis and downtown Sacramento).

The Sacramento Regional Transit District (SacRT) fleet consists of 205 buses powered by CNG and 23 shuttle vans. SacRT operates 78 fixed bus routes with connecting bus service in the Sacramento area covering 440 square miles. In addition to serving the City of Sacramento, SacRT serves the Sacramento International Airport, much of the norther portion of Sacramento County that includes the incorporated cities of Citrus Heights and Rancho Cordova, as well as unincorporated areas of Sacramento County that includes the Arden Arcade, Carmichael, Fair Oaks, Florin, Gold River, North Highlands, Orangeville, Rio Linda, and Rosemont communities. Recently SacRT expanded its transit system by taking over the Elk Grove Transit service known as e-tran. SacRT operates e-tran as a contractor for the City of Elk Grove replacing MV Transportation Incorporated.

Yuba-Sutter Transit is the sole transit provider in Yuba and Sutter counties and has a fleet of 51 buses that operate a local dial-a-ride service, three rural routes, six fixed routes and express service into

³⁸ https://www.calbike.org/wp-content/uploads/2019/08/DD64_R2.pdf

³⁹ file:///C:/Users/s131651/Downloads/Status%20of%20the%20State%20and%20Regional%20Active%20Transportation%20Program%20Competitions_202108242114376.pdf

downtown Sacramento. The express service is provided by thirteen diesel powered over the road coaches that serve the downtown area via the SR 70 and SR 99 corridors. There are four morning and evening schedules on the SR 99 corridor and three on the SR 70 corridor. In addition, there are three afternoon schedules which consists of two on SR 70 corridor and one on SR 99 corridor for a total of 17 daily schedules between the Yuba City/Marysville area to downtown Sacramento. Eight of the seventeen schedules offer two-way travel. Schedules on both corridors merge onto I-5 approximately six miles north of downtown before serving the downtown area along J, 15th, and P Streets. **Table 12** lists the express bus routes that travel along the I-5 corridor.

Table 12 lists the express bus routes that travel along the I-5 corridor.

TABLE 12 | EXPRESS BUS ROUTES ALONG I-5

Operator	Route	Origin-Destination	Entry Interchange	Exit Interchange
SacRT	142	Airport – downtown Sacramento	L Street	Sacramento International Airport
	138	UC Davis Medical Center - Silo Terminal	Stockton Boulevard	Hutchison Drive
	E14	Big Horn Way & Bruceville Road – 30 th & R Street	Laguna Boulevard	Q Street
	86	Marconi Avenue/Arcade Boulevard – Downtown/J Street & 11th Street	L Street	Garden Highway
	88	Arden Way/Del Paso Road Station – Downtown/ J Street & 11th Street	Garden Highway	J Street
	142	Sacramento International Airport – Downtown Sacramento	L Street	Sacramento International Airport
	103	Pocket & Greenhaven – downtown/8th Street & K Street	43 rd Avenue	Q Street
	107	Pocket Transit Center – downtown/F Street & 7th Street	43 rd Avenue	Q Street
Yolobus	42A/42B	Yolo County Intercity Loop (Clockwise/Counterclockwise)	E Main Street	J Street
	45/45X	Woodland – downtown Sacramento	E Main Street	J Street
	43/43R (Davis Express)	Central/East Davis – downtown Sacramento	Crosses I-5 at SR 275 (Capitol Mall/Tower Bridge)	
Yuba Sutter Transit	Commuter Express	Marysville/Yuba City – downtown Sacramento	I-5/SR 99 Interchange	J Street

Local Bus Service

Within Yolo County, Unitrans offers a fixed route bus service for City of Davis connecting with Yolobus. Yolobus operates five local routes that serve primary connections within Davis, West Sacramento,

downtown Sacramento, and eastern part of Solano County. Yolobus also provides daily service to Sacramento International Airport and is the only public transit providing daily service to Cache Creek Casino Resort. YCTD operates two types of routes, a regular route which operates hourly during five to seven days a week, and commuter and express routes that only operate at peak times in the mornings and evenings, Monday through Friday.

Yolobus compliments other local bus services provided by SacRT which is the primary local bus service in Sacramento County. A map of the YCTD system can be found at <https://www.yolobus.com/index.php>.

In addition to serving the City of Sacramento, SacRT serves Sacramento International Airport, routes that use I-5 are listed in the Local Bus Service **Table 13** below.

The SacRT fleet consists of 43 miles of light rail trains that services 52 light rail stations and an ADA paratransit services all within a 400 square-mile service area throughout Sacramento County. SacRT’s diesel fleet operates the following:

- Over 80 bus routes (fixed-route, micro transit, and dial-a-ride);
- 205 buses and 23 shuttle vans that operate approximately 69 fixed routes; and
- One general public dial-a-ride service with connecting bus service in the Sacramento area covering 418 square miles

SacRT services the cities of Sacramento, Citrus Heights, Elk Grove, Folsom, and Rancho Cordova. Listed in the Local Bus Service table below are the routes that use the I-5 corridor. SacRT bus routes that use the corridor include the 171, 172, 174, 142, E11, E12, E14, 103, and 107 lines. All transit options offer connections to key employment centers, transportation hubs, commercial areas, and link communities to opportunity including downtown Sacramento.

A map of the SacRT system can be found at <http://www.sacrt.com/systemmap/>.

TABLE 13 | LOCAL BUS ROUTES CROSSING I-5 CORRIDOR

Operator	Route	Origin-Destination	Crossing I-5	Major Roads adjacent to I-5
SacRT	11	Land Park/City College - Natomas/Club Center	Not Applicable	Land Park, 3 rd Street and 5 th Street, Truxel Road
	13	Natomas/Del Paso Road – W. El Camino & Watt Avenue	Del Paso Road	Truxel Road and Northgate Boulevard
	56	Cosumnes River College - Pocket Transit Center	Meadowview Road	Not Applicable
	61	Florin Towne Center - Pocket Transit Center	43 rd Street	Not Applicable
	62	Pocket Transit Center - downtown J Street & 4th Street	South Land Park Drive	Freeport
	81	Florin Road & Riverside Boulevard – University / 65th Street Station	Florin Road	Not Applicable
	102	Pocket Transit Center - downtown/8th Street & F Street	35th Street	Riverside Boulevard
	106	Pocket Transit Center - downtown/8th Street & F Street	56th Street	Not Applicable
	107	Pocket Transit Center - downtown/F Street & 7th Street	South Land Park Drive	Not Applicable
	138	Silo Terminal in Davis – UC Davis Medical Center	I-5/US 50 Interchange	Not Applicable

Operator	Route	Origin-Destination	Crossing I-5	Major Roads adjacent to I-5
Yolobus	212	East Woodland Counterclockwise	E Main Street	Not Applicable
	214	East Woodland Clockwise	E Main Street	Not Applicable
	216	Knights Landing / Woodland	E Main Street/ Beamer Road	Not Applicable
	217	Dunnigan / Yolo / Woodland	E Main Street	Not Applicable

Light Rail

SacRT operates three light rail lines in the greater Sacramento metropolitan region, the Blue Line, Green Line, and Gold Line. The Blue Line runs from the Watt Avenue/I-80 station to the Cosumnes River College station in Elk Grove. The Green Line runs from the 13th Street station in downtown Sacramento to the Richards Boulevard/Township 9 station just north of downtown Sacramento, with long range plans for an extension to the Sacramento International Airport. These plans will extend the light rail line by 13 miles north from downtown Sacramento and the River District to communities in North Natomas and eventually the airport. The Green Line extension, when complete, will run parallel to the I-5 corridor. The Gold Line runs from the Sacramento Valley Station in downtown Sacramento to the Historic Folsom Station in Folsom.

The Blue Line, one of SacRT’s three light rail lines, operates primarily north to south (parallel I-5) from Cosumnes River College to the Watt Avenue/I-80 Intersection and runs parallel to I-5 in the Sacramento area. The line mainly serves the communities of South Sacramento, downtown Sacramento, North Sacramento, and North Highlands.

In 2020 SacRT was awarded \$23.6 million in funding from the SB 1 Transit and Intercity Rail Capital Program (TIRCP) managed by CalSTA to purchase eight new low-floor light rail vehicles to enable low-floor operations on the Gold Line. This project leverages investment in targeted low-floor conversions along the Gold Line awarded in 2018, providing better accessibility to passengers with disabilities, bicycles, and strollers, and help reduce traffic congestion. Service implementation is expected in 2023.

TABLE 14 | LIGHT RAIL

City	Rail Line	Station Name	Segment Number
Sacramento	Blue Line	12th Street & I Street	4
		10th/11th Streets & K Street	4
		8th/9th Streets & K Street	4
		16th Street	4
	Green Line	Township 9 Station	4
	Gold Line	Sacramento Valley Station	4
	All Three Lines	7th Street & Capitol	4
		8th Street & Capitol	4
		8th Street & O Street	4
		Archives Plaza	4
		13th Street Station	4

Amtrak/Capitol Corridor

The Capitol Corridor, which began service in 1991, is a 168-mile intercity-passenger train route that connects San Jose to Oakland and Sacramento. This is one of three intercity passenger train corridors that Caltrans provides the necessary funds to operate the service. Additionally, Caltrans owns the rolling stock. Since 1998, the route has been administered by the Capitol Corridor Joint Powers Authority. The service provides connections to Auburn, Roseville, and San Francisco (via thruway bus service).

Along the I-5 corridor, this service runs between Sacramento (with limited service to Auburn) and San Jose. These stations provide a crucial connection, with the majority of riders boarding at Sacramento heading towards the Bay Area.

Current TIRCP funded projects include third track service between Sacramento and Roseville, Integrated ticketing, South Bay Connection and Link 21 program alternative development. Additional planned system improvements include operational enhancements and investments focusing on passenger service between San Jose and Sacramento by increasing speeds to reduce headways and travel time. Construction of additional sidings and /or alternative alignments and replacing existing infrastructure to reduce or eliminate bottlenecks and chokepoints causing delays in the movement of freight and passengers along the corridor.



Figure 13 | Amtrak's Capitol Corridor

Sacramento is served by four Amtrak routes: two daily long-distance routes, and two Amtrak California corridor routes with multiple daily trains. The California Zephyr and Coast Starlight are long-distance routes with one train per day in each direction. The San Joaquin operates two daily round trips from Bakersfield by way of Modesto and Stockton with Sacramento as the northern terminus. Connections are available via Amtrak Thruway Motorcoach to five additional daily round trips that terminate in Oakland. The Capitol Corridor operates 15 round trips on weekdays and 11 on weekends; Sacramento is the eastern terminus for all trains except for one daily round trip which continues to Auburn. Amtrak

passengers can also use Greyhound from this station as well as FlixBus to make connections to cities not served by rail on Amtrak.

Transit Centers

In addition to the Amtrak stations within the corridor that serve as transportation hubs, there are transit centers that provide connections between local and regional bus transit option.

There are five transportation centers within Sacramento and Yolo counties that serve as hubs for connections between local and regional transit options. City of Davis in Yolo County has three transit center locations serving the I-80 corridor inter-system transfer: Amtrak train station (Capitol Corridor, Amtrak, Unitrans) and the UC Davis Memorial Union (Yolobus and Unitrans), and the UC Davis Silo (FAST and Unitrans). Sacramento County is served by the West Sacramento Transit Center (Yolobus and SacRT) and Sacramento Valley Station in downtown Sacramento serves as a transit center for SacRT.

4.2 | Park and Ride Facilities

The Caltrans P&R Program facilitates access to transit and ride-sharing services along freeway corridors with the goal of reducing congestion and VMT. A mode shift away from single-occupancy vehicles (SOV) helps reduce congestion, improves air quality, and helps Caltrans meet its sustainability goals. Due to limited funding capacity for P&R projects, Caltrans is focusing on collaboration with local jurisdictions, regional and transit agencies to develop partnership opportunities to enhance, expand, and/or construct P&R facilities.

Existing Park and Ride Inventory along the I-5 Corridor

Along the I-5 corridor in Sacramento and Yolo counties, there is one P&R location owned by a local jurisdictions featuring 71 parking spaces. More information about the current Caltrans owned P&R inventory and the services available at each can be seen below in **Table 15**. In addition, **Table 16** displays the P&R facilities, within the I-5 corridor, that are operated and maintained by local jurisdictions.

TABLE 15 | CALTRANS OWNED PARK AND RIDE FACILITIES

City	Location	Parking Spaces	Electric Charging Spaces	Bike Parking	Transit Services
Sacramento	Elkhorn Boulevard and SR 99	24	No	No	None

TABLE 16 | LOCALLY OWNED PARK AND RIDE FACILITIES ALONG I-5

City	Location	Parking Spaces	Electric Charging Spaces	Bike Parking	Transit Services
Elk Grove	Laguna Boulevard /Harbour Point	71	0	0	SacRT

Planned Park and Ride Facility Improvements in the I-5 Corridor

There are no planned P&R projects currently planned for the I-5 CMCP study area corridor.

4.3 | Bike and Pedestrian Facilities

Biking and walking are important active transportation modes to address the corridor goals. While bicycles and pedestrians are prohibited on I-5 within the I-5 CMCP study limits, this CMCP focuses on freeway crossings as well as local facilities that are parallel to the freeways to accommodate active transportation mode. A network of bicycle and pedestrian facilities was developed, which was informed by the Caltrans District 3 Active Transportation Plan and SACOG's bike and pedestrian project list as well as the City of Sacramento's active transportation projects.

The bicycle and pedestrian network developed in this I-5 CMCP envisions a seamless network of pedestrian and bicycle facilities that would provide safe and reliable access to transit and schools, and a contiguous parallel cycling route that would allow cyclists to traverse the two counties by traveling across segments of local and regional network facilities. A list of existing bike facilities and planned projects was compiled from the plans referenced above. Next, the planned projects were verified with respective stakeholder agencies. The planned and proposed projects are further discussed in Chapter 9.

I-5 CMCP Bicycle and Pedestrian Network in Yolo and Sacramento Counties

In Sacramento County a total of 20 freeway crossings are located along the corridor. In Yolo County a total of six freeway crossings along the corridor were identified. The inventory was prioritized based on access and connectivity improvement to nearby transit facilities, schools, and the local and county network. **Figure 14** was created based on existing bike facilities and planned projects from SACOG's Open Data Portal using a two-mile buffer analysis around the I-5 CMCP study area.

Caltrans District 3 Active Transportation Plan

Caltrans District 3 recently completed their Caltrans Active Transportation (CAT) Plan for District 3. The CAT Plan identifies and prioritizes bicycle and pedestrian needs on and across the SHS in District 3. This CAT Plan is part of a statewide effort to identify opportunities for bicycle and pedestrian infrastructure improvements and to create a safe, comfortable, and well-connected system of bicycle and pedestrian networks. The approved CAT Plan was completed in Summer 2022 and can be found at the plan's website: <https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/active-transportation-and-complete-streets/caltrans-active-transportation-plans>. The combined bicycle and pedestrian project list is included in Chapter 9 | Recommended Strategies (see **Table 33**).

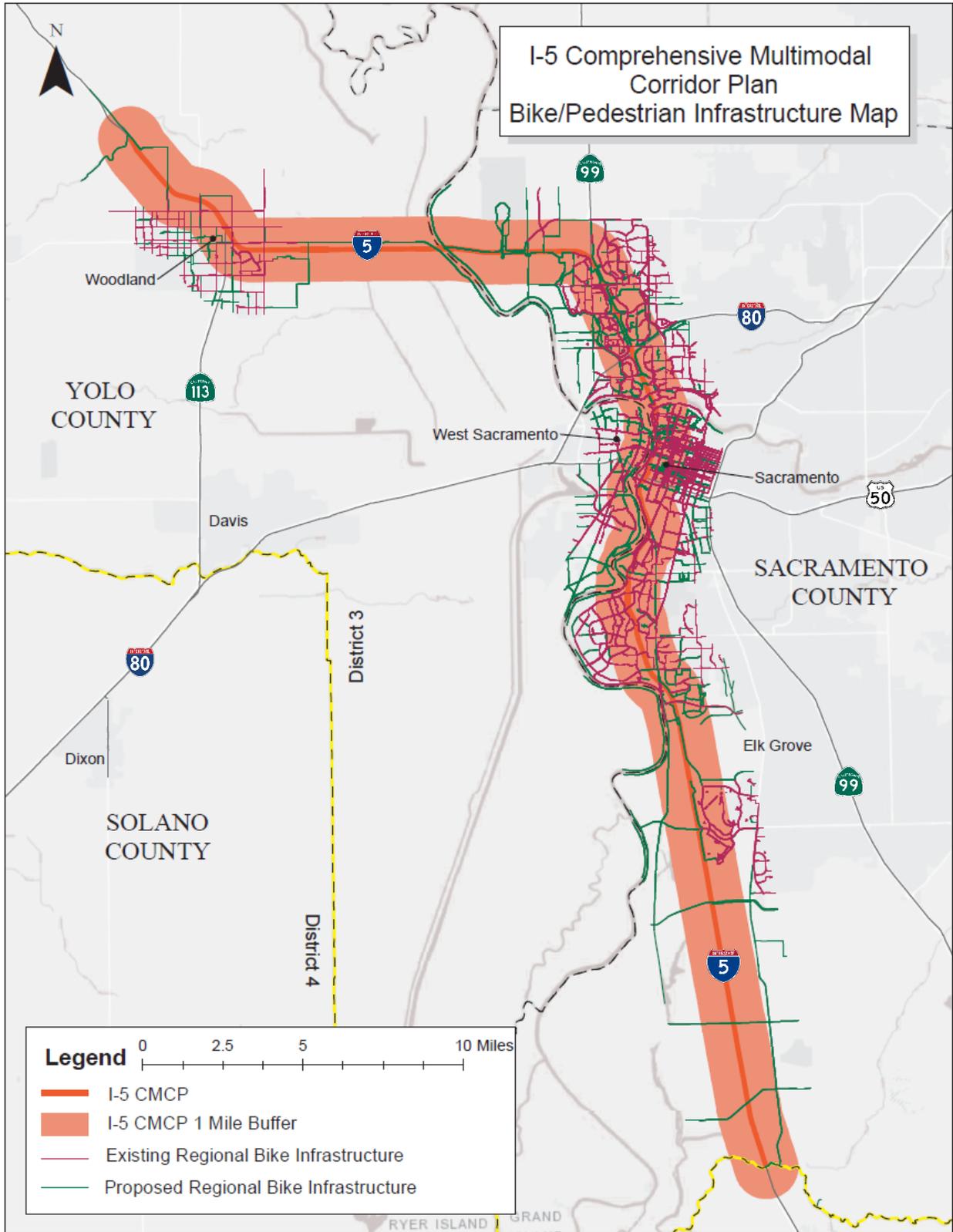


Figure 14 | I-5 CMCP Bike and Pedestrian Infrastructure Map

4.4 | Transportation Demand Management

Transportation demand management (also known as traffic demand management or Travel Demand Management (TDM) is a broad application of incentive driven programs and strategies aimed at reducing Single Occupancy Vehicle (SOV) travel demand and shifting that demand to other active and transit modes for multiple users of a corridor during traditional travel periods when demand is high and during non-traditional travel periods when certain transportation service aren't available. Such incentive programs include:

- Alternative mode travel incentives
- Carpool van incentives
- Subsidized transit passes
- Parking management programs
- Guaranteed ride home programs
- Alternative mode trip planning websites and applications

The following TDM's offer various options to driving alone serving Sacramento and Yolo counties:

- **Sacramento Transportation Management Association (TMA)** is an independent non-profit organization that offers alternatives to driving alone offering plenty of transportation alternatives: carpooling, vanpooling, riding a bike, taking the bus, commuters, and walking.
- **North Natomas, Jibe** is a non-profit organization with assisting the North Natomas community to foster other modes of transportation such as commuter shuttles and bike connectivity.
- **South Natomas TMA** is a nonprofit, mutual benefit corporation comprised of employers and developers in South Natomas. They work cooperatively with the greater South Natomas community on transportation management and air quality issues to develop and operate successful trip reduction programs that help reduce traffic and improve air quality in Sacramento. This includes offering transit and carpool subsidies and emergency ride home services.
- **Yolo Commute** is a non-profit TMA managed by YCTD. Yolo Commute is a transportation resource center for Yolo County by providing ridesharing information and programs it represents a unified commitment by public and private sector stakeholders and communities to address the increasing mobility needs of the region and alleviate traffic congestion, air pollution, and fuel consumption.

In addition to the above mentioned TDM's SACOG's policy is to support and invest in strategies to reduce vehicle emissions that can be shown as cost effective to help achieve and maintain clean air and better public health. With a strategy to continue the region's previous commitment to TDM programs as a strategy for education and promotion of alternative travel modes for all types of trips toward reducing VMT by 10 percent.

SACOG launched a new Innovative Mobility program in 2019 that combines traditional TDM activities with the development and testing of innovative mobility solutions. A major component of this new program is to fund demonstration projects that solve transportation challenges with new mobility solutions in the form of an accelerator program. Another large part of the program is to expand the reach of existing and new tools, programs, and incentives that reduce emissions and VMT.

SACOG's 511 regional travel information program is a prime example of a TDM strategy. SACOG's 511 and rideshare programs cost less than \$2 million per year region-wide to support carpooling, transit ridership, and bicycling in all corridors and areas. Travelers may call the 511-telephone number or visit

the website to obtain real-time traffic updates and direct feeds from traffic cameras and changeable message signs, as well as local and regional transit and intercity rail information. The website and phone system allow people to offer or locate shared-ride carpools or vanpools. SACOG's 511 website also has tools for cyclists, including those for planning a bike trip or making your business more bicycle friendly.

4.5 | Other Mobility Services

Mobility Hubs

A Mobility Hub is defined as a location within a community that enables all users of the transportation network access to multiple transportation options and supportive amenities that offer safe, comfortable, and seamless transfer between different travel modes such as micro mobility/transit, and TDM programs ran by single or multijurisdictional Mobility Hub Managers or Agencies. Types of hubs include Regional downtown, Urban District, Emerging Urban District, Suburban-Rural, Pulse and Opportunity Hubs, each gaining its characterization based on the function of the facility (train/bus station), the capacity level, frequency and number of transit/bus service providers serving that location, the access to car, bike and scooter shared services and an estimation of probable demand for Transportation Network Companies (TNC) like Uber and other for hire services like taxis. Using these criteria, two mobility hubs exist along the I-5 CMCP corridor.

- The Sacramento Valley Station
- West Sacramento Transit Center

Caltrans District 3 is collaborating with the State in its efforts to transition P&R facilities into Mobility Hubs. Currently, District 3 is inventorying existing lots and prioritizing them for Mobility Hub improvements.

4.6 | Transportation Systems Management and Operations

Caltrans is committed to effective TSMO strategies to optimize the performance of California's transportation systems for all users and modes of travel. Successful TSMO strategies require proactive integration of the transportation systems to efficiently move people and goods along highly congested urban corridors. Examples of TSMO strategies include but are not limited to ramp metering, traffic signal synchronization, Intelligent Transportation Systems (ITS)/TOS, and managed lanes. Efficiency can often be achieved by operational improvements through ITS deployment. Operations and Maintenance (O&M) resources are essential to achieve Caltrans fix-it-first target for ITS elements. As TSMO strategies are developed and implemented, additional ITS/TOS elements within the corridor are often required and O&M resource needs will continue to grow.

Caltrans Ramp Metering Development Plan⁴⁰

As required by Caltrans Deputy Directive DD-35-R1, each District that currently operates, or expects to operate ramp meters within the next ten years, shall prepare a Ramp Metering Development Plan (RMDP). According to the draft 2021 RMDP, there is a total of 34 existing ramp meters and 39 programmed and/or planned ramp meters on I-5 in Sacramento and Yolo counties. Some of these programmed and/or planned ramp meters include the installation of a ramp meter for the High Occupancy Vehicle Preferential Lane of on-ramps that already meter the general-purpose lane(s).

⁴⁰ <http://www.dot.ca.gov/trafficops/tm/ramp.html>

4.7 | Broadband

Broadband service has become an essential element of communication, an engine of economic activity, educational opportunity, civic engagement, access to health care, teleworking and much more. Income, education, disability status, age, race, and ethnicity all correlate with broadband availability and use. Residents in less populated areas generally have less access to broadband services. State highway ROW can be a source of expanding the broadband network which could provide increased accessibility to rural and other priority populations, including Tribal lands.

California Governor’s EO N-73-20 creates the California Broadband Council and mandates the development of the California State Broadband Action Plan which directs CalSTA, Caltrans and the CTC examine their processes and implement the deployment of fiber optic and fiber optic conduit of the “middle mile” along the SHS. With Governor Newsom’s approval of SB 156 Communications: Broadband in July 2021, a \$6 billion multiyear investment was established to expand, enhance, operate, and maintain high-speed broadband internet infrastructure to unserved and priority populations. Caltrans will work closely with the newly established Office of Broadband and Digital Literacy to construct a statewide open-access middle-mile broadband network.⁴¹ Caltrans encourages developing partnerships with stakeholders and the regional broadband consortium during planning, environmental scoping, and project development to integrate broadband into projects.

4.8 | Freight Network, Facilities, and Trip Generators

I-5 is identified on the federally designated National Highway Freight Network (NHFN) as a Primary Highway Freight System (PHFS) route and is part of the Surface Transportation Assistance Act of 1982 National Network. The corridor directly serves the Port of West Sacramento and provides freight connections to the agricultural and manufacturing producers throughout Sacramento and Yolo counties. The State is committed to a broader, long-term vision for accelerating the transition of California’s multimodal freight system from its already robust stature to a safer, more efficient, and reliable, and less polluting freight system.

4.9 | Zero-Emission Vehicle Infrastructure

At the federal level, the I-5 corridor is ready for the refueling of Battery Electric Vehicle (BEV), CNG and Fuel Cell Electric Vehicles (FCEV) in FHWA’s Alternative Fuel Corridors program. For a route to gain such status, FHWA requires that EV charging facilities be readily available at least every 50 miles or less, and AFC facilities be available every 100 miles or less. Currently, there are of 52 ZEV charging stations dispersed in the urbanized areas of Elk Grove, Sacramento, West Sacramento, and Woodland within a two-mile buffer to the I-5 CMCP study area. The sites include big box retailers like Walmart and Target, motel/hotel chains, locally operated P&R lots, privately owned and operated gas/truck stops, transit centers, and intercity rail stations accessible by priority populations and all users of the various transportation networks. See **Appendix VII** for a full list of ZEV charging stations.

Directed by the Governor’s EO N-79-20, the Office of Business and Economic Development (GO-Biz), the California ZEV Marketing Development Strategy, and the CAPTI, the Department has developed the ZEV Action Plan. The ZEV Action Plan lays out the State’s path forward in the implementation of the goals

⁴¹ https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB156

and objective of the Governor’s ZEV program to underserved, low-income, and Black, Indigenous, and People of Color Communities.



Figure 15 | City of Sacramento Curbside Charging

Chapter 5 | Corridor Performance

5.1 | Introduction

The I-5 corridor spans two counties between San Joaquin/Sacramento county line and the I-5/CR 18 Interchange in Yolo County which currently experiences high travel demand. Caltrans developed the I-5 CMCP to reduce VMT, traffic congestion, GHG, and improve mobility along the I-5 corridor. The Sacramento Activity-Based Travel Simulation Model (SACSIM 19) was applied to assess the performance of the transportation systems for existing and future conditions. The analysis also included freeway ramps and ramp terminal intersections.

This document summarizes the results of travel demand modeling analysis conducted by Caltrans District 3 Forecasting and Modeling staff for the existing and future alternatives using the SACSIM 19 model. The study area for the travel demand modeling analysis includes the I-5 freeway between San Joaquin/Sacramento County line and the Yolo and I-5/CR 18 Interchange. The freeway ramps and ramp terminal intersections are also included in the modeling analysis.

The segments analyzed, performance measures, and modeling results were agreed upon by the TAC and stakeholder groups. This chapter highlights the findings from the I-5 Corridor Modeling and Analysis Summary Report (see **Appendix III**).

5.2 | Model Development

This chapter presents a summary of the model development for the I-5 corridor analysis.

As stated earlier, the analysis was conducted using the SACSIM 19 travel demand model. The I-5 CMCP study area was broken down into 10 segments (see **Figure 16**). The segments were broken down based on current lane configurations and daily traffic volumes, which were collected from Caltrans Performance Measurement System (PeMS) along the entire I-5 CMCP study area. **Table 17** shows the description and AADT for the 10 segments along the I-5 CMCP study area.

TABLE 17 | I-5 CMCP CORRIDOR SEGMENTS AND AADT

Segment	Description	Begin PM	End PM	Existing Lane Configuration	2018 AADT Range
Segment 1	San Joaquin / Sacramento County line to Elk Grove Boulevard.	SAC_0.018	SAC_10.826	4F	57,400 77,000
Segment 2	Elk Grove Boulevard. to Just south of Florin Road	SAC_10.826	SAC_17.165	~6F	91,000 114,800
Segment 3	Just north of Florin Road to US 50 ramps south of I-5 / US 50 Interchange	SAC_17.165	SAC_22.000	6F	141,300 161,500
Segment 4	US 50 ramps south of I-5 / US 50 Interchange to Richards Boulevard.	SAC_22.000	SAC_24.645	6F/7F/8F +Aux Lanes	192,700 193,600
Segment 5	Richards Boulevard. to I-5 / I-80 Interchange	SAC_24.645	SAC_26.693	8F +Aux Lanes	202,000 169,900
Segment 6	I-5 / 80 Interchange to I-5 / SR 99 Interchange	SAC_26.693	SAC_29.907	4,5,6,7,8F +Aux Lanes	160,700 127,200
Segment 7	I-5 / SR 99 Interchange to Sacramento / Yolo County line	SAC_29.907	SAC_34.652	4F	85,900 59,900
Segment 8	Yolo / Sacramento County line to CR 102	YOL_0.00	YOL_5.530	4F	59,900 61,000
Segment 9	CR 102 to I-5 / SR 113 junction (Jct.)	YOL_5.530	YOL_R8.262	4F	50,000 39,400
Segment 10	I-5/SR 113 Jct. to I-5 / SR 16, CR. 18	YOL_R8.262	YOL_R10.807	4F	39,400 30,400

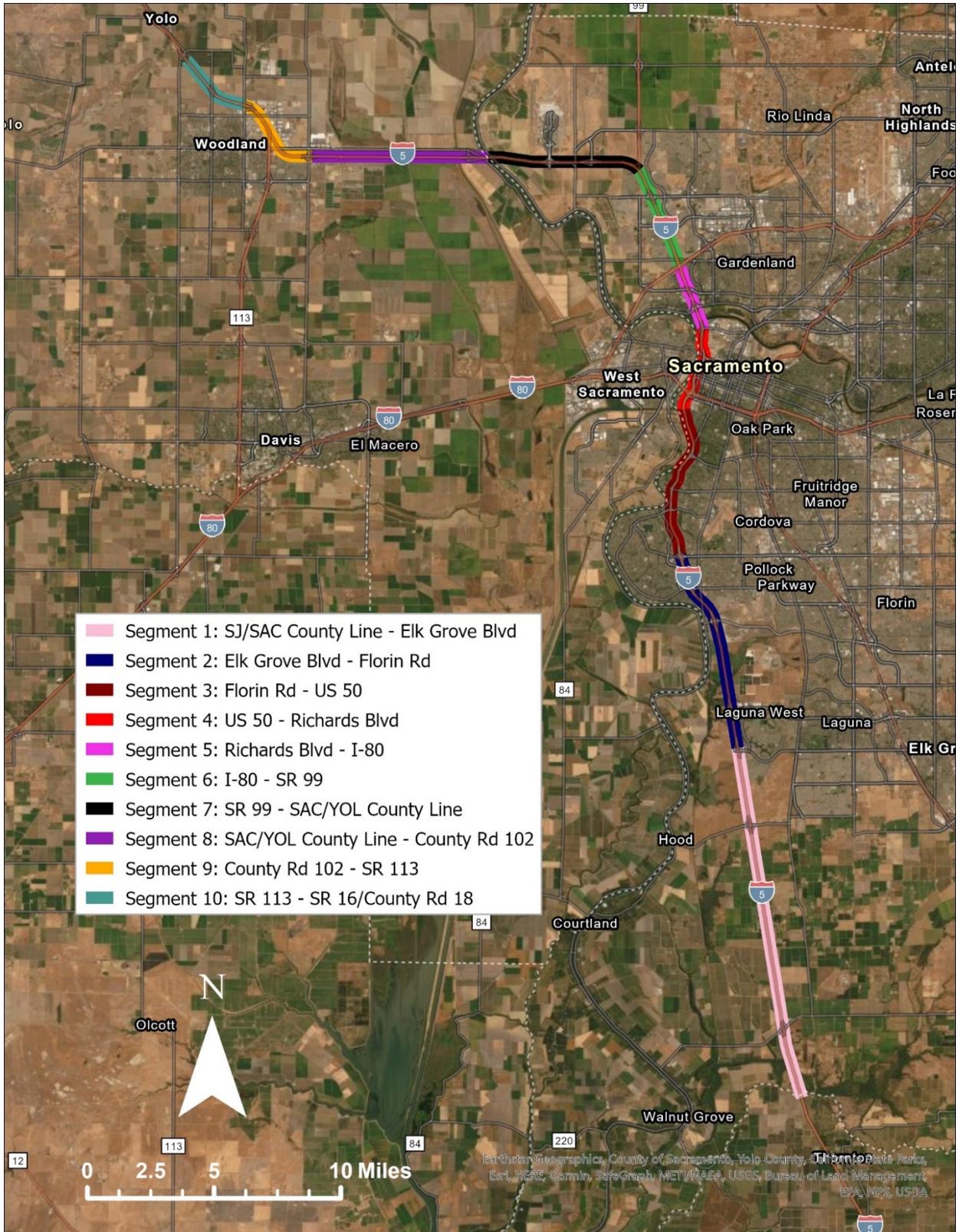


Figure 16 | I-5 CMCP Study Area and Segments Map

5.3 | Travel Demand Calibration

All freeways mainline, ramp segments, managed lanes (HOV), interchange ramps, and ramp intersections are included and developed in the I-5 corridor.

The detailed base year travel demand model calibration results in **Table 18** and **Table 19** show that traffic count and volume in model comparison for the existing conditions. The detailed base year travel demand model calibration and validation memorandum is included in **Appendix B** of the I-5 corridor Modeling and Analysis Summary report (see **Appendix III**).

TABLE 18 | CALIBRATION AND VALIDATION RESULTS ALONG THE I-5 CORRIDOR (NORTHBOUND)

Validation Criterion	Threshold for Acceptance	Model Output
Percent Within Caltrans Maximum Deviation	At Least 75%	84% ✓
Correlation Coefficient	At Least 88%	96% ✓
Percent Root Mean Square Error	Less than 40%	11% ✓

TABLE 19 | CALIBRATION AND VALIDATION RESULTS ALONG THE I-5 CORRIDOR (SOUTHBOUND)

Validation Criterion	Threshold for Acceptance	Model Output
Percent Within Caltrans Maximum Deviation	At Least 75%	81% ✓
Correlation Coefficient	At Least 88%	97% ✓
Percent Root Mean Square Error	Less than 40%	9% ✓

5.4 | Existing Year (2019) Traffic Conditions

The I-5 corridor within the study area carries from 25,000 to nearly 240,000 vehicles on a daily basis in both directions, depending on the location. The peak flow occurs between Richards Boulevard and Garden highway in the middle of the corridor, located just north of downtown Sacramento. Truck traffic makes up more than 25% of all traffic along the corridor. 22% of daily trips are shared ride trips (more than one occupant per vehicle).

Figure 17 shows the daily traffic volume along the I-5 corridor in the northbound direction, and **Figure 18** shows the daily traffic volume in the southbound direction. **Figure 19**, **Figure 20**, **Figure 21**, and **Figure 22** provide the daily traffic volumes by vehicle class.

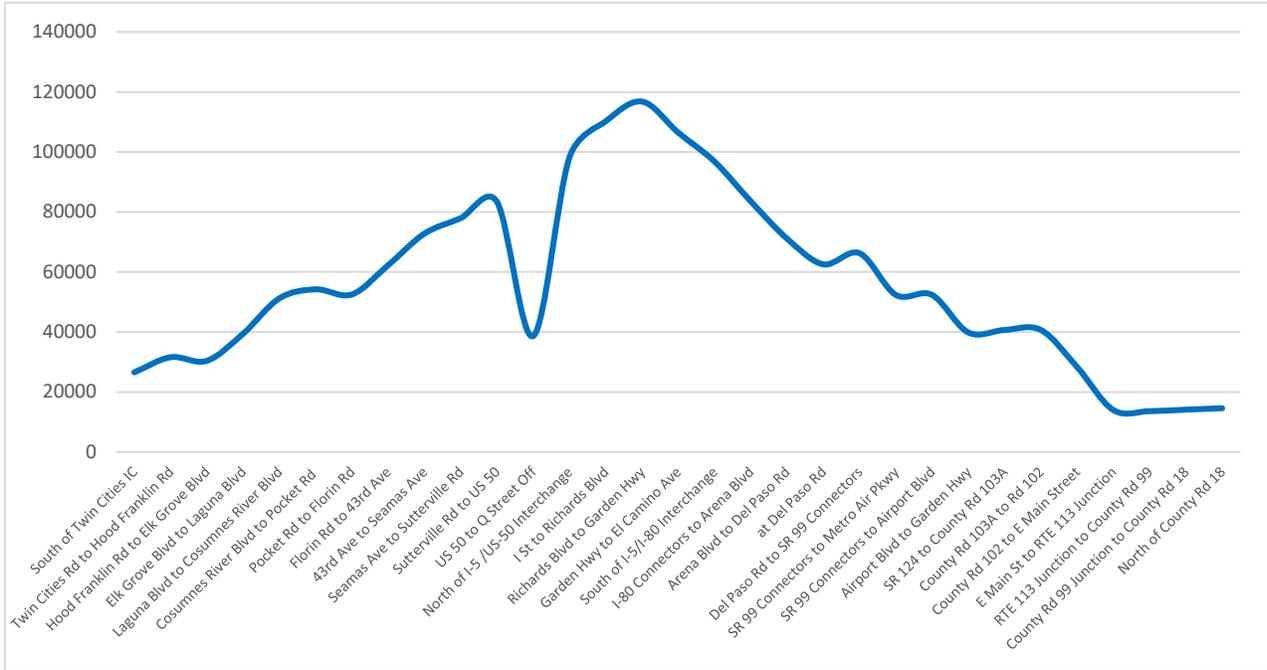


Figure 17 | I-5 Corridor Average Daily Traffic Volumes (Northbound)

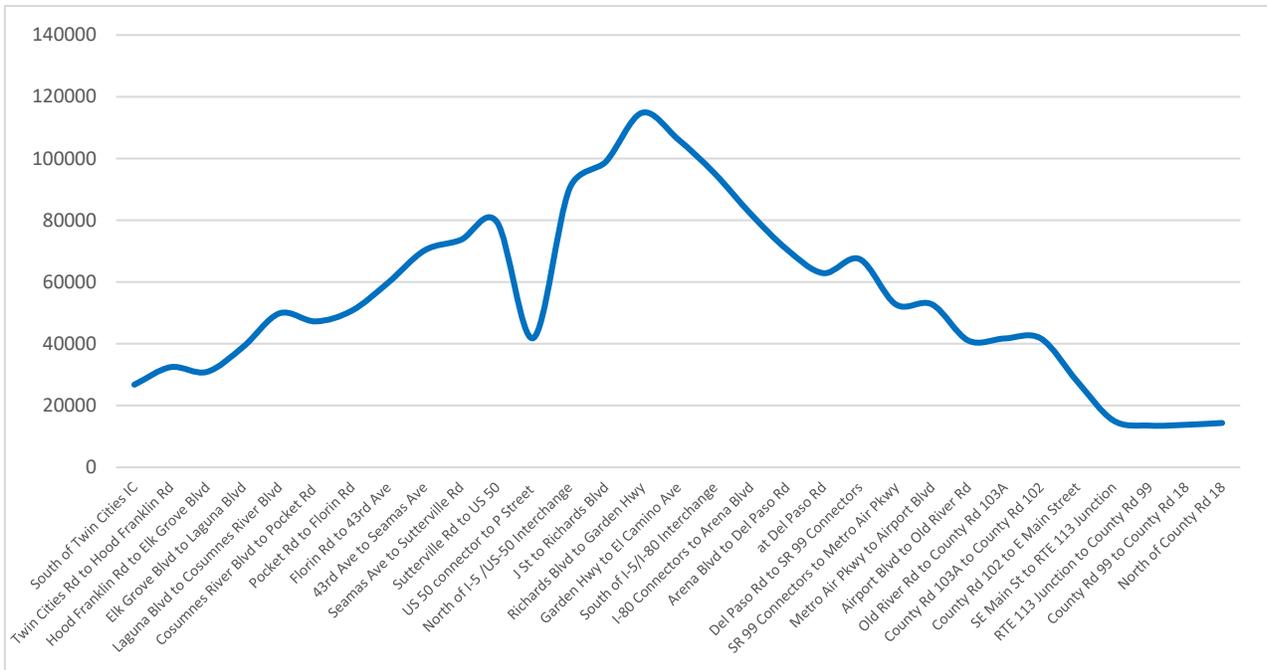


Figure 18 | I-5 Corridor Average Daily Traffic Volumes (Southbound)

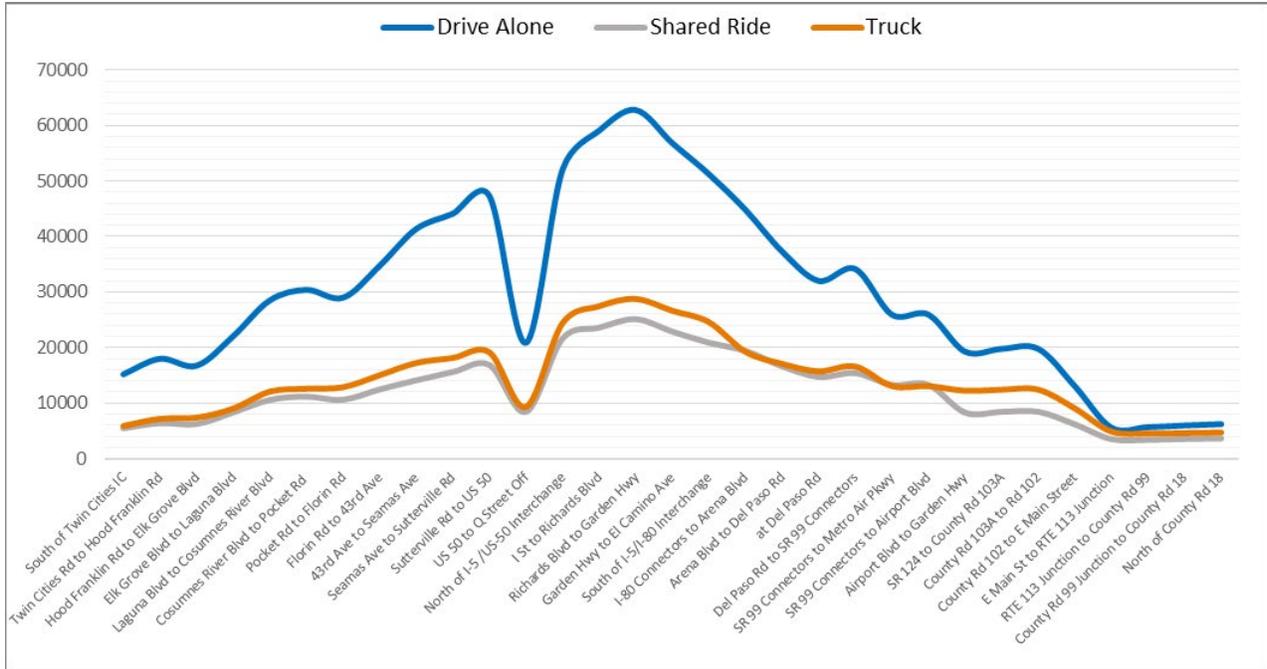


Figure 19 | I-5 Corridor Daily Traffic Volumes by Vehicle Class (Northbound)

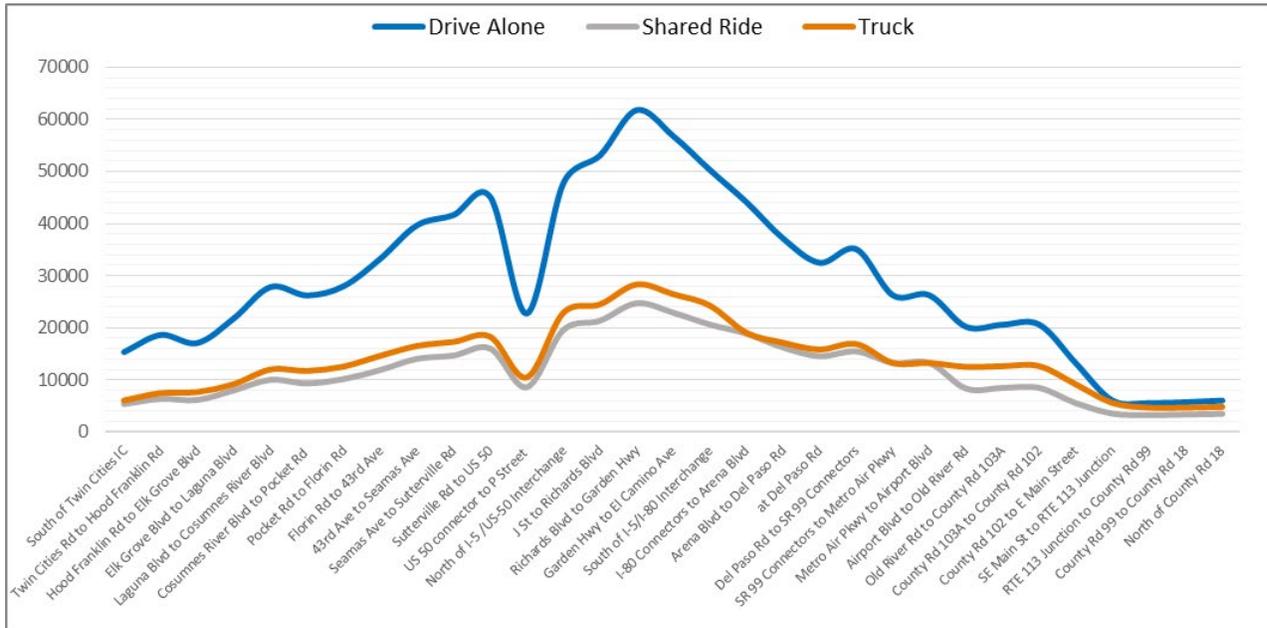


Figure 20 | I-5 Corridor Daily Traffic Volumes by Vehicle Class (Southbound)

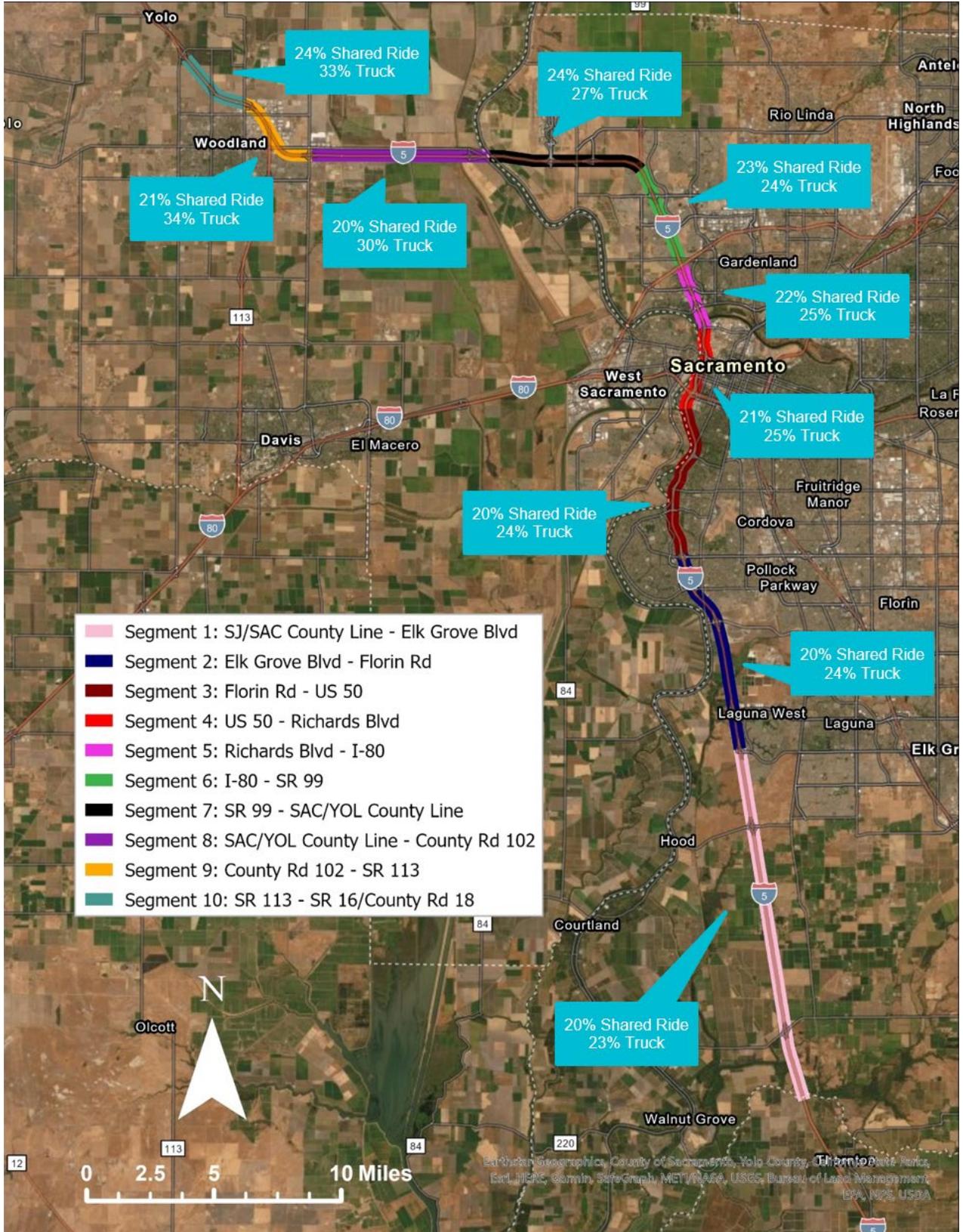


Figure 21 | Corridor Daily Traffic Volumes by Vehicle Class (Northbound)

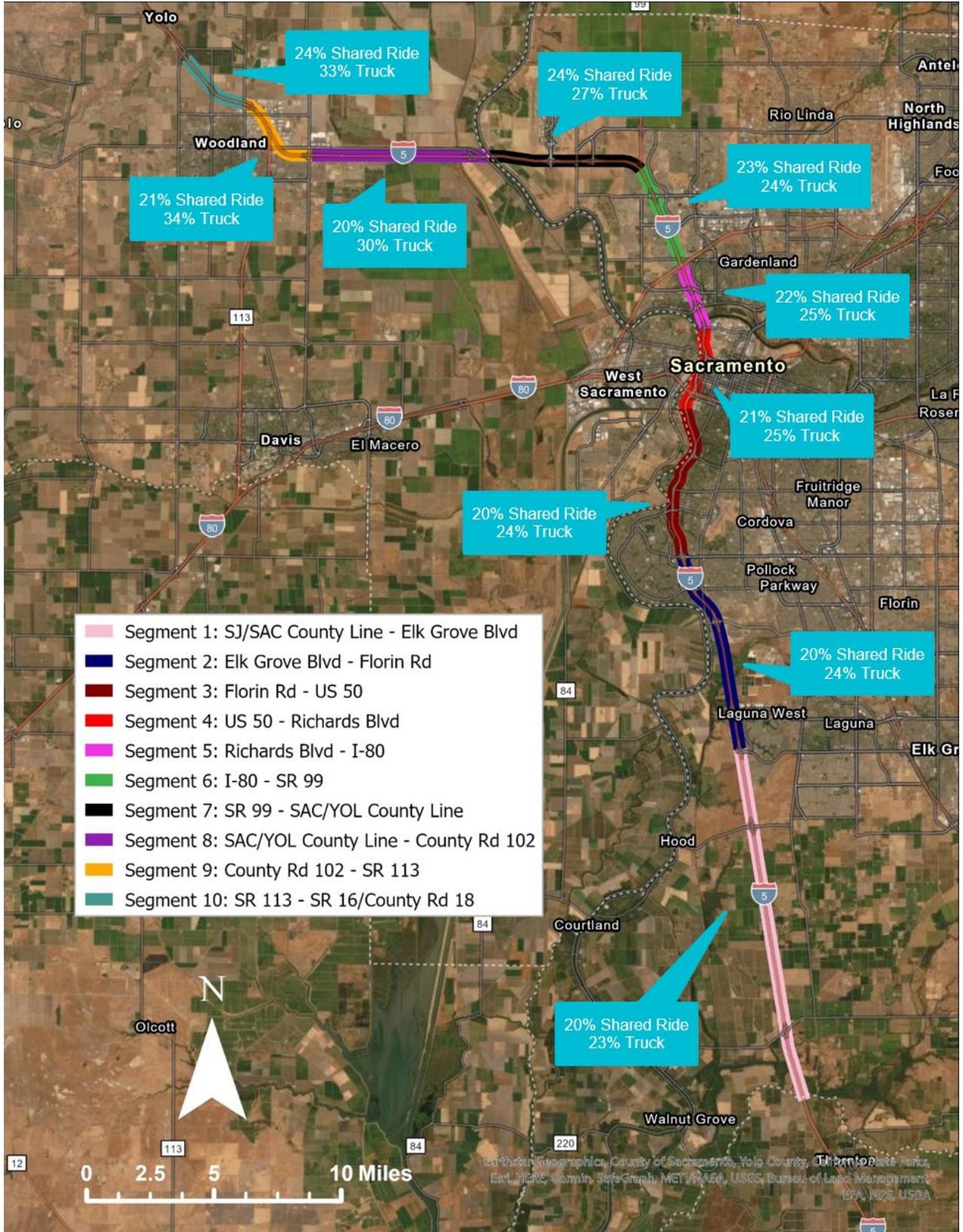


Figure 22 | I-5 Corridor Daily Traffic Volumes by Vehicle Class (Southbound)

5.5 | 2040 No Build Scenario

5.5.1 | 2040 No-Build Growth

This sub-section of the report compares the growth between the existing base year and the 2040 No-Build conditions. The existing travel demand model was validated and calibrated with the traffic count data collected from PeMS and other resources; then with the future year land use and socio-economic information to process and estimate the future traffic forecasts. The socio-economic data (SED) which is the basis of the activity of individual simulated households and persons, is the key input to the travel demand model. These include population, households, jobs, income, and other variables that affect trip making. Trips are estimated in the travel demand models using these SED inputs.

Also, this section covers freeway and arterial roadway networks input assumption. Model roadway networks are different for the base year model and 2040 No-Build model due to planned improvements. There will be some projects that are already committed or funded and will be constructed between now and the next 20 years.

After these two key model inputs (SED and network), the model results are compared, and the following performance measures are included for existing and future conditions:

- Corridor volumes
- VMT
- Vehicle hours travelled (VHT)
- VHD

5.5.2 | 2040 Planned Projects in 2040 No-Build Scenario

Before performing future analysis model runs, the 2040 highway model network was updated to include all under-construction and approved roadway projects that will be completed along the corridor by 2040.

Below is a list of network updates:

- HOV lanes: Airport Interchange to San Joaquin County line project
- HOV connector ramps between I-5 and I-80 project
- Auxiliary lane: US 50 to Sutterville Road project
- HOV bypass lanes at various metered on-ramps project
- Auxiliary lane: I-80 to West El Camino Corridor Volumes Comparison project

The model estimated volumes indicate that notable growth is expected to occur on the I-5 corridor in next 20 years. The 2040 future year model results show a growth range of 2% to 29% along the I-5 corridor travelling northbound with an average growth of 12%. Travelling southbound, the 2040 No-Build traffic model shows a growth rate between 4% and 31% with an average growth of 12%. The growth varies along the corridor depending on location and reflecting the different SED growth projections in various parts of the corridor study area. There is higher estimated future growth in the northern sections of the corridor compared to the southern sections. Growth starts to grow significantly from segment 5 to segment 10. Please see **Figure 23** and **Figure 24** for the growth along the corridor in terms of projected volume growth between the existing base year and 2040. Figure 8 shows the growth in the northbound direction, while **Figure 24** shows the growth in the southbound direction. The average growth within each segment is shown on the two figures.

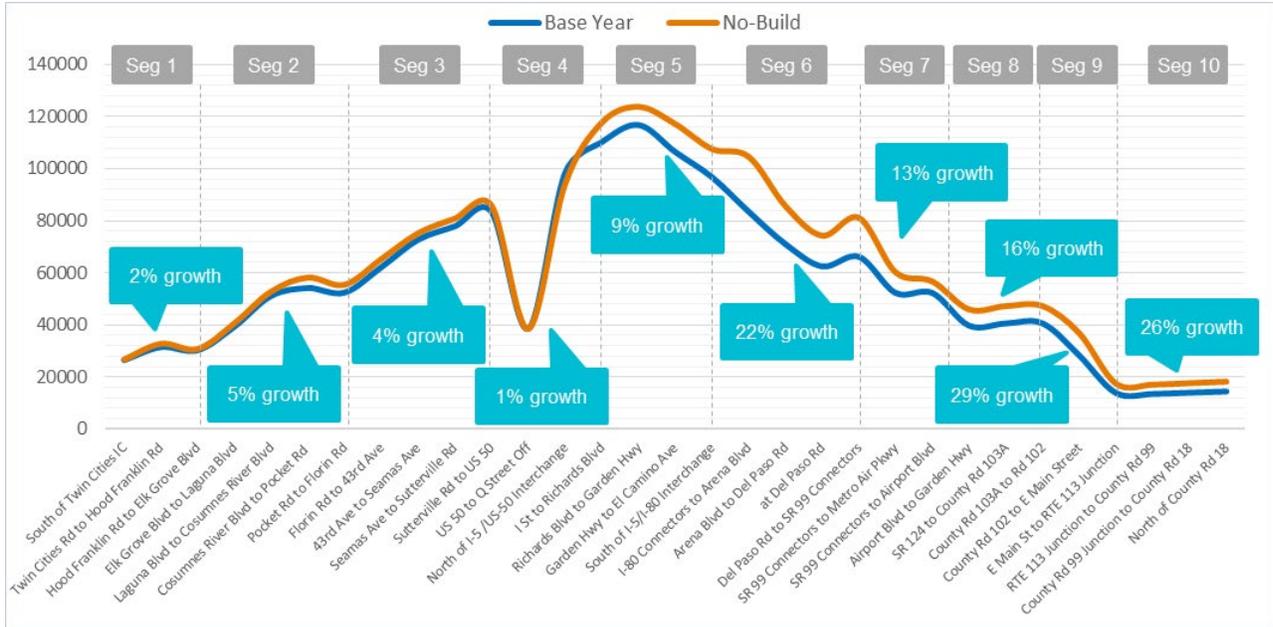


Figure 23 | Daily Traffic Growth on I-5 Corridor (Northbound)

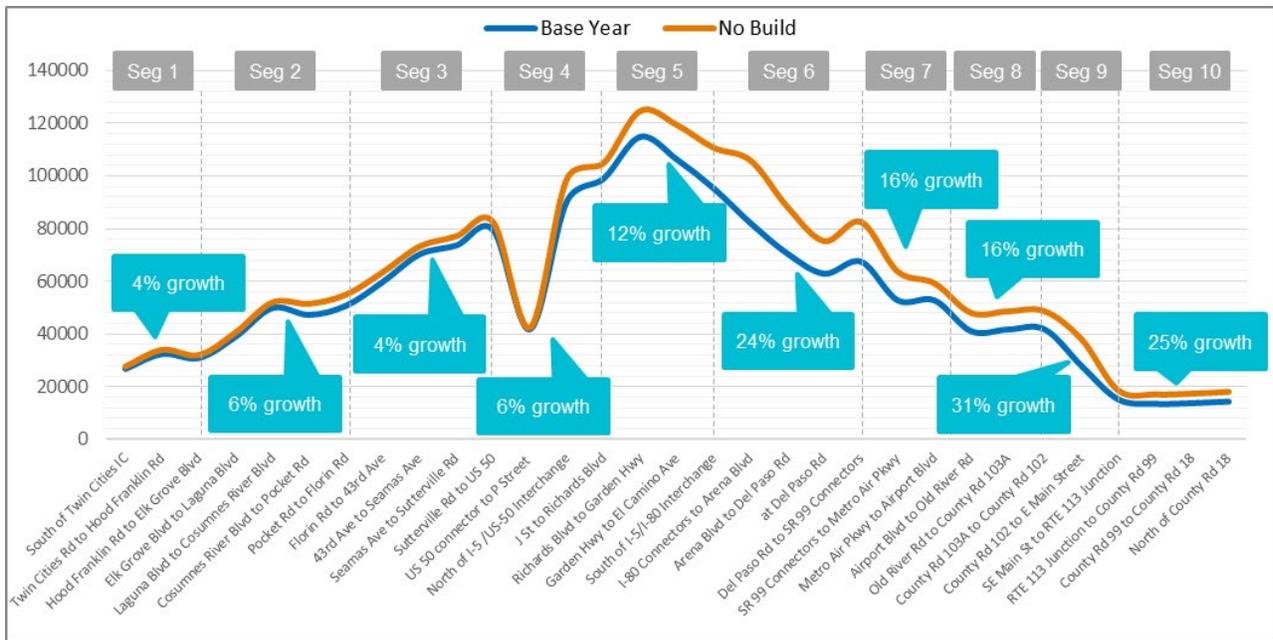


Figure 24 | Daily Traffic Growth on I-5 Corridor (Southbound)

A.M. peak period traffic (6:00 A.M. to 10:00 A.M.) is projected to grow in the next 20 years in the northern parts of the I-5 study corridor from the I-5/US 50 interchange to the north end of the study corridor as shown in **Figure 25** and **Figure 26**. This growth is greater in the northbound than the southbound direction, with growth ranging from 12% in segment 5 to 39% in segment 10 when travelling northbound. In the southbound direction, growth ranges from 2% in segment 5 to a maximum of 14% in segment 9 of the segments north of the I-5/US 50 Interchange. For the southern segments in the corridor (segments 1-4), traffic is projected to decrease in the northbound direction, ranging from a -1% decrease in segment 3 to a -9% decrease in segment 1. In the southbound direction, segment 1

shows a projected -8% drop in traffic, while segments 2 and 3 show a 5% increase in traffic. Segment 4 in the southbound direction shows no change in traffic over the segment.

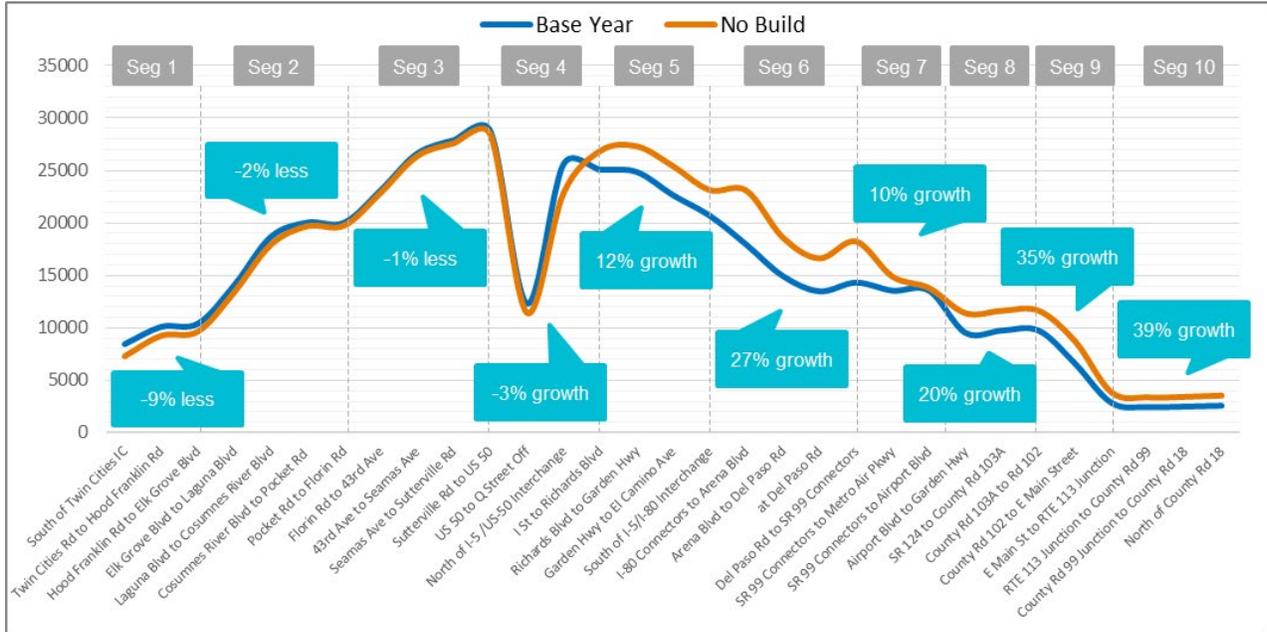


Figure 25 | A.M. Period Traffic Growth on I-5 Corridor (Northbound)

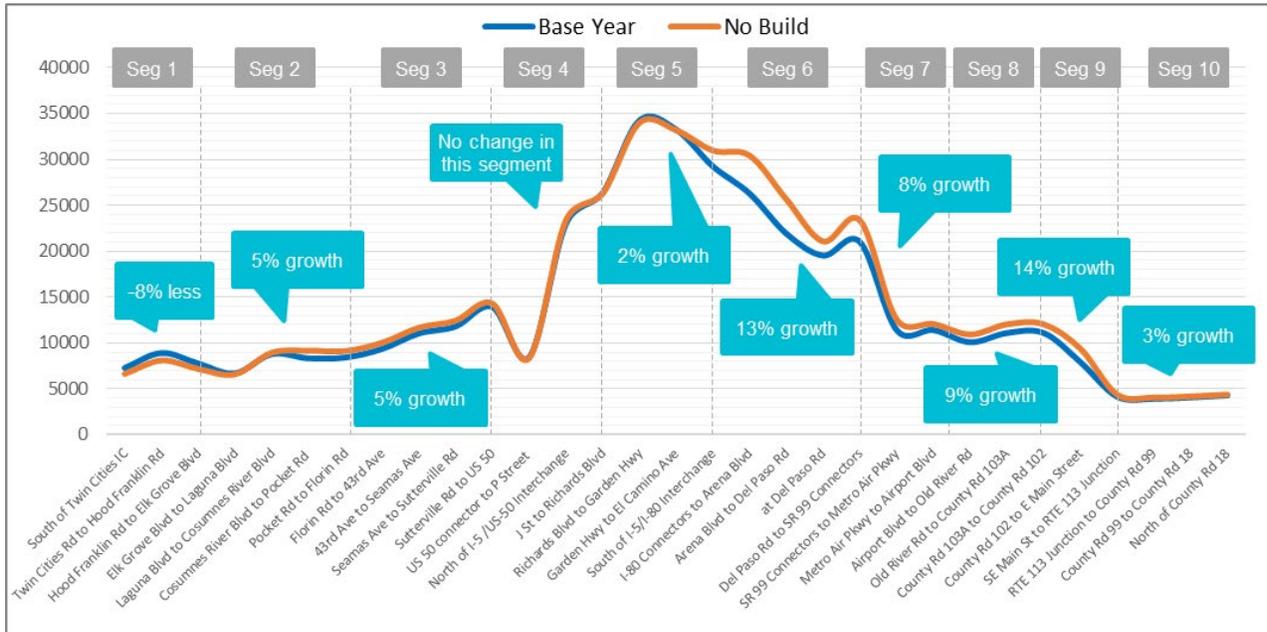


Figure 26 | A.M. Period Traffic Growth on I-5 Corridor (Southbound)

The P.M. peak period traffic (3:00 P.M. to 7:00 P.M.) also shows overall traffic growth in the northbound and southbound directions in the corridor. As compared to the A.M. period, the P.M. period projects traffic growth to be more dispersed throughout the corridor. **Figure 27**, which charts projected changes in traffic for the P.M. period in the northbound direction, shows 8-12% growth in segments 1-3 and 0-18% growth in segments 6-10, while segments 4 and 5 shows decreases in projected traffic at -7% and -

2%, respectively. **Figure 28**, which charts the P.M. period southbound projected traffic, shows a 31% increase in segment 1 and 5% to 52% growth in segments 4-10, while segment 2 sees a slight -1% decrease in traffic and segment 3 sees no change in traffic.

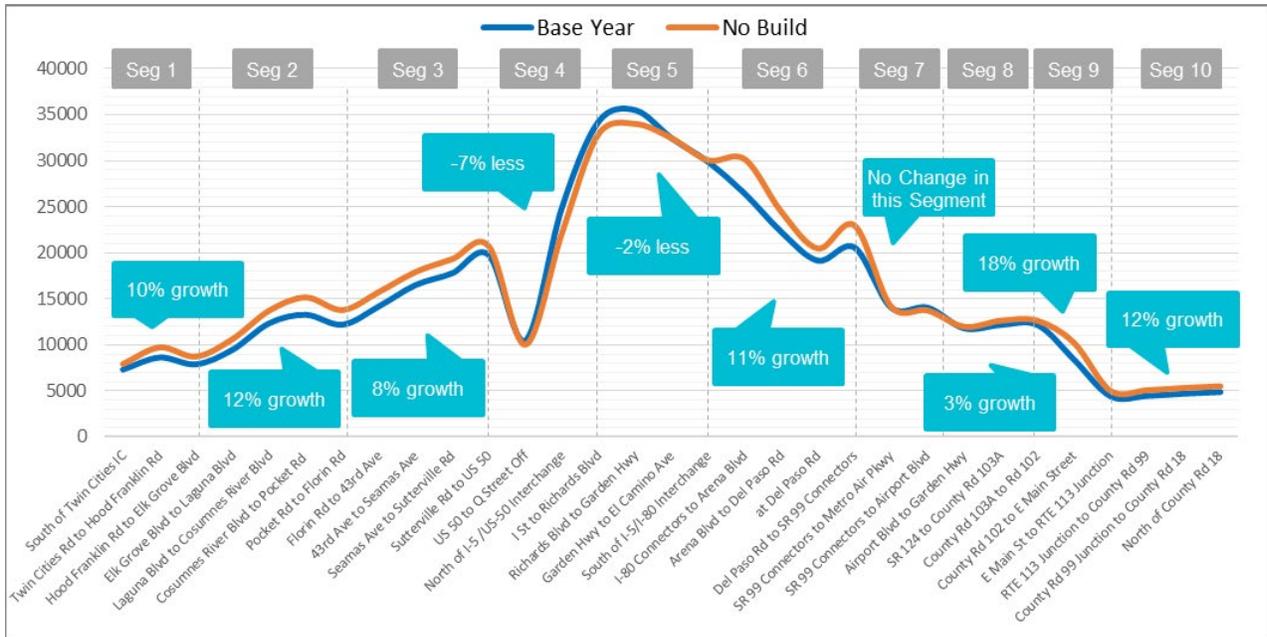


Figure 27 | P.M. Period Traffic Growth on I-5 Corridor (Northbound)

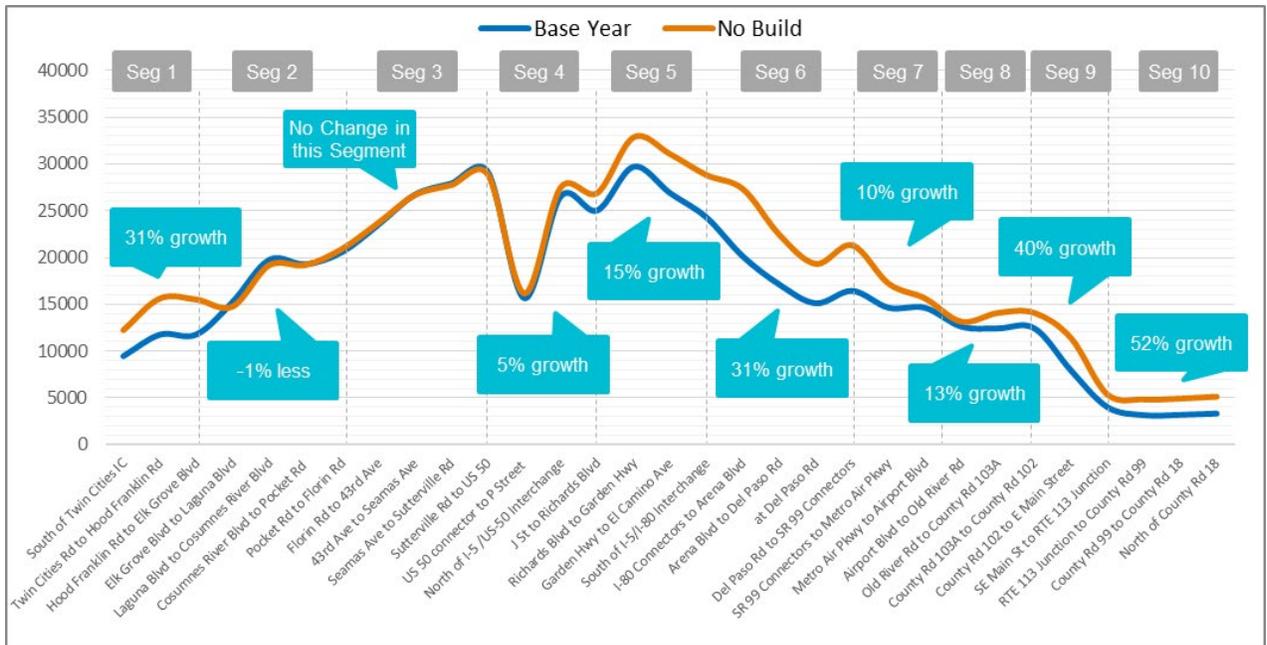


Figure 28 | P.M. Period Traffic Growth on I-5 Corridor (Southbound)

5.5.3 | No-Build VMT / VHT / VHD Comparison

Under the future No-Build condition, the models project that VMT will increase along the I-5 corridor by 10.1%. The model predicts that the VMT will go up from nearly 4.5 million miles travelled per day to

over 4.9 million miles travelled per day along I-5 corridor study area. The added population and jobs will generate new trips in the area and the results are shown in the increase in VMT, VHT, and VHD.

VHT and VHD also increase notably from the existing year to the 2040 No-Build based on the model results. **Table 20** shows the details of the VMT, VHT and VHD changes to 2040. Delay and hours of travel increase more than VMT due to the increase in congestion which exponentially increases and impacts vehicles on the system. This is especially true where there is already congestion or conditions nearing the point of heavy congestion with resulting vehicle queues.

TABLE 20 | VEHICLE MILES TRAVELED, HOURS TRAVELED, AND DELAY COMPARISON

	VMT	VHT	VHD
Base year	4,456,700	81,100	13,210
2040 No-Build	4,906,800	94,620	19,680
Total. Difference	450,100	13,530	73,300
Percent Difference	10.1%	16.7%	41.4%

5.6 | 2040 Alternative Analysis

This sub-section of the report compares the 2040 Build alternative scenarios against the 2040 No-Build alternative. The following performance measures are compared in this section to assess the effects of each alternative against the No-build alternative. The comparative performance measures are:

- Corridor volumes
- Person throughput (Vehicle Occupancy)
- VMT
- VHT
- VHD

There are three build alternative scenarios that are assessed using the travel demand models (see section 5.7 for full description of the scenarios). They are:

- Future Build Scenario 1 (HOV 2+)
- Future Build Scenario 2 (HOT 2+)
- Future Build Scenario 3 (HOT 3+)

5.6.1 | Projects in 2040 Build Alternatives

In addition to the planned and programmed projects that were included in the 2040 No-Build network, there are additional projects that were assumed as part of the build alternative model networks. As noted, the project team held multiple coordination meetings to develop the alternative scenarios. The build alternative scenarios are consistent with the I-5 Managed Lanes Study. The alternative scenario roadway projects list is presented in **Appendix A** of the I-5 Corridor Modeling and Analysis Summary Report (**Appendix III**).

5.6.2 | Corridor Volumes Comparison

This section compares the traffic volumes of the managed lane 2040 Build scenarios to the 2040 No-Build scenario.

5.6.3 | Managed Lanes Alternatives Traffic Volumes Comparison

All three managed lanes alternatives are projected to carry more traffic volume along the freeway corridor (General Purpose and Managed Lanes together) than the future No-Build scenario. The lowest growth sections are the areas where the managed lanes do not extend to. As mentioned before, the managed lane limits are from I-5/Elk Grove Boulevard interchange to I-5/Airport Boulevard Interchange. Therefore, the portion of the corridor south of Elk Grove Boulevard up to the San Joaquin County line and north of Airport Boulevard up to CR 18 will not have any managed lanes for any of the build scenarios.

All of the build alternative scenarios assume added mainline capacity. Based on the model results, the highest growth is observed between US 50 Interchange and Garden Highway (the end of segment 4 and the beginning of segment 5) near downtown Sacramento for the northbound and southbound directions. This section has 10,000 to nearly 17,000 more vehicles under the Build scenarios along I-5 at the daily level, compared to 2040 No-Build scenario. This represents a 13% to 18% increase in traffic throughput.

Figure 29 and **Figure 30** show the comparison of daily traffic along the I-5 corridor for all three managed lane alternatives as compared to the 2040 No-Build alternative. **Figure 29** shows the projected northbound traffic volumes, and **Figure 30** shows the projected southbound traffic volumes.

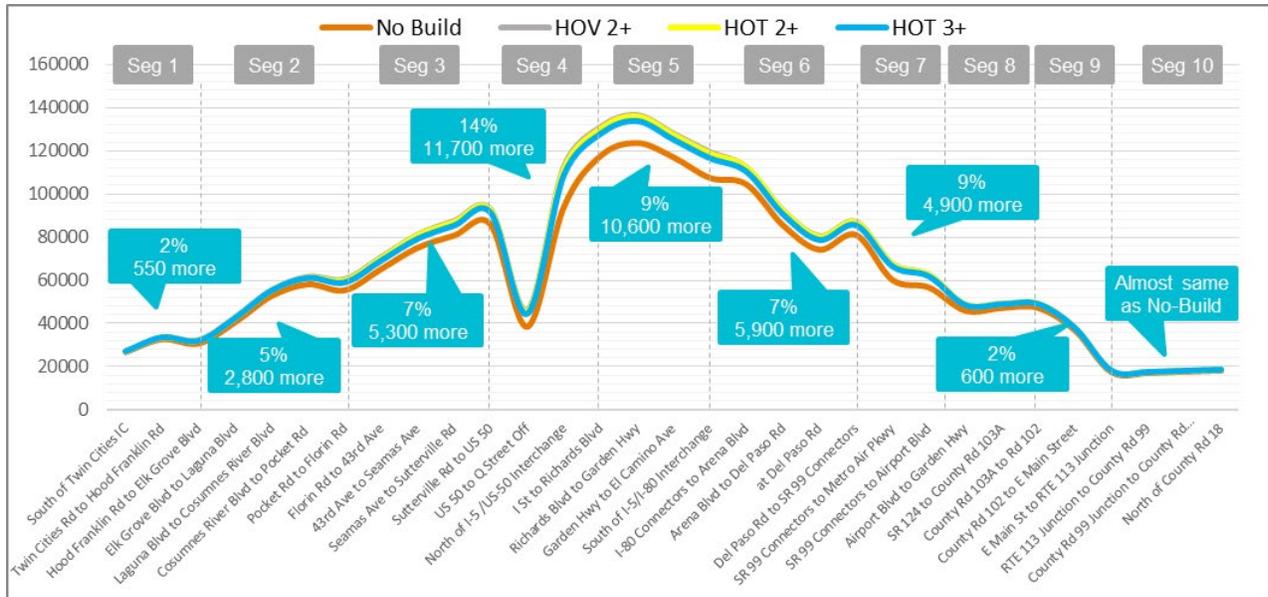


Figure 29 | Daily Traffic on I-5 By Alternative (Northbound)

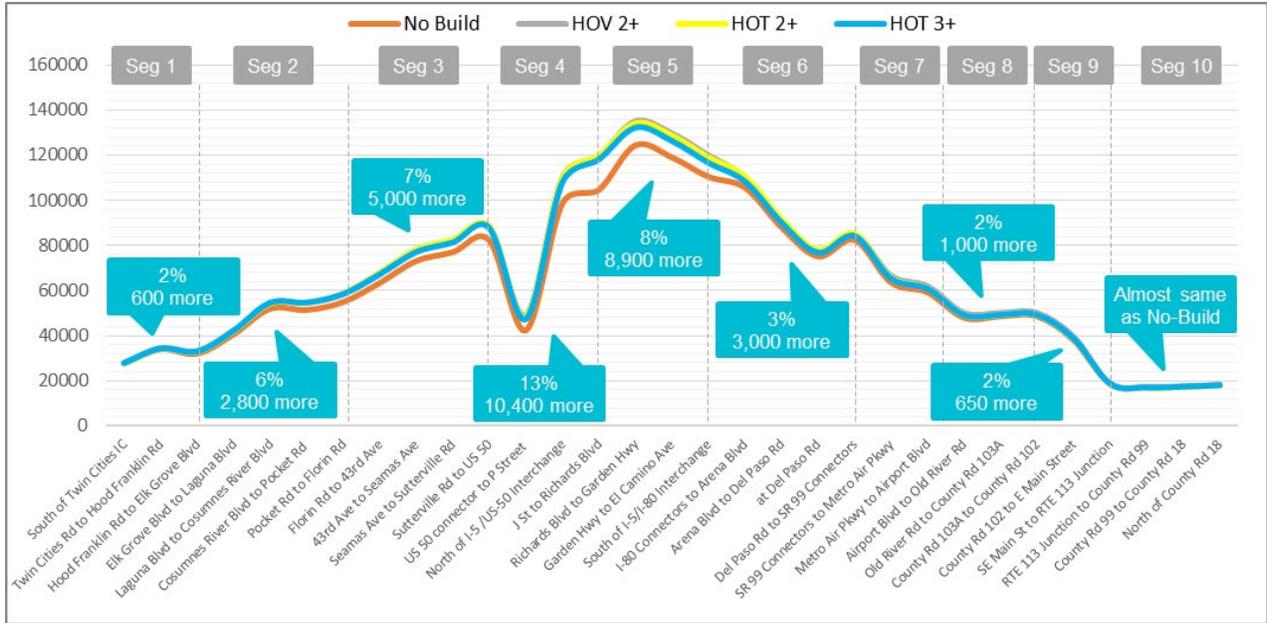


Figure 30 | Daily Traffic on I-5 By Alternative (Southbound)

The following sections of the report show the peak period level observations from the model for the HOV and HOT alternatives. For this corridor, the A.M. peak flow is in the northbound direction and the P.M. peak flow is in the southbound direction. **Figure 31** and **Figure 32** show A.M. peak period traffic comparison for the northbound and southbound directions, respectively. **Figure 33** and **Figure 34** show P.M. peak period traffic comparison for the northbound and southbound directions, respectively.

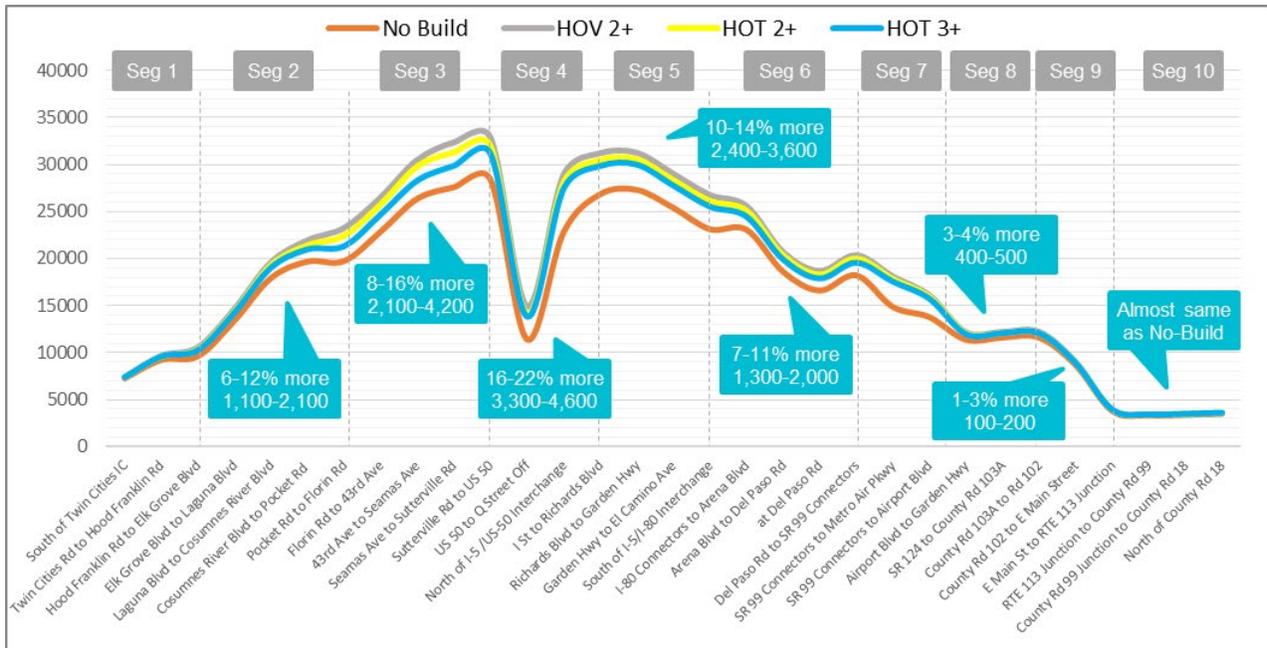


Figure 31 | A.M. Peak Period Traffic on I-5 By Alternative (Northbound)

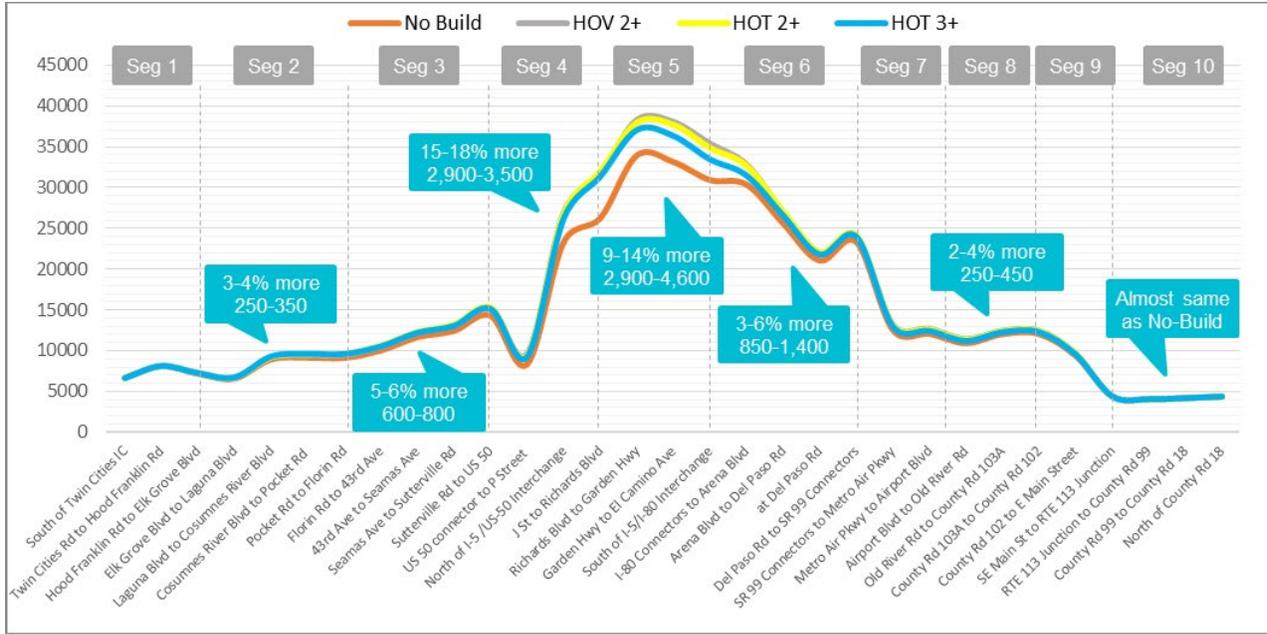


Figure 32 | A.M. Peak Period Traffic On I-5 By Alternative (Southbound)

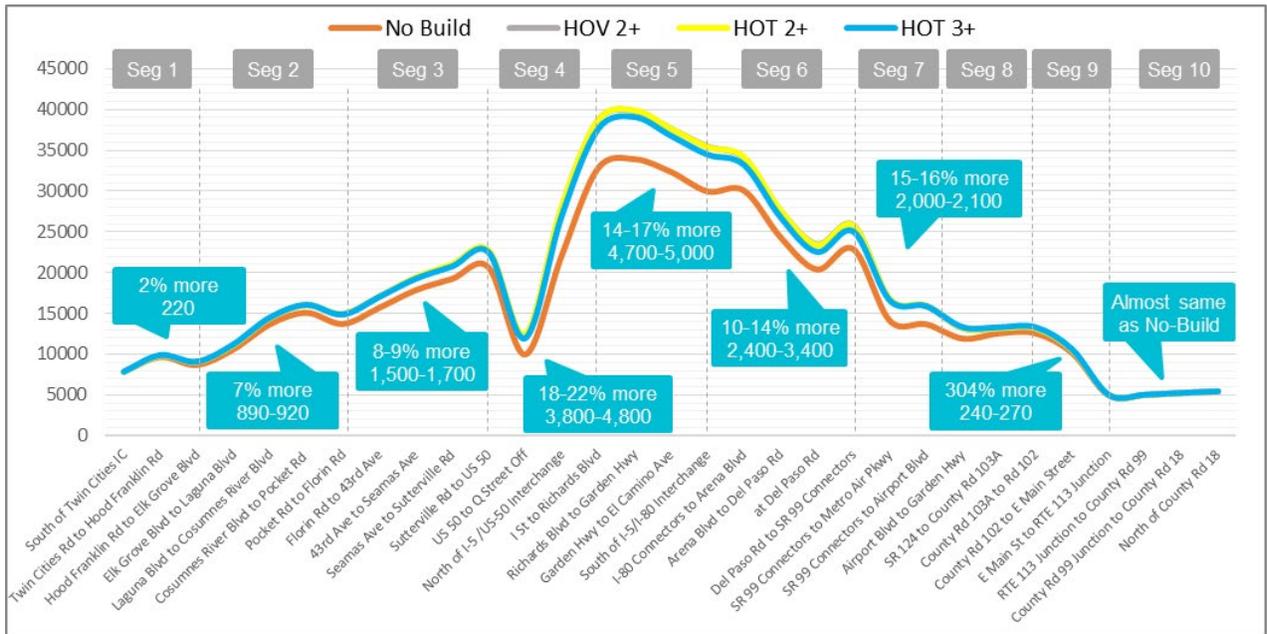


Figure 33 | P.M. Peak Period Traffic on I-5 By Alternative (Northbound)

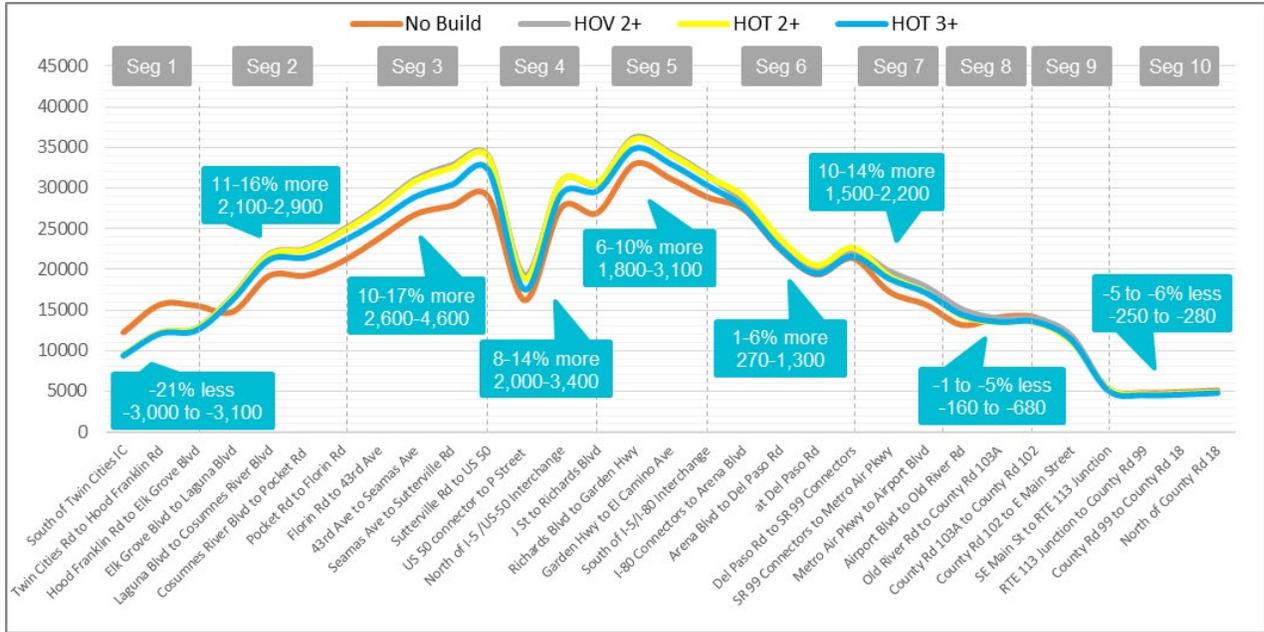


Figure 34 | P.M. Peak Period Traffic On I-5 By Alternative (Southbound)

Traffic in assumed future managed lanes: The assumed future managed lanes are shown to carry from 10,000 to 55,000 vehicles daily within the study corridor. During peak periods, the assumed future managed lanes are shown to carry between 700 and 8,000 vehicles within the study corridor. The traffic in the managed lanes is shown to be zero at the beginning of Segment 1 and north of Segment 8 since the proposed managed lanes are only from Franklin Road to Garden Highway. These represent the four-hour model time periods. **Figure 35** and **Figure 36** show A.M. peak northbound and southbound managed lane volumes, respectively. **Figure 37** and **Figure 38** show P.M. peak northbound and southbound managed lane volumes, respectively.

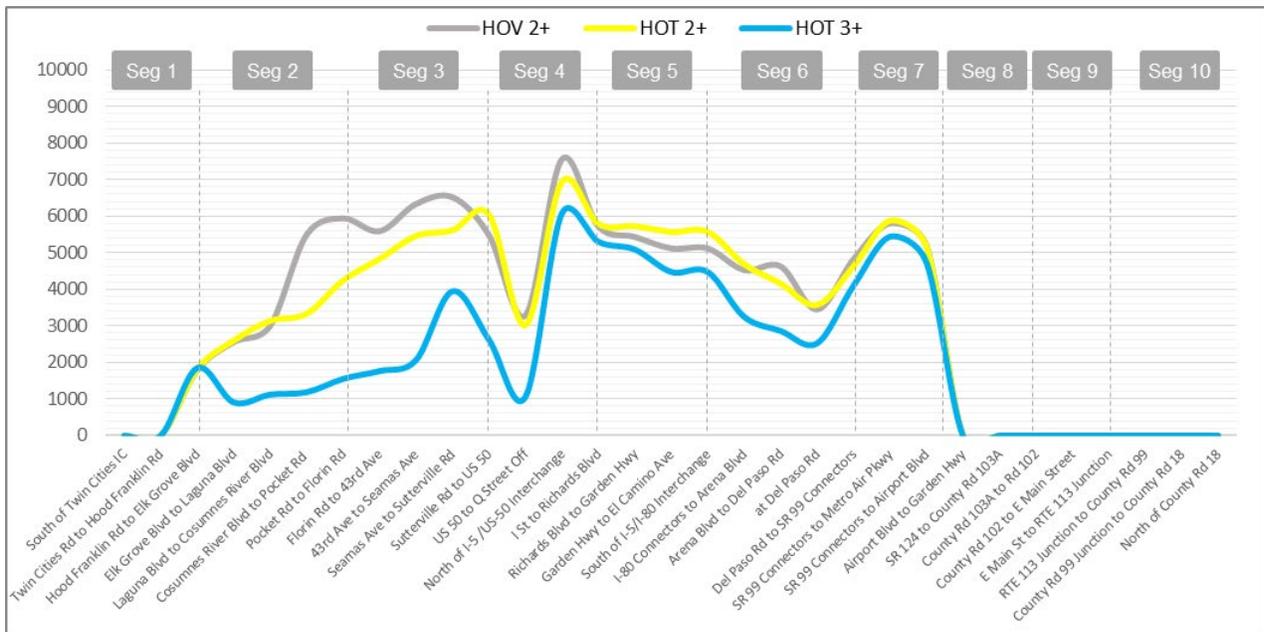


Figure 35 | A.M. Peak Period Managed Lane Traffic On I-5 By Alternative (Northbound)

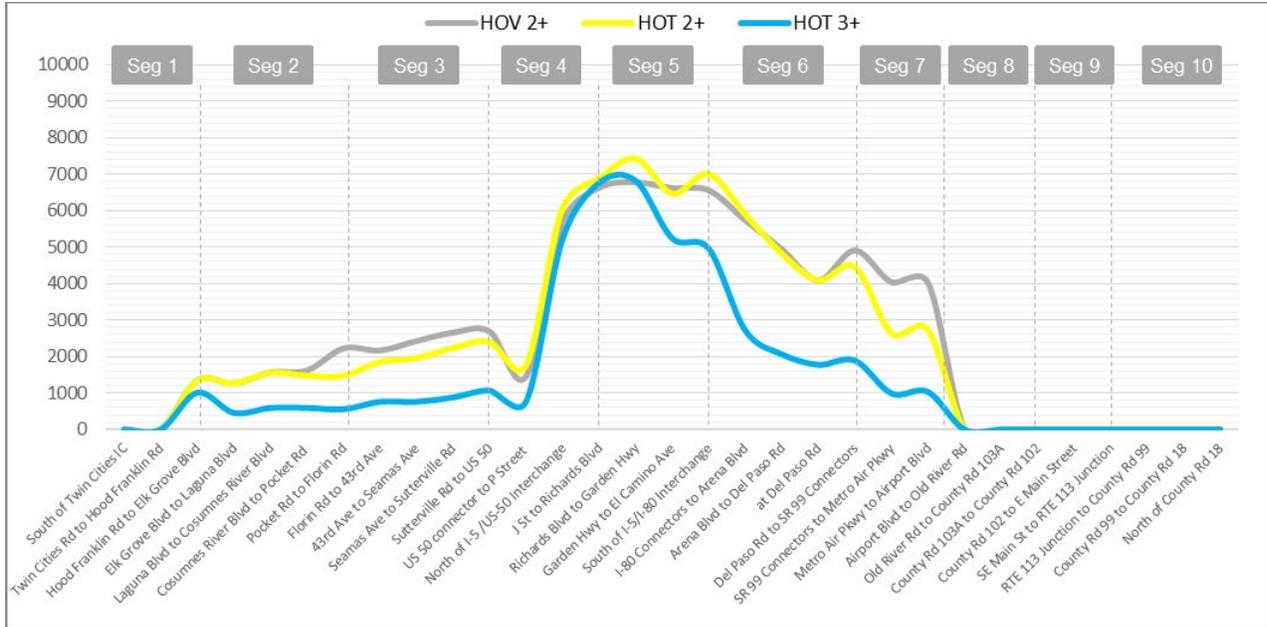


Figure 36 | A.M. Peak Period Managed Lane Traffic On I-5 By Alternative (Southbound)

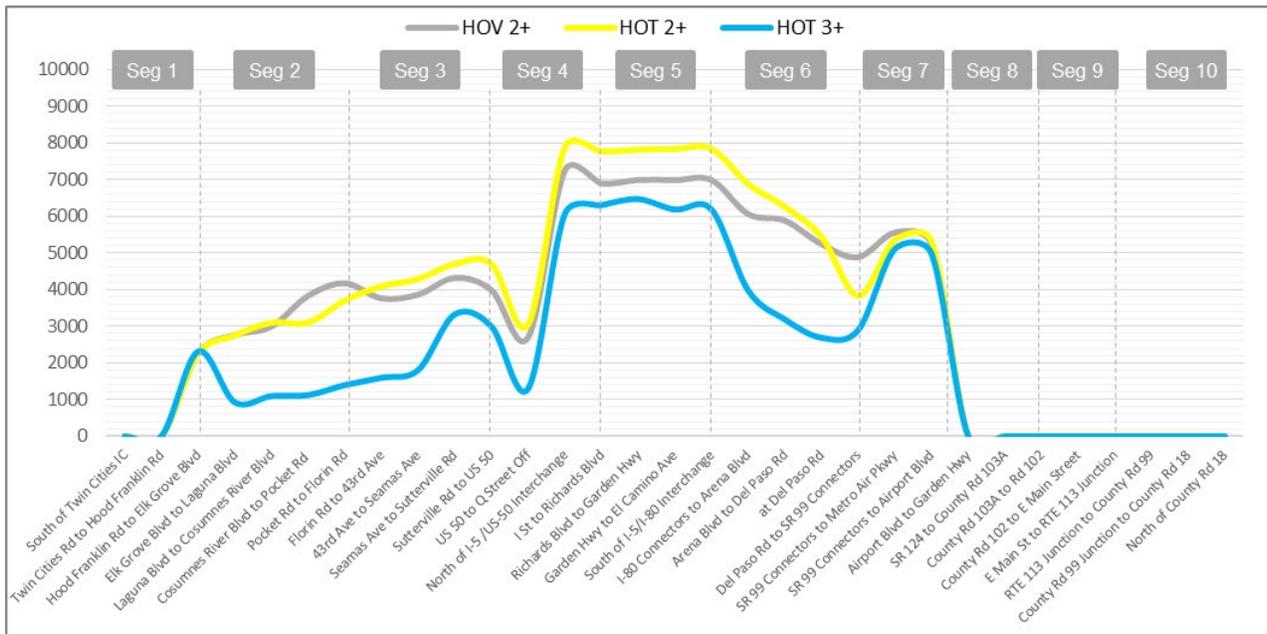


Figure 37 | P.M. Peak Period Managed Lane Traffic On I-5 By Alternative (Northbound)

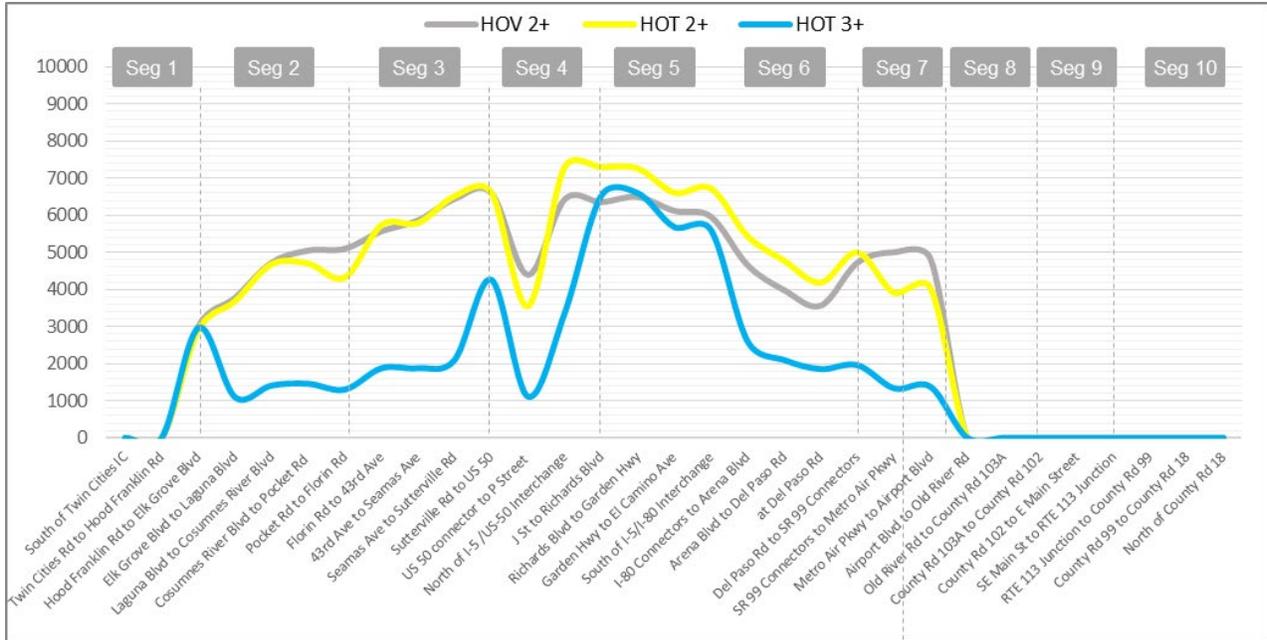


Figure 38 | P.M. Peak Period Managed Lane Traffic On I-5 By Alternative (Southbound)

The section of I-5 between the US 50 Interchange and I-80 Interchange carries the most traffic in the assumed future managed lanes in the range of 6,000 to 8,000 vehicles during peak periods. The level of traffic in the managed lanes is similar for the HOV 2+ and HOT 2+ alternatives. The projected traffic in the managed lanes for the HOT 3+ alternative is significantly less than the other alternatives when traffic demand is lower, which is due to the requirement to pay to use the lanes under this scenario. Where traffic flow is not as heavy, riders would be deterred from paying to use this managed lane. However, where traffic is heavier, the HOT 3+ managed lane traffic is closer to the other two alternatives.

5.6.4 | Vehicle Occupancy and Person Throughput

Table 21 shows vehicle occupancy by segment for each alternative. Vehicle occupancy data is for the entire freeway segment including the general purpose and managed lanes. Overall, vehicle occupancy for a segment is similar across different alternatives, with occupancy only slightly increasing with each alternative. The vehicle occupancy data is used to calculate person throughput. The person throughput pattern across alternatives, shown in **Table 22**, is similar to the volume patterns as shown above.

TABLE 21 | VEHICLE OCCUPANCY BY SEGMENT BY ALTERNATIVE

Occupancy	Existing	No-Build (Baseline)	Scenario 1 (HOV 2+)	Scenario 2 (HOT 2+)	Scenario 3 (HOT 3+)
Segment 1	1.29	1.32	1.33	1.33	1.33
Segment 2	1.30	1.31	1.32	1.32	1.32
Segment 3	1.30	1.30	1.31	1.32	1.32
Segment 4	1.32	1.31	1.32	1.33	1.34
Segment 5	1.33	1.32	1.32	1.34	1.35
Segment 6	1.35	1.33	1.34	1.35	1.36
Segment 7	1.34	1.33	1.33	1.34	1.34
Segment 8	1.31	1.30	1.30	1.31	1.31
Segment 9	1.33	1.34	1.34	1.34	1.34
Segment 10	1.36	1.38	1.38	1.38	1.38
Corridor	1.31	1.34	1.34	1.34	1.35

The change in person trips is nearly 0% for the HOV 2+ scenario from the No-Build scenario, and the HOT 2+ only shows a 0.36% increase. The greatest increase in person trips is in the HOT 3+ scenario, which projects nearly a 3% increase in the number of person trips.

Table 22 | Person Trips Comparison

Scenario	Person Trips	Person Trip % Change from Baseline
Existing	3,674,200	-
No-Build (Baseline)	4,255,200	-
Scenario 1 (HOV 2+)	4,254,600	-0.01%
Scenario 2 (HOT 2+)	4,270,600	0.36%
Scenario 3 (HOT3+)	4,382,400	2.99%

Table 23 shows the single occupancy VMT for each alternative. Each future build scenario projects an increase in drive alone VMT. The HOT 3+ scenario projects to have the smallest SOV VMT growth at 3.10%, followed by the HOT 2+ scenario which projects to have an increase of 4.25%. The HOV 2+ scenario is expected to have the greatest increase in SOV VMT at 5.84%.

Table 23 | Single Occupancy VMT Comparison

Scenario	SOV VMT	SOV % Change from Baseline
Existing	2,483,900	-
No-Build (Baseline)	2,555,600	-
Scenario 1 (HOV 2+)	2,704,800	5.84%
Scenario 2 (HOT 2+)	2,664,100	4.25%
Scenario 3 (HOT3+)	2,634,700	3.10%

5.7 | 2040 Future Build Scenarios

The analysis scenarios were developed in consultation with the I-5 CMCP team from Caltrans, TAC, and stakeholder members. The best tools to assess growth in overall travel in the corridor, transit usage, and mode shift are travel demand models. For this CMCP project, the SACSIM 19 model from SACOG was used to assess specific scenarios and transportation improvement strategies. All of the future analysis uses the 2040 horizon year, which matches the SACSIM 19 Travel Model years of analysis.

The purpose of the scenarios is to test improvement strategies and projects to assess how effective they would be at alleviating future transportation congestion problems. The results of the analysis will be used to help develop the CMCP project list and understand the benefits of projects and packages of projects, as measured against key transportation performance metrics. The future alternative scenarios are defined as follows:

Future No-Build | Baseline

The purpose of this scenario is to establish the future conditions as of 2040 along the corridor, given implementation of all known funded projects through 2040 with growth in traffic to 2040. This scenario is assessed using the SACSIM 19 Travel Demand model for the I-5 focused corridor. In addition, the 2019 existing year I-5 focused corridor model was developed, calibrated to existing conditions and a 2040 Baseline Scenario was created within the Cube Voyage modeling platform.

Future Build Scenario 1 | HOV 2+

This scenario assesses the changes resulting from completing a High Occupancy Vehicle (HOV) 2+ lane along I-5 Corridor. In this scenario, in the study corridor, the HOV 2+ lanes exist from I-5/Elk Grove Boulevard interchange to I-5/Airport Boulevard interchange. It also includes fully funded RTP projects, financially constrained RTP projects that are not fully funded, and select unconstrained projects and SHOPP projects. This scenario is assessed using the travel demand model for the corridor.

Future Build Scenario 2 | HOT 2+

This scenario assesses the changes resulting from the addition of High Occupancy Toll (HOT) 2+ express lanes from I-5/Elk Grove Boulevard interchange to I-5/Airport Boulevard interchange. It also includes fully funded RTP projects, financially constrained RTP projects that are not fully funded, and selected unconstrained projects and SHOPP projects. This scenario is assessed using the travel demand model for the corridor.

Future Build Scenario 3 | HOT 3+

This scenario assesses the changes resulting from HOT 3+ express lane from I-5/Elk Grove Boulevard interchange to I-5/Airport Boulevard interchange. It also includes fully funded RTP projects, financially constrained RTP projects that are not fully funded, and selected unconstrained projects and SHOPP projects. This scenario is assessed using the travel demand model for the corridor.

The portion of the corridor south of Elk Grove Boulevard to the San Joaquin County Line and north of Airport Boulevard up to CR 18 will not have any managed lanes for any of the build scenarios. **Appendix A** of the I-5 Corridor Modeling and Analysis Summary Report (**Appendix III**) includes the list of roadway projects included in future scenarios in addition to rail projects included in the existing SACSIM 19 model.

5.8 | 2040 Future Build Scenarios VMT, VHT, and VHD

Daily level VMT, VHT, and VHD are compared in this section for the I-5 CMCP study area. As previously noted, the SACSIM 19 model was utilized to obtain data for the 10 freeway segments.

Scenario 1 | HOV 2+

The HOV 2+ alternative carries 6% more traffic along the entire I-5 study corridor than the 2040 No-Build. This alternative also has the same amount of vehicle hours travelled despite the throughput increasing. This is shown in the notable 25% reduction in delay. **Table 24** shows the VMT, VHT and VHD comparison between Build Scenario 1 and the No-Build Scenario.

Table 24 | HOV 2+ Alternative VMT/VHT/VHD Comparison

HOV Alt. Comparison	VMT	VHT	VHD
2040 No-Build Baseline	4,906,800	94,620	18,680
2040 Scenario 1 [HOV alt.]	5,203,400	94,650	14,000
Num. Diff.	296,600	30	-4,680
Percent Diff.	6.04%	0.03%	-25.03%

Scenario 2 | HOT 2+

Similar to the HOV 2+ alternative, the HOT 2+ alternative also projects to have more vehicles along the I-5 corridor. The alternative has a 5.7% increase in throughput while also decreasing the vehicle hours travelled and delay. The vehicle hours travelled is projected to decrease by 420 hours, which amounts to a reduction of 0.45%. The delay is expected to decrease by 4,860 hours for the corridor, which amounts to a 26% reduction. **Table 25** shows VMT, VHT and VHD comparison between Build Scenario 2 and the No-Build Scenario. See **Figure 42** below for bar chart visual comparison.

Table 25 | HOT 2+ Alternative VMT/VHT/VHD Comparison

HOT 2 Alt. Comparison	VMT	VHT	VHD
2040 No-Build Baseline	4,906,800	94,620	18,680
2040 Scenario 2 [HOT 2 alt.]	5,185,300	94,200	13,820
Num. Diff.	278,500	-420	-4,860
Percent Diff.	5.68%	-0.45%	-26.01%

Scenario 3 | HOT 3+

The HOT 3+ alternative carries more vehicles through the corridor than the 2040 No-Build. This alternative's increase in VMT amounts to a 4.59% increase over the No-Build baseline. The vehicle hours travelled decreases slightly with 220 less projected hours of travel time projected, amounting to a 0.23% reduction. The delay is shown to decrease significantly with the model showing a 3,810 reduction in hours of delay, amounting to a 20.39% reduction. **Table 26** shows VMT, VHT and VHD comparison between Build Scenario 3 and the No Build Scenario.

Table 26 | HOT 3+ Alternative VMT/VHT/VHD comparison

HOT 3+ Alt. Comparison	VMT	VHT	VHD
2040 No-Build Baseline	4,906,800	94,620	18,680
2040 Scenario 3 [HOT 3+ alt.]	5,132,200	94,400	14,870
Num. Diff.	225,400	-220	-3,810
Percent Diff.	4.59%	-0.23%	-20.39%

5.8.1 | Corridor-wide VMT/VHT/VHD Comparison of Scenarios

Table 27 shows the daily VMT, VHT and VHD comparison between all scenarios. **Figure 39**, **Figure 40**, and **Figure 41** show the VMT, VHT, and VHD comparison between the scenarios, respectively.

Table 27 | Daily VMT/VHT/VHD Comparison

Scenario	VMT	VHT	VHD	Avg. Speed	Diff. VMT from Baseline	Diff. VHT from Baseline	Diff. Delay from Baseline	Diff. Speed from Baseline
Existing	4,456,700	81,100	13,210	51.2	-	-	-	-
No-Build (Baseline)	4,906,800	94,620	18,680	51.4	-	-	-	-
Scenario 1 (HOV 2+)	5,203,400	94,650	14,000	53.5	296,600	30	-4,670	2.1
Scenario 2 (HOT 2+)	5,185,300	94,200	13,820	54.2	278,500	-420	-4,860	2.8
Scenario 3 (HOT 3+)	5,132,200	94,400	14,870	53.8	225,400	-220	-3,810	2.4

All the build scenarios show increases in average speed, decreases in delay, and increases in vehicle miles travelled. The HOV 2+ scenario has the greatest increase in VMT. The HOT 2+ scenario has the greatest increase in average speed and greatest decrease in delay. The HOT 3+ scenario projects to have the lowest VMT of the three future build scenarios.

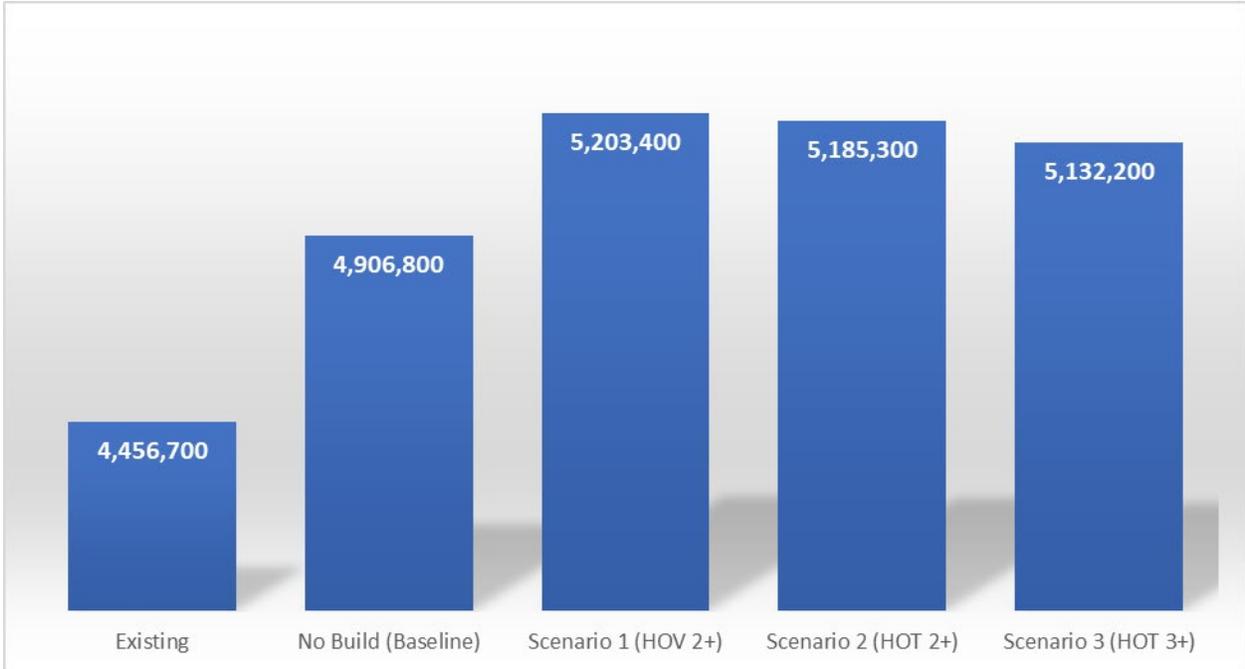


Figure 39 | Vehicle Miles Traveled Comparison (Base Year to 2040)

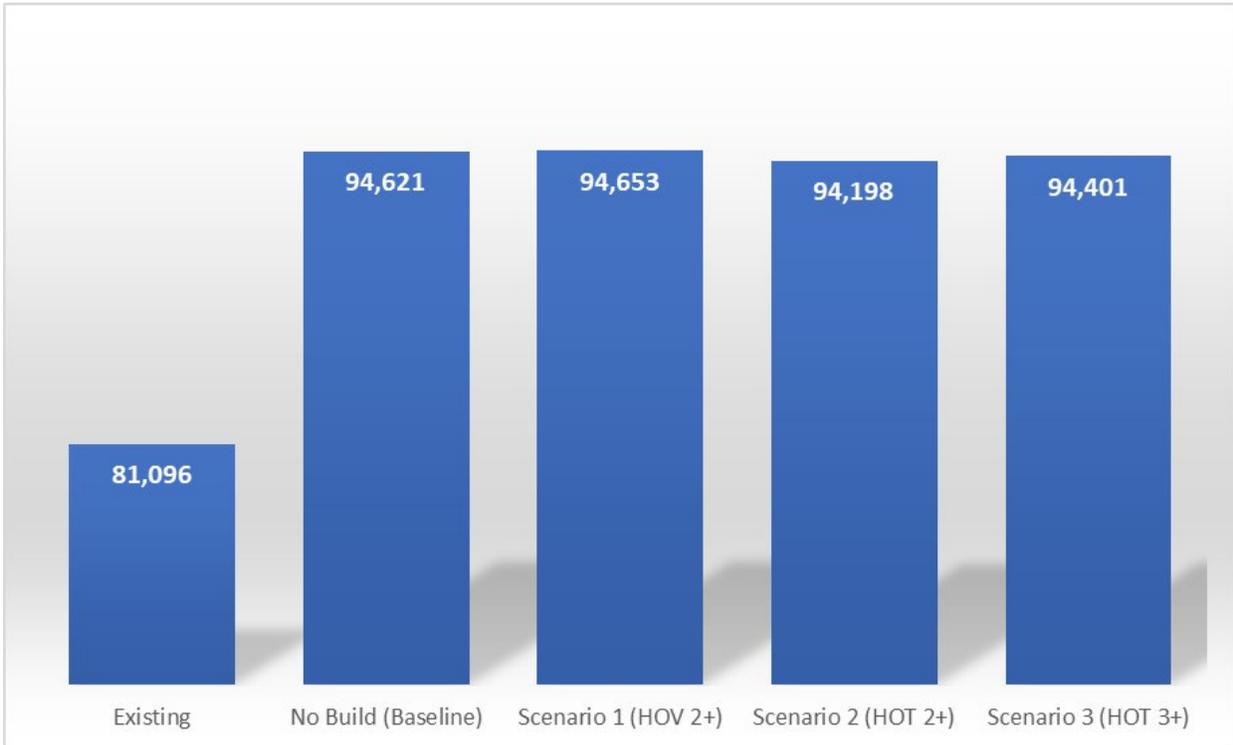


Figure 40 | Vehicle Hours Traveled Comparison (Base Year to 2040)

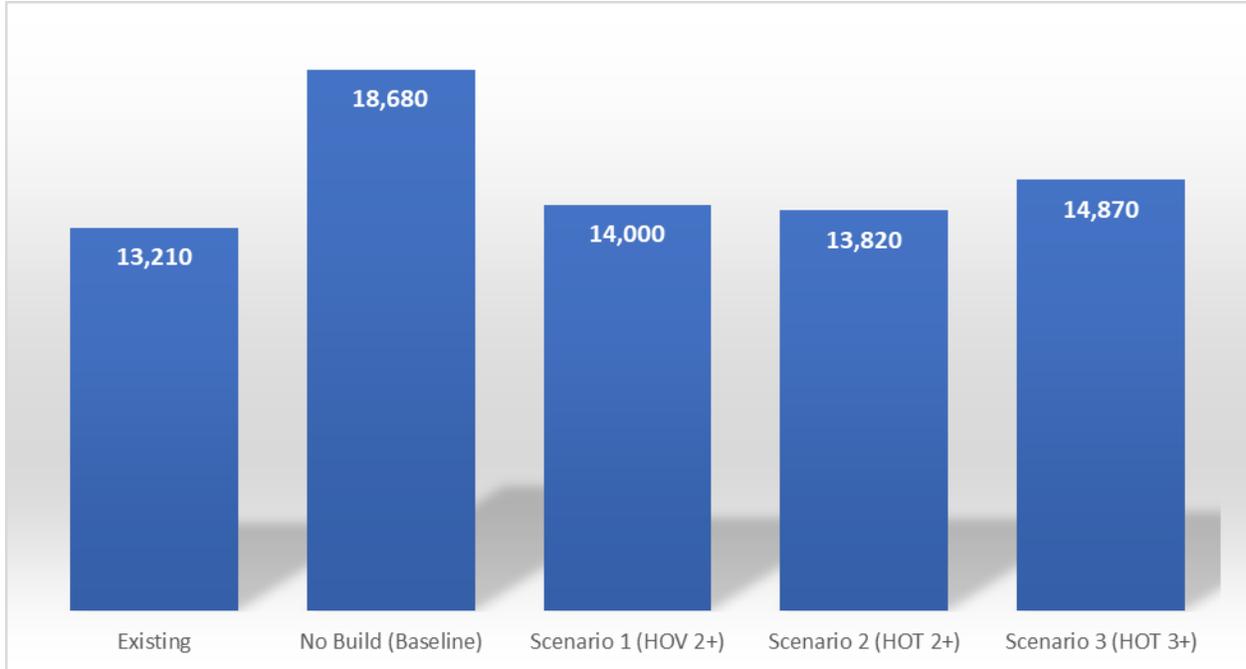


Figure 41 | Vehicle Hours of Delay Comparison (Base Year to 2040)

5.8.2 | Segment-wise VMT/VHT/VHD Comparison by Scenarios

This section of the report compares the VMT, VHT, and VHD statistics by each of the study corridor segments, for all scenarios. **Table 28** and **Figure 42** show VMT by the I-5 CMCP corridor segments. Note that segments 5 and 6 have the highest VMT in comparison to other segments due to length of these segments.

Table 28 | Segment-wise VMT Scenario By Segment Comparison

	Existing	No Build (Baseline)	Scenario 1 (HOV 2+)	Scenario 2 (HOT 2+)	Scenario 3 (HOT 3+)
Segment 1	795,769	821,473	842,044	839,229	838,445
Segment 2	614,257	643,926	681,076	643,926	675,883
Segment 3	765,067	798,460	863,282	858,483	846,502
Segment 4	505,177	525,838	586,574	582,106	573,033
Segment 5	475,316	538,199	587,941	585,058	576,546
Segment 6	536,560	666,008	714,402	711,027	696,991
Segment 7	561,263	650,712	688,193	688,317	680,827
Segment 8	554,035	650,259	669,534	669,522	666,608
Segment 9	184,378	229,047	233,541	233,384	232,235
Segment 10	111,912	140,624	141,456	141,279	140,953
I-5 Corridor	4,456,703	4,906,777	5,203,355	5,185,324	5,132,163

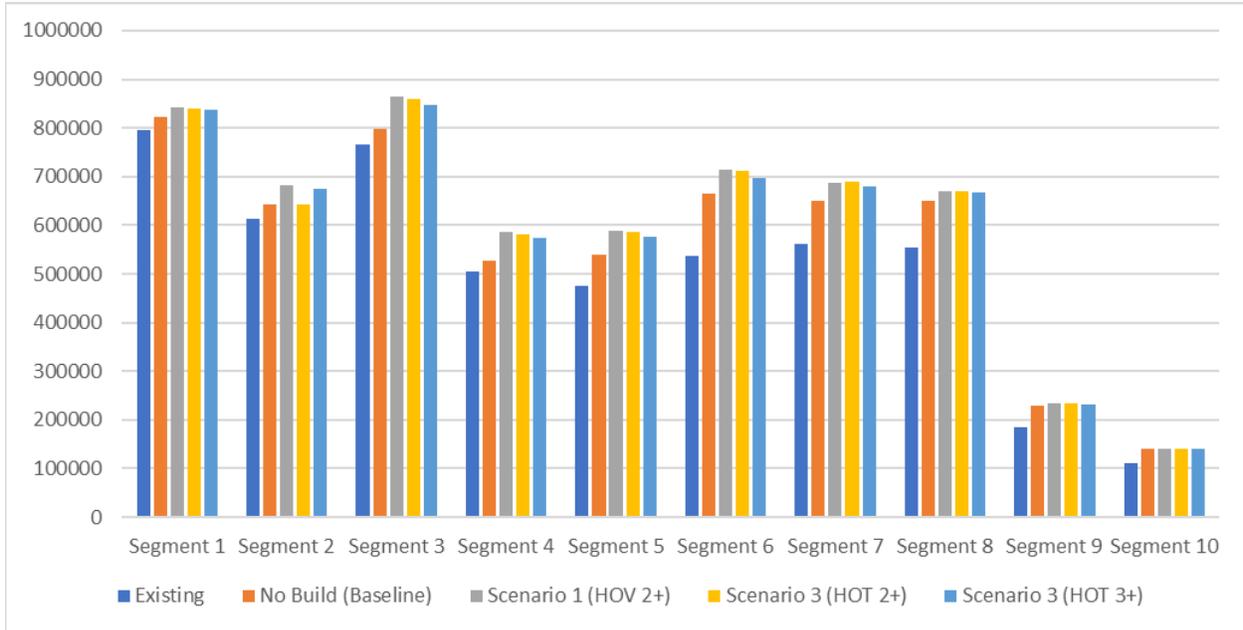


Figure 42 | Vehicle Miles Traveled By Segment By Alternatives

5.8.3 | VHT Comparison by Segment

Table 29 and Figure 43 show VHT by the I-5 corridor study segments. VHT is greatest in segment 2 and the lowest in segments 9 and 10.

Table 29 | Segment-wise VHT by Alternatives

	Existing	No Build (Baseline)	Scenario 1 (HOV 2+)	Scenario 2 (HOT 2+)	Scenario 3 (HOT 3+)
Segment 1	12,245	12,856	13,202	13,151	13,127
Segment 2	10,325	11,448	11,662	11,448	11,942
Segment 3	14,424	15,700	15,812	15,676	15,904
Segment 4	11,017	13,307	12,720	12,557	12,282
Segment 5	10,525	11,838	11,600	11,646	11,412
Segment 6	9,442	12,620	12,476	12,503	12,580
Segment 7	10,637	13,060	12,649	12,528	12,690
Segment 8	9,688	12,407	13,249	13,258	13,357
Segment 9	2,942	3,794	3,906	3,904	3,897
Segment 10	1,633	2,069	2,082	2,079	2,074
I-5 Corridor	81,096	94,621	94,653	94,198	94,401

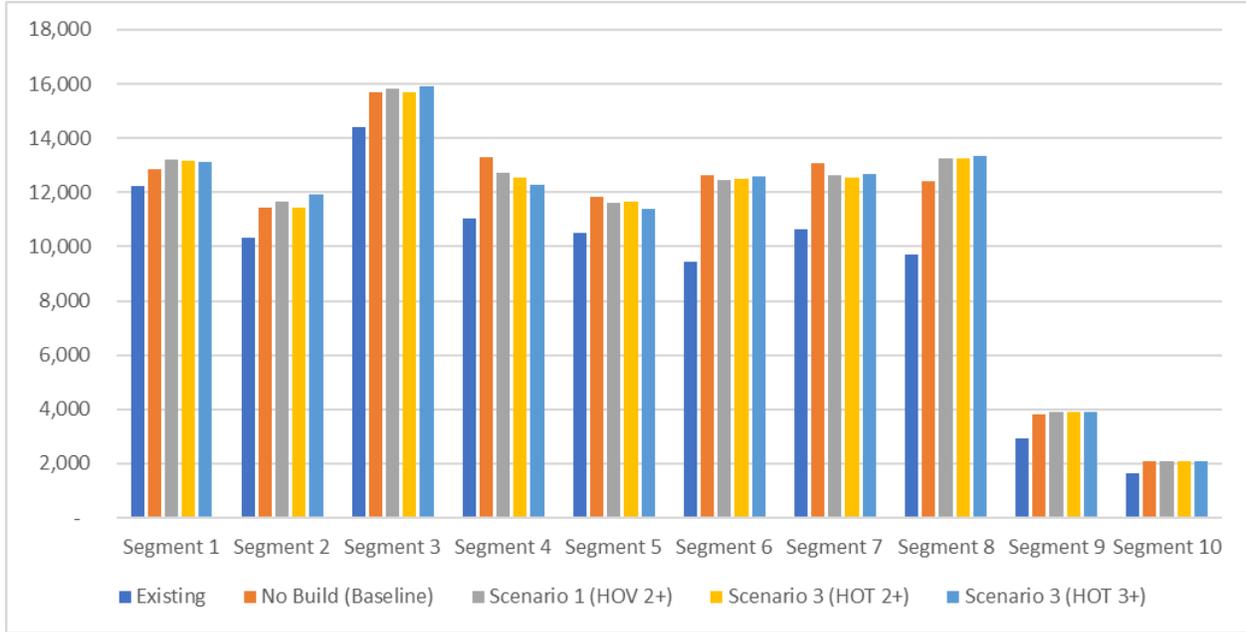


Figure 43 | Vehicle Hours Traveled By Segment By Alternatives

5.8.4 | VHD Comparison by Segment

Table 30 and Figure 44 show VHD by I-5 corridor segment. segments 4 and 5 have the highest vehicles hours of delay in comparison to other segments and segments 9 and 10 have the least delay.

Table 30 | Segment-wise VHD By Alternatives

	Existing	No Build (Baseline)	Scenario 1 (HOV 2+)	Scenario 2 (HOT 2+)	Scenario 3 (HOT 3+)
Segment 1	877	1,068	1,109	1,100	1,087
Segment 2	1,271	1,214	840	1,214	1,201
Segment 3	2,642	3,026	2,109	2,049	2,468
Segment 4	2,635	4,559	2,969	2,880	2,761
Segment 5	3,149	3,481	2,429	2,519	2,426
Segment 6	1,145	2,304	1,359	1,437	1,751
Segment 7	1,999	2,993	2,030	1,896	2,160
Segment 8	1,165	2,403	2,949	2,957	3,101
Segment 9	169	348	392	392	403
Segment 10	34	60	61	61	60
I-5 Corridor	13,214	18,680	14,005	13,822	14,872

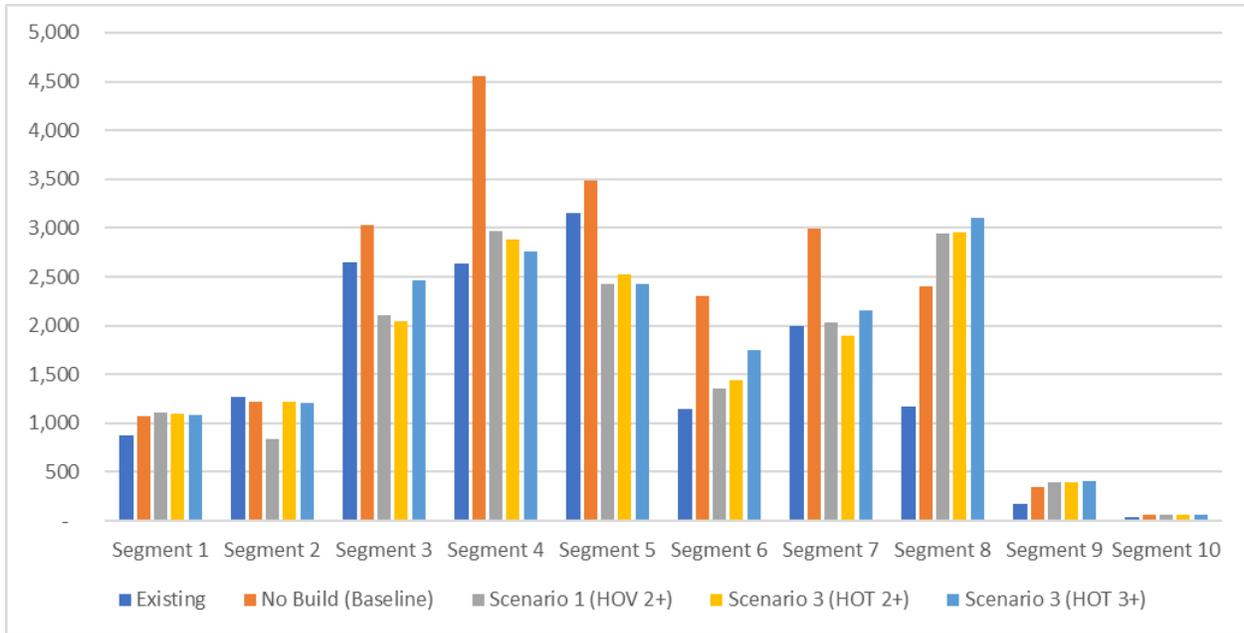


Figure 44 | Vehicle Hours of Delay By Segment By Alternatives

5.9 | Benefit Cost Analysis

This section reports on the Benefit Cost Analysis (BCA) for the future Build scenarios including methodology, model data inputs, and results.

5.9.1 | Benefit Cost Analysis Methodology

The California Life-Cycle Benefit/Cost Analysis Corridor Model (Cal-B/C Corridor) Version v7.1 was utilized to conduct the BCA for the I-5 CMCP scenarios. Cal-B/C Corridor is a Microsoft Excel spreadsheet that provides economic benefit-cost analysis for a range of transportation projects.

Cal-B/C Corridor estimates user benefits in four main categories:

- Travel time savings due to faster travel speeds on highways, or faster or more frequent service on transit modes.
- Vehicle operating cost savings on highways due to lower costs from more efficient travel speeds or avoided vehicle operating and out-of-pocket costs when travelers switch from highways to transit.
- Safety benefits on highways due to safety improvements or for transit riders who switch from highways to a safer transit mode.
- Emissions benefits on highways due to travel at less polluting speeds or by reductions in VMT due to suppressed trips or mode shifts to transit.

5.9.2 | Benefit Cost Analysis Model Inputs and Assumptions

The following inputs were used for the Cal-B/C calculations:

- Cost Estimate – Project costs are estimated from available sources including the, SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy and Caltrans District 3 projects. Cost estimates for each scenario were calculated based on available information. No cost was assumed for demand management or programmatic improvements that could reduce travel demand.

- VMT and VHT for each scenario were obtained for A.M. and P.M. peak period from the travel demand model.
- All other inputs were the same for all scenarios such as truck percentages, average vehicle occupancy, and safety data.

Estimated costs and assumptions used in Cal-B/C calculations can be found in **Appendix C** of the I-5 Corridor Modeling and Analysis Summary Report (**Appendix III**).

5.9.3 | Benefit Cost Analysis Results

Table 31 shows benefit-cost ratios of the I-5 CMCP for each of the Build scenarios. Among the three scenarios, the HOT 2+ and the HOT 3+ scenarios have the best (highest) benefit cost ratio. The HOT 2+ and HOT 3+ scenarios will cost more among the scenarios but does provide more benefits due to model projected shift from single occupancy vehicle to transit.

Table 31 | Benefit Cost Ratio By I-5 CMCP Corridor

	Scenario 1 (HOV 2+)	Scenario 2 (HOT 2+)	Scenario 3 (HOT 3+)
I-5 Corridor	0.16	0.17	0.17

Note the Cal-B/C analyses include all fully funded RTP projects, financially constrained RTP projects that are not fully funded, and some selected unconstrained projects and SHOPP projects. These results of Cal-B/C analyses should be used for comparing scenarios only, rather than ultimate project implementation decisions. To measure the benefit-cost analysis of a particular project a separate analysis would be required using model results to show the with and without performance metrics for each particular project.

Chapter 6 | Environmental / Sustainability / Climate Change

California has been on the forefront of climate change policy, planning, and research across the nation. With rising GHG, climate and extreme weather conditions continue to impact California’s population and infrastructure. Caltrans recognizes that outside of its own efforts, there are regional efforts to mitigate the effects of climate change. Coordination with local governments and stakeholders is crucial to ensure that climate analyses and adaptations are developed in partnership. Regional coordination will be especially important to combat stressors like rising temperature, volatile precipitation levels, and an increase in wildfire severity. Majority of the information in this chapter comes from the Caltrans Climate Change Vulnerability Assessment Technical Report and Map. This report was produced to provide an in-depth overview on the potential implications of climate change to Caltrans assets, and how climate data can be applied in decision-making.

6.1 | Corridor Setting

Spanning two counties, the I-5 CMCP corridor lies at the intersection of numerous geographical and geological features that, in conjunction with variations in hydrology and climate, has resulted in the formation of unique and rare biological and ecological conditions. Urban areas occur throughout the area with the greatest concentration occurring along the axis of I-5, the main transportation artery that runs southwest to northeast.

Stretching along the bottom of the valley floor with elevations ranging from about 10 to 50 feet above sea level, habitats along I-5 are different depending on whether you are in a developed region. Within the highly developed areas of the major cities, including Sacramento and Woodland, habitats would mostly be classified as either urban with ornamental trees and other landscaped planting, or barren. Barren areas naturally or artificially contain less than 2 percent herbaceous vegetation cover or less than 10 percent of tree or shrub cover. Outside the cities and other developed portions, much of the region consists of annual grasslands that are dominated by non-native grasses and forbs, or irrigated hayfield and cropland which includes areas used for hay production and fallow farm fields. Just over half of lands along the corridor are in some form of agricultural cultivation. Even when rotated out of active production, agricultural land supports very few native plants and provide wildlife foraging areas, nesting or den sites, and movement corridors.

Due to drainage areas and the presence of seasonal wetlands, any project’s proposed scope of work would have to be adjusted to avoid or minimize impacts (particularly those associated with staging of equipment and materials) to the wetlands. Potential impacts will be evaluated during the PA/ED phase of proposed projects.



Figure 45 | I-5 Flooded North of Sacramento (photo by Randy Pench/The Sacramento Bee)

6.2 | Environmental Factors

Environmental Considerations

The purpose of this environmental scan is to conduct a high-level identification of potential environmental factors that may require future detailed analysis in the project development process. This is a general qualitative evaluation of the environmental factors in the corridor for planning purposes to identify issues early that may significantly affect project cost and schedule prior to the project development process. Information presented here is not meant to represent all environmental issues that exist within the corridor vicinity. The major factors are given an impact probability rating of Low-Medium-High or a No or Yes depending on their presence in the corridor and shown in **Table 16**.

Environmental considerations for project funding include mitigation, and restoration costs including protection of critical habitat and open space.

Section 4(f) Lands I-5 Corridor

Section 4(f) of USC 49 Section 303 sets federal policy to preserve the natural beauty of open space and historic areas. Resources include publicly owned parks, recreation areas, wildlife or waterfowl refuges and historic sites. Environmental staff will determine the need for a Section 4(f) evaluation based on a specific project potential to impact 4(f) resources located in a given study area. Mitigation for impacts will be developed where appropriate in corridor specific areas. Where specific projects for the CMCP study do not involve new right-of-way acquisition. Potential impacts to 4(f) resources directly adjacent to the I-5 corridor could result because of project construction proximity. The Cosumnes River Preserve, Stone Lakes National Wildlife Refuge, and the Yolo Bypass are considered 4(f) resources and adjacent to the I-5 corridor. Archaeological cultural resources are also known to occur along the I-5 corridor.

Traveling north on I-5 from the San Joaquin/Sacramento County line lies the Cosumnes River Preserve to the east and Stone Lakes National Wildlife Refuge to the west. The City of Elk Grove includes additional City and County Parks to the east and the continuation of the Stone Lakes National Wildlife Refuge to the west of I-5 corridor. In south Sacramento, Sacramento, and Natomas, include additional City and County Parks along the corridor. From the I-5/SR 99 interchange to the Sacramento River there is mainly farmland with less parks and refuges/preserves. From the Sacramento River to just east of Woodland lies the Yolo Bypass on the north and south sides of the I-5 corridor. Once entering Woodland 4(f) resources consist mainly of City and County Parks.

Table 32 | Environmental Factors

Segment		1	2	3	4	5	6	7	8	9	10	
*Air Quality	CO	A	A	A	A	A	A	A	A	A	A	
	Lead	A	A	A	A	A	A	A	A	A	A	
	NO2	A	A	A	A	A	A	A	A	A	A	
	Ozone	NA	NA	NA	NA	NA	NA	NA	NT	NT	NT	
	Particulate Matter	2.5	A	A	A	A	A	A	A	U	U	U
		10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SO2	A	A	A	A	A	A	A	A	A	A	
Climate Change/Sea Level Rise (1.0 m)		Med	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Cultural Resources		Low	Low	Low	High	Low	Low	Low	Low	Low	Low	
Farm/Timberland		Yes	No	No	No	No	No	Yes	Yes	No	Yes	

Segment	1	2	3	4	5	6	7	8	9	10
Fish Passage	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>
100 Year Floodplain	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Habitat Connectivity	<i>High</i>	<i>High</i>	<i>Low</i>							
Hazardous Materials	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>
Naturally Occurring Asbestos	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>
Visual Aesthetics	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>
Seismic	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>
Section 4(f) Land										
Special Status Species										
Waters and Wetlands	<i>High</i>	<i>Med</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Med</i>	<i>Low</i>	<i>Low</i>

A=Attainment, NA=Non-Attainment, U=Unclassified, NT=Nonattainment-Transitional
 *EPA/NAAQS Data

Air Quality

There is one Air Quality Management District (AQMD) situated along the I-5 CMCP corridor. The Sacramento Metropolitan Air Quality District (SMAQMD) was created in 1959 by the Sacramento Board of Supervisors and regulates air quality for the Sacramento Valley basin east of Yolo County. The SMAQMD is governed by a number of Board of Directors composed of locally elected officials from each of the represented counties, with the number of board members from each county being proportionate to its population. Projects need to be consistent with the air quality conformity analysis performed for the current RTPs and Regional Transportation Improvement Program.

Air quality conformity is determined by the US EPA which promulgates existing National Ambient Air Quality Standards (NAAQS) for each criteria air pollutant based on state monitoring and modeling of each pollutant. NAAQS are applied to determine if an AQMD is in conformity. If the air quality criteria pollutant meets or exceeds the NAAQS, the area is in attainment; otherwise, the area is in non-attainment. If EPA cannot make a determination, the area is designated “Unclassified.”

Farm/Timberland

Prime Farmland has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Habitat and Biological Resources

The Sacramento Valley region, which includes Sacramento and Yolo counties, has been characterized as a biodiversity hotspot at both global and national scales since it includes inland, saltwater, and freshwater habitats and vast watersheds feeding the Sacramento River and the Delta. Myers et. al (2000) classifies this geographical area as the California Floristic Province, of which there are only three other areas as biodiverse as it is in North America because of its assortment of flora, fauna, and habitat. The structure, composition, and functionality of ecosystems in the area are home to a number of sensitive species, such as the Swainson’s Hawk, Burrowing Owl, Giant Garter Snake, and California Red-Legged Frog.

This stretch of I-5 covers the Upper Mokelumne, Lower Sacramento, and Upper Cache watersheds, in addition to a small portion of the Lower American watershed where it confluences with the Sacramento River. Virtually all watercourses, save some maintained canal systems for agricultural irrigation, contain extensive riparian vegetative communities in areas that interface between land and the river stream

system. This is especially true for the major rivers such as the Sacramento, American, Mokelumne Rivers, including their larger floodplains. Because these larger systems are receiving all the waters and nutrients originating from the higher areas outside the valley, these areas provide vast amounts of food, water, migration, and dispersal corridors, in addition to escape, nesting, and roosting habitat for numerous wildlife species while providing shade, sediment, nutrient or chemical regulation, and stream bank stability. These areas are also a source of input for large woody debris or organic matter to the channel, which are necessary habitat elements for fish and other aquatic species. Due to the flat topography and local relief of the region, wetlands tend to develop in areas where water persists long enough to create anaerobic conditions. Wetlands provide additional habitat benefits to wildlife as well as their water detention and water recharge properties. A special kind of wetland, vernal pools, are depressions in areas where a hard, underground layer prevents rainwater from draining downward into the subsoils. These areas support plant and animals that are specifically adapted to vernal pool ecology. There are several wildlife species that reside throughout this area of I-5 including threatened and endangered, or otherwise regulated species. Major species include but are not limited to: Valley Elderberry Longhorn Beetle, Giant Garter Snake, Swainson's Hawk, Tricolored Blackbird, multiple vernal pool and rare plant species, and anadromous fish within the major rivers.

Historic/Cultural Resources

The National Register of Historic Places includes properties located within and around the I-5 CMCP corridor. Historical Native American archaeological sites are also found in rural settings where homesteads, ranches, or farms were once present. Architectural properties located within the corridor will most likely be associated with the agricultural history of the area. There is also the possibility of State or locally listed historic properties being in the general vicinity of the corridor as well. Studies would have to be initiated to see if any potential resources would be disturbed or affected. Historical properties could be in the sphere of influence, (within one-half mile) of the I-5 corridor. Possible impacts to other historic architectural resources that are more distant to the corridor may also need to be evaluated. Waterway routes in the corridor are of particular interest and need to be respected.

Parks/Open Space

The US Code 49 §303⁴² 4(f) sets federal policy to preserve the natural beauty of open space and historic areas. Resources include publicly owned parks, recreation areas, wildlife or waterfowl refuges and historic sites. Environmental staff will determine the need for a Section 4(f) evaluation based on a specific project potential to impact 4 (f) resources located in a given study area. Mitigation for impacts will be developed where appropriate in corridor specific areas. Where specific projects for the I-5 CMCP do not involve new ROW acquisition, potential impacts to 4(f) resources could result due to the proximity of project related construction to Serpas Ranch Open Space and Lagoon Valley Park in Segment 4.

Special Status Species I-5 Corridor

"Special Status Species" is a universal term used in the scientific community for species that are considered sufficiently rare that they require special consideration and/or protection and should be, or have been, listed as rare, threatened, or endangered by the Federal and/or State governments.

Special Status Species occur along the I-5 corridor; the most abundant animal species include, but are not limited to, giant garter snake (*Thamnophis gigas*), song sparrow (Modesto population) (*Melospiza melodia*), Western, yellow-billed cuckoo (*Coccyzus americanus*), Swainson's hawk (*Buteo swainsoni*),

⁴² <https://www.law.cornell.edu/uscode/text/49/303>

burrowing owl (*Athene cunicularia*), tricolored blackbird (*Agelaius tricolor*), and a rare population of purple martin (*Progne subis*) located near downtown Sacramento. Much of the I-5 corridor parallels the Sacramento River which is habitat for Central Valley steelhead (*Oncorhynchus mykiss irideus*), longfin smelt (*Spirinchus thaleichthys*), Sacramento splittail (*Pogonichthys macrolepidotus*), Central Valley spring-run chinook salmon (*Oncorhynchus Tshawytscha pop. 11*), and Sacramento winter-run chinook salmon (*Oncorhynchus Tshawytscha pop. 7*), all special status species. There are also rare and special status plants, crustaceans, insects, reptiles, and mammals. See **Appendix VIII** for a list of all special status species occurring along the I-5 corridor.

Seismic

Earthquakes and seismic activity will always pose a threat to California's infrastructure. Since 1700 there have been 78 recorded earthquakes of magnitude greater than or equal to 6.5, or that caused loss of life or more than \$200,000 in damage⁴³. There are no known fault lines that intersect with the I-5 corridor along the I-5 CMCP study area. The nearest fault zone to I-5 is a north-south running fault line that begins south of Dixon, passes through Rio Vista, and ends south of Brentwood (along SR 4)⁴⁴. This unnamed fault zone has not had a major earthquake since 1892⁴⁵.

6.3 | Climate Change

Climatic and extreme weather conditions in California are expected to change, with atmospheric warming contributing to higher seas, changing precipitation patterns and higher temperatures. These changing conditions are anticipated to affect the SHS in a variety of ways and may increase exposure to environmental factors beyond the facilities' original design considerations, requiring adaptive responses. Changing climate conditions and associated extreme weather changes present a series of challenges in delivering resilient transportation facilities. The primary concern is that changing conditions such as extreme weather events or permanent inundation may impact the public or the transport of goods and services through the I-5 corridor.

Sea Level Rise

Sea level rise (SLR) is perhaps the best documented and most accepted impact of climate change, which can be directly tied to increased levels of GHG. The Governor's EO B-18-12 (April 25, 2012) directed State agencies to reduce GHG by twenty percent by 2020. Observations of sea levels along the California coast, and global climate models indicate that California's coast will experience rising sea levels over the next century and. The effects of SLR will have impacts on all modes of transportation, significantly increasing the challenge to transportation managers in ensuring reliable transportation routes are available. Inundation of even small segments of the intermodal transportation system can render much larger portions impassable, disrupting connectivity and access to the wider transportation network. Caltrans seeks to address SLR and GHG by partnering with local and regional stakeholders to address climate change on the SHS and local streets and roads. At this time the I-5 mainline is not expected to be inundated.

Temperature

Temperature rise is an important facet of climate change. Summer temperatures are projected to continue rising, and a reduction of soil moisture, which exacerbates heat waves, is projected for much of

⁴³ California Department of Conservation: <https://www.conservation.ca.gov/cgs/Pages/Earthquakes/Earthquakes-Significant.aspx>

⁴⁴ Office of Planning and Research: <https://sitecheck.opr.ca.gov/>

⁴⁵ Map Sheet 49, Epicenters of and Areas Damaged by M>5 California Earthquakes, 1800-1999: https://www.conservation.ca.gov/cgs/Documents/Publications/Map-Sheets/MS_049.pdf

California. Materials exposed to high temperatures over long periods of time will deform. Pavements in particular can be deteriorated by exposure to high temperatures. The Caltrans Vulnerability Assessment Report⁴⁶ analyzed change in the average minimum temperature for the Years 2025, 2055, and 2085.

Yolo and Sacramento counties are expected to see an increase of 2 to 5.9 degrees Fahrenheit by year 2025. By year 2055, Sacramento and Yolo counties are expected to see an increase of 4 to 7.9 degrees Fahrenheit by 2055, and 8 to 11.9 degrees Fahrenheit by 2085. These increasing temperatures would need to be considered as a part of pavement design for any projects planned for the corridor, and more frequent maintenance of the existing pavement facilities may be needed.

The consideration of the timing of climate change differs for pavement design when compared to other assets. Many of Caltrans assets, including roadways, bridges, and culverts, will likely be in place for many decades or longer, and therefore decisions made today for these types of assets need to incorporate a longer view than is the case for asphalt pavement. Asphalt pavement is replaced approximately every 20-25 years, or sooner if quality degrades more rapidly.

Precipitation

Increasing temperatures are expected to result in changing precipitation events, due to an increase in energy and moisture in the atmosphere. Increased precipitation levels, combined with other changes in land use and land cover, can increase the risk of damage or loss from flooding. Transportation assets in California are affected by precipitation in a variety of ways, such as inundation/flooding due to heavy rainfall events, landslides and washouts, or structural damage from heavy rain events. Many of these impacts may lead to disruptions of key transportation infrastructure and services.

The Caltrans Vulnerability Assessment Report used Representative Concentration Pathways (RCP) 8.5 (high-emissions scenario) to analyze the 100-year storm rainfall event. The assessment was done for the Years 2025, 2055, and 2085. Most of Yolo and Sacramento counties are expected to see a zero to 4.9 percent increase in precipitation, with some portions of Sacramento County experiencing a five to 9.9 percent increase by 2055.

The primary concern with regard to transportation assets is not the overall volume of rainfall observed over an extended period, but rather the expectation of changing future conditions for heavy precipitation and the potential for increasing damage to the SHS. The impact of changing precipitation events should be considered during project design and the need for regular monitoring and maintenance should be highlighted, because it is difficult to identify vulnerable assets and their locations at the planning level.

Wildfire

Wildfire frequency and intensity is expected to be affected by changes in climate due to increasing temperatures, changing precipitation patterns, and resulting changes to land cover. Wildfire can be a direct risk to travelers on California roadways, transportation system operations and maintenance, and Caltrans infrastructure. Wildfires can indirectly contribute to landslide and flooding exposure, by burning off soil-stabilizing land cover and reducing the capacity of the soils to absorb rainfall. Both factors can contribute to dramatically higher runoff and the presence of debris that can clog culverts or bridge openings. Wildfire smoke can impact visibility and the health of the public.

⁴⁶ Caltrans, & WSP. (2018). *Caltrans Climate Change Vulnerability Assessments: District 4* (pp. 1-73, Tech.). CA: Caltrans. <https://dot.ca.gov/programs/transportation-planning/office-of-smart-mobility-climate-change/climate-change>

The Caltrans Climate Change Vulnerability Assessment Report examined which areas in District 3 pose medium, high, and very high levels of concern and where roadway would be exposed to potential wildfires. The report analyzed the likelihood of wildfires for the Years 2025, 2055, and 2085. With this assessment, no portion of the I-5 corridor would be exposed to potential wildfires.

Chapter 7 | Stakeholder and Public Engagement

Over the course of developing this I-5 CMCP, there has been continuous collaboration between Caltrans, the TAC, and the stakeholder group. This collaboration's goal is to accurately identify multimodal needs and propose projects and strategies to address those needs to achieve a multimodal system on the I-5 corridor.

Public engagement is also a critical component of the I-5 CMCP. All corridor stakeholders were in agreement that public input would inform the CMCP development and meaningful public engagement should be carried out.

7.1 | Public Agency Engagement

The collaboration with the public agency stakeholders began with an in-person kick-off meeting on December 9, 2019, where the project scope, scope and timeline/deliverables were revealed. It was also decided that public agency stakeholders would be divided up into two groups: the TAC and the stakeholder group. Soon thereafter, COVID-19 protocols and safety concerns meant that all TAC and stakeholder meetings would be hosted through a virtual platform.

Technical Advisory Committee and Stakeholder Group

The I-5 TAC is composed of professional engineering and planning staff from Regional Transportation Planning Agencies (RTPA), County Transportation Agencies, and major transit operators throughout the corridor. Tribal governments along the corridor were invited but due COVID-19 impacts resulting in tribal government closures, participation was limited. Staff representing Caltrans District 3 Planning, Modeling and Forecasting, Traffic Operations, and Program, Project, and Asset Management, as well as Caltrans Headquarters (HQ) Division of Transportation Planning (DOTP) and Division of Rail and Mass Transportation. The TAC serves as working group to provide guidance on key technical issues. The TAC is scheduled to meet once a month over the course of CMCP development.

The I-5 CMCP stakeholder group is composed of representatives from cities, counties, small and large transit operators, the Federal Highway Administration, as well as SMAQMDs. The stakeholders met quarterly over the course of CMCP development.

To date there have been 11 TAC meetings. The focus of these meetings is for the consensus building on CMCP chapters, modeling methodology, modeling scenarios and projects list, and the approval of the CMCP. TAC members are also tasked with reviewing deliverables to ensure the information is thorough and accurate.

Charter

The I-5 CMCP Charter was drafted beginning in winter 2019 and completed in summer 2020. The document describes the CMCP's purpose and need, objectives, deliverables, and milestones as well as the roles and responsibilities of the TAC, stakeholder group, and Caltrans District 3 Corridor Manager. In addition, the Charter identifies known risks, constrains and discrepancies and includes strategies to address these risks and constraints. The I-5 CMCP final Charter can be viewed in **Appendix V**.

7.2 | Public Engagement

In February 2020, the Caltrans HQ DOTP Office of Multimodal System Planning approved a Corridor Planning Process Guide. This, together with the CTC CMCP guidelines, provides guidance to in preparing comprehensive corridor plans including a substantial emphasis on involvement with partner agencies, stakeholders, and the public.

The overall goal for the public outreach and engagement work of this CMCP is to develop and implement a meaningful and informed public engagement process that fully supports and informs the development of the I-5 CMCP. This involved educating stakeholders and the public, while building consensus, collaboration, and constructive relationships.

First Round of Public Engagement

The first round of public engagement involved a virtual public open house. This included the launching of the CMCP website: www.I5CMCP.com, which contains key CMCP information. An online survey was also made available throughout Sacramento and Yolo counties. Public notifications for the virtual open house started a week prior to the commencement of the event. The following outreach channels were used to promote the virtual open house including outreach to priority populations:

- Caltrans District 3, SACOG, City of Elk Grove, SacRT, and YCTD websites
- Yuba Sutter Transit commuter service list
- SACOG, YCTD commissions' mailing lists
- The CMCP website
- Caltrans D3 and HQ social media platforms

Virtual Public Open House and CMCP Website a Virtual Open House was held from July 9, 2021 to July 16, 2021, centered around a dedicated CMCP website: www.I5CMCP.com. The website offers access to a variety of information such as an introductory video, a corridor map, CMCP goals and the CMCP fact sheet. An online survey was also made available on the website during the open house. The website serves as a central location for project information, announcements, schedule, and milestones and allows the public to revisit past public engagement activities and provide input into the CMCP development. The CMCP website also links to the Caltrans website for further information on current and near-term projects, highway conditions and interactive maps. The CMCP website remains accessible after the virtual open house concluded with approximately 1,700 visitors.

In addition to the launching of the CMCP website and the online survey, attendees also had the opportunity to participate in four live call-in question and answer sessions that aired on July 13, 2021, at 11:30 A.M. to 12:30 P.M.; July 14, 2021, at 5:30 P.M. to 6:30 P.M.; July 15, 2021, at 11:30 A.M. to 12:30 P.M.; and July 16, 2021, at 5:30 P.M. to 6:30 P.M. hosted by Caltrans District 3 Senior Transportation Planner.

Online Survey

To assist in managing the collection of public input, the www.I5CMCP.com website also included an online survey for the duration of the virtual open house. The survey was design to gather the following information:

- How people were using the I-5 corridor.
- When people were using I-5.
- Who are the people using I-5.
- What travel mode people used when traveling on I-5.

- Where people were going and the reason for their trips.

The survey contained a total of 10 questions, including one open-ended question which provided an opportunity for persons to add any additional information or comments. A total of 117 respondents filled out the survey. The responses demonstrated that trips on the I-5 corridor are primarily used for commuting and errands with the majority of respondents living in the City of Sacramento. While there was significant travel reported during weekday commute hours as the survey indicated, there was also significant weekend travel. Tallying the survey data, users identified the following top priorities for the CMCP corridor: Multimodal Accessibility and Connectivity, Safety, and System Reliability.

Second Round of Public Outreach

The second and final round of public outreach was completed on August 5, 2022. This was needed to provide the public the opportunity to provide feedback on the proposed projects recommended in Table of this CMCP.

The public outreach included a proposed project map, project table (see **Table 23**) with descriptions and a qualitative rating for each project using the ratings from **Table 22**. The following outreach channels were used to promote the second public outreach including priority populations:

- Caltrans District 3, SACOG, YCTD, SacRT, and City of Elk Grove websites
- Caltrans District 3 and HQ social media platforms

This final outreach generated nine comments from the public with over 1,700 views. Most of the comments received were in relation to suggestions on additional active transportation connections and/or projects. These comments have been shared with the project managers overseeing the local Caltrans SHS projects in their respectively assigned areas. Throughout the development of this plan which included outreach to priority populations based on outreach from TAC and stakeholder members that cover priority populations.

Board and Community Presentations

During the development of the I-5 CMCP the CDT has continuously collaborated with partner agencies and local community organizations. This included public presentations to various committees or Boards who represent or work in coordination with priority populations. Below is a list of presentations made during the development of this CMCP.

- SacRT Board Meeting
- Sacramento Regional Transit Mobility Advisory Committee
- City of Elk Grove Board
- SACOG Regional Partnership Meeting

Chapter 8 | Tribal Government

For the I-5 CMCP, Caltrans reached out to the Native American Tribal Governments located along the I-5 corridor study area. Due to COVID-19 constraints and many tribal governments having to close as a result. Tribal government participation in either TAC or Stakeholder capacity was limited. However, all the tribes along the I-5 corridor study area continued to be invited to TAC or stakeholder meetings which included materials being discussed in the meeting invitations.

The following section is a list of the Native American Tribal Governments in the I-5 CMCP study area.

Buena Vista Rancheria of Me-Wuk Indians

Also known as:	Buena Vista Rancheria of Me-Wuk Indians of California Sierra Miwok	
Recognition	Federally Recognized	
County:	Amador	
Tribal Affiliation:	Me-Wuk	
Website:	https://www.bvtribe.com/	
Land Acreage:	Approximately 67 acres	
Tribal Membership:	Unknown	
Adjacent Highways:	SR 99 and SR 16	
Gaming Facilities Owned:	Harrah's Northern California Casino	

Ione Band of Miwok Indians

Also known as:		
Recognition	Federally Recognized	
County:	Amador, El Dorado, and Sacramento	
Tribal Affiliation:	Miwok	
Website:	https://ionemiwok.net/	
Land Acreage:	Approximately 220 Acres	
Tribal Membership	Approximately 800	
Adjacent Highways:	I-5	
Gaming Facilities Owned:	None	

Nashville Enterprise Miwok Maidu – Nishiham Tribe

Also known as:	Nashville – El Dorado Miwok-Maidu-Nishinam	
Recognition	Non-federally Recognized	
County:	Glenn	
Tribal Affiliation	None	
Website:	Unknown	
Land Acreage:	Unknown	
Tribal Membership	Approximately Unknown	
Adjacent Highways:	US 50 and SR 49	
Gaming Facilities Owned:	None	

Shingle Springs Band of Miwok Indians

Also Knows As:	Shingle Springs Rancheria (Verona Tract)	
Recognition	Federally Recognized	
County:	El Dorado, Placer, Sacramento, Yolo	
Tribal Affiliation:	Miwok	
Website:	https://www.shinglespringsrancheria.com/	
Land Acreage:	Approximately 160 Acres	
Tribal Membership	Approximately 500	
Adjacent Highways:	US 50	
Gaming Facilities Owned:	Red Hawk Casino	

United Auburn Indian Community of the Auburn Rancheria

Also known as:	Auburn Rancheria	
Recognition	Federally Recognized	
County:	Placer	
Tribal Affiliation:	None	
Website:	https://www.auburnrancheria.com	
Land Acreage:	Approximately 22 Acres	
Tribal Membership	Approximately 170	
Adjacent Highways:	I-80, SR 193, and SR 49	
Gaming Facilities Owned:	Thunder Valley Casino	

Wilton Rancheria

Also known as:	Wilton Rancheria Me-Wuk Me-Wuk Indian Community of the Wilton Rancheria	
Recognition	Federally Recognized	
County:	Colusa County (573 acres)	
Tribal Affiliation:	Me-Wuk	
Website:	https://wiltonrancheria-nsn.gov/	
Land Acreage:	Approximately 38 Acres	
Tribal Membership	Approximately 700	
Adjacent Highways:	SR 99	
Gaming Facilities Owned:	Sky River Casino	

Yocha Dehe Wintun Nation, California

Also known as:	Rumsey Rancheria Yocha Dehe Rumsey Indian Rancheria of Wintun	
Recognition	Federally Recognized	
County:	Colusa, Napa, Solano, and Yolo	
Tribal Affiliation:	Wintun (Patwin)	
Website:	https://www.yochadehe.org/	
Land Acreage:	Approximately 800+ acres (tribe also owns large amounts of non-trust land)	
Tribal Membership	Approximately 65	
Adjacent Highways:	SR 16	
Gaming Facilities Owned:	Cache Creek Casino	

Chapter 9 | Recommended Strategies

Recommended Multimodal Projects

The recommended multimodal projects by this CMCP includes highway, active transportation, and public transportation projects. The recommended highway projects include managed lanes, auxiliary lanes, interchange reconfigurations and/or ramp improvements, ramp metering and local arterial projects that will help improve the operations of the freeway mainlines. Recommended rail and transit projects include service enhancements to express bus services as well as improvements at train stations, transportation centers and P&R lots that support transit services. Most projects are financially constrained and are included in the RTPs from SACOG. The unconstrained projects include projects from other plans and studies as well as project concepts proposed by the CDT, Caltrans Traffic Operations, Caltrans Modeling and Forecasting, Caltrans Program Project Management, TAC, and stakeholders.

As discussed in Chapter 4, this CMCP also includes a list of active transportation projects. These projects, along with existing facilities in the corridor, form the CMCP bicycle and pedestrian network.

9.2 | Additional Project Evaluation

In addition to the planning level analysis modeling analysis of improvement scenarios projects were assessed with a qualitative methodology using key selected performance measures. The reason for this type of evaluation is that the modeling tools, while very effective in evaluating certain types of projects, have limitations. For example, some of the CMCP goals are not quantifiable, while some project types cannot be easily modeled. These include bicycle and pedestrian projects, certain types of safety-related projects, local arterial projects that are outside of the modeling network. The following key performance measures are derived from the CMCP goals which are informed by a combination of plans, programs, goals, and objectives outlined from state (CTC and Caltrans) regional (SACOG), and local partners. These performance measures were used to qualitatively assess the improvements:

- Safety
- Efficiency
- System Reliability
- Multimodal Accessibility and Connectivity
- Air Pollution and GHG Reduction
- Economic Prosperity
- Modern Infrastructure and Asset Management
- Efficient Land Use

These performance measures were used to assess the potential transportation system improvements in the study area. The intent is not to rank the improvements or measure them against each other, but rather to inform the I-5 CMCP and how these projects address the overall goals and objectives related to state, regional, and local plans.

9.3 | Project Evaluation Scoring Methodology by Project Type

A set of rules were applied by project type for each performance metric to determine if that project type has a greater or lesser benefit as it relates to the performance measures. For example, some types of transportation improvements may significantly improve safety but not necessarily reduce congestion, while others may reduce VMT but not significantly affect system reliability.

The qualitative ratings of Low, Medium, or High were assigned based on a classification of project types against the performance measures listed below (see **Table 33**). The ratings represent a starting point for further evaluation at an individual project level, which can be further refined in the environmental process or other more detailed project-focused modeling or analytical exercises. **Table 33** shows the qualitative project type assessment based on performance measures. Main project types that included active transportation, transit, arterial, highway, ZEV infrastructure and freight projects were rated Low, Medium, or High.

It is critical to understand that individual projects may have greater or lesser benefit than represented by their generic classification used for the rating in **Table 33** depending on a number of factors, for example: 1) the scope and scale of the specific project; 2) the context within which the project is being proposed (e.g. a more congested or less congested setting); and 3) the cost or funding status of the project (e.g. a smaller scale lower scoring project could have high cost-effectiveness where the cost is also low). **Table 34** shows the detailed ratings of each individual project.

These caveats are important because it is not feasible to conduct a quantitative project-level evaluation for each project within the framework of the I-5 CMCP. The SACSSIM 19 regional travel model and the simulation models are also not effective in assessing individual active transportation (bike and pedestrian) projects. When a project goes through environmental review or is submitted for State or federal funding consideration, the projects will undergo a more rigorous analysis of the quantitative benefits associated with that project, in the specific context within which it will be implemented. This includes an assessment of the benefits against project costs, resulting in a cost-effectiveness assessment. This process has become well established with the advent of the SB 1 competitive programs.

Therefore, any project given a low rating in **Table 34** could prove to have greater benefits and greater cost-effectiveness in a more detailed project-level evaluation in a site-specific context. As a result, it is important not to pre-judge any individual project based on a rating alone but view it in its unique application. That said, the performance measure classification process and ratings are useful in highlighting the strengths and weaknesses of projects in each class.

Table 33 | Project Category Evaluation

Project Type	Subcategory	Safety (collision on state ROW)	*Efficiency - recurring congestion	System Reliability non-recurring congestion	*Multimodal Accessibility and Connectivity	*Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight / access to jobs, goods, and services	Modern Infrastructure and Asset Management	*Efficient Land Use
Active Transportation (Bike / Pedestrian)									
	Freeway Crossings	M	L	L	M	L	L	M (including pedestrians, as well as equipment that supports pedestrian movement [signals, beacons, etc.])	M
	Parallel (parallel Class I bike paths and bikeways on parallel arterials)	M	L	L	M	M	M	M	M
Transit									
	Capitol Corridor (service expansion)	M (reduce congestion-related collisions)	H	M	H	H	M	M	M
	Capitol Corridor - Station Area Improvements	L	L	L	M	L	L	L	H
	Valley Rail – Service Expansion	M (reduce congestion-related collisions)	H	M	H	H	M	M	M
	Valley Rail – Station Area Improvements	L	L	L	M	L	L	L	H
	Sacramento Valley Station	M	H	M	H	H	M	M	M
	Express Bus	M	H	M	H	H	M	L	M

Project Type	Subcategory	Safety (collision on state ROW)	*Efficiency - recurring congestion	System Reliability non-recurring congestion	*Multimodal Accessibility and Connectivity	*Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight / access to jobs, goods, and services	Modern Infrastructure and Asset Management	*Efficient Land Use
	Light Rail/Green Line	L	H	M	H	H	M	M	M
	Park & Ride	M	H	M	H	H	M	M	M
	Transit Centers	M	H	M	H	H	M	M	H
	Streetcar	M	L	M	H	H	M	M	M
Freeway									
	Auxiliary Lanes (with transit)	H	H	H	M	M (location specific)	M	M	M
	Auxiliary Lanes (without transit)	H	M	M	L	L	L	M	L
	ITS (and Broadband / Ramp / Meters / Transit Signal Prioritization)	H	H	H	M	M (smoother traffic flow, but no mode shift)	M	H	M
	Interchange / Ramps (geometric)	M	M	M	M	M	M	M	M
	Managed Lanes	M	H	M	H	M	M	M	M
Arterial									
	Road Widening or Extension	M	M	L	L	L	M	L	L
Zero Emission Vehicles Infrastructure		L	L	L	L	H	L	M	L
Freight									
	Truck Scales	M	M	L	L	H	H	H	L
	Truck Parking	H	L	L	L	M	H	M	L
	Rest Areas	H	L	L	L	M	H	M	L
	Pull Outs	H	L	L	L	L	M	L	L
*These performance measures include a quantitative analysis that will be outlined in Chapter 5 of the CMCP. Performance measures that were not included in the quantitative analysis is because there are no outputs associated with them in the Travel Demand Modeling.									

Table 34 | I-5 CMCP Rated Projects

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
3	Kammerer Road Extension (Connector Segment)	Extend Kammerer Road, between Bruceville Road and Hood Franklin Road with separated median, 2 lanes in each direction and an adjacent Class I multi-use path. Would include a railroad grade separation and connections to a two-lane Willard. Could include minor modifications to Hood Franklin Road & I-5 interchange.	Active Transportation (Bike / Pedestrian)	Freeway Crossings	M	L	L	H	M	M	M	M
3	Bridging I-5 / Riverfront Reconnect Phase 3	Construct Bike and Pedestrian crossing of I-5 between Capitol Avenue and O Street.	Active Transportation (Bike / Pedestrian)	Freeway Crossings	M	L	L	H	M	L	M (including ped as well as equipment that supports pedestrian movement [signals, beacons, etc.])	M
3	Snowy Egret Pedestrian Overcrossing	Bicycle and Pedestrian overcrossing of I-5 between Arena Boulevard and I-80.	Active Transportation (Bike / Pedestrian)	Freeway Crossings	M	L	L	H	M	M	M (including ped as well as equipment that supports pedestrian movement [signals, beacons, etc.])	M

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
3	I Street Deck Conversion	The cities of Sacramento and West Sacramento are planning the conversion of the I Street bridge upper travel way to a bike and pedestrian only facility that will provide direct bicycle linkage from West Sacramento and Yolo County to the Sacramento Valley Station Bus & Mobility Center. A linear ramp connection from the upper deck bridge to the at-grade bike network at Sacramento Valley Station will provide direct station access to premium bike facilities, as well as commuter and recreation cyclist access to all points of the Central City and River District.	Active Transportation (Bike / Pedestrian)	Freeway Crossings	M	L	L	H	M	M	M (including ped as well as equipment that supports pedestrian movement [signals, beacons, etc.])	M
3	Laguna West Mobility Hub	Construct a mobility hub at an existing bus transfer station on Vaux Avenue between Laguna Main Street and Peets Street. The mobility hub improvements would include ADA improvements, curb bulb outs, Bus shelter lighting, bike parking, monument sign, and other micro mobility improvements. Additional improvements include intersection improvements and Laguna Boulevard and Laguna Main Street for ADA and video detection, A class III bike route on Laguna Main Street and ADA improvement and Laguna Main Street and Vaux Avenue and Laguna Main Street and Renwick Avenue.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Elk Grove Boulevard Buffered Bike Lanes	Construct buffered Class II bike lanes on Elk Grove Boulevard between Harbour Point Drive and Babson Drive.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M (moderate effects due to existing low mode share)	M	M	M

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
3	I-5 Class 1 Shared-Use Path	Construct a Class 1 Shared-Use path adjacent to I-5 from the northern City Limits to the southern City Limits. Would include a crossing at Elk Grove Boulevard and at Laguna Boulevard.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Franklin Boulevard Cycle Track Phase 2	Extend existing Class IV cycle track on Franklin Boulevard from Big Horn Boulevard to Laguna Boulevard.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M (moderate effects due to existing low mode share)	M	M	M
3	Franklin Boulevard Cycle Track Phase 3	Extend existing Class IV cycle track on Franklin Boulevard from Elk Grove Boulevard to Laguna Boulevard. Due to ROW constraints may be Class II buffered bike lanes.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Harbour Point Drive Cycle Track	Construct Class IV bikeway on Harbour Point Drive between Laguna Boulevard and Elk Grove Boulevard.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M (moderate effects due to existing low mode share)	M	M	M
3	Laguna Boulevard Buffered Bike Lanes	Construct buffered Class II bike lanes on Laguna Boulevard between Harbour Point Drive and Dwight Road/Babson Drive.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M	L	M (including ped as well as equipment that supports pedestrian movement [signals, beacons, etc.])	M
3	Laguna West Low Stress Class 3 Bicycle Route Improvements	Construct a low stress class 3 bicycle route along Babson Drive, Renwick Avenue, and Vaux Avenue between Harbour Point Drive and Laguna Boulevard. Project includes a Type II - Slurry Seal.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
3	West/East Taron Drive and Harbor Point Drive Bikeway and Pedestrian Improvements	Construct a Class II buffered Bike lanes on West Taron and East Taron Drive from Elk Grove Boulevard to Harbor Point Drive. Also Construct a Class IV Bikeway on Harbor Point Drive from Elk Grove Boulevard to Laguna Boulevard. Would include pedestrian crossing improvements at Elk Grove Boulevard, Maritime Drive, Bastona Drive, Buckminster Drive, and Laguna Boulevard. Project includes a Type II - Slurry Seal.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Richards I-5 Interchange	Interchange and local network improvements on Richards Boulevard and I-5	Active Transportation (Bike / Pedestrian)	Freeway Crossings	M	L	L	H	M	M	M (including ped as well as equipment that supports pedestrian movement [signals, beacons, etc.])	M
3	Central Broadway (29th Street to Martin Luther King Jr. Boulevard) Complete Street	Road diet to install buffered bike lanes, and upgrade curb ramps, and improve pedestrian facilities on Broadway from 29th Street to Martin Luther King Jr. Boulevard.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	H	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	15th Street Class IV Bikeway	Convert to two-way (D Street to G Street) and three to two-lane conversion (G Street to Broadway), install Class IV bikeway.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	16th Street Class IV Bikeway	Three to two lane reduction (N Street to X Street) and convert to two-way (X Street to Broadway) and install Class IV bikeway.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
3	4th Street Pedestrian and Bike Access	Connect the Sacramento Valley Station to Downtown Commons with a new bicycle and pedestrian connection on 4th Street between I Street and J Street.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M (moderate effects due to existing low mode share)	M	M	M
3	American River Crossing	Multi-modal crossing of the American River for automobiles, light rail, bicyclists, and pedestrians from Truxel Road to Sequoia Pacific Boulevard	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M (moderate effects due to existing low mode share)	M	M	M
3	Broadway (24th Street to 29th Street) Complete Street	Road diet to install buffered bike lanes, and upgrade curb ramps, and improve pedestrian facilities on Broadway from 24th Street to 29th Street.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Capitol Mall Revitalization Project	Road diet of Capitol Mall to improve pedestrian environment with landscaping, pedestrian-scale lighting and amenities, public art, and plaza space.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	El Camino Avenue	Sidewalk and bike lane gap closures on El Camino Avenue from Steelhead Creek to Del Paso Boulevard.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
3	Franklin Boulevard Complete Street	The project scope includes bikeway and pedestrian improvements on Franklin Boulevard between 19th Avenue and 32nd Avenue. The facility will include: a reduction in travel lanes from four to two with a center turn lane; addition of Class IV bikeways, which are separated from travel by parked cars and a buffer area; and improved pedestrian facilities, including enhanced crosswalks, accessible sidewalks and ramps, bulb-outs, modification of traffic signals, intersection improvements, pedestrian-scale lighting, and shade trees.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	H	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	L Street Class 4 Bike Lane	L Street Class 4 Bike Lane (15th Street to Alhambra Boulevard)	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	N Street 2-way conversion	Convert to two-way (3rd Street to 21st Street)	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	North 16th Street	Streetscape improvements including restriping lanes to 11 feet, on street parking, bifurcated sidewalks, and pedestrian lighting.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Old Sacramento I Street Access	Sidewalk and bike lane gap closure on I Street underneath I-5 providing a direct connection from Downtown to Old Sacramento.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M (moderate effects due to existing low mode share)	M	M	M

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
3	Sacramento Northern Trail Crossing	Recommended repairs to the Sacramento Northern Bikeway bridge	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Sacramento River Parkway	Construction of a new shared-use path on the Sacramento River Parkway in the pocket area.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M (moderate effects due to existing low mode share)	M	M	M
3	Stockton Boulevard	Corridor redesign of 4.2 miles of Stockton Boulevard from Alhambra Boulevard to 47th Avenue including lane reduction in select segments, new pedestrian crossings, traffic signal improvements, improved bus stop amenities, and enhanced bike facilities.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	H	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Two Rivers Trail	The City of Sacramento is proposing the Two Rivers Trail Project (Phase II) as a connection from the west end of Sutter's Landing Regional Park following the south bank of the American River and conforming to the existing Two Rivers Trail located at the H Street bridge.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M (moderate effects due to existing low mode share)	M	M	M
3	West Canal Bike Path	Shared-use facility gap closure between Arena Boulevard and San Juan Boulevard along the West Canal (parallel to I-5).	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M (moderate effects due to existing low mode share)	M	M	M
3	Downtown Sacramento Transportation Study: East Broadway	Downtown Sacramento, bounded by Broadway extending into the Oak Park neighborhood, Sacramento River, American River, and Alhambra Boulevard.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	L	L	L	L	L	L	L	L

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
3	Fisherman's Lake Bike Trail Gap Closure	Construct a Class 1 Shared Use Path from the intersection of Arena Boulevard and El Centro Road to San Juan Reservoir Park.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M (moderate effects due to existing low mode share)	M	M	M
3	L Street Class 4 Bike Lane	L Street Class 4 Bike Lane (15th Street to Alhambra Boulevard).	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	North 12th Complete Street Phase 2	In Sacramento, on north 12th Street from American River to H Street, including Sunbeam Street and one block of Richards Boulevard. Convert westernmost travel lane between Richards Boulevard and H Street into two-way cycle track and improve connection from Two Rivers Bike Trail to Richards Boulevard. Install streetscape and safety improvements, including intersection improvements, traffic control devices, striping, signage, pedestrian islands, dedicated turn lanes, on-street parking, and related streetscape, landscape, and adjacent improvements.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Railyards Streets	Construct New Road/Bike/Pedestrian improvements to implement Railyards Specific Plan.	Active Transportation (Bike / Pedestrian)	Parallel (parallel Class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M

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3	River District Transportation Improvements	Roadway, bikeway, and pedestrian improvements to implement the River District Specific Plan.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	San Juan Road Bike Improvements from Airport Road to Fisherman's Lake Bike Trail	Construct a Class IV Cycle track on San Juan Road between Airport Road and Fisherman's Lake bike trail just west of I-5.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	H	M (moderate effects due to existing low mode share)	M	M	M
3	Lambert Road - Class II	Class II bicycle lane on Lambert Road from Bruceville Road to SR 160.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	N. Bayou Way - Class II	Class II on N. Bayou Way from Crossfield Drive to Garden Highway.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	1-5 Path Connector	Class I trail connecting proposed I-5 path and Dwight Road.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	1-5 Path Connector	Class I trail, approximately .39 miles, connecting proposed I-5 trail and proposed Sacramento River path.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M	3	1-5 Path Connector	Class I trail, approximately .39 miles, connecting proposed I-5 trail and proposed Sacramento River path.

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3	Franklin Boulevard - Class II	Class II bicycle lane on Franklin Boulevard from Elk Grove County line to Sacramento County line.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Franklin Boulevard - Class II	Class II bicycle lane on Franklin Boulevard from Fruitridge Road to Sacramento County line.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Hood Franklin Road - Class II	Class II bicycle lane on Hood Franklin Road from Franklin Blvd to SR 160.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Sacramento River Trail	Class I trail from Hood Franklin Road to the Sacramento County line.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Twin Cities Road - Class II	Class II bicycle lane on Twin Cities Road from River Road to Amador County Line	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	I-5 Trail	Class I trail located east and parallel to I-5 from the Sacramento County/City of Elk Grove border to the Sacramento County/City of Sacramento border.	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M

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3	Isleton Stone Lakes Path	Class I trail from the City of Isleton in the Delta to the Sacramento River Path, 14.29 miles long	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Stone Lakes Refuge Path	From Sacramento River Path to I-5	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M	Active Transportation (Bike / Pedestrian)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M
3	110 miles per hour Speed Upgrades	Miscellaneous track upgrades allowing increase speed in sections suitable for speed increases; also includes any needed signal and other track infrastructure modifications.	Transit	Capitol Corridor (service expansion)	L	L	L	L	L	L	L	L
3	Sacramento to Roseville Third Track Service Expansion Phase 1	On the Union Pacific mainline, from near the Sacramento and Placer County boarder to the Roseville Station area in Placer County: Construct a layover facility, install various Union Pacific Railroad Yard track improvements, required signaling, and construct the most northern eight miles of third mainline track between Sacramento and Roseville (largely all in Placer County), which will allow up to two additional round trips (for a total of three round trips) between Sacramento and Roseville.	Transit	Capitol Corridor (service expansion)	L	L	L	L	L	L	L	L

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3	Sacramento to Roseville Third Track Service Expansion Phase 2	On the UP mainline, from Sacramento Valley Station approximately 9.8 miles toward the Placer County line: Construct third mainline track including all bridges and required signaling. Project improvements will permit service capacity increases for Capitol Corridor in Placer County, with up to seven additional round trips added to Phase 1-CAL18320 (for a total of ten round trips) between Sacramento to Roseville including track and station improvements.	Transit	Capitol Corridor (service expansion)	L	L	L	L	L	L	L	L
3	Link21 Project	Improvements via Link21 project that improve I-80 corridor throughput; projects under Link21 are in development at this time (2021/2022).	Transit	Capitol Corridor (service expansion)	L	L	L	L	L	L	L	L
3	Elk Grove Station	Construct parking lot, pedestrian overcrossing, center platform, and approximately two miles of station track. Construct signalized intersection at Dwight Road.	Transit	Valley Rail - Station Area Improvement	L	L	L	M	L	L	L	H
3	South Sacramento Crossover	Provide crossover to provide access to City College Station and to allow rail network fluidity for freight and passenger rail operations.	Transit	Valley Rail - Station Area Improvement	L	L	L	M	L	L	L	H
3	City College Station	Construct station siding and side loaded platform at existing SacRT Blue Line light rail station.	Transit	Valley Rail - Station Area Improvement	L	L	L	M	L	L	L	H
3	Midtown Station	Construct side loaded platforms, station siding, pedestrian plaza area, and Class I bike path.	Transit	Valley Rail - Station Area Improvement	L	L	L	M	L	L	L	H
3	Old North Sacramento Station	Construct center loaded platform, parking lot, bus pullouts, and realign Sacramento Northern bike path. Extend Del Paso Road siding from MP 140 to MP 142.	Transit	Valley Rail - Station Area Improvement	L	L	L	M	L	L	L	H

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3	Natomas/Sacramento International Airport Station & Layover Facility	Construct side loaded platform, parking lot, bus pullout, intersection and crossing improvements at Elkhorn Boulevard, and layover tracks.	Transit	Valley Rail - Station Area Improvement	L	L	L	M	L	L	L	H
3	Pleasant Grove Siding Extension	Extend existing siding to MP 157.8 to allow rail network fluidity for freight and passenger rail operations. Needed for future extension of service to Marysville and Butte County.	Transit	Valley Rail - Station Area Improvement	L	L	L	M	L	L	L	H
3	Curve Improvement	Realign, super elevate, and rehabilitate curve track to allow up to 90 mile per hour operations.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	Phillips Siding Rehabilitation	The Phillips Siding Rehabilitation will replace the southern switch with a #20 turnout and rehabilitating the existing siding to mainline track standards.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	Elk Grove Double Track	The Elk Grove Boulevard to Philips Siding Rail Operational and Capacity Improvements Project will upgrade and extend the existing Philips Siding creating an approximately 4.4-mile-long second main track that will serve trains entering the proposed north Elk Grove Boulevard Station. The existing siding switches will be upgraded to allow for increased train speed. The project will also include modifications to numerous existing private and public crossings, bridges, and culverts within the project limits.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	Curve Improvement	Realign, super elevate, and rehabilitate curve track to allow up to 90 miles per hour operations. (Extension FEIR)	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	Pollock Siding Upgrade	Upgrade existing siding to allow 79 miles per hour operations	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M

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3	Pollock to South Sacramento Siding Extension	Connect existing sidings to allow rail network fluidity for freight and passenger rail operations.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	South Sacramento Yard Rehabilitation	Rehabilitate existing yard tracks to allow rail network fluidity for freight and passenger rail operations.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	Del Paso Siding Upgrade and Extension	Rehabilitate existing Del Paso Road Siding into second mainline track and extend to MP 142 to allow 79 miles per hour operations.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	Sacramento Valley Station Bus Mobility Center (BMC)	The Sacramento Valley Station BMC expands transits services to provide extensive regional connectivity and transfers for all Northern California, including rural communities with bus network integration. The station facility is designed for 18 bus bays (10 electric vehicles quick charge) for all regional buses on an upper level. The lower level facilitates shuttles and micro-transit vehicles for local connections. In addition, 116 vehicle spaces are provided (20 electric vehicles initially, with balance EV capable) that will transition from commuter parking to district parking structure with priority for car-share vehicles over time. In addition, flexibility exists to accommodate future electric vehicle's hub station for some spaces. The Sacramento Valley Station BMC ties directly to the existing rail station tunnel for platform access and is directly accessible to bikes from multiple directions, bike storage and servicing areas are provided. Including public restrooms and exclusive operator restroom/break area.	Transit	Sacramento Valley Station	M	H	H	H	H	M	M	H

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3	Sacramento Valley Station I-5 Ramp Improvements	The City of Sacramento is a sub-recipient to Capitol Corridor Joint Powers Authority for a planning study funded from the 2020 TIRCP grant program. The funding will support a Project Study Report and Preliminary Environmental Analysis on a concept plan that relocates the northbound I Street access ramp to I-5, providing a new intersection and ability for regional buses to directly access and egress the station from the adjacent northbound and southbound access points at J Street and I Street. This concept would also enhance pedestrian connectivity between the Old Sacramento Waterfront (Old Sacramento), the Sacramento Valley Station, and downtown. This project will begin in Fiscal Year 2021 Quarter 2.	Transit	Sac Valley Station	M	H	H	H	H	M	M	H
3	ACE Battery-Electric Locomotives	Retrofit six Tier 0+ diesel F40PH-3C locomotives to battery-electric for ACE service expansion.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	ACE Bi-Level Coaches	Purchase 20 bi-level coaches for ACE service expansion.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	ACE Tier 4 Locomotives	Purchase two Tier 4 locomotives for ACE service expansion.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	San Joaquins Coach and Cab Cars	Purchase additional cab and coach cars for San Joaquins service expansion.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	San Joaquins Diesel Multiple Units	Purchase six diesel multiple units or zero emission multiple units for San Joaquins service expansion.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M
3	San Joaquins Tier 4 Locomotives	Purchase two Tier 4 locomotives for San Joaquins service expansion.	Transit	Valley Rail - Service Expansion	M	H	M	H	H	M	M	M

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3	Sacramento Valley Station Loop Double Tracking	Construct double track on H Street and 7th Street facilitating 15-minute service along the segment between Sacramento Valley Station and Township 9, increasing frequency of service to future job and housing in both the Rail Yard and the Rivers District and completing the initial steps to implementing service to north Natomas and the Sacramento International Airport.	Transit	Sacramento Valley Station	M	H	M	H	H	M	M	M
3	Sacramento Valley Station Loop Realignment	Construct a north-south oriented station including the construction of two platforms and a second track will enable the interlining of the Gold and Green Lines and improving access between light rail and intercity rail services.	Transit	Sacramento Valley Station	M	H	M	H	H	M	M	M
3	Bus Stop Improvements/ Enhanced Bus Corridors	Bus turnouts, associated improvements with stops, and bus corridor enhancements.	Transit	Express Bus	M	H	M	H	H	M	L	M
3	Operating Assistance for the UC Davis Medical Center Shuttle Service	Between UC Davis and UC Davis Medical Center with limited stops in between: operating assistance for three years. Operations would take place weekdays, approximately between 5:30 A.M. and 8:30 P.M.	Transit	Express Bus	M	H	M	H	H	M	L	M
3	Replace existing buses with CNG	Replace 7 CNG buses that have reached the end of their useful life with 7 new 40' CNG buses, for routes 86 & 88 that will benefit the I-5 corridor. Per bus estimate \$700k-\$750k.	Transit	Express Bus	M	H	M	H	H	M	L	M
3	Replace existing buses with CNG	Replace 11 CNG buses that have reached the end of their useful life with 11 new 40' CNG buses, for routes 86 & 88 that will benefit the I-5 corridor.	Transit	Express Bus	M	H	M	H	H	M	L	M

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3	Route 142 ZEV	Purchase 7 Zero Emission Battery Electric Buses for the Sacramento International Airport service to replace CNG buses currently providing the service.	Transit	Express Bus	M	H	N	H	H	M	L	M
3	SacRT Charging Infrastructure Project	Develop the infrastructure to charge electric buses for the SacRT fleet.	Transit	Express Bus	L	L	L	L	H	L	M	L
3	Bus Service Expansion	#11 Truxel Road - Extend to Airport	Transit	Express Bus	M	H	M	H	H	M	L	M
3	Bus Service Expansion	#11 Truxel Road – Monday - Friday, Saturday morning/evening trips	Transit	Express Bus	M	H	M	H	H	M	L	M
3	Bus Service Expansion	#13 Natomas/Arden - Sunday/Holiday morning/evening trips	Transit	Express Bus	M	H	M	H	H	M	L	M
3	Bus Service Expansion	#86 San Juan - morning/evening trips	Transit	Express Bus	M	H	M	H	H	M	L	M
3	Bus Service Expansion	#88 W. El Camino – Monday - Friday morning/evening trips	Transit	Express Bus	M	H	M	H	H	M	L	M
3	Bus Service Expansion	#142 Airport – 30-minute Service All Day	Transit	Express Bus	M	H	M	H	H	M	L	M
3	Bus Service Expansion	#11 Truxel Road- Frequent Service	Transit	Express Bus	M	H	M	H	H	M	L	M
3	Bus Service Expansion	#13 Natomas/Arden - Frequent Service	Transit	Express Bus	M	H	M	H	H	M	L	M
3	Bus Service Expansion	Smart Ride - Continuation of Existing Pilot	Transit	Express Bus	M	H	M	H	H	M	L	M

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3	Green Line Construction - MOS 2: Township 9 to Arena Boulevard	Extend the Green Line light rail from the existing terminus at Township 9 Station to Arena Boulevard. Scope includes completing design, purchase of 10 light rail vehicles and constructing an American River bridge.	Transit	Light Rail / Green Line	L	H	M	H	H	M	M	M
3	Green Line Construction - MOS 3: Arena Boulevard to Sacramento International Airport	Extend the Green Line light rail from the terminus at Arena Boulevard to the Sacramento International Airport. Scope includes design, purchasing 19 light rail vehicles, and constructing 7.2 miles of track, up to 8 light rail stations, 2 P&R and ride lots, and a new maintenance facility.	Transit	Light Rail / Green Line	L	H	M	H	H	M	M	M
3	Green Line Final Environmental Impact Report (EIR)	Complete the Green Line to the Sacramento International Airport Environmental Impact Statement (EIS)/EIR to receive environmental clearance. Scope includes updating the draft EIS/draft EIR as needed, completing the outreach/review process, and finalizing the EIS/EIR with the issuance of the Record of Decision.	Transit	Light Rail / Green Line	L	H	M	H	H	M	M	M

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3	Green Line Sacramento Valley Station loop & K Street to H Street Improvements (Final Design & Construction)	In Sacramento, two elements to accommodate the future Streetcar Project as well as future Green Line service: (1) Sacramento Valley Station Loop - segment of the Green Line at the Sacramento Valley Station including: Relocate the existing/temporary light rail station on H Street to a new north-south axis west of 5th Street; New platform and light rail station near the existing Amtrak station; new station on the east side of north 7th Street near Railyards Boulevard that would serve the future MLS Stadium area; double-tracking on H Street from 7th Street to west of 5th Street, from west of 5th north to new station near Amtrak, and east along a future F Street. SacRT has been working with the City of Sacramento and the MLS Stadium developers to advance this concept. (2) Relocation of the existing light rail tracks on K Street from 12th Street west to 7th Street. The tracks would be relocated to the center of (future) two-way H Street and would connect the light rail line between 12th, 7th, and 8th streets with new stations near 12th Street and City Hall on H Street. SacRT has been working with the City of Sacramento and SACOG to advance this concept. Expanded SacRT facilities will include track, special trackwork, overhead catenary system, traction power system, signaling system, platforms, and storage tracks.	Transit	Light Rail/Green Line	L	H	M	H	H	M	M	M

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3	Green Line: MOS 2 Township 9 to North Natomas Town Center (CON)	SacRT Green Line Light Rail: Extend light rail from Township 9 to north Natomas town center	Transit	Light Rail/Green Line	L	H	M	H	H	M	M	M
3	Light Rail Modernization (Blue Line)	Continues modernization of SacRT's light rail vehicles fleet and stations along the Blue Line south line by purchasing new low floor light rail vehicles (12), modifying light rail stations for low floor boarding (7), and making major infrastructure improvements. Enhances ability to retain existing and attract new light rail riders by producing operational efficiencies. Increases boarding convenience and safety. Especially for persons with disabilities, seniors, parents with strollers, and bicyclists. Increases passenger capacity.	Transit	Light Rail/Green Line	L	H	H	H	H	M	M	M
3	Light Rail Modernization Project - Light Rail Vehicles	To improve service reliability and capacity the replacement of the current high floor, aging light rail vehicles with new low floor vehicles is needed.	Transit	Light Rail / Green Line	L	H	M	H	H	M	M	M
3	Light Rail Modernization Project - Station Conversions	To facilitate riders access to the new low floor vehicles the stations platform is required to be at least eight inches above the top of rail. This allows the ramp to deploy from the vehicle to the station platform with the proper slope for passengers to board.	Transit	Light Rail / Green Line	L	H	M	H	H	M	M	M
3	Railyard Station	Design and construct a light rail station at the intersection of 7th Street and Railyard Boulevard.	Transit	Light Rail / Green Line	L	H	M	H	H	M	M	M
3	Elkhorn Boulevard P&R Improvements	Expand and redesign the current Elkhorn Boulevard and SR 99 P&R lot to allow transit operations. Including the addition of ZEV charging stations.	Transit	Park & Ride	H	M	H	H	M	M	M	Transit

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3	Sacramento-West Sacramento downtown /Riverfront Streetcar Project (Phase 1)	Construction of the Phase 1 of the downtown/Riverfront Streetcar. The alignment runs from West Sacramento Civic Center/Riverfront Street to the Midtown entertainment, retail, and residential district of Sacramento. (Project Development programmed separately under VAR56127, for \$14,570,000.)	Transit	Streetcar	L	H	M	H	H	M	M	M
3	West Sacramento / Sacramento Streetcar (Phase 2)	Construction Phase 2 downtown/Riverfront Streetcar: south to R Street and Broadway corridors.	Transit	Streetcar	L	H	M	H	H	M	M	M
3	I-5 Auxiliary Lanes	Southbound from US 50 to Sutterville Road (indirect effects)	Freeway	Aux Lanes (without transit)	H	M	M	L	L	L	M	L
3	I-5 Auxiliary Lanes	Southbound from I-80 to W. El Camino Avenue (indirect effects)	Freeway	Aux Lanes (without transit)	H	M	M	L	L	L	M	L
3	I-5 Auxiliary Lane (NB) from Del Paso Road to SR 99 NB connector ramp	In Sacramento County construct auxiliary lanes on I-5 from Del Paso Road off ramp to SR 99 northbound connector ramp (PM 28.817-29.772).	Freeway	Aux Lanes (without transit)	H	M	M	L	L	L	M	L
3	I-5 Connector Ramp Extension	Extend southbound connector ramp from US 50 connector-ramp to the Sutterville Road off-ramp.	Freeway	Interchange/Ramps (geometric)	M	M	M	M	M	M	M	M
3	I-5 / 113 Connector Phase 2	Phase 2 - Construct northbound I-5 to southbound SR 113 freeway to freeway connection.	Freeway	Interchange/Ramps (geometric)	M	M	M	M	M	M	M	M
3	I-5 / 113 Interchange Phase 3	Phase 3 - Construct northbound SR 113 to southbound I-5 freeway to freeway connector in Woodland. Including transformation of east Main Street to a multi-modal corridor with no trucks and mixed-use development.	Freeway	Interchange/Ramps (geometric)	M	M	M	M	M	M	M	M

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3	I-80/Richards Boulevard Interchange	In Davis: At the I-80/Richards Boulevard Interchange; reconstruct the north side of Richards Boulevard Interchange to remove the loop on- and off-ramps and replace with new ramp in diamond configuration. Includes traffic signal installation. Install new Class II bike lanes and a parallel Class I trail (0.5 mi of Class I and 1 mi of Class II). Toll Credits for Construction	Freeway	Interchange/Ramps (geometric)	M	M	M	M	M	M	M	M
3	I-5 at Richards Boulevard Interchange	Richards Boulevard and I-5; reconstruct Interchange (ultimate). (HPP#3784) (T15165100)	Freeway	Interchange/Ramps (geometric)	M	M	M	M	M	M	M	M
3	US 50/Jefferson Boulevard Interchange	Jefferson Boulevard Interchange--expand the ramps and signals from 1 to 2 lanes, add ramp metering and turn lanes, and related street closures.	Freeway	Interchange/Ramps (geometric)	M	M	M	M	M	M	M	M
3	Metro Air Parkway Interchange at I-5	In Sacramento County, I-5 at Metro Air Parkway near Sacramento International Airport: Construct the first phase of a five-lane partial clover Type L-9 interchange for Metro Air Parkway at I-5. Construct a three-lane overcrossing facility with a median, bike lanes and a sidewalk on the west side. Metro Air Parkway will connect on the north of the interchange and terminate south of I-5 with a cul-de-sac. South Bayou Road will be realigned to provide the ROW for partial completion of two-quadrant partial cloverleaf interchange. Project also includes a one-lane northbound	Freeway	Interchange/Ramps (geometric)	M	M	M	M	M	M	M	M

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
		I-5 exit ramp and diagonal entrance ramp, one-lane southbound I-5 exit ramp, a two-lane southbound I-5 loop entrance ramp with auxiliary lane, street lighting, striping, signs, relocation of an existing drainage ditch on the south side of the freeway, construction of drainage improvements with the interchange, and relocation of utilities.										
3	I-5 Managed Lanes from Sutterville Road to Yolo County Line	In Sacramento County on I-5 from just north of Sutterville Road to the Yolo County line: Construct improvements consisting of managed lanes in each direction, auxiliary lanes, and intelligent transportation system elements. EA 4H580	Freeway	Managed Lanes	M	H	M	H	M	M	M	M
3	I-5 and I-80 Managed Lane Connectors and Lanes to Downtown	Reconstruct I-5/I-80 Interchange, including managed lane facility connectors, and construction of managed lane facility on I-5 from the I-5/I-80 Interchange to downtown Sacramento (Post Mile [PM] 26.7/27.0). (Emission Benefits in kg/day 1.0 ROG) (project description may change based on results from the Managed Lanes Study. Project is being evaluated for Expressed Toll Lanes, High Occupancy Toll Lanes, HOV lanes.) (EFIS ID 0300000313)	Freeway	Managed Lanes	M	H	M	H	M	M	M	M
3	Covell Boulevard Widening	Widen: 4 lanes from Shasta Drive to Denali Drive Includes: bike lanes and a center median.	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	Mace Boulevard Curve	In Davis, widen from 2 to 4 lanes, provide bike lanes, a landscaped median, and turn lanes.	Arterial	Road widening or extension	M	M	L	L	L	M	L	L

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
3	Kammerer Road Extension (Connector Segment)	Extend Kammerer Road, between Bruceville Road and Hood Franklin Road with separated median, 2 lanes, and Class 3 bike lanes. Would include a railroad grade separation and connections to a two-lane Willard. Could include minor modifications to Hood Franklin Road & I-5 interchange.	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	I Street Bridge Replacement	I Street bridge, over Sacramento River and complex of bridge approach structures. Replace existing tow-lane bridge with a two-lane bridge on a new alignment. Project includes bridge approaches 22C0154, 24C0006, 24C0364L, 24C0364R, 24C0351J.	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	Broadway Complete Street Phase I & 2	Phase I: In Sacramento, Broadway from 3rd Street to 16th Street, convert four lane arterial to two lane arterial with buffered bike lanes, median improvements, sidewalk improvements and streetscape enhancements. Create surface street (29th St.) from X Street to SR 99 South. PA&ED will be completed for the entire 2-mile corridor, from 29th Street to 3rd Street.	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	Elkhorn Boulevard Extension	Construct New Road: 2 lanes from Airport Boulevard / Crossfield Drive to Power Line Road. Includes landscaped medians.	Arterial	Road widening or extension	M	H	L	L	L	M	L	L
3	Elkhorn Boulevard Widening B	Widen: 6 Lanes from Metro Air Parkway to Lone Tree Road	Arterial	Road widening or extension	M	H	L	L	L	M	L	L
3	Elkhorn Boulevard Widening C	4 lanes from Airport Boulevard / Crossfield Drive to Lone Tree Road.	Arterial	Road widening or extension	M	H	L	L	L	M	L	L

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
3	Lower American River Crossing	New all-modal Bridge: between downtown Sacramento and South Natomas across the Lower American River. Includes: Auto, transit, bicycle, and pedestrian facilities. Scale and features to be determined through need and purpose study anticipated to begin in 2012.	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	Broadway Bridge	From West Sacramento to Sacramento, across the Sacramento River, construct the Broadway bridge, a new southern crossing of the Sacramento River. Project includes auto transit, bicycle, and pedestrian facilities. (Local funding is split between the Cities of Sacramento and West Sacramento.)	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	Harbor Boulevard Widening	Harbor Boulevard, West Capitol Avenue to Industrial Boulevard: widen 4 to 6 lanes.	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	Industrial Boulevard Widening	In West Sacramento, Industrial Boulevard from the Palamidessi bridge at the Barge Canal to Harbor Boulevard: widen from 4 to 6 lanes.	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	Lake Washington Boulevard Bridge Widening	In West Sacramento, Industrial Boulevard from the Palamidessi bridge at the Barge Canal to Harbor Boulevard: widen from 4 to 6 lanes.	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	Riverfront Street Extension	Riverfront Street, from Mill Street to the existing 3-way intersection at 5th Street, S. River Road, and 15th Street (0.3 mi): Extend as a two-lane roadway with sidewalks, protected bicycle lanes, lighting, and landscaping. At existing 3-way intersection construct the new four-way intersection to include Riverfront Street extension. Also, 15th Street, from Jefferson Boulevard to future 4-way intersection at River Road, 5th	Arterial	Road widening or extension	M	M	L	L	L	M	L	L

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
		Street, and Riverfront Street: Realign roadway.										
3	South River Road Reconfiguration (Phase 3)	Reconstruct South River Road to 4-lanes from 15th Street to the 19th Street extension and restripe Village Parkway to Stonegate Boulevard, including restriping the 4-lane bridge from 2-lanes to 4-lanes over barge canal.	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	Metro Air Parkway Widening A	In Sacramento County, Metro Air Parkway from north of I-5 to Elverta Road. Widening roadway from 2 to 4 lanes.	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	Metro Air Parkway Widening B	Widen from 4 to 6 lanes for I-5 to Elverta Road	Arterial	Road widening or extension	M	M	L	L	L	M	L	L
3	Elverta Road Widening A	Widen: 4 lanes from Rio Linda Boulevard to connection to north side of the Sacramento International Airport. Includes: bicycle and pedestrian facilities.	Arterial	Road widening or extension	M	H	L	L	L	M	L	L
Conceptual												
3	N Street 2-way conversion	Convert to two-way (3rd Street to 21st Street)	Active Transportation (Bike/Ped)	Parallel (parallel class I bike paths and bikeways on parallel arterials)	M	L	L	M	M (moderate effects due to existing low mode share)	M	M	M
3	Northern I-5 Managed Lanes P&R	To design and construct a P&R lot in the northern limits of the I-5	Transit	Park & Ride	M	H	M	H	H	M	M	M

District	Project Name	Project Description	Category	Subcategory	Safety (collisions on state row)	Efficiency - recurring congestion	System Reliability - non-recurring congestion	Multimodal Accessibility and Connectivity	Air Pollution and Greenhouse Gas Emissions Reduction	Economic Prosperity - freight/access to jobs, goods, and services	Modern Infrastructure and Asset Management	Efficient Land Use
		Managed Lanes project. Potentially include ZEV charging stations. The location is TBD.										

Chapter 10 | Funding Sources

This chapter includes a comprehensive summary of various funding sources that can be used by Caltrans and I-5 corridor partners and stakeholders to implement the recommended projects. These include funding related local, regional, and state funding programs. The sections below describe potential grant programs to assist in the funding and development of projects outlined in the CMCP.

10.1 | Senate Bill 1 Competitive Programs

Solutions for Congested Corridors Program

The CTC administers the SCCP to provide funding to achieve a balanced set of transportation, environmental, and community access improvements to reduce congestion throughout the State. transportation agencies and Caltrans may nominate projects for funding.

Trade Corridor Enhancement Program

The TCEP focuses on routes and transportation infrastructure vital to California's trade and freight economy. Caltrans and regional entities can be project sponsors. Regional funding targets are set for specific regions in the State.

10.2 | Federal Funding Sources

Federal transportation funding is administered by the United States Department of Transportation (USDOT) and authorized by Federal transportation bills. The most recent transportation funding bill, Infrastructure Investment and Jobs Act/Bipartisan Infrastructure Law (IIJA/BIL) was signed into law by President Joe Biden on November 15, 2021. Much of the funding available through the USDOT's Highway Trust Fund is allocated to California based on the state's population. The State of California, in turn, distributes those funds to local agencies by formula or through competitive grant programs. For instance, the majority of the federally funded Surface Transportation Program funding in California is programmed through the STIP. Additionally, California's ATP consolidated most of the Federal and state funding sources for bicycle and pedestrian projects.

Through the IIJA/BIL, USDOT provides competitive discretionary funding programs for transportation projects notable ones include Infrastructure for Rebuilding America (INFRA) which emphasizes highway and goods movement projects and Rebuilding American Infrastructure with Sustainability and Equity (RAISE) which emphasizes capital investments in surface transportation that will have significant local or regional impact.

Highlighted below in **Table 24**, lists the USDOT programs that may be utilized for the I-5 CMCP projects.

Table 35 | Federal Funding Sources

Name	Funding Type	Eligible Modes/Description
INFRA	Discretionary	A Federal discretionary grant program reviewed by USDOT. Emphasis on highway and goods movement projects.
RAISE	Discretionary	A Federal discretionary grant program reviewed by USDOT. Emphasis on multimodal projects.
New Starts and Small Starts (Federal Transit Administration Section 5309)	Discretionary	Funds light rail, heavy rail, commuter rail, streetcar, and bus rapid transit projects.
Highway Safety Improvement Program (HSIP)	Discretionary	Federally allocated to the State by formula, the HSIP program is available for roadway safety projects through a competitive program administered by Caltrans.
Congestion Mitigation Air Quality	Formula	Federally designated air quality containment areas receive funding by formula to program local and regional projects.
Rail-Highway Crossings (Section 130) Program	Discretionary	Safety improvements to reduce the number of fatalities, injuries, and crashes at public railway-highway crossings.
National Highway Freight Program (NHFP)	Discretionary	The Fixing America's Surface Transportation Act established NHFP to improve the efficient movement of freight on the National Highway Freight Network.
National Highway Performance Program	Discretionary	The NHPP provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS.
Nationally Significant Federal Lands and Tribal Projects (NSFLTP)	Discretionary	The NSFLTP program provides funding for constructing, reconstructing, and rehabilitating nationally significant projects on Federal or Tribal lands.
National Significant Freight and Highway Projects (NSFHP)	Discretionary	The NSFHP provides financial assistance—competitive grants or credit assistance—to nationally and regionally significant freight and highway projects that align with the program goals to: improve safety, efficiency, and reliability of the movement of freight and people; generate national or regional economic benefits and an increase in US global economic competitiveness; reduce highway congestion and bottlenecks; Improve connectivity between modes of freight transportation; enhance the resiliency of critical highway infrastructure and help protect the environment; improve roadways vital to national energy security; address the impact of population growth on the movement of people and

Name	Funding Type	Eligible Modes/Description
		freight, mitigate impacts of freight movements on communities.
Surface Transportation Block Grant (STBG) Program	Formula	STBG provides flexible funding that states, and local governments may use for projects on any Federal-aid highway, including the National Highway System; bridge projects on any public road; transit capital projects; and public bus terminals and facilities.
Federal Transit Administration Sections 5303, 5304, 5305	Discretionary	Provides procedural and funding requirements for multimodal transportation planning in States and metropolitan areas. Planning must be cooperative, continuous, and comprehensive leading to long-range plans and short-range programs that reflect transportation investment priorities. Funds are available to States and Metropolitan Planning Organizations for planning activities.
Federal Transit Administration Section 5307	Formula	The Urbanized Area Formula Funding program provides Federal resources to urbanized areas and to governors for transit capital and operating assistance and for transportation related planning.
Federal Transit Administration Section 5311	Formula	This program provides formula-based funding for capital and/or operating assistance to rural areas with a population fewer than 50,000 where many residents rely on public transit to reach their destinations.
Federal Transit Administration Section 5312	Discretionary	This program supports research activities that improve the safety, reliability, efficiency, and sustainability of public transportation by investing in the development, testing, and deployment of innovative technologies, materials, and processes.
Federal Transit Administration Section 5337	Formula	The State of Good Repair program is dedicated to repairing and upgrading the Nation's rail transit systems along with high-intensity motor bus systems that use high-occupancy vehicle lanes, including bus rapid transit.
Federal Transit Administration Section 5339	Formula	The Bus and Bus Facilities Infrastructure Investment Program (49 US Code 5339) provides Federal resources to states and direct recipients to replace, rehabilitate and purchase buses and related equipment. This programs also allows for the construction of bus-related facilities, including technological changes or innovations to modify low or no emission vehicles or facilities.
Federal Transit Administration Transit-Oriented Development Planning Pilot	Discretionary	Provides funding to advance planning efforts that support transit-oriented development (TOD) associated with new fixed-guideway and core capacity improvement projects. TOD focuses growth around transit stations to promote ridership, affordable housing near transit, revitalized downtown centers and neighborhoods, and encourage local economic development.

Name	Funding Type	Eligible Modes/Description
Recreational Trails Program	Discretionary	The Recreational Trails Program provides funds annually for recreational trails and trails-related projects. The RTP is administered at the Federal level by the Federal Highway Administration. It is administered at the state level by the California Department of Parks and Recreation.

Sources: US Department of Transportation; California Department of Transportation; Cambridge Systematics.

In addition to these Federal funding sources, the IIJA/BIL continues the Transportation Infrastructure Finance and Innovation Act (TIFIA) Program, which provides Federal credit assistance to eligible surface transportation projects, including highway, transit, intercity passenger rail, some types of freight rail, intermodal freight transfer facilities, and some modifications inside a port terminal.

The IIJA/BIL continues the authority of the TIFIA program to provide to States, localities, or other public authorities, as well as private entities undertaking projects sponsored by public authorities, three distinct types of financial assistance:

- Secured loans are direct Federal loans to project sponsors offering flexible repayment terms and providing combined construction and permanent financing of capital costs.
- Loan guarantees provide full-faith-and-credit guarantees by the Federal Government to institutional investors, such as pension funds, that make loans for projects.
- Lines of credit are contingent sources of funding in the form of Federal loans that may be drawn upon to supplement project revenues, if needed, during the first 10 years of project operations. [23 US Code 603 and 604]

10.3 | State Funding Sources

With the passage of California SB 1, the Road Repair and Accountability Act of 2017, the State of California has additional transportation funding for local and regional projects. SB 1 augmented existing sources of funding, such as the ATP and State Highway Operation and Protection Program, and created entirely new funding programs, such as the SCCP and Trade Corridor Enhancement programs. **Table 25** highlights the state funding sources that are most relevant to the I-5 CMCP projects.

Table 36 | State Funding Sources

Name	Funding Type	Eligible Modes/Description
Local Streets and Roads	Formula	Cities and counties receive funds for road maintenance, safety projects, railroad grade separations, complete streets, and traffic control devices.
SCCP	Discretionary	Regional transportation authorities and Caltrans may nominate projects for funding to achieve a balanced set of transportation, environmental, and community access improvements to reduce congestion.
TCEP	Discretionary	Caltrans and regional entities can be project sponsors. Funding is available for infrastructure improvements in the Central Coast, Bay Area, Central Valley, LA/Inland Empire, and San Diego/Border.
Local Partnership Program (LPP)	60% Discretionary 40% Formula	Eligible funding for “self-help” counties. *Most transportation improvements are eligible.
State Highway Operation and	Formula	Projects are selected by Caltrans and adopted by the CTC. Projects included in the program are limited to capital improvements

Protection Program (SHOPP)		relative to the maintenance, safety, operation, and rehabilitation of the SHS that do not add new capacity to the system. SB 1 has provided additional funding capacity to this program.
STIP	Formula	Projects are proposed by regional transportation agencies and approved by the CTC on a bi-annual basis. The majority of the STIP funding comes from Federal sources. SB 1 has provided additional funding capacity to this program.
TIRCP	Discretionary	Discretionary program administered by Caltrans and controlled by CalSTA. Funds transformative capital improvements that will modernize California's intercity, commuter, and urban rail systems, and bus and ferry transit systems, to significantly reduce emissions of greenhouse gases, VMT, and congestion.
Grade Separation (Section 190) Program	Discretionary	This competitive grant program provides \$15 million each year to local agencies for the construction grade separation projects.

Appendix I

I-5 CMCP Census Tracts Table

Appendix I | I-5 CMCP Census Tracts Table

Census Tract	ZIP	Population (2019)	CES 4.0 Score	CES 4.0 Percentile	County	Approximate Location
6113010204	95691	5189	45.33	82.31	Yolo	West Sacramento
6113010101	95605	6796	49.37	87.27	Yolo	West Sacramento
6113010203	95691	5355	59.83	95.60	Yolo	West Sacramento
6113010102	95837	7729	56.34	93.44	Yolo	Unincorporated Yolo County area
6067007007	95833	5756	43.17	79.74	Sacramento	Sacramento
6067006900	95815	4858	56.37	93.51	Sacramento	Sacramento
6067004300	95823	9867	39.23	73.80	Sacramento	Sacramento
6067001101	95814	2583	42.20	78.30	Sacramento	Sacramento
6067007001	95833	4205	45.71	82.88	Sacramento	Sacramento
6067002200	95818	5103	42.65	78.90	Sacramento	Sacramento
6067002000	95818	2617	50.79	88.63	Sacramento	Sacramento
6067000700	95814	2567	59.74	95.55	Sacramento	Sacramento
6067000600	95814	1123	45.68	82.83	Sacramento	Sacramento
6067000500	95814	3461	43.69	80.36	Sacramento	Sacramento
6067005301	95811	1598	68.71	98.80	Sacramento	Sacramento

Appendix II

I-5 CMCP Healthy Places Index Census Tracts Table

Appendix II | I-5 CMCP Healthy Places Index Census Tracts Table

HPI Score	HPI Percentile	City	County	Census Tract
-0.07	45.43	Sacramento	Sacramento	6067000500
N/A	N/A	Sacramento	Sacramento	6067000600
N/A	N/A	Sacramento	Sacramento	6067000700
-0.31	30.80	Sacramento	Sacramento	6067001101
-0.33	29.31	Sacramento	Sacramento	6067002000
-0.57	16.93	Sacramento	Sacramento	6067002200
N/A	N/A	Sacramento	Sacramento	6067005301
-0.52	20.00	Sacramento	Sacramento	6067004300
-0.65	14.10	Sacramento	Sacramento	6067006900
-0.70	11.06	Sacramento	Sacramento	6067007001
-0.25	34.43	Sacramento	Sacramento	6067007007
-0.49	20.47	West Sacramento	Yolo	6113010101
-0.53	18.77	Unincorporated Solano County	Yolo	6113010102
-0.97	3.41	West Sacramento	Yolo	6113010203
-0.28	32.50	West Sacramento	Yolo	6113010204

Appendix III

I-5 Corridor Modeling and Analysis Summary Report

I-5 Corridor Modeling and Analysis Summary Report

Alternative Analysis Modeling Methodology and Results

prepared for

Caltrans Districts 3

prepared by

Caltrans District 3

I-5 Corridor Modeling and Analysis Project

Alternative Analysis Modeling Methodology and Results

prepared for

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March 15, 2022

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1.0 Introduction

The I-5 corridor between San Joaquin/Sacramento County line and the I-5/ County Rd. 18 Interchange in Yolo County currently experiences high travel demand, especially during the AM and PM peak commute periods. Caltrans developed the I-5 Comprehensive Multimodal Corridor Plan (CMCP) to reduce Vehicle Miles Travelled (VMT), traffic congestion, greenhouse gas emissions and improve mobility along the I-5 corridor. The SACSIM 19 model was applied to assess the performance of the transportation systems for existing and future conditions. The results contained in this report will be used as part of the CMCP that Caltrans is developing.

This document summarizes the results of traffic analysis for the existing and future alternatives using SACSIM 19 models. The study area for the travel demand modeling analysis includes the I-5 freeway between San Joaquin/Sacramento County line and the Yolo and I-5/County Road 18 Interchange. The freeway ramps and ramp terminal intersections are also included in the analysis and modeling effort.

1.1 Alternative Scenario Description

The analysis scenarios were developed in consultation with the project team from Caltrans, stakeholders, and TAC members. The best tools to assess growth in overall travel in the corridor, transit usage, and mode shift are travel demand models. For this CMCP project, the SACSIM 19 model from SACOG was used to assess specific scenarios and transportation improvement strategies. All of the future analysis uses the 2040 horizon year, which matches the SACSIM 19 Travel Model years of analysis.

The purpose of the scenarios is to test improvement strategies and projects to assess how effective they would be at alleviating future transportation congestion problems. The results of the analysis will be used to help develop the CMCP project list and understand the benefits of projects and packages of projects, as measured against key transportation performance metrics. The future alternative scenarios are defined as follows:

- **Future No-Build (Baseline):** The purpose of this scenario is to establish the future conditions as of 2040 along the corridor, given implementation of all known funded projects through 2040 with growth in traffic to 2040. This scenario is assessed using the SACSIM 19 Travel Demand model for the I-5 focused corridor. In addition, the 2019 existing year I-5 focused corridor model was developed, calibrated to existing conditions and a 2040 Baseline Scenario was created within the Cube Voyage modeling platform.
- **Future Build Scenario 1 (HOV 2+):** This scenario assesses the changes resulting from completing a High Occupancy Vehicle (HOV) 2+ lane along I-5 Corridor. In this scenario, in the study corridor, the HOV 2+ lanes exist from I-5/Elk Grove Boulevard interchange to I-5/Airport Boulevard interchange. It also includes fully funded RTP projects, financially constrained RTP projects that are not fully funded, and select unconstrained projects and SHOPP projects. This scenario is assessed using the travel demand model for the corridor.

- **Future Build Scenario 2 (HOT 2+):** This scenario assesses the changes resulting from the addition of High Occupancy Toll (HOT) 2+ express lanes from I-5/Elk Grove Boulevard interchange to I-5/Airport Boulevard interchange. It also includes fully funded RTP projects, financially constrained RTP projects that are not fully funded, and selected unconstrained projects and SHOPP projects. This scenario is assessed using the travel demand model for the corridor.
- **Future Build Scenario 3 (HOT 3+):** This scenario assesses the changes resulting from HOT 3+ express lane from I-5/Elk Grove Boulevard interchange to I-5/Airport Boulevard interchange. It also includes fully funded RTP projects, financially constrained RTP projects that are not fully funded, and selected unconstrained projects and SHOPP projects. This scenario is assessed using the travel demand model for the corridor.

The portion of the corridor south of Elk Grove Boulevard to the San Joaquin County Line and north of Airport Boulevard up to County Road 18 will not have any managed lanes for any of the build scenarios.

Appendix A includes the list of projects included in the future scenarios.

2.0 Model Development

This section presents a summary of the model development for the I-5 corridor analysis, which was conducted in support of the I-5 corridor CMCP. The analysis was conducted using the SACSIM 19 travel demand model. This SACSIM 19 travel demand model is an Activity-Based Model and it is developed in the Cube Voyage platform.

2.1 Study Area and Segments

The I-5 focused travel demand model study corridor extends from San Joaquin/Sacramento County line and I-5/County Road 18 Interchange in Yolo County. The segments were broken down based on current lane configurations and daily traffic volumes, which were collected from PeMS along the I-5 entire corridor. Table 1 shows the description and AADT for the ten segments along the I-5 study corridor. The segments were determined by their traffic characteristics. Figure 1 shows the ten segments that have been defined for the corridor in the map.

Table 1: I-5 corridor segments and AADT

Segment	Description	Begin PM	End PM	Existing Lane Configuration	2018 AADT Range
Segment 1	San Joaquin/Sacramento County line to Elk Grove Blvd.	SAC_0.018	SAC_10.826	4F	57,400 77,000
Segment 2	Elk Grove Blvd. to Just south of Florin Rd.	SAC_10.826	SAC_17.165	~6F	91,000 114,800
Segment 3	Just North of Florin Rd. to US Highway 50 (US 50) ramps south of I-5/US 50 IC	SAC_17.165	SAC_22.000	6F	141,300 161,500
Segment 4	US 50 ramps south of I-5/ US 50 IC to Richards Blvd.	SAC_22.000	SAC_24.645	6F/7F/8F +Aux Lanes	192,700 193,600
Segment 5	Richards Blvd. to I-5/80 IC	SAC_24.645	SAC_26.693	8F +Aux Lanes	202,000 169,900
Segment 6	I-5/80 IC to I-5/SR 99 IC	SAC_26.693	SAC_29.907	4,5,6,7,8F +Aux Lanes	160,700 127,200
Segment 7	I-5/SR 99 IC to Sacramento/Yolo County Line	SAC_29.907	SAC_34.652	4F	85,900 59,900
Segment 8	Yolo/Sacramento County Line to County Rd. 102	YOL_0.00	YOL_5.530	4F	59,900 61,000
Segment 9	County Rd. 102 to I-5/SR 113 Junction (Jct.)	YOL_5.530	YOL_R8.262	4F	50,000 39,400
Segment 10	I-5/SR 113 Jct. to I-5/Rt 16, County Rd. 18	YOL_R8.262	YOL_R10.807	4F	39,400 30,400

2.2 Travel Demand Model Calibration

All freeway mainline and ramp segments, managed lanes (HOV), interchange ramps, and ramp intersections are included and developed in the study corridor.

The detailed Base Year Travel Demand Model calibration results in Table 2 and Table 3 show that traffic count and volume in model comparison for the existing conditions. The detailed Base Year Travel Demand Model calibration and validation memorandum is included in Appendix B.

Table 2: Calibration and Validation Results along the I-5 Northbound Corridor

Validation Criterion	Threshold for Acceptance	Model Output
Percent Within Caltrans Maximum Deviation	At Least 75%	84% ✓
Correlation Coefficient	At Least 88%	96% ✓
Percent Root Mean Square Error	Less than 40%	11% ✓

Table 3: Calibration and Validation Results along the I-5 Southbound Corridor

Validation Criterion	Threshold for Acceptance	Model Output
Percent Within Caltrans Maximum Deviation	At Least 75%	81% ✓
Correlation Coefficient	At Least 88%	97% ✓
Percent Root Mean Square Error	Less than 40%	9% ✓

3.0 I-5 Corridor Analysis Results

This section focuses on the travel demand modeling results for all ten analysis segments shown in previously referenced Figure 1.

To analyze the entire corridor, the results presented in this report are based on the application work that was conducted for the I-5 Managed Lanes Study using the SACSIM 19 model.

This section of the report is separated into three sub-sections:

1. Existing Year Traffic Flow (sub-section 3.1)
2. 2040 No-Build Growth (sub-section 3.2)
3. 2040 Alternatives Analysis (sub-section 3.3)

Daily volumes are compared directionally between the multiple scenarios. AM and PM peak period volumes are compared directionally since the peak periods have directional imbalance. Please note that in the SACSIM 19 model, AM (6:00-9:00 AM) and PM Peak period (3:00 PM-6:00 PM) are three-hour time periods. In the CMCP analysis, three-hour time periods are expanded into four-hour peak periods, AM (6:00 AM-10:00 AM) and PM (3:00 PM to 7:00 PM) peak periods.

3.1 Existing Year Traffic Flow

The I-5 corridor within the study area carries from 25,000 to nearly 240,000 vehicles on a daily basis in both directions, depending on the location. The peak flow occurs between Richards Blvd. and Garden Hwy. in the middle of the corridor, located just north of downtown Sacramento. Truck traffic makes up more than 25% of all traffic along the corridor. 22% of daily trips are shared ride trips (more than one occupant per vehicle).

Figure 2 shows the daily traffic volume along the I-5 corridor in the northbound direction, and Figure 3 shows the daily traffic volume in the southbound direction. Figure 4, Figure 5, Figure 6, and Figure 7 provide the daily traffic volumes by vehicle class.

Figure 2: I-5 Corridor Average Daily Traffic Volume (Northbound)

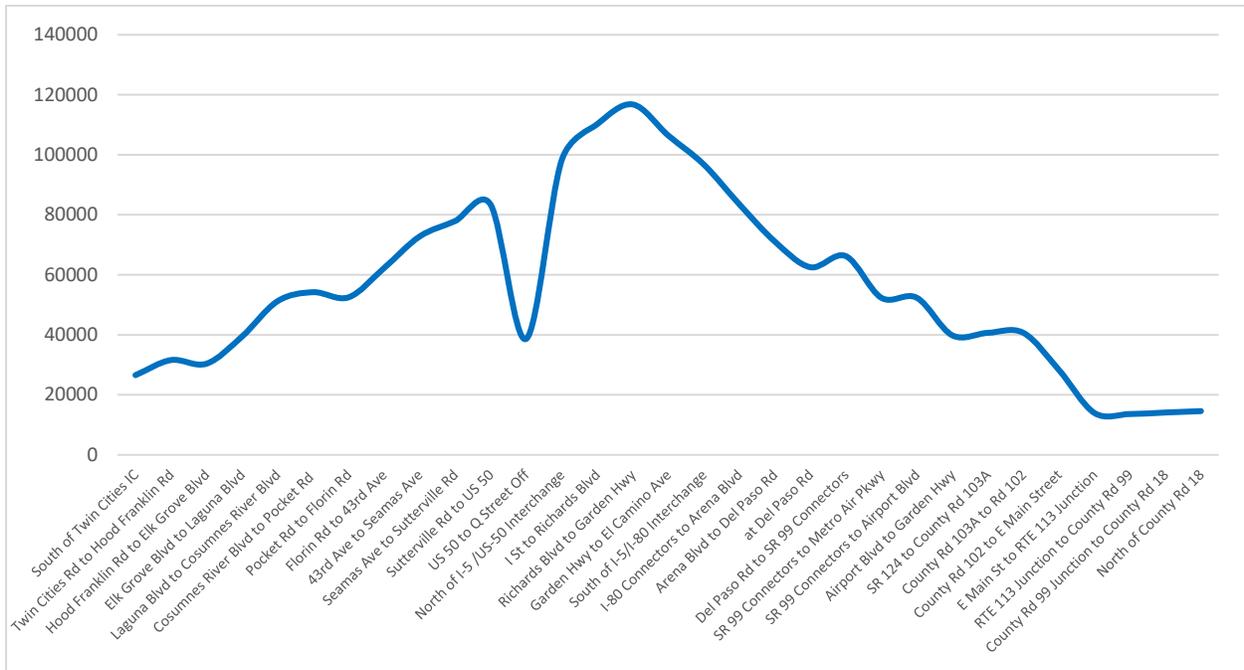


Figure 3: I-5 Corridor Average Daily Traffic Volume (Southbound)

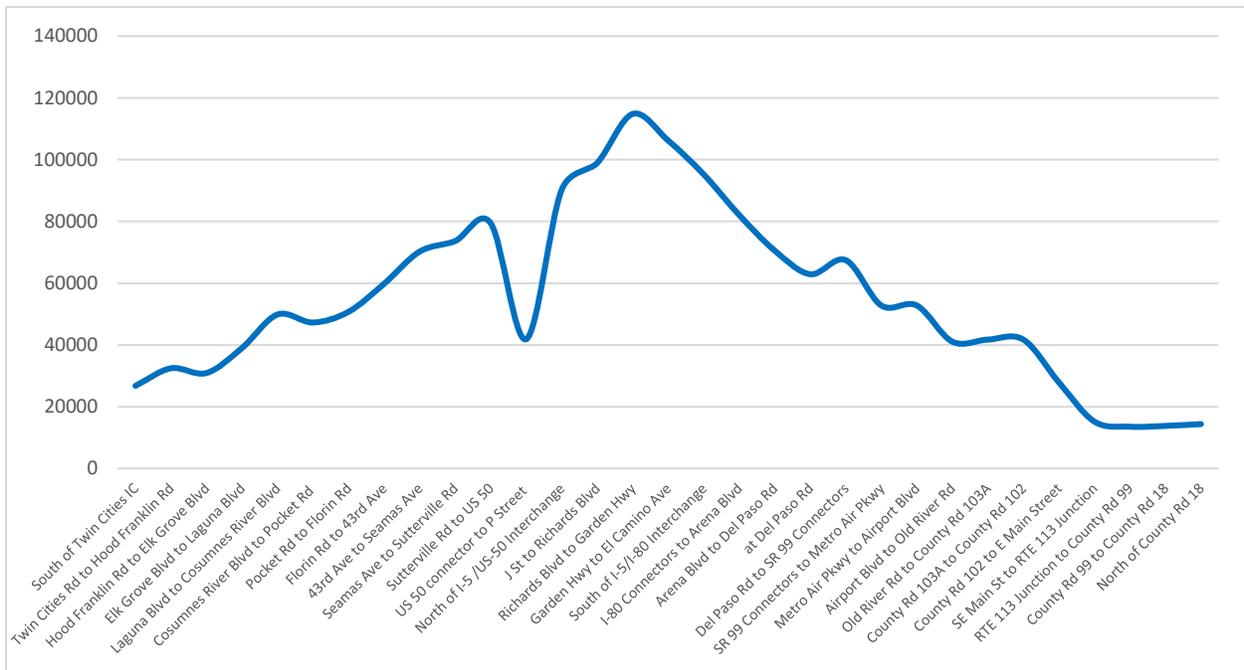


Figure 4: I-5 Corridor Daily Traffic Volumes by Vehicle Class (Northbound)

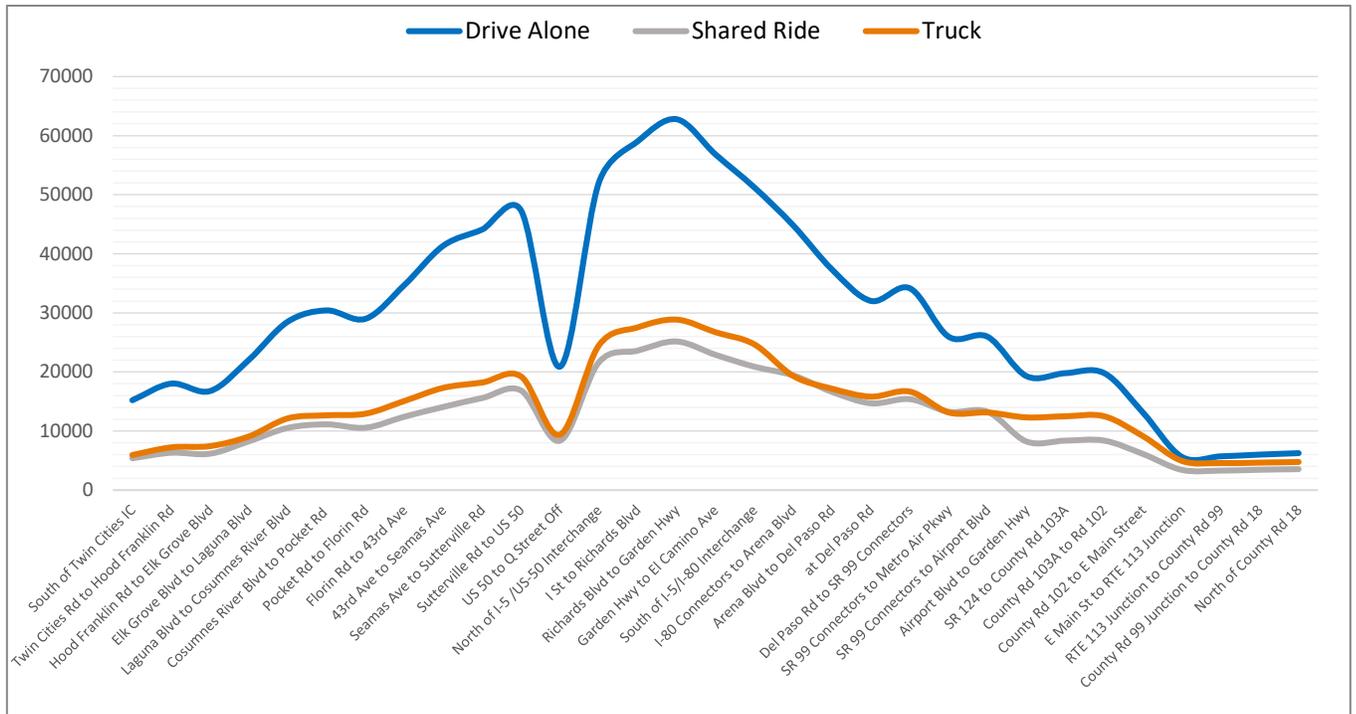


Figure 5: I-5 Corridor Daily Traffic Volumes by Vehicle Class (Southbound)

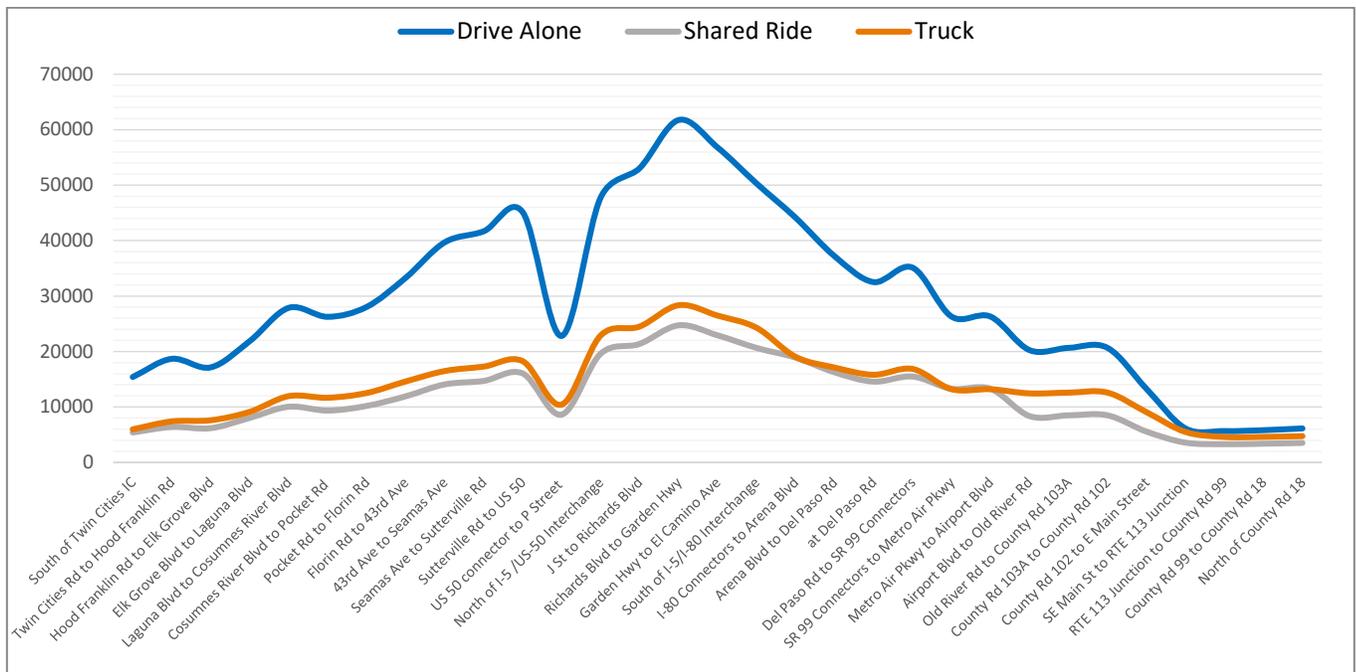


Figure 6: I-5 Corridor Daily Traffic Volumes by Vehicle Class (Northbound)

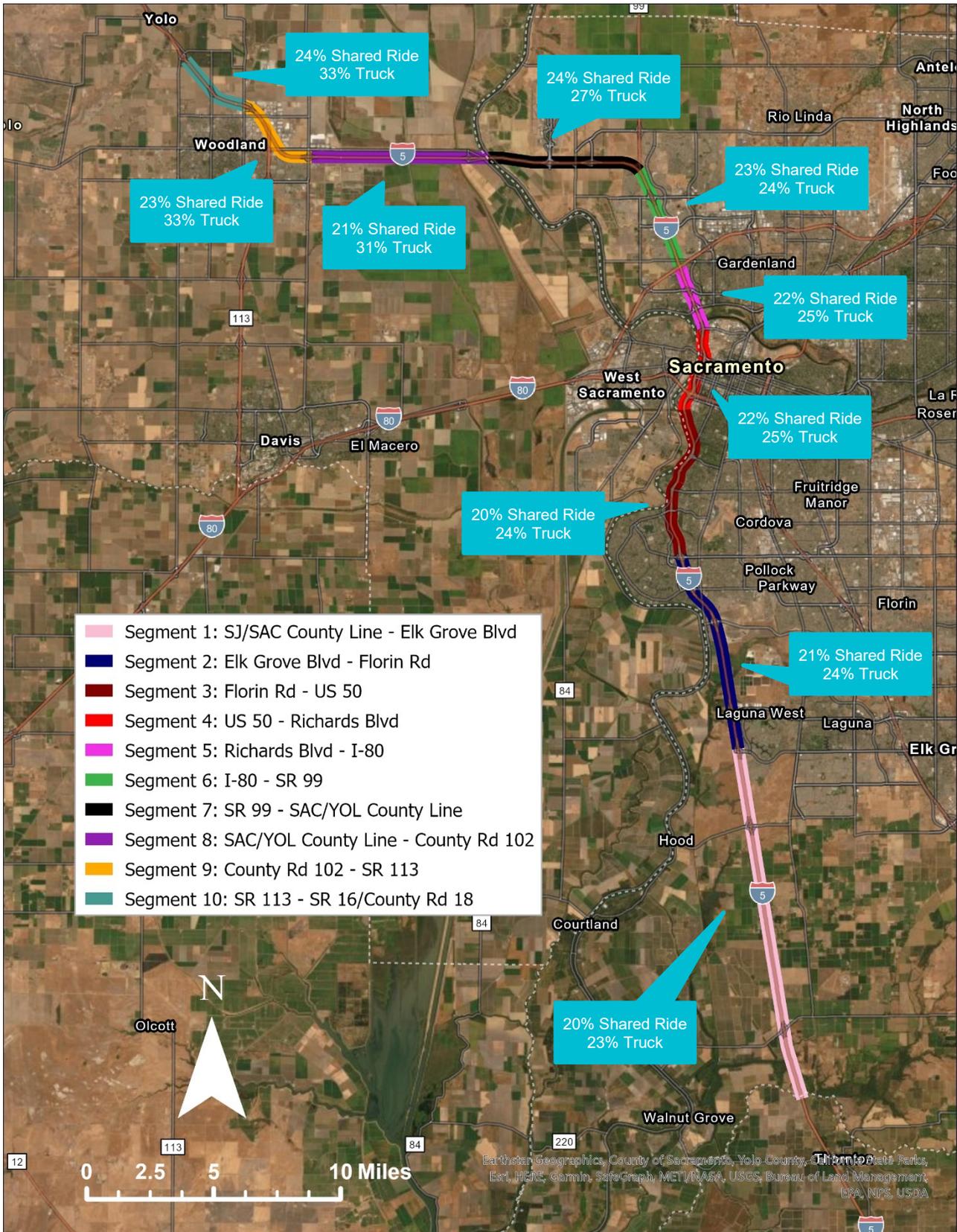
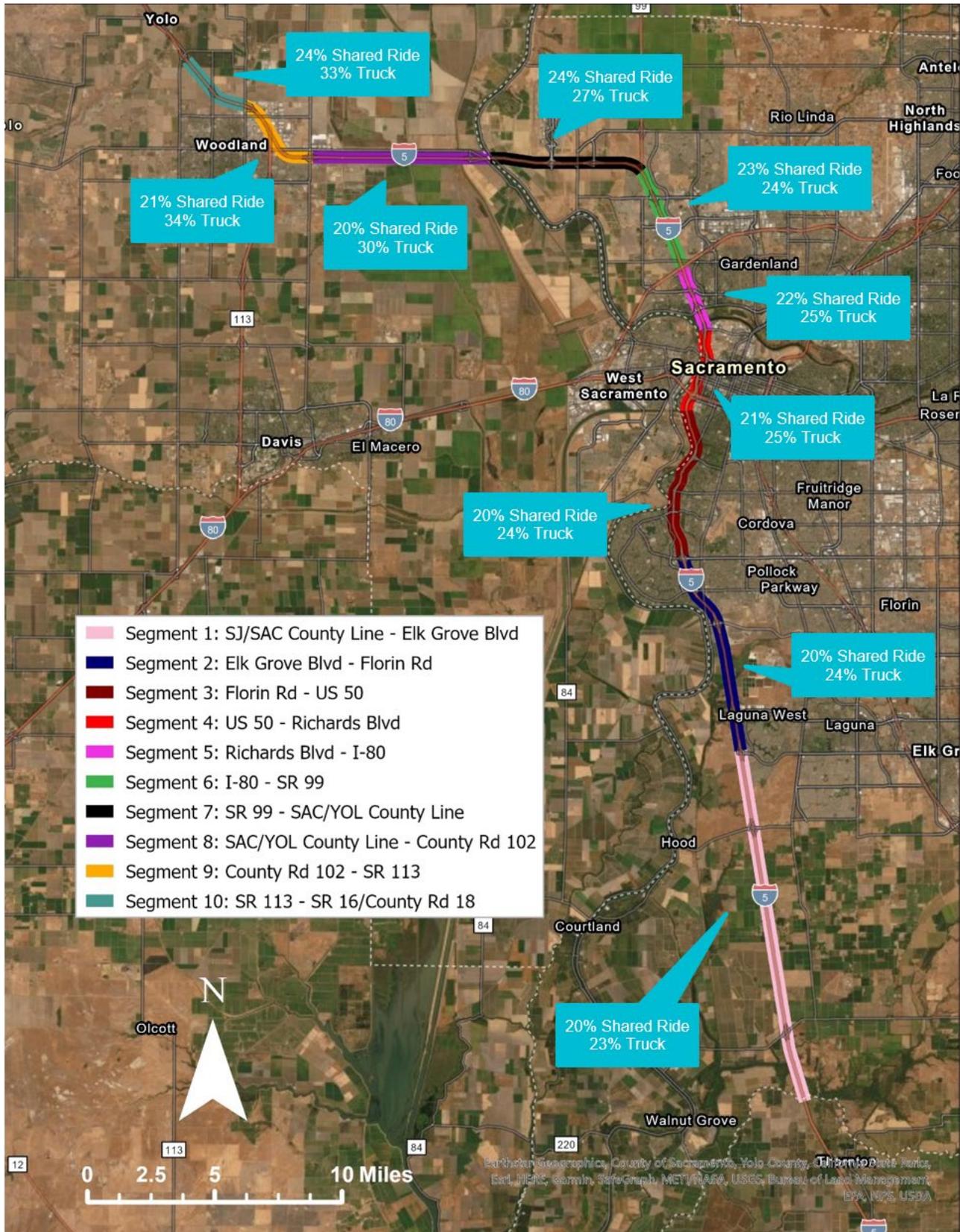


Figure 7: I-5 Corridor Daily Traffic Volumes by Vehicle Class (Southbound)



3.2 2040 No-Build Growth

This sub-section of the report compares the growth between the existing base year and the 2040 No-Build conditions. The existing travel demand model was validated and calibrated with the traffic count data collected from PeMS and other resources; then with the future year land use and socio-economic information to process and estimate the future traffic forecasts. The socio-economic data (SED) which are the basis of the activity of individual simulated households and persons, is the key input to the travel demand model. These include population, households, jobs, income, and other variables that affect trip making. Trips are estimated in the travel demand models using these SED inputs.

Also, this section covers freeway and arterial roadway networks input assumption. Model roadway networks are different for the base year model and 2040 No-Build model due to planned improvements. There will be some projects that are already committed or funded and will be constructed between now and the next 20 years, and these are documented.

After these two key model inputs (SED and network), the model results are compared, and the following performance measures are included for existing and future conditions :

- Corridor volumes
- Vehicle miles travelled (VMT)
- Vehicle hours travelled (VHT)
- Vehicle hours of delay (VHD)

3.2.1 2040 Planned Projects in 2040 No-Build Scenario

Before performing future analysis model runs, the 2040 highway model network was updated to include all under-construction and approved roadway projects that will be completed along the corridor by 2040. Below is a list of network updates:

- HOV lanes: Airport interchange to San Joaquin County line Project
- HOV connector ramps between I-5 and I-80 Project
- Auxiliary lane: US-50 to Sutterville Road Project
- HOV bypass lanes at various metered on-ramps Project
- Auxiliary lane: I-80 to West El Camino Corridor Volumes Comparison Project

The model estimated volumes indicate that notable growth is expected to occur in the study corridor in next 20 years on the I-5 freeway. The 2040 Future year model results show a growth range of 2% to 29% along the I-5 corridor travelling northbound with an average growth of 12%.

Travelling southbound, the 2040 No-Build traffic model shows a growth rate between 4% and 31% with an average growth of 12%. The growth varies along the corridor depending on location and reflecting the different SED growth projections in various parts of the corridor study area. There is higher estimated future growth in the northern sections of the corridor compared to the southern sections. Growth starts to grow significantly from Segment 5 to Segment 10. Please see Figure 8 and Figure 9 for the growth along the corridor in terms of projected volume growth between the existing base year and 2040. Figure 8 shows the growth in the northbound direction, while Figure 9 shows the growth in the southbound direction. The average growth within each segment is shown on the two figures.

Figure 8: Daily Traffic Growth on I-5 Corridor (Northbound)

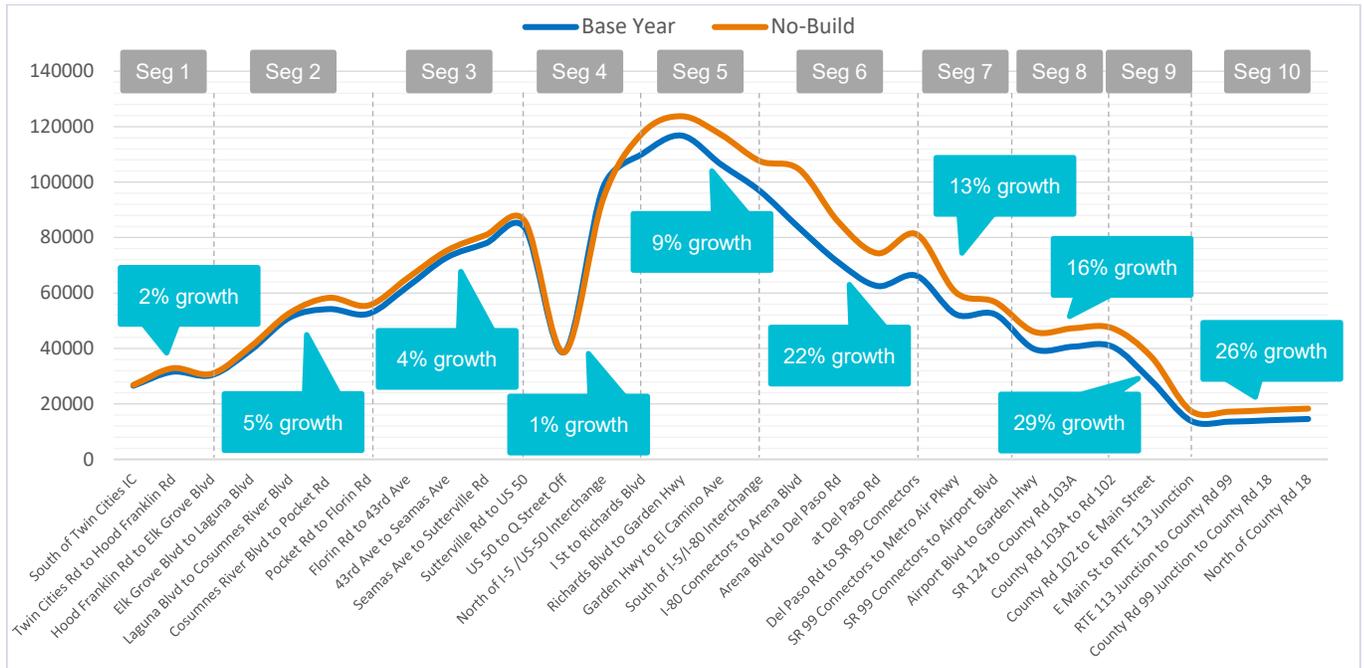
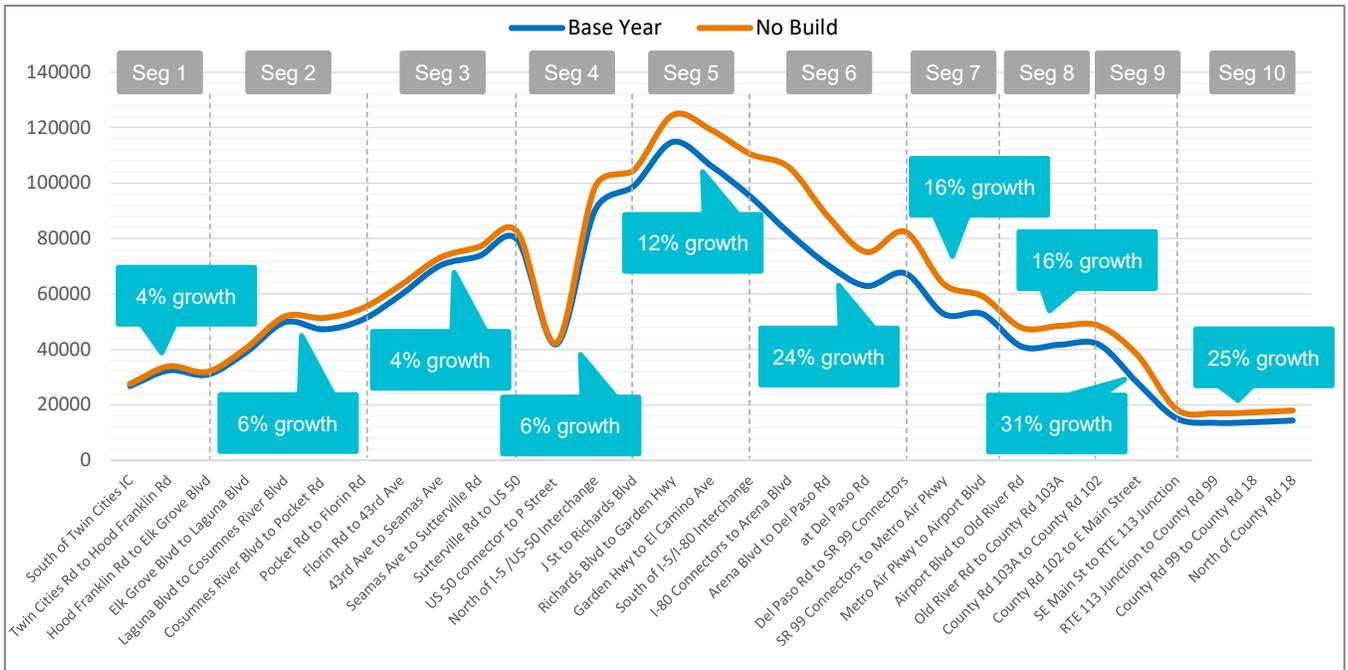


Figure 9: Daily Traffic Growth on I-5 Corridor (Southbound)



AM peak period traffic [6 AM to 10 AM] is projected to grow in the next 20 years in the northern parts of the I-5 study corridor from the I-5/US-50 interchange to the north end of the study corridor as shown in Figure 9 and Figure 10. This growth is greater in the northbound than the southbound direction, with growth ranging from 12% in Segment 5 to 39% in Segment 10 when travelling northbound. In the southbound direction, growth ranges from 2% in Segment 5 to a maximum of 14% in Segment 9 of the segments north of the I-5/US-50 interchange. For the southern segments in the corridor (Segments 1-4), traffic is projected to decrease in the northbound direction, ranging from a -1% decrease in Segment 3 to a -9% decrease in Segment 1. In the southbound direction, Segment 1 shows a projected -8% drop in traffic, while Segments 2 and 3 show a 5% increase in traffic. Segment 4 in the southbound direction shows no change in traffic over the segment.

Figure 10: AM Period Traffic Growth on I-5 Corridor (Northbound)

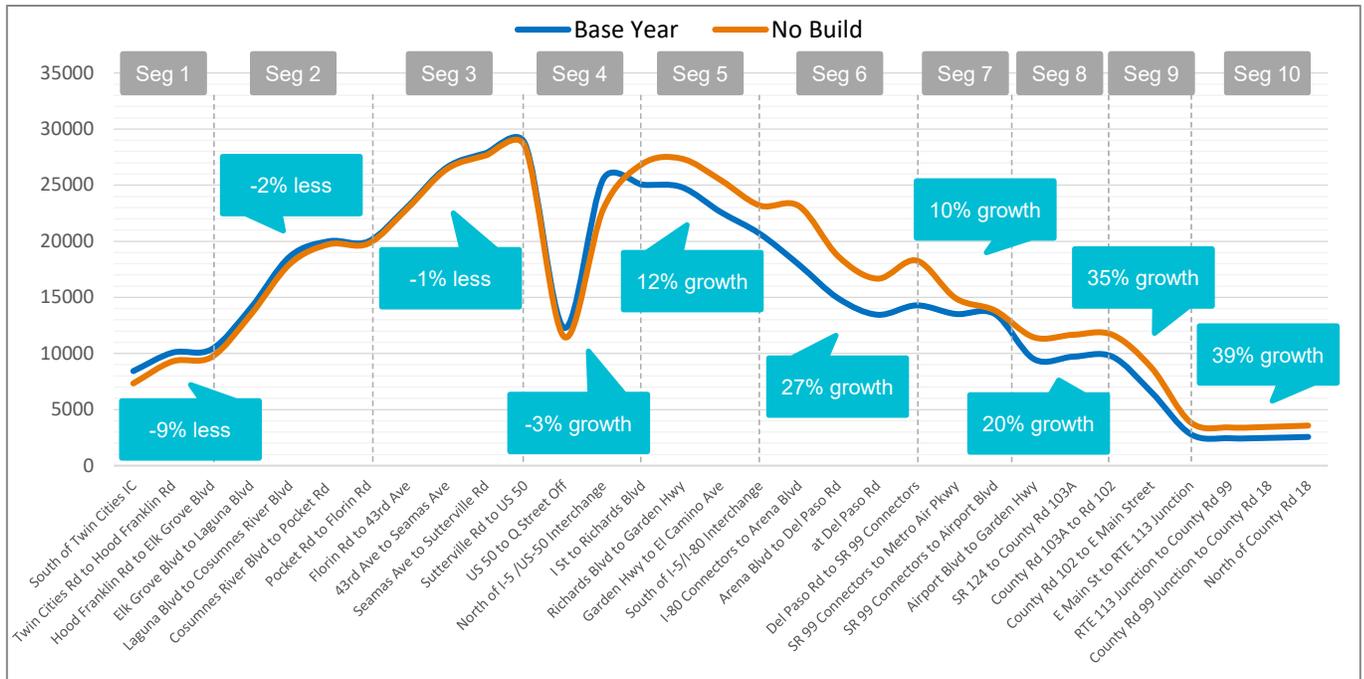
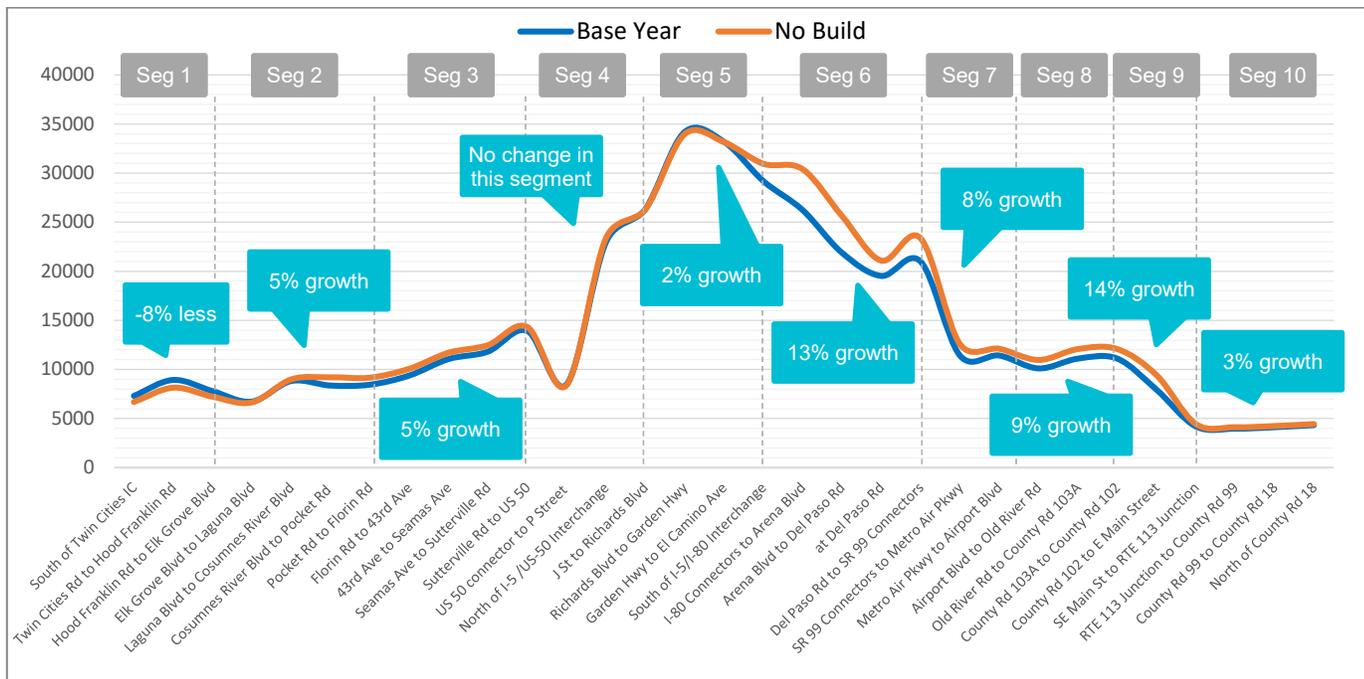


Figure 11: AM Period Traffic Growth on I-5 Corridor (Southbound)



The PM peak period traffic [3 PM to 7 PM] also shows overall traffic growth in the northbound and southbound directions in the corridor. As compared to the AM Period, the PM period projects traffic growth to be more dispersed throughout the corridor. Figure 12, which charts projected changes in traffic for the PM period in the northbound direction, shows 8-12% growth in Segments 1-3 and 0-

18% growth in Segments 6-10, while Segments 4 and 5 shows decreases in projected traffic at -7% and -2%, respectively. Figure 13, which charts the PM period southbound projected traffic, shows a 31% increase in Segment 1 and 5% to 52% growth in Segments 4-10, while Segment 2 sees a slight -1% decrease in traffic and Segment 3 sees no change in traffic.

Figure 12: PM Period Traffic Growth on I-5 Corridor (Northbound)

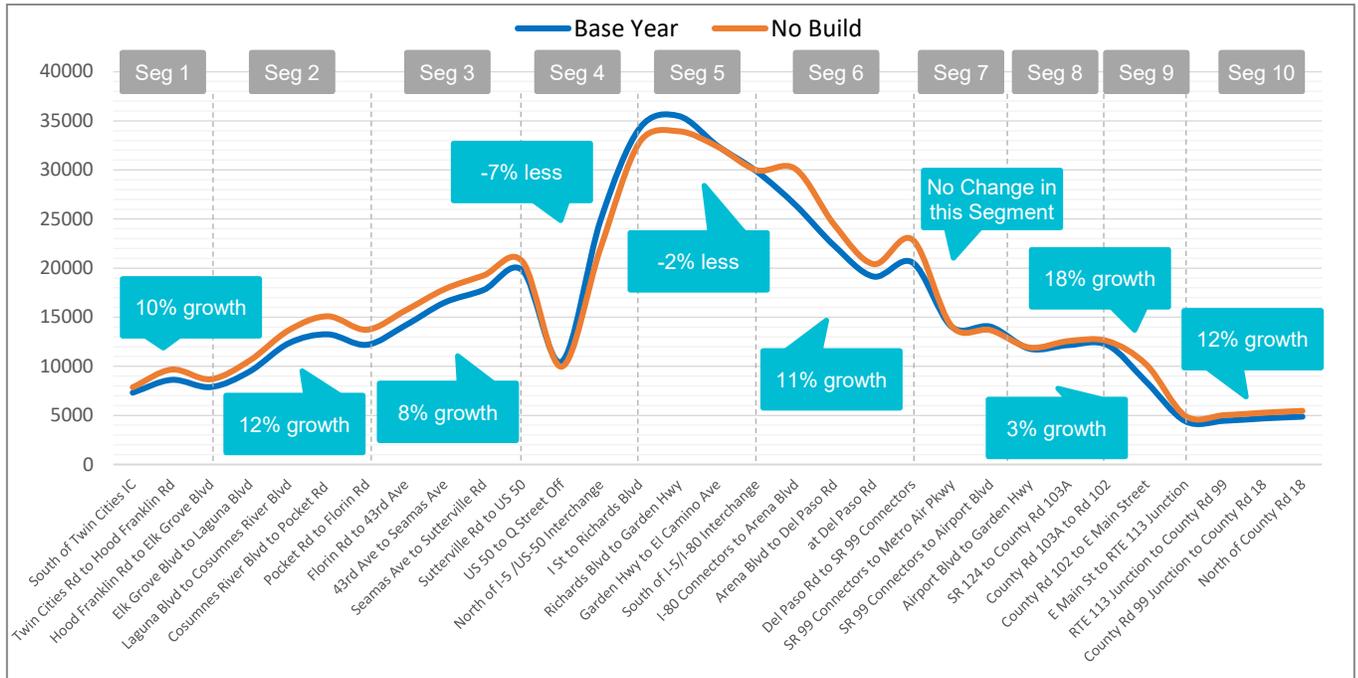
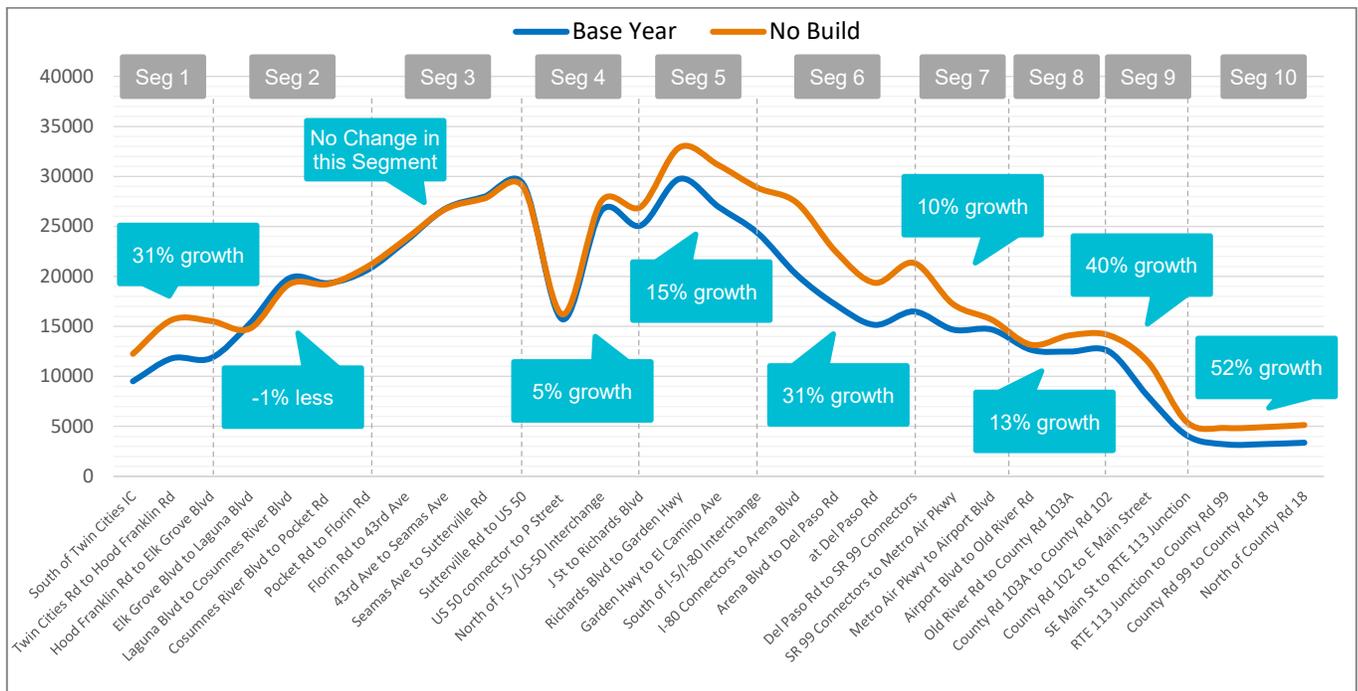


Figure 13: PM Period Traffic Growth on I-5 Corridor (Southbound)



3.2.1 VMT / VHT / VHD Comparison

Under the future No-Build condition, the models project that Vehicle Miles Travelled will increase along the I-5 corridor by 10.1%. The model predicts that the VMT will go up from nearly 4.5 million miles travelled per day to over 4.9 million miles travelled per day along I-5 corridor study area. The added population and jobs will generate new trips in the area and the results are shown in the increase in VMT, VHT and VHD.

VHT and VHD also increase notably from the existing year to the 2040 No-Build based on the model results. Table 4 shows the details of the VMT, VHT and VHD changes to 2040. Delay and hours of travel increase more than VMT due to the increase in congestion which exponentially increases and impacts vehicles on the system. This is especially true where there is already congestion or conditions nearing the point of heavy congestion with resulting vehicle queues.

Table 4: Vehicle Miles Traveled, Hours Traveled and Delay Comparison

	VMT	VHT	VHD
Base year	4,456,700	81,100	13,210
2040 No-Build	4,906,800	94,620	19,680
Total. Difference	450,100	13,530	73,300
Percent Difference	10.1%	16.7%	41.4%

3.3 2040 Alternatives Analysis

This sub-section of the report compares the 2040 Build alternative scenarios against the 2040 No-Build alternative. The following performance measures are compared in this section to assess the effects of each alternative against the No-build alternative. The comparative performance measures are:

- Corridor volumes
- Person throughput (Vehicle Occupancy)
- Vehicle miles travelled (VMT)
- Vehicle hours travelled (VHT)
- Vehicle hours of delay (VHD)

There are three build alternative scenarios that are assessed using the travel demand models. They are:

- Future Build Scenario 1 (HOV 2+)
- Future Build Scenario 2 (HOT 2+)
- Future Build Scenario 3 (HOT 3+)

Please refer to Chapter 1 for the description of each alternative scenario for details.

3.3.1 *Projects in 2040 Build Alternatives*

In addition to the planned and programmed projects that were included in the 2040 No-Build network, there are additional projects that were assumed as part of the build alternative model networks. As noted, the project team held multiple coordination meetings to develop the alternative scenarios. The build alternative scenarios are consistent with the I-5 Managed Lanes Study. The alternative scenario projects list is presented in Appendix A.

3.3.2 Corridor Volumes Comparison

This section compares the traffic volumes of the managed lane 2040 Build scenarios to the 2040 No-Build scenario.

3.3.2.1. Managed Lanes Alternatives Traffic Volumes Comparison

All three managed lanes alternatives are projected to carry more traffic volume along the freeway corridor (General Purpose and Managed Lanes together) than the future No-Build scenario. The lowest growth sections are the areas where the managed lanes do not extend to. As mentioned before, the managed lane limits are from I-5/Elk Grove Boulevard interchange to I-5/Airport Boulevard interchange. Therefore, the portion of the corridor south of Elk Grove Boulevard up to the San Joaquin County Line and north of Airport Boulevard up to County Road 18 will not have any managed lanes for any of the build scenarios.

All of the build alternative scenarios assume added mainline capacity. Based on the model results, the highest growth is observed between US-50 interchange and Garden Highway (the end of Segment 4 and the beginning of Segment 5) near Downtown Sacramento for the northbound and southbound directions. This section has 10,000 to nearly 17,000 more vehicles under the Build scenarios along I-5 at the daily level, compared to 2040 No-Build scenario. This represents a 13% to 18% increase in traffic throughput.

Figure 14 and Figure 15 show the comparison of daily traffic along the I-5 corridor for all three managed lane alternatives as compared to the 2040 No-Build alternative. Figure 14 shows the projected northbound traffic volumes, and Figure 15 shows the projected southbound traffic volumes.

Figure 14: Daily Traffic on I-5 by Alternative (Northbound)

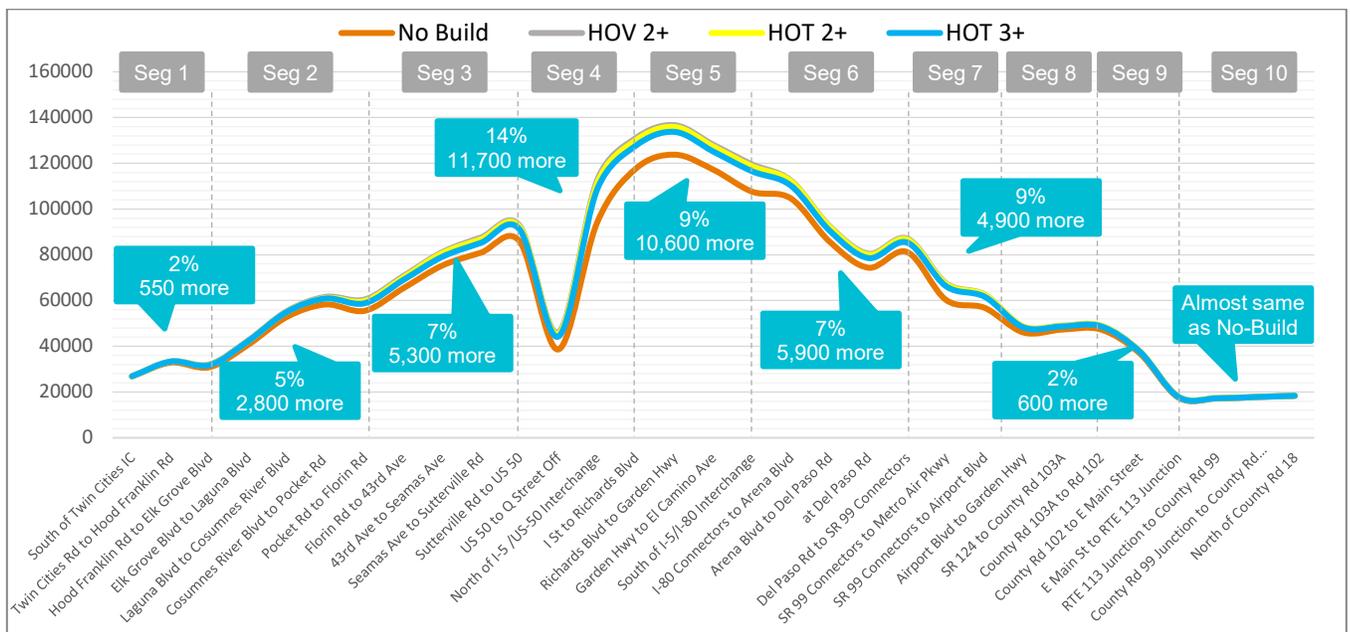
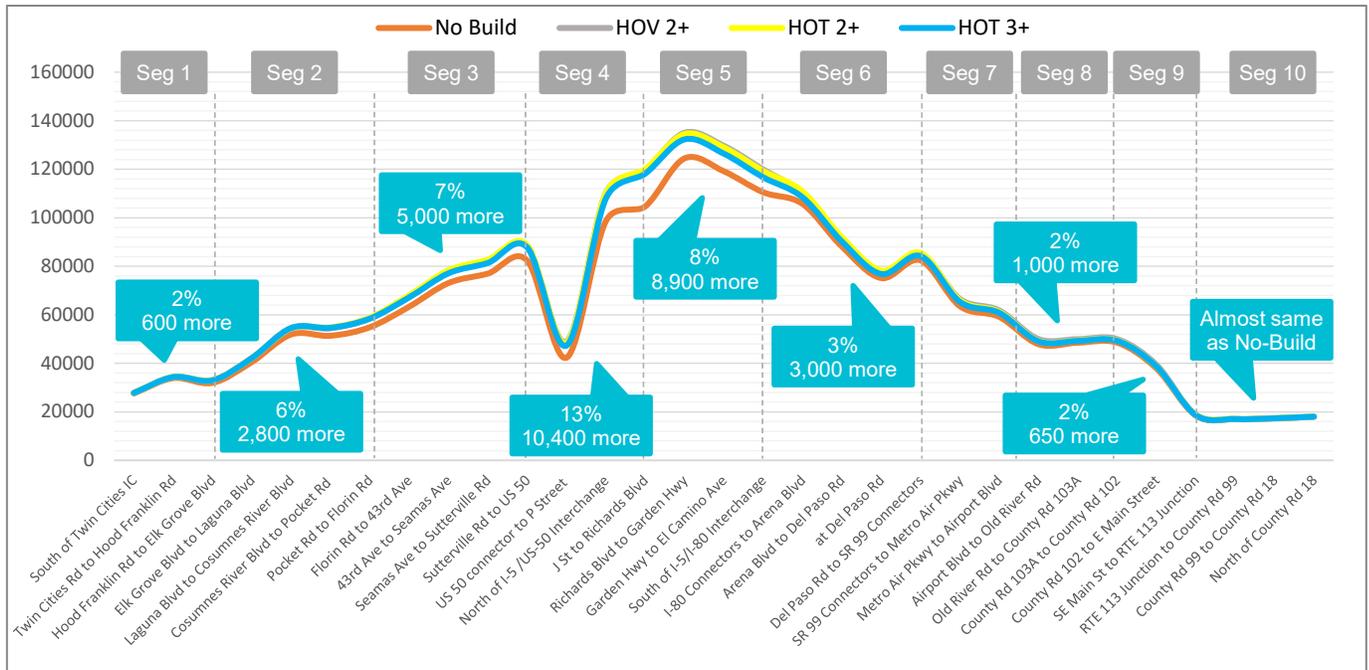


Figure 15: Daily Traffic on I-5 by Alternative (Southbound)



The following sections of the report show the peak period level observations from the model for the HOV and HOT alternatives. For this corridor, the AM peak flow is in the northbound direction and the PM peak flow is in the southbound direction. Figure 16 and Figure 17 show AM peak period traffic comparison for the northbound and southbound directions, respectively. Figure 18 and Figure 19 show PM peak period traffic comparison for the northbound and southbound directions, respectively.

Figure 16: AM Peak Period Traffic on I-5 by Alternative (Northbound)

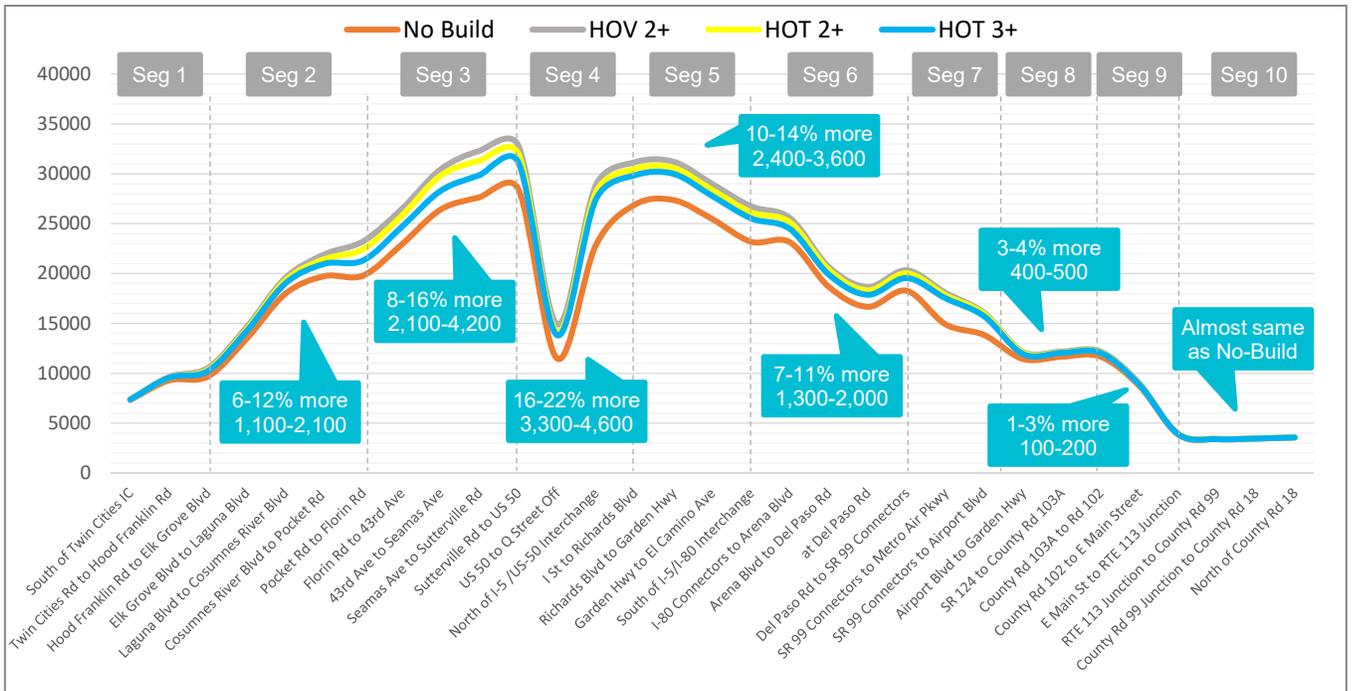


Figure 17: AM Peak Period Traffic on I-5 by Alternative (Southbound)

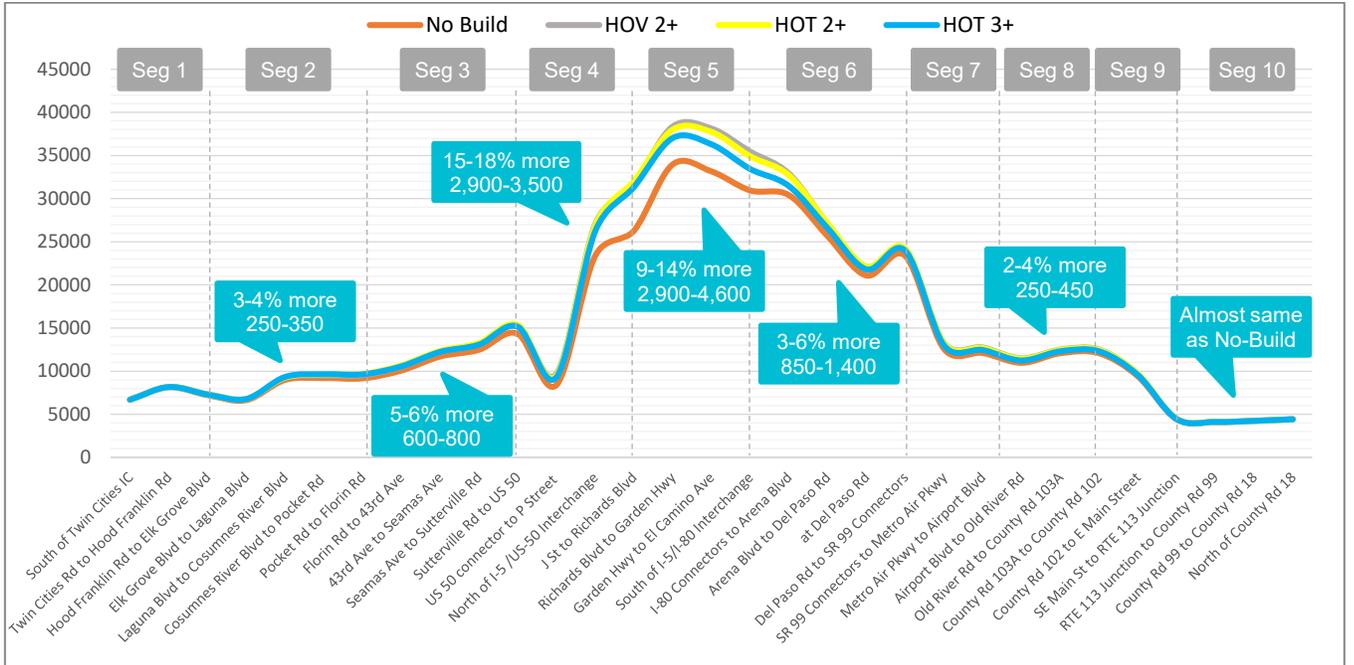


Figure 18: PM Peak Period Traffic on I-5 by Alternative (Northbound)

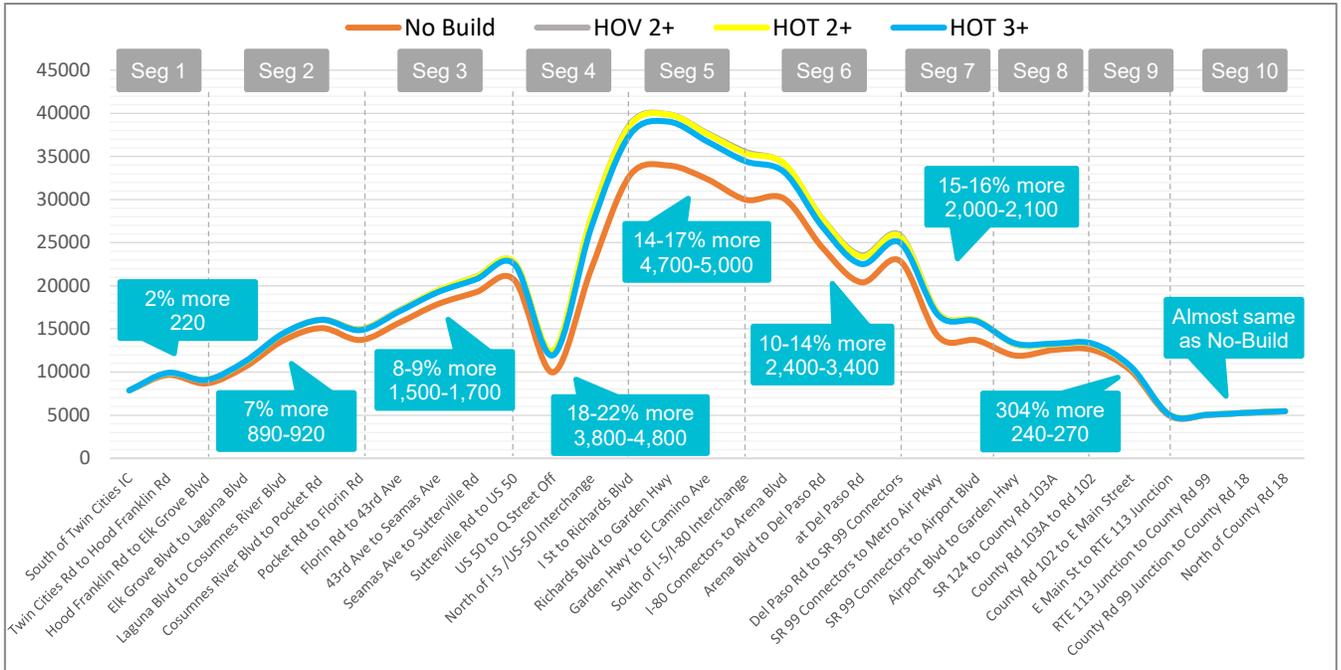
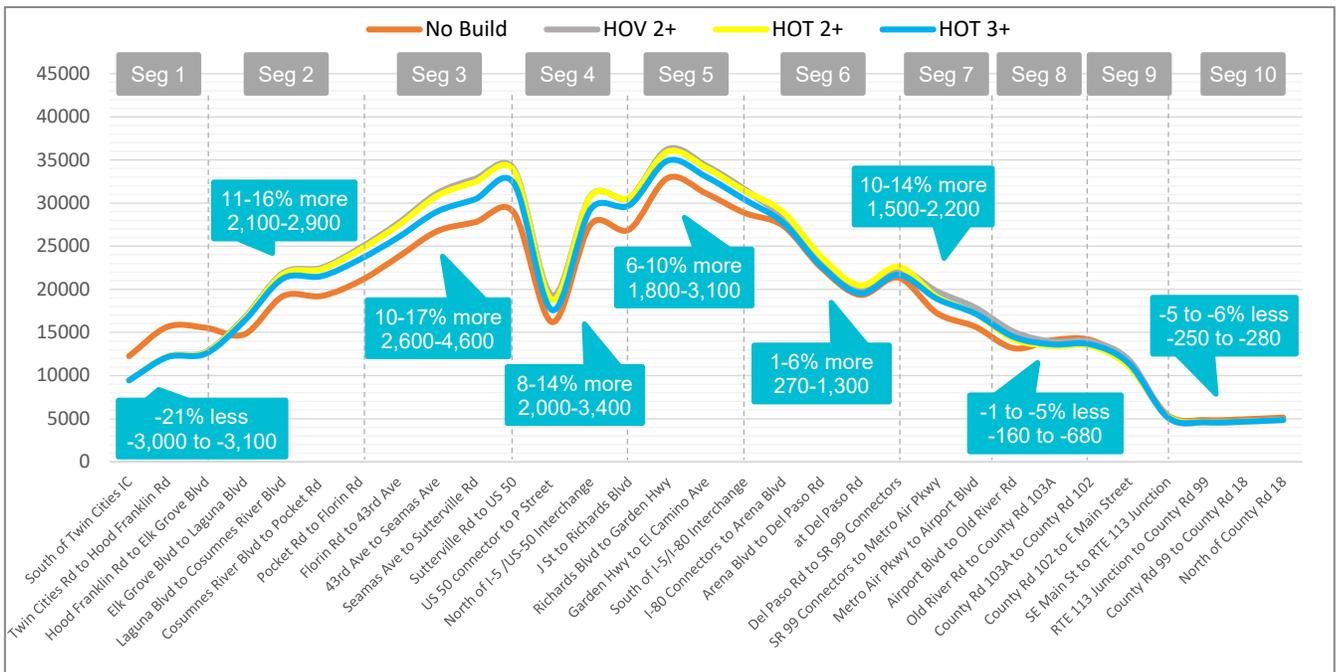


Figure 19: PM Peak Period Traffic on I-5 by Alternative (Southbound)



Traffic in assumed future managed lanes: The assumed future managed lanes are shown to carry from 10,000 to 55,000 vehicles daily within the study corridor. During peak periods, the assumed future managed lanes are shown to carry between 700 and 8,000 vehicles within the study corridor. The traffic in the managed lanes is shown to be zero at the beginning of Segment 1 and north of Segment 8 since the proposed managed lanes are only from Franklin Rd. to Garden Hwy. These represent the four-hour model time periods. Figure 20 and Figure 21 show AM peak northbound and southbound managed lane volumes, respectively. Figure 22 and Figure 23 show PM peak northbound and southbound managed lane volumes, respectively.

Figure 20: AM Peak Period Managed Lane Traffic on I-5 by Alternative (Northbound)

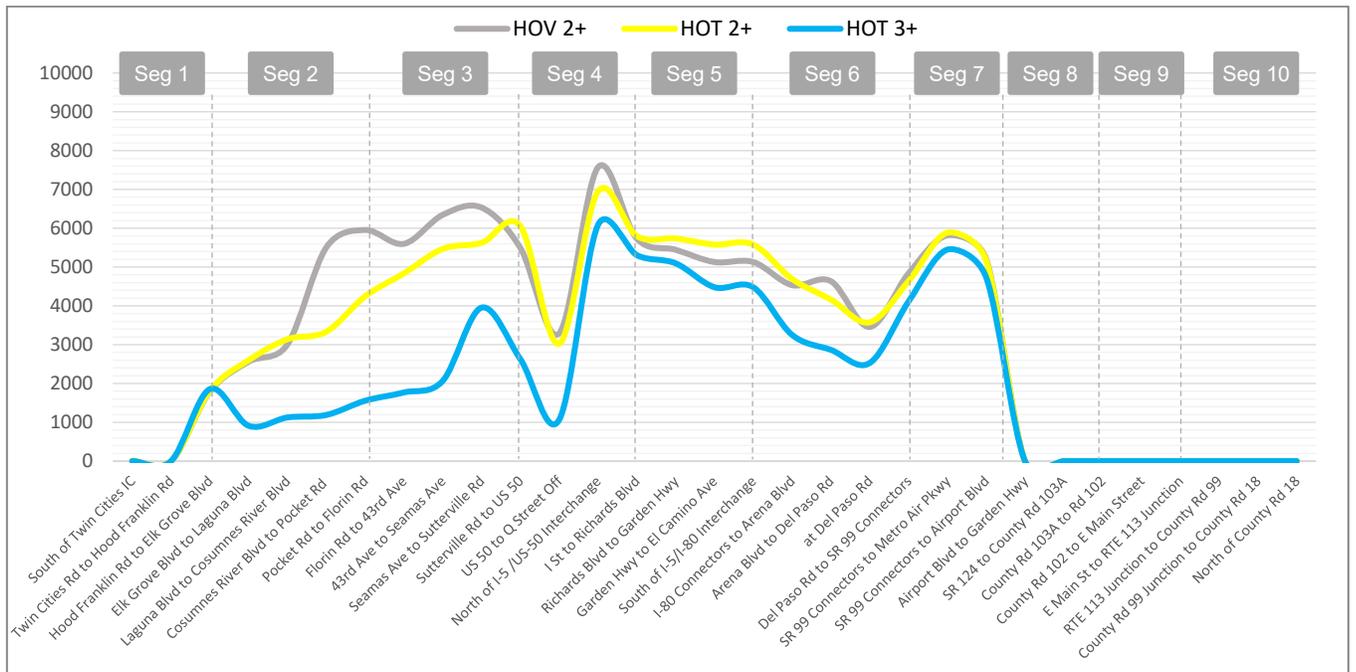


Figure 21: AM Peak Period Managed Lane Traffic on I-5 by Alternative (Southbound)

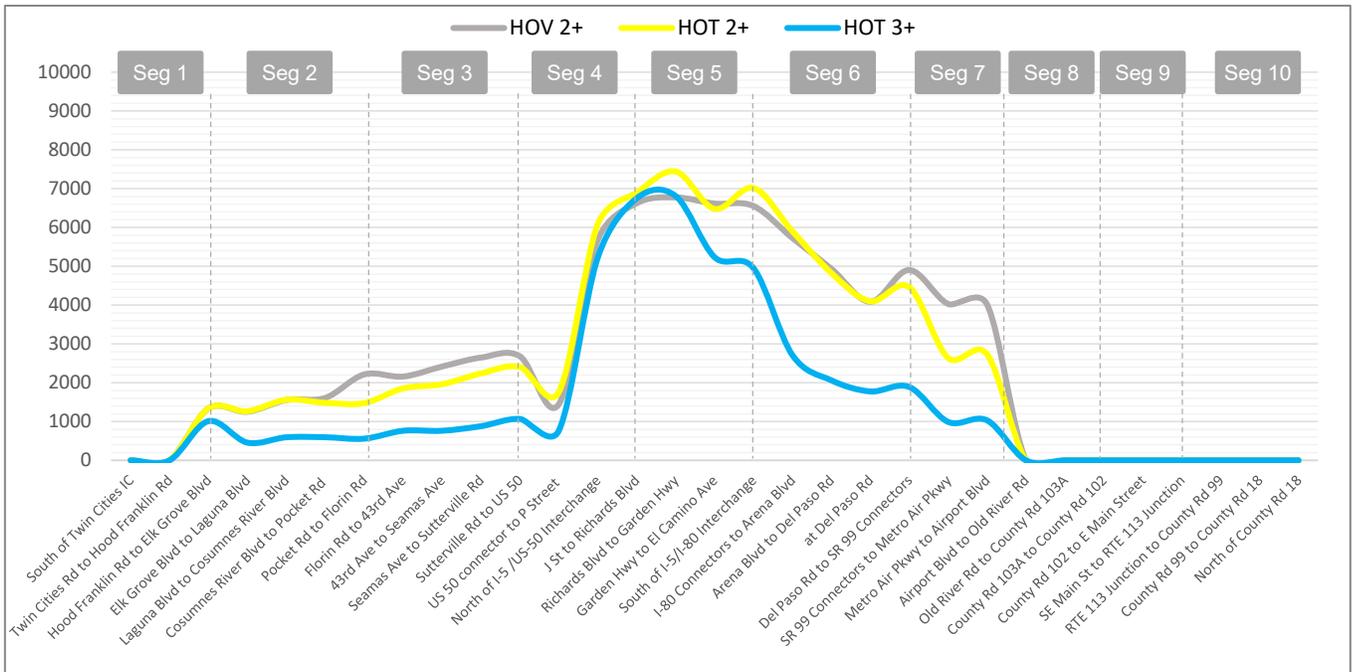


Figure 22: PM Peak Period Managed Lane Traffic on I-5 by Alternative (Northbound)

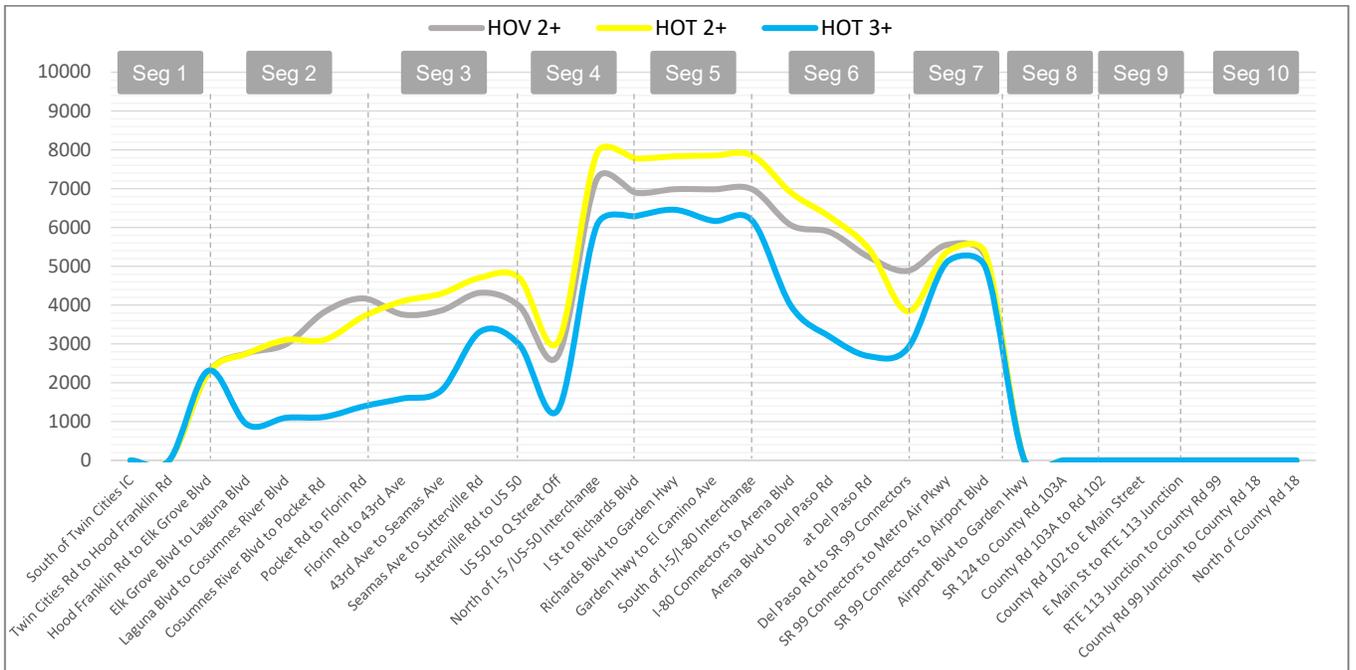
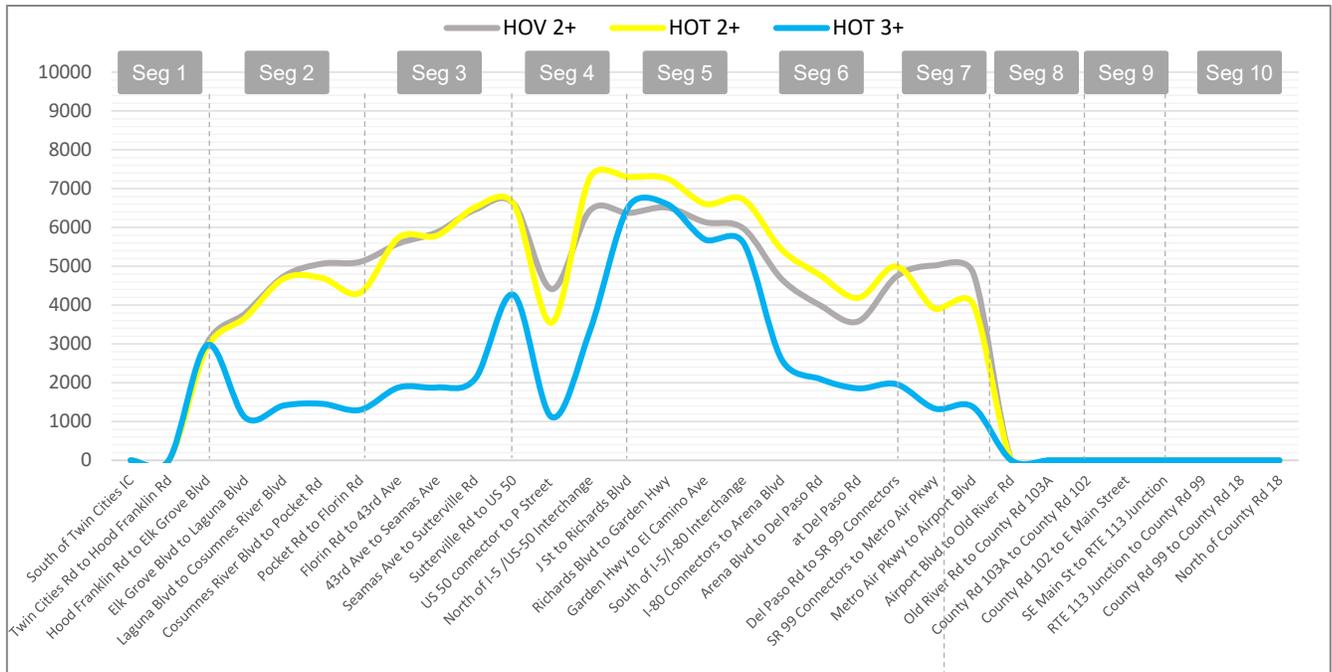


Figure 23: PM Peak Period Managed Lane Traffic on I-5 by Alternative (Southbound)



The section of I-5 between the US 50 Interchange and I-80 Interchange carries the most traffic in the assumed future managed lanes in the range of 6,000 to 8,000 vehicles during peak periods. The level of traffic in the managed lanes is similar for the HOV 2+ and HOT 2+ alternatives. The projected traffic in the managed lanes for the HOT 3+ alternative is significantly less than the other alternatives when traffic demand is lower, which is due to the requirement to pay to use the lanes under this scenario. Where traffic flow is not as heavy, riders would be deterred from paying to use this managed lane. However, where traffic is heavier, the HOT 3+ managed lane traffic is closer to the other two alternatives.

3.3.3 Vehicle Occupancy and Person Throughput

Table 5 shows vehicle occupancy by segment for each alternative. Vehicle occupancy data is for the entire freeway segment including the general purpose and managed lanes. Overall, vehicle occupancy for a segment is similar across different alternatives, with occupancy only slightly increasing with each alternative. The vehicle occupancy data is used to calculate person throughput. The person throughput pattern across alternatives, shown in Table 6, is similar to the volume patterns as shown above.

Table 5: Vehicle Occupancy by Segment by Alternative

Occupancy	Existing	No-Build (Baseline)	Scenario 1 (HOV 2+)	Scenario 2 (HOT 2+)	Scenario 3 (HOT 3+)
Segment 1	1.29	1.32	1.33	1.33	1.33
Segment 2	1.30	1.31	1.32	1.32	1.32
Segment 3	1.30	1.30	1.31	1.32	1.32
Segment 4	1.32	1.31	1.32	1.33	1.34
Segment 5	1.33	1.32	1.32	1.34	1.35
Segment 6	1.35	1.33	1.34	1.35	1.36
Segment 7	1.34	1.33	1.33	1.34	1.34
Segment 8	1.31	1.30	1.30	1.31	1.31
Segment 9	1.33	1.34	1.34	1.34	1.34
Segment 10	1.36	1.38	1.38	1.38	1.38
Corridor	1.31	1.34	1.34	1.34	1.35

The change in person trips is nearly 0% for the HOV 2+ scenario from the No-Build scenario, and the HOT 2+ only shows a 0.36% increase. The greatest increase in person trips is in the HOT 3+ scenario, which projects nearly a 3% increase in the number of person trips.

Table 6: Person Trips Comparison

Scenario	Person Trips	Person Trip % Change from Baseline
Existing	3,674,200	-
No-Build (Baseline)	4,255,200	-
Scenario 1 (HOV 2+)	4,254,600	-0.01%
Scenario 2 (HOT 2+)	4,270,600	0.36%
Scenario 3 (HOT3+)	4,382,400	2.99%

Table 7 shows the single occupancy VMT for each alternative. Each future build scenario projects an increase in drive alone VMT. The HOT 3+ scenario projects to have the smallest SOV VMT growth at 3.10%, followed by the HOT 2+ scenario which projects to have an increase of 4.25%. The HOV 2+ scenario is expected to have the greatest increase in SOV VMT at 5.84%.

Table 7: Single Occupancy VMT Comparison

Scenario	SOV VMT	SOV % Change from Baseline
Existing	2,483,900	-
No-Build (Baseline)	2,555,600	-
Scenario 1 (HOV 2+)	2,704,800	5.84%
Scenario 2 (HOT 2+)	2,664,100	4.25%
Scenario 3 (HOT3+)	2,634,700	3.10%

3.3.4 Corridor-wide VMT / VHT / VHD Comparison

Daily performance metrics such as VMT, VHT, and VHD are compared in this section for the CMCP corridor. These values are from the SACSIM 19 model.

3.3.4.1 Scenario #1 [HOV 2+]

The HOV 2+ alternative carries 6% more traffic along the entire I-5 study corridor than the 2040 No-Build. This alternative also has the same amount of vehicle hours travelled despite the throughput increasing. This is shown in the notable 25% reduction in delay. Table 8 shows the VMT, VHT and VHD comparison between Build Scenario 1 and the No-Build Scenario.

Table 8: HOV2+ Alternative VMT/VHT/VHD Comparison

HOV Alt. Comparison	VMT	VHT	VHD
2040 No-Build Baseline	4,906,800	94,620	18,680
2040 Scenario 1 [HOV alt.]	5,203,400	94,650	14,000
Num. Diff.	296,600	30	-4,680
Percent Diff.	6.04%	0.03%	-25.03%

3.3.4.2 Scenario #2 [HOT 2+]

Similar to the HOV 2+ alternative, the HOT 2+ alternative also projects to have more vehicles along the I-5 corridor. The alternative has a 5.7% increase in throughput while also decreasing the vehicle hours travelled and delay. The vehicle hours travelled is projected to decrease by 420 hours, which amounts to a reduction of 0.45%. The delay is expected to decrease by 4,860 hours for the corridor, which amounts to a 26% reduction. Table 9 shows VMT, VHT and VHD comparison between Build Scenario 2 and the No-Build Scenario.

Table 9: HOT 2+ Alternative VMT/VHT/VHD Comparison

HOT 2 Alt. Comparison	VMT	VHT	VHD
2040 No-Build Baseline	4,906,800	94,620	18,680
2040 Scenario 2 [HOT 2 alt.]	5,185,300	94,200	13,820
Num. Diff.	278,500	-420	-4,860
Percent Diff.	5.68%	-0.45%	-26.01%

3.3.4.3. Scenario #3 [HOT 3+]

The HOT 3+ alternative carries more vehicles through the corridor than the 2040 No-Build. This alternative's increase in VMT amounts to a 4.59% increase over the No-Build baseline. The vehicle hours travelled decreases slightly with 220 less projected hours of travel time projected, amounting to a 0.23% reduction. The delay is shown to decrease significantly with the model showing a 3,810 reduction in hours of delay, amounting to a 20.39% reduction. Table 10 shows VMT, VHT and VHD comparison between Build Scenario 3 and the No Build Scenario.

Table 10: HOT 3+ Alternative VMT/VHT/VHD Comparison

HOT 3+ Alt. Comparison	VMT	VHT	VHD
2040 No-Build Baseline	4,906,800	94,620	18,680
2040 Scenario 3 [HOT 3+ alt.]	5,132,200	94,400	14,870
Num. Diff.	225,400	-220	-3,810
Percent Diff.	4.59%	-0.23%	-20.39%

3.3.4.4. Scenario Comparison

Table 11 shows the daily VMT, VHT and VHD comparison between all scenarios. Figure 24, Figure 25, and Figure 26 show the VMT, VHT, and VHD comparison between the scenarios, respectively.

Table 11: Daily VMT / VHT / VHD Comparison

Scenario	VMT	VHT	VHD	Avg. Speed	Diff. VMT from Baseline	Diff. VHT from Baseline	Diff. Delay from Baseline	Diff. Speed from Baseline
Existing	4,456,700	81,100	13,210	51.2	-	-	-	-
No-Build (Baseline)	4,906,800	94,620	18,680	51.4	-	-	-	-
Scenario 1 (HOV 2+)	5,203,400	94,650	14,000	53.5	296,600	30	-4,670	2.1
Scenario 2 (HOT 2+)	5,185,300	94,200	13,820	54.2	278,500	-420	-4,860	2.8
Scenario 3 (HOT 3+)	5,132,200	94,400	14,870	53.8	225,400	-220	-3,810	2.4

All the build scenarios show increases in average speed, decreases in delay, and increases in vehicle miles travelled. The HOV 2+ scenario has the greatest increase in VMT. The HOT 2+ scenario has the greatest increase in average speed and greatest decrease in delay. The HOT 3+ scenario projects to have the lowest VMT of the three future build scenarios.

Figure 24: Vehicle Miles Traveled Comparison [Base Year to 2040]

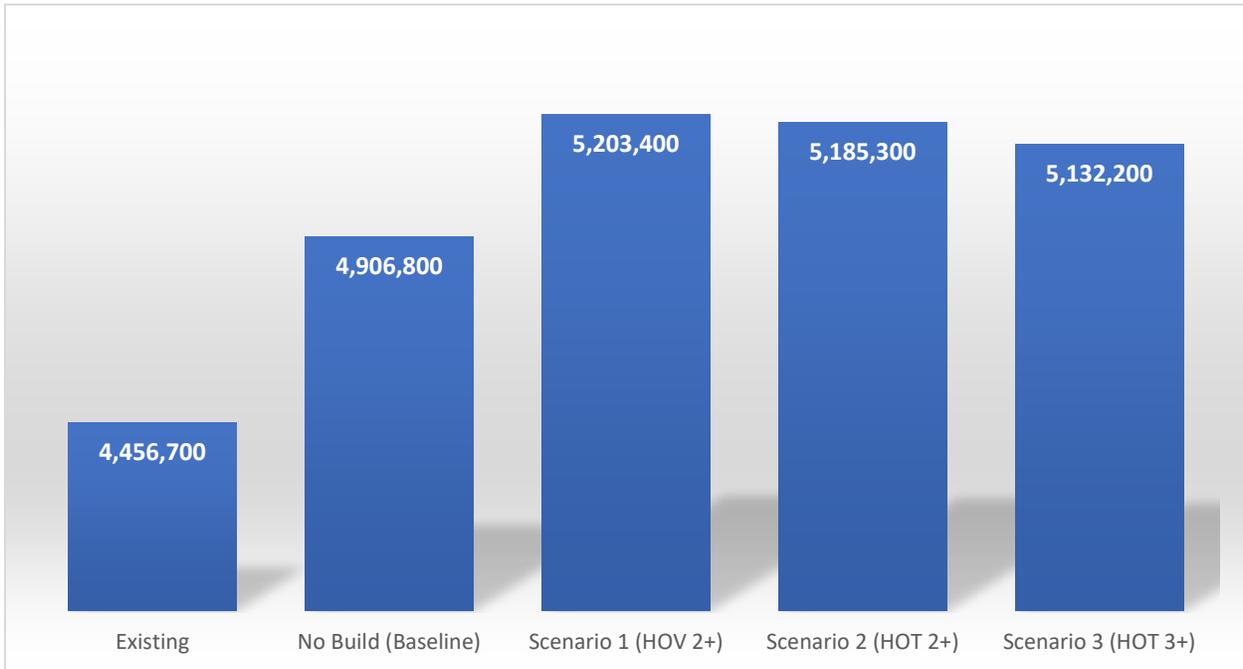


Figure 25: Vehicle Hours Travelled Comparison [Base Year to 2040]

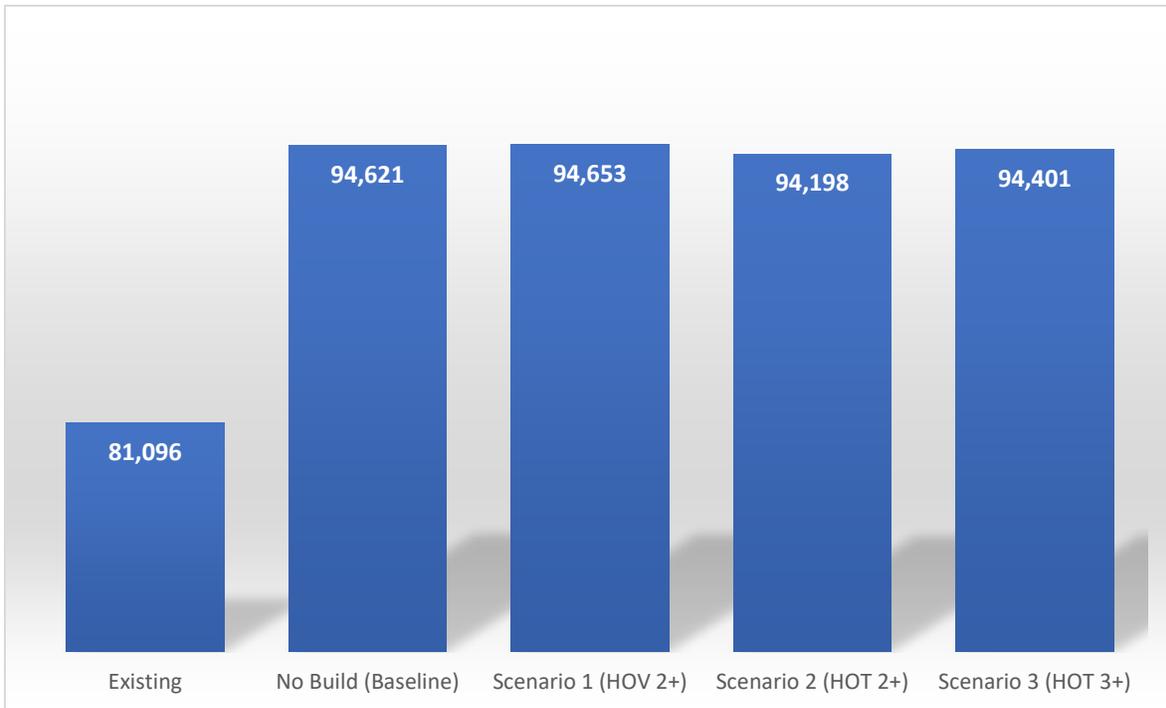
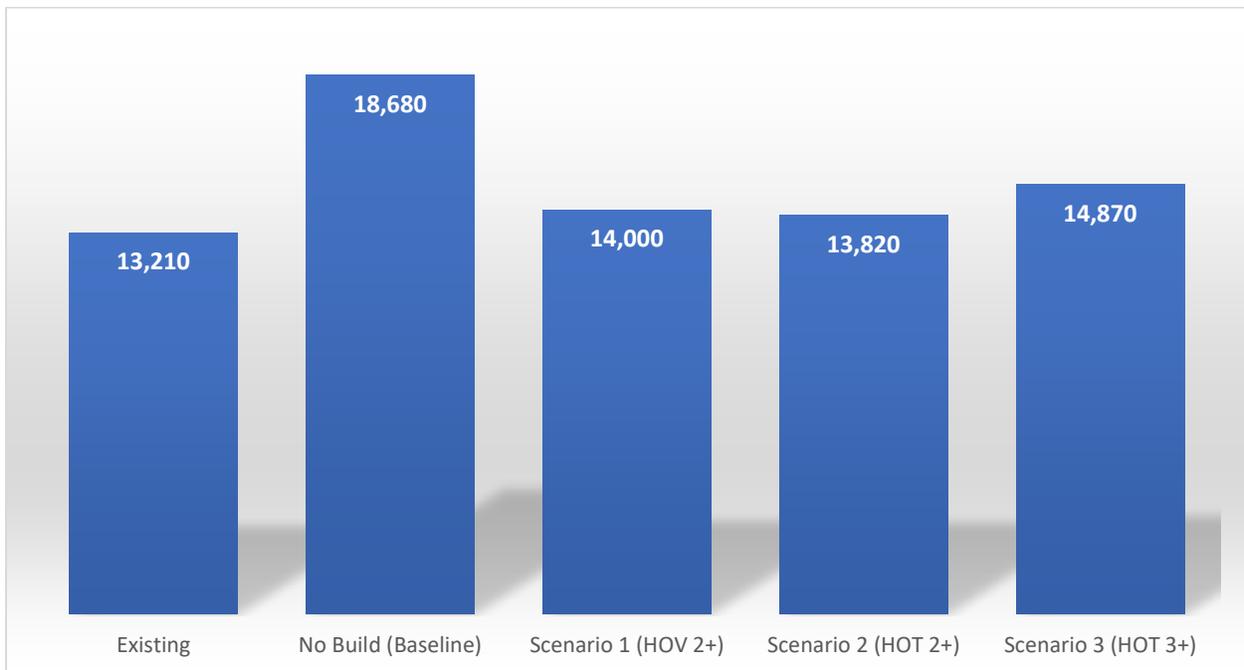


Figure 26: Vehicle Hours of Delay Comparison [Base Year to 2040]



* Numbers in Table 9 are presented as visuals in above bar charts

3.3.5 Segment-wise VMT / VHT / VHD Comparison

This section of the report compares the VMT, VHT and VHD statistics by each of the study corridor segments, for all scenarios.

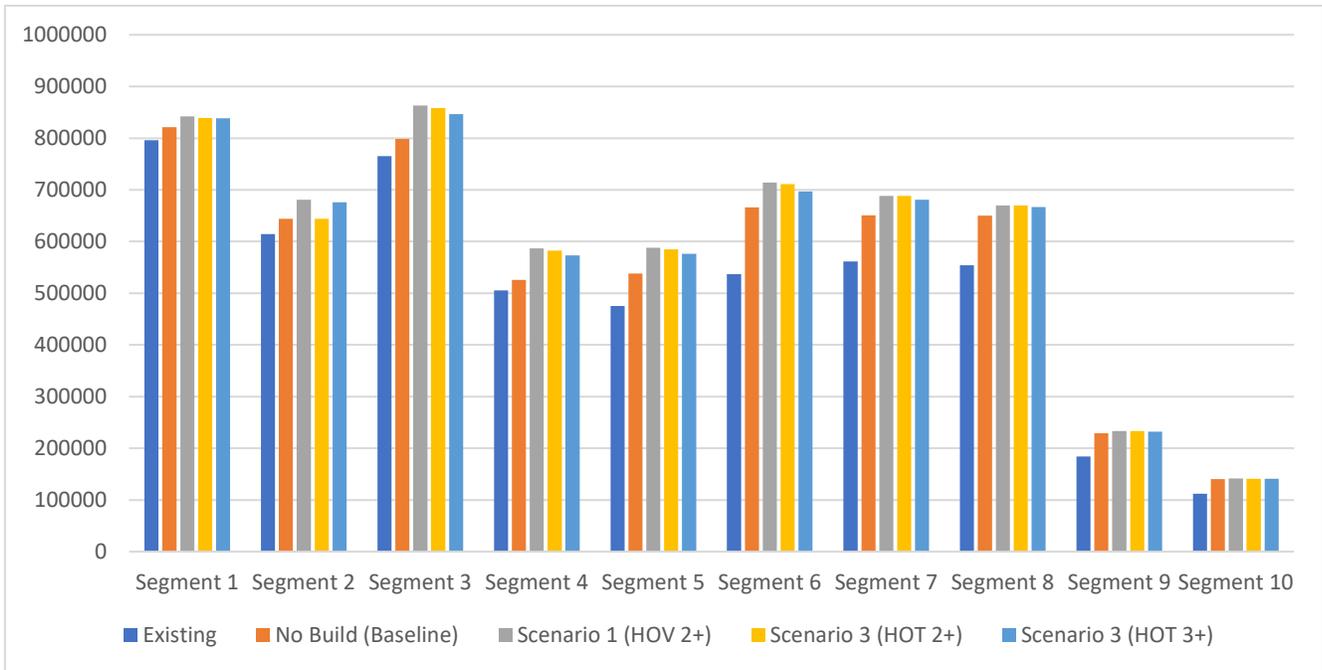
3.3.5.1. VMT Comparison by Segment

Table 12 and Figure 27 show VMT by the I-5 corridor study segments. Segments 1 and 3 have the largest VMT of the segments while Segments 9 and 10 have the lowest VMT.

Table 12: Segment-wise VMT by Alternatives

	Existing	No Build (Baseline)	Scenario 1 (HOV 2+)	Scenario 2 (HOT 2+)	Scenario 3 (HOT 3+)
Segment 1	795,769	821,473	842,044	839,229	838,445
Segment 2	614,257	643,926	681,076	643,926	675,883
Segment 3	765,067	798,460	863,282	858,483	846,502
Segment 4	505,177	525,838	586,574	582,106	573,033
Segment 5	475,316	538,199	587,941	585,058	576,546
Segment 6	536,560	666,008	714,402	711,027	696,991
Segment 7	561,263	650,712	688,193	688,317	680,827
Segment 8	554,035	650,259	669,534	669,522	666,608
Segment 9	184,378	229,047	233,541	233,384	232,235
Segment 10	111,912	140,624	141,456	141,279	140,953
I-5 Corridor	4,456,703	4,906,777	5,203,355	5,185,324	5,132,163

Figure 27: Vehicle Miles Traveled by Segment by Alternatives



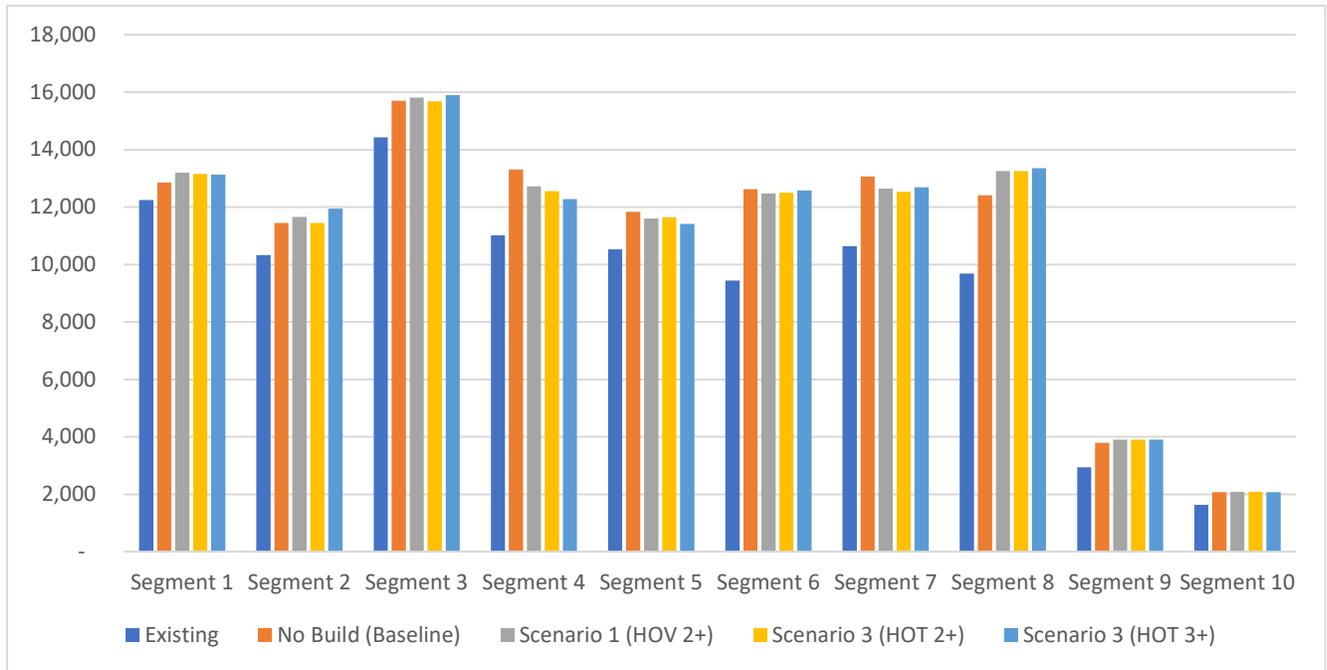
3.3.5.2. VHT Comparison by Segment

Table 13 and Figure 28 show VHT by the I-5 corridor study segments. VHT is greatest in Segment 2 and the lowest in Segments 9 and 10.

Table 13: Segment-wise VHT by Alternatives

	Existing	No Build (Baseline)	Scenario 1 (HOV 2+)	Scenario 2 (HOT 2+)	Scenario 3 (HOT 3+)
Segment 1	12,245	12,856	13,202	13,151	13,127
Segment 2	10,325	11,448	11,662	11,448	11,942
Segment 3	14,424	15,700	15,812	15,676	15,904
Segment 4	11,017	13,307	12,720	12,557	12,282
Segment 5	10,525	11,838	11,600	11,646	11,412
Segment 6	9,442	12,620	12,476	12,503	12,580
Segment 7	10,637	13,060	12,649	12,528	12,690
Segment 8	9,688	12,407	13,249	13,258	13,357
Segment 9	2,942	3,794	3,906	3,904	3,897
Segment 10	1,633	2,069	2,082	2,079	2,074
I-5 Corridor	81,096	94,621	94,653	94,198	94,401

Figure 28: Vehicle Hours Travelled by Segment by Alternatives



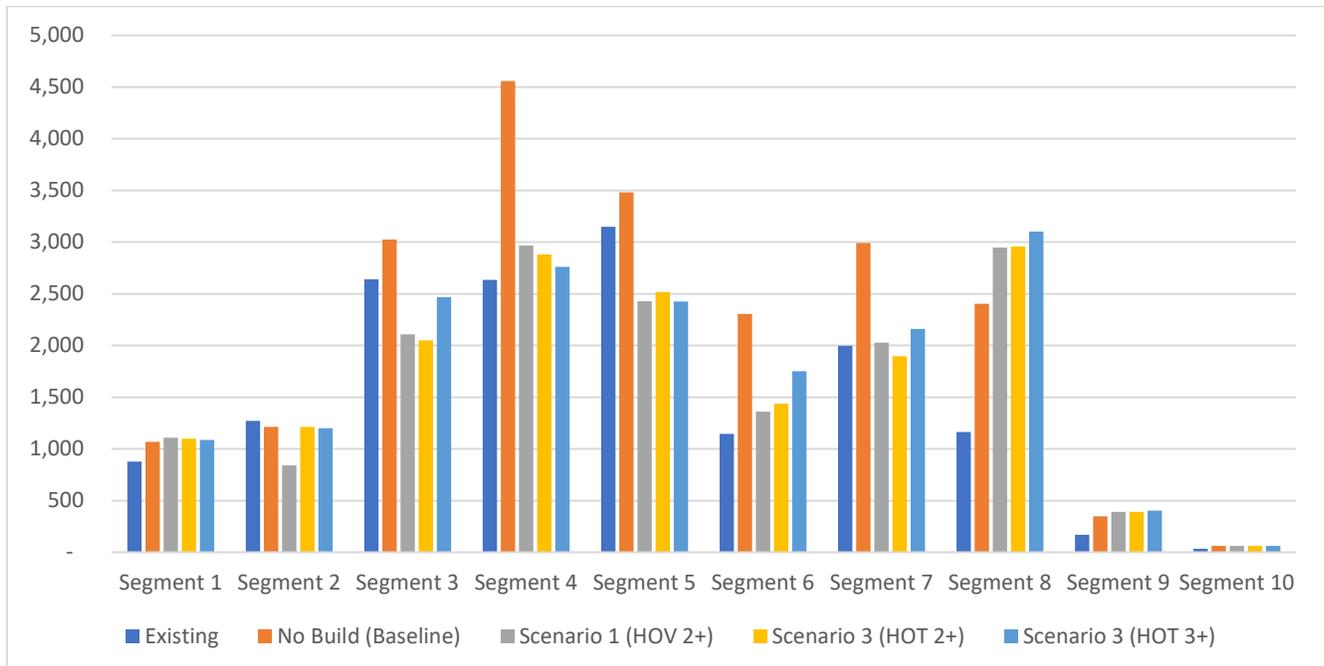
3.3.5.1. VHD Comparison by Segment

Table 14 and Figure 29 show VHD by I-5 corridor segment. Segments 4 and 5 have the highest vehicles hours of delay in comparison to other segments and Segments 9 and 10 have the least delay.

Table 14: Segment-wise VHD by Alternatives

	Existing	No Build (Baseline)	Scenario 1 (HOV 2+)	Scenario 2 (HOT 2+)	Scenario 3 (HOT 3+)
Segment 1	877	1,068	1,109	1,100	1,087
Segment 2	1,271	1,214	840	1,214	1,201
Segment 3	2,642	3,026	2,109	2,049	2,468
Segment 4	2,635	4,559	2,969	2,880	2,761
Segment 5	3,149	3,481	2,429	2,519	2,426
Segment 6	1,145	2,304	1,359	1,437	1,751
Segment 7	1,999	2,993	2,030	1,896	2,160
Segment 8	1,165	2,403	2,949	2,957	3,101
Segment 9	169	348	392	392	403
Segment 10	34	60	61	61	60
I-5 Corridor	13,214	18,680	14,005	13,822	14,872

Figure 29: Vehicle Hours of Delay by Segment by Alternatives



4.0 Benefit Cost Analysis

This section reports on the Benefit-Cost Analysis (BCA) for the future Build scenarios including methodology, model data inputs, and results.

4.1 Benefit Cost Analysis Methodology

The California Life-Cycle Benefit/Cost Analysis Corridor Model (Cal-B/C Corridor) Version v7.1 was utilized to conduct the BCA for the I-5 CMCP scenarios. Cal-B/C Corridor is a Microsoft Excel spreadsheet that provides economic benefit-cost analysis for a range of transportation projects.

Cal-B/C Corridor estimates user benefits in four main categories:

- Travel time savings due to faster travel speeds on highways, or faster or more frequent service on transit modes.
- Vehicle operating cost savings on highways due to lower costs from more efficient travel speeds or avoided vehicle operating and out-of-pocket costs when travelers switch from highways to transit.
- Safety benefits on highways due to safety improvements or for transit riders who switch from highways to a safer transit mode.
- Emissions benefits on highways due to travel at less polluting speeds or by reductions in VMT due to suppressed trips or mode shifts to transit.

4.2 Benefit Cost Analysis Model Inputs and Assumptions

The following inputs were used for the Cal-B/C calculations:

- Cost Estimate – Project costs are estimated from available sources including the SACOG RTP and Caltrans. Cost estimates for each scenario were calculated based on available information. No cost was assumed for demand management or programmatic improvements that could reduce travel demand.
- Vehicle Miles Travelled (VMT) and Vehicle Hours Travelled (VHT) – VMT and VHT for each scenario were obtained for AM and PM peak period from the travel demand model .
- All other inputs were the same for all scenarios such as truck percentages, average vehicle occupancy, and safety data.

Appendix D includes estimated costs and assumptions used in Cal-B/C calculations.

4.3 Benefit Cost Analysis Results

Table 15 shows benefit-cost ratios of the I-5 CMCP for each of the Build scenarios. Among the three scenarios, *** has the best (highest) benefit cost ratio. Scenario * has least cost among the scenarios and does provide more benefits due to model projected shift from single occupancy vehicle to transit. As shown, B/C varies widely by segment, primarily based on the cost of the improvements.

Table 15: Benefit Cost Ratio by CMCP Corridor

	Scenario 1 (HOV 2+)	Scenario 2 (HOT 2+)	Scenario 3 (HOT 3+)
I-5 Corridor	0.16	0.17	0.17

Note that Cal-B/C analyses include all fully funded RTP projects, financially constrained RTP projects that are not fully funded, and some selected unconstrained projects and SHOPP projects. These results of Cal-B/C analyses should be used for comparing scenarios only, rather than ultimate project implementation decisions. To measure the benefit-cost analysis of a particular project a separate analysis would be required using model results to show the with and without performance metrics for each particular project.

Appendix A

List of projects included in the future
scenarios

The following list provides the roadway projects proposed along the study corridor:

Freeway Facilities Assumed by 2040

➤ Interstate 5

- HOV lanes: Airport interchange to San Joaquin County line (by 2027) - The HOV along I-5, between Elk Grove Blvd and Sutterville Road, is currently under construction and assumed to No-Build improvement for project analysis.
- I-5 and I-80 Interchange (post-2040) - The I-5/I-80 interchange was edited in 2040/2048 based on the design drawings provided by Caltrans. A new eastbound to northbound connector ramp would also be constructed to eliminate the collector-distributor road in the eastbound direction. Direct HOV connectors in the northbound to eastbound and westbound to southbound are expected to be constructed by 2048. The direct connectors were assumed to be a Build improvement under HOV alternatives for project evaluation based on Caltrans direction.
- I-80/Richards Boulevard Interchange (2027) – In coordination with the City of Sacramento, the I-80/Richards Boulevard Interchange is planned to convert into a Diverging Diamond Interchange (DDI). The project is assumed to be built by the project's opening year of 2028.
- The auxiliary lane along I-5 at the following location (2027)
 - SB I-5 Arena Off to Arena On-Ramp
 - NB I-5 Metro On-Ramp to Airport Off-Ramp
 - SB Airport to NB I-5 On-Ramp Acceleration Lane
 - SB I-5 Rest Area to Airport Blvd
 - SB I-5 Airport On-Ramp to Metro Off-Ramp
 - SB I-5 Metro Air Parkway On-Ramp to SR 99
- Multiple ramp meter improvement and HOV lanes at various metered on-ramps (post-2027)

➤ Interstate 80

- HOV lanes: Yolo Causeway to Sacramento County line (2027)

Additional roadway improvements adjacent to the project corridor by 2027 include a new freeway crossing of East Commerce over SR 99, widening of East Commerce north of Del Paso, the

Sacramento River Crossing bridge (replacing the I Street Bridge), and several additional roadway projects (including widening some roadways, narrowing some roadways, and construction of new roadways) in the Central City (including the Downtown Grid and Railyards/ River District areas). Notable roadway improvements include the following:

New River Crossings by 2040

- Sacramento River Crossing: replacement for I Street Bridge (by 2027)
- Sacramento River Crossing: Broadway bridge (post-2027)
- American River Crossing: River District to Truxel Road (post-2027)
- Enterprise Bridge over Deep Water Ship Canal (post-2027)

Freeway Over Crossings by 2040

- Meister Way: SR 99 north of I-5 (by 2027)
- I-5 Crossing: I-5 south of SR 99 (post-2027)
- Snowy Egret Drive: I-5 between Del Paso and Arena (post-2027)

Other New Roadways by 2040

- East Commerce connection Arena to San Juan (post-2027)
- Elkhorn Boulevard extension to Sacramento International Airport (post-2027)
- Various roadways in Railyards/ River District to extend grid network (many by 2027, additional by 2040)
- Improvements to Richards Boulevard Interchange

Narrowed Roadways/ Complete Streets Projects by 2040

- Broadway: 5th Street to 24th Street (by 2027)
- 5th Street: L Street to W Street (by 2027)
- 12th Street: Richards Boulevard to H Street (by 2027)
- Various other one-way streets in Downtown Grid

Appendix B

Base Year Travel Demand Model Calibration and Validation Memorandum

Validation Criteria

The performance of the base year model for the 3-hour AM and PM peak periods has been evaluated using both static and dynamic validation tests. The static evaluation uses the following validation criteria outlined in the California Transportation Commission's "2017 Regional Transportation Plan Guidelines for Regional Transportation Planning Agencies:"

- At least 75 % of the roadway links with traffic counts should be within the Caltrans deviation threshold, which differs based on magnitude of the count.
- Estimate of correlation between the model estimates and observed counts should be at least 0.88
- Percent root mean square error (RMSE) for the roadway links with counts in the project study area should not exceed 40%.

Base Year Model Review and Refinement

The following steps were taken to prepare an "initial" base year model:

- The latest version of SACOG's SACSIM19 model prepared by SACOG for 2016 Base Year was used.
- A review of SACOG's network near I-5 and adjusted number of lanes and free flow speeds to reflect existing conditions was done. This review included the I-5 mainline (HOV, mixed flow and auxiliary lanes) and ramps along I-5, as well as on connecting roadways and key parallel roadways.
- Traffic Analysis Zones (TAZs) were split and detail added to the model roadway network in the study corridor vicinity, to provide better spatial resolution of travel choices on roads tributary to the study corridor interchanges. TAZ splits are shown in **Figure 1**.

Validation Runs and Model Refinements

Calibration involved iterations of runs of the base-year model and refinements to bring model predicted volumes closer to 3-hour and peak-hour volumes, and peak-hour travel times. Refinements focused on model speeds and capacities in the study corridor and proximate roadways, but some refinements covered larger areas, particularly along freeways including I-80 and US 50. Review included the following:

- Reviewed metered on-ramps for correct metered lanes and HOV bypasses throughout Sacramento and beyond. Many metered on-ramps begin and/or merge as one lane but have two metered lanes; such were coded as two lanes to represent the meter delays correctly.
- Reviewed and corrected the connectivity details of the complex freeway-to-freeway interchanges in and near the study area.
- Refined and corrected connections, lanes, and speeds of tributary and parallel arterials and collectors near I-5, including Riverside Blvd., Sutterville Road, Richards Blvd, Garden Highway, W El Camino Ave, Del Paso Road, Truxel Road.
- Reduced the capacities of all freeway links and surface-streets in downtown Sacramento, as is a common practice, to better represent congestion patterns.

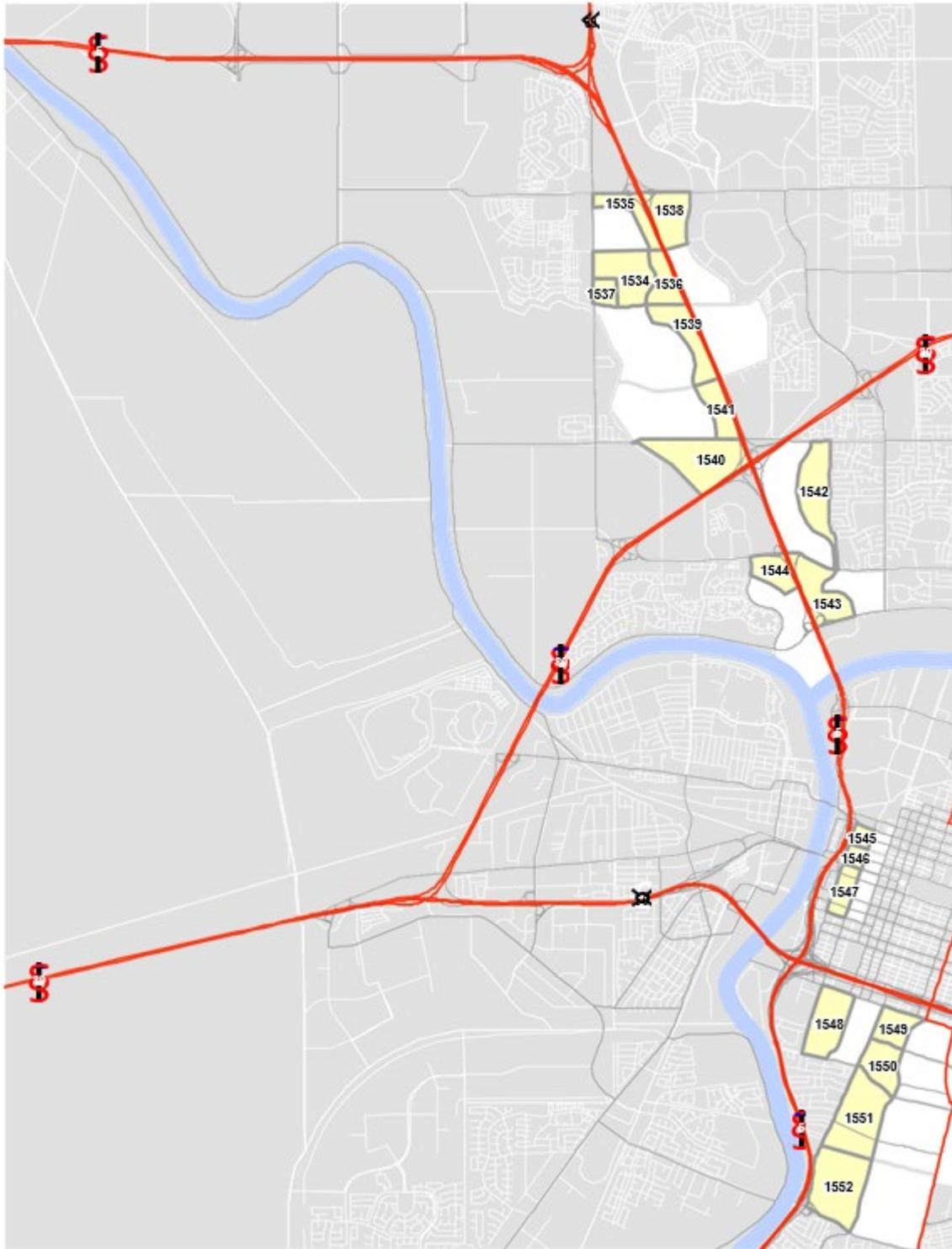


Figure 1: Traffic Analysis Zone Splits

Additional refinements were made to the general model system, exogenous inputs, and parameters:

- Tested and adjusted a penalty function for demand-flows in excess of capacity, to approximate the vehicle-delays in queued conditions. Additionally, adjusted the model's link delay function for freeways, in order to better approximate the observed differences between congested and free-flowing speeds. Given the need to evaluate managed-lane as part of the I-5 managed lanes alternatives (including toll-lanes), the focus area model was calibrated to reasonably represent the existing delay along the corridor
- Updated the activity-purpose distribution of internal-external travel on all model gateways to a subarea extraction of the California Statewide Travel Demand Model, due to the importance of external travel on the study corridor.
- Updated the time-of-day distribution of internal-external and through auto travel from the respective trips in the 2012 California Statewide Travel Survey
- Updated the time-of-day distribution of internal-external and through truck travel using selected Caltrans PEMS reports.

Static Validation Results

Caltrans guidelines for model validation utilize FHWA's "desirable deviation" curve to define thresholds for the model volume deviation from traffic counts. The larger the actual traffic volume, the lower the desirable deviation. The FHWA curve was designed to evaluate daily volumes. The focus of the validation for I-5, however, is the peak periods. DKS used an accepted method to scale the FHWA daily volume curve to a 3-hour volume curve using a ratio of 3-hour to daily volumes.

Key Validation Measures

Table 1: Calibration and Validation Results along the I-5 Northbound Corridor

Validation Criterion	Threshold for Acceptance	Model Output
Percent Within Caltrans Maximum Deviation	At Least 75%	84% ✓
Correlation Coefficient	At Least 88%	96% ✓
Percent Root Mean Square Error	Less than 40%	11% ✓

Table 2: Calibration and Validation Results along the I-5 Southbound Corridor

Validation Criterion	Threshold for Acceptance	Model Output
Percent Within Caltrans Maximum Deviation	At Least 75%	81% ✓
Correlation Coefficient	At Least 88%	97% ✓
Percent Root Mean Square Error	Less than 40%	9% ✓

Appendix C

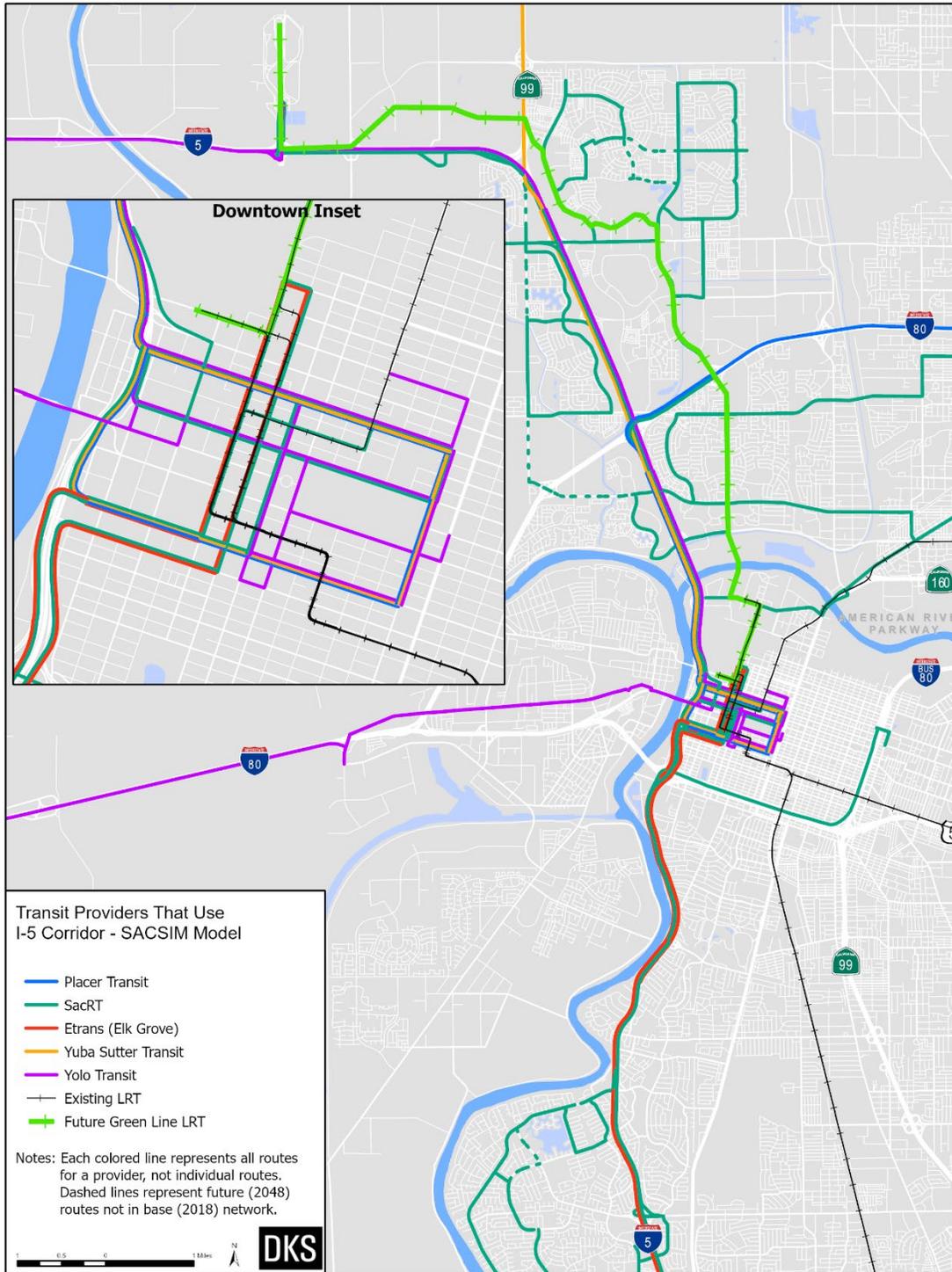
Transit Modeling

Base Year and Future Year Transit

For analysis purposes, the transit networks that are included in SACOG's SACSIM model were used for each of the alternatives. SACOG used the SACSIM model for the current MTP/SCS. The model includes future transit networks (routes and frequencies) developed in conjunction with the transit providers. The appropriate future networks were used in this analysis. No changes were made to the transit networks, so that consistency with the MTP/SCS is maintained.

Figure xx illustrates the existing and the future transit routes in the I-5 corridor, as coded in the SACSIM model. All of the illustrated bus routes operate on I-5 in the study corridor. The different line colors in the figure represent the transit service operators, not individual transit routes.

When calculating the change in VMT, VHT and VHD between the 2040 no-build and build alternatives, the model accounts for the mode shift and the change in ridership between the current year and horizon year. The change in ridership along the corridor was not extracted for any of the alternatives.



Appendix D

Cal B-C Calculations and Assumptions

Assumptions

General Economic Parameters	
Year of Current Dollars for Model	2019
Economic Update Factor (Using GDP Deflator)	1.00
Real Discount Rate	7.0%

Travel Time Parameters		
	Value	Units
Statewide Average Hourly Wage	\$ 35.80	\$/hr
Heavy and Light Truck Drivers		
Average Hourly Wage	\$ 22.16	\$/hr
Benefits and Costs	\$ 11.59	\$/hr
Value of Time		
Automobile	\$ 17.90	\$/hr/per
Truck	\$ 30.80	\$/hr/veh
Auto & Truck Composite	\$ 23.95	\$/hr/veh
Transit	\$ 17.90	\$/hr/per
Out-of-Vehicle Travel	2	times
Incident-Related Travel	3	times
Travel Time Uprater	0.0%	annual incr

Vehicle Operating Cost Parameters		
Average Fuel Price		
Automobile (regular unleaded)	\$ 3.57	\$/gal
Truck (diesel)	\$ 3.84	\$/gal
Sales and Fuel Taxes		
State Sales Tax (gasoline)	2.25%	%
State Sales Tax (diesel)	13.00%	%
Average Local Sales Tax	0.50%	%
Federal Fuel Excise Tax (gasoline)	\$ 0.184	\$/gal
Federal Fuel Excise Tax (diesel)	\$ 0.244	\$/gal
State Fuel Excise Tax (gasoline)	\$ 0.505	\$/gal
State Fuel Excise Tax (diesel)	\$ 0.385	\$/gal
Fuel Cost Per Gallon (Exclude Taxes)		
Automobile	\$ 2.80	\$/gal
Truck	\$ 2.75	\$/gal
Non-Fuel Cost Per Mile		
Automobile	\$ 0.351	\$/mi
Truck	\$ 0.438	\$/mi
Idling Speed for Op. Costs and Emissions	5	mph

Accident Cost Parameters		
Cost of a Fatality	\$ 10,900,000	\$/event
Cost of an Injury		
Level A (Severe)	\$ 521,300	\$/event
Level B (Moderate)	\$ 142,000	\$/event
Level C (Minor)	\$ 72,500	\$/event
Cost of Property Damage	\$ 4,500	\$/event
Cost of Highway Accident		
Fatal Accident	\$ 12,000,000	\$/accident
Injury Accident	\$ 169,000	\$/accident
PDO Accident	\$ 16,200	\$/accident
Average Cost	\$ 211,000	\$/accident
Statewide Highway Accident Rates		
Fatal Accident	0.006	per mil veh-mi
Injury Accident	0.29	per mil veh-mi
PDO Accident	0.55	per mil veh-mi
Non-Freeway	1.05	per mil veh-mi

Sources: 1) Office of Management and Budget (OMB), 2) Review of OMB and State Treasurer's Office data, 3) Bureau of Labor Statistics (BLS) OES, 4) BLS Employment Cost Index, 5) USDOT Department Guidance, 6) California Department of Transportation TSI and Traffic Operations, 7) IDAS model, 8) AAA Daily Fuel Gauge Report, 9) California Board of Equalization, 10) AAA Your Driving Costs, 11) American Transportation Research Institute, 12) USDOT VSL, 13) NHTSA, 14) TASAS summary 2013, 15) TASAS summary 2009

Projects included in Cal BC Calculations

District	Project Name	Project Description	Cost, Millions
3	Green Line SVS Loop & K St. to H St. Improvements (Final Design & Construction)	SacRT Green Line Light Rail: Improvements to the Green Line through downtown to include a loop to the Sacramento Valley Station, relocation of tracks to H Street, and new station near North 7th Street and Railyards Boulevard (by 2029)	\$60
3	Green Line: MOS2 Township 9 to North Natomas Town Center (CON)	SacRT Green Line Light Rail: Extend light rail from Township 9 to North Natomas town center	\$390
3	I-5 Auxiliary Lanes	Southbound from US 50 to Sutterville Road (Indirect effects on US 50)	\$5
3	I-5 Auxiliary Lane (NB) from Del Paso Road to SR 99 NB connector ramp	In Sacramento County construct auxiliary lanes on I-5 from Del Paso Road off ramp to SR 99 NB connector ramp (PM 28.817-29.772)	\$5
3	Metro Air Parkway Interchange at I-5	In Sacramento County, I-5 at Metro Air Parkway near Sacramento International Airport: Construct the first phase of a five-lane partial clover Type L-9 interchange for Metro Air Parkway at Interstate 5 (I-5). Construct a three lane overcrossing facility with a median, bike lanes and a sidewalk on the west side.	\$24
3	I-5 at Richards Blvd Interchange.	Sacramento, Richards Blvd. and I-5; reconstruct Interchange (ult). (HPP#3784)(T15165100)	\$40
3	U.S. 50/Jefferson Blvd. Interchange	Jefferson Blvd interchange--expand the ramps and signals from 1 to 2 lanes, add ramp metering and turn lanes, and related street closures.	\$27
3	I-5 / 113 Connector Phase 2	Phase 2 - Construct northbound I-5 to southbound SR 113 freeway to freeway connection.	\$112
3	I-5 and I-80 Managed Lane Connectors and Lanes to Downtown	Reconstruct I-5/I-80 Interchange, including managed lane facility connectors, and construction of managed lane facility on I-5 from the I-5/I-80 Interchange to downtown Sacramento (PM 26.7/27.0)	\$150
3	I-5 Managed Lanes from Sutterville Road to Yolo County Line	In Sacramento County on I-5 from just north of Sutterville Road to the Yolo County line: Construct improvements consisting of managed lanes in each direction, auxiliary lanes, and Intelligent Transportation System (ITS) elements. EA 4H580	\$312
3	I-5 HOV Lanes	I-5 HOV Lanes: Airport Boulevard to 1.1 miles south of Elk Grove Boulevard (by 2029)	\$57
3	I-80/US50 ML	On I-80 just west of Davis in both directions from the Kidwell Rd IC in Solano County (D4) to the US-50/I-5 interchange and I-80/West El Camino interchange in Sacramento	\$442
3	I-5 / SR 113 Interchange	Construct New Interchange: NB SR 113 to SB I-5 freeway to freeway connection. Phase 3. (indirect effects)	\$66

Appendix IV

I-5 Corridor Modeling Project List

Appendix IV | I-5 CMCP Corridor Modeling Project List

As part of the I-5 CMCP modeling, which incorporated the SACSIM19 model, projects analyzed included planned/programmed projects from SACOG's 2020 MTP/SCS. The full list of projects can be found at <https://www.sacog.org/post/adopted-2020-mtpscs>.

Freeway Facilities Assumed by 2040

- Interstate 5
 - HOV lanes: Airport interchange to San Joaquin County line (by 2027)
 - HOV connector ramps between I-5 and I-80 (by 2027)
 - Auxiliary lane: US 50 to Sutterville Road (by 2027)
 - HOV bypass lanes at various metered on-ramps (post 2027)
 - Auxiliary lane: I-80 to West El Camino (post 2027)

- Interstate 80
 - HOV lanes: Yolo Causeway to Sacramento County line (by 2027)
 - The auxiliary lane along I-5 at the following location (2027)
 - SB I-5 Arena Off to Arena On-Ramp
 - NB I-5 Metro On-Ramp to Airport Off-Ramp
 - SB Airport to NB I-5 On-Ramp Acceleration Lane
 - SB I-5 Rest Area to Airport Blvd
 - SB I-5 Airport On-Ramp to Metro Off-Ramp
 - SB I-5 Metro Air Parkway On-Ramp to SR 99

New River Crossings by 2040

- Sacramento River Crossing: replacement for I Street Bridge (by 2027)
- Sacramento River Crossing: Broadway bridge (post 2027)
- American River Crossing: River District to Truxel Road (post 2027)
- Enterprise Bridge over Deep Water Ship Canal (post 2027)
- Freeway Over Crossings by 2040
- Meister Way: SR 99 north of I-5 (by 2027)
- I-5 Crossing: I-5 south of SR 99 (post 2027)
- Snowy Egret Drive: I-5 between Del Paso and Arena (post 2027)

Other New Roadways by 2040

- East Commerce connection Arena to San Juan (post 2027)
- Elkhorn Boulevard extension to Sacramento International Airport (post 2027)
- Various roadways in Railyards/ River District to extend grid network (many by 2027, additional by 2040)
- Improvements to Richards Boulevard Interchange (by 2027, assuming City Alternative 1)

Narrowed Roadways/ Complete Streets Projects by 2040

- Broadway: 5th Street to 24th Street (by 2027)
- 5th Street: L Street to W Street (by 2027)
- 12th Street: Richards Boulevard to H Street (by 2027)
- Various other one-way streets in Downtown Grid

Ramp Metering Improvements

- I St to SB I-5 - Meter single GP Lane (no ramp widening)
- EB Arena Blvd loop to NB I-5 - Add Meter to existing HOVPL
- WB Arena Blvd Slip to NB I-5 - Add Meter to existing HOVPL
- EB Arena Blvd Slip to SB I-5 - Add Meter to existing HOVPL
- SB Airport Blvd to SB I-5 - Widen ramp to 2 lanes (2 GP), add meters both lanes
- EB Del Paso to NB I-5 - Widen ramp to 2 lanes (1 GP + 1 HOVPL), add meters both lanes
- WB Del Paso to NB I-5 - Widen ramp to 2 lanes (1 GP + 1 HOVPL), add meters both lanes
- NB Airport Blvd to NB I-5 - Widen ramp to 2 lanes (1 GP + 1 HOVPL), add meters both lanes
- SB Airport Blvd to NB I-5 - Widen ramp to 2 lanes (1 GP + 1 HOVPL), add meters both lanes
- EB Del Paso Slip to SB I-5 - Widen ramp to 2 lanes (1 GP + 1 HOVPL), meter new HOVPL
- EB W. El Camino to SB I-5 - Widen ramp to 2 lanes (2 GP), meter new GP lane

Aux Lanes Improvements

- SB I-5 Arena Off to Arena On Ramp
- NB I-5 Metro On to Airport Off Ramp
- SB Airport to NB I-5 ON Ramp Acceleration Lane
- SB I-5 Rest Area to Airport Blvd
- SB I-5 Airport On to Metro Off Ramp
- SB I-5 Metro On Ramp to SR 99

Appendix V

Executed Project Charter



Yolo / Sacramento I-5 Comprehensive Multimodal Corridor Plan

1. General Project Information				
Project Name:	Sacramento/Yolo Interstate 5 (I-5) Comprehensive Multimodal Corridor Plan (CMCP)			
County/Route/Post Mile:	SAC/05/0.018 – SAC/05/34.65, YOL/05/0.0 – YOL/05/R10.807			
Project Sponsors:	Sukhvinder (Sue) Takhar, Caltrans District 3			
Charter Purpose:	The purpose of the Charter is to document key agreements between Caltrans District 3 and partner agencies on the essential elements of the project scope, cost, schedule, and deliverables for the Sacramento/Yolo I-5 CMCP. This charter will also provide guidance on external communication.			
Project Description:	To create a CMCP for the I-5 Corridor in Sacramento and Yolo Counties to better identify needs and agree on multimodal transportation improvements for the corridor.			
2. TAC				
	Name	Department/ Agency	Telephone	E-mail
Project Sponsor	Sue Takhar	Caltrans District 3	(916) 203-4574	sukhvinder.takhar@dot.ca.gov
Project Manager	Dianira Soto	Caltrans District 3	(530) 812-4414	dianira.soto@dot.ca.gov
Team Members:	Alex Fong	Caltrans District 3	(916) 475-9688	alexander.fong@dot.ca.gov
	Raju Porandla, P.E., PTP	Caltrans District 3	(530) 825-7828	raju.porandla@dot.ca.gov
	Cynthia Smith	Caltrans District 3	(530) 634-7614	cynthia.d.smith@dot.ca.gov
	Sathish Prakash	Caltrans District 3	(530) 741-5177	sathish.prakash@dot.ca.gov
	Jess Avila	Caltrans District 3	(530) 741-4533	jess.avila@dot.ca.gov
	Dennis Keaton	Caltrans District 3	(530) 741-5474	dennis.keaton@dot.ca.gov
	Nicholas Liccardo, MS, PE	Caltrans District 3	(916) 859-7940	nicholas.liccardo@dot.ca.gov
	Matt Cadrett	Caltrans District 3	(530) 741-5425	matthew.cadrett@dot.ca.gov
	Marlon Regisford	Caltrans District 10	(209) 948-7906	marlon.regisford@dot.ca.gov
	Lynn O'Connor	Caltrans District 10	(209) 948-3975	lynn.oconnor@dot.ca.gov
	Michael Robinson	Caltrans District 10	(209) 948-7906	michael.robinson@dot.ca.gov
	Kathryn Canepa	Caltrans Headquarters (HQ) Division of Transportation Planning	(916) 584-0317	kathryn.canepa@dot.ca.gov
	Rob Cunningham	Caltrans HQ Division of Rail and Mass Transit	(916) 956-6686	robert.j.cunningham@dot.ca.gov
	Chris Dougherty	Sacramento Area Council of Governments	(916) 319-5173	cdougherty@sacog.org
	Dan Leavitt	Ace/San Joaquin Joint Powers Authority	(530) 400-9475	dan@acerail.com
	Mike Costa	City of Elk Grove	(916) 687-3030	mcosta@elkgrovecity.org
	Kevin Bewsey, P.E., Q.S.D.	City of Elk Grove	(916) 478-2243	kbewsey@elkgrovecity.org
	William Shunk	City of Sacramento	(916) 808-2986	whunk@cityofsacramento.org



I-5 CMCP



COMPREHENSIVE MULTIMODAL CORRIDOR PLAN

Yolo / Sacramento I-5 Comprehensive Multimodal Corridor Plan

	Stacia Cosgrove	City of Sacramento	(916) 808-7110	scosgrove@cityofsacramento.org
	Michelle Reynolds	North Natomas Jibe	(916) 606-1845	michelle@jibe.org
	Gary Gasperi	Sacramento County Department of Transportation	(916) 874-4108	gasperig@saccounty.net
	Glen Rickelton	Sacramento County Department of Airports	(916) 874-0482	RickeltonG@saccounty.net
	James Drake	Sacramento Regional Transit (SacRT)	(916) 556-0505 / c (916) 203-4936	JDrake@sacrt.com
	Sarah Poe	SacRT	(916) 556-0518	spoe@sacrt.com
	Paul Herman	San Joaquin Regional Rail Commission	(209) 944-6272	Paul@acerail.com
	Ryan Cordero Niblock	San Joaquin Council of Governments	(209) 235-0588	niblock@sjcog.org
	Mariah Mayberry	Wilton Rancheria	(916) 683-6000	mmayberry@wiltonrancheria-nsn.gov
	Jose Perez	Yolo County Transit District (YCTD)	(530) 402-2826	jperez@yctd.org
	Kristin Mazur	YCTD	(530) 402-2826	kmazur@yctd.org
	Isaac Bojorquez	Yocha Dehe Wintun Nation	(530) 796-0103	ibojorquez@yochadehe-nsn.gov
	Laverne Bill	Yocha Dehe Wintun Nation	(530) 796-0103	ibojorquez@yochadehe-nsn.gov
	Sabina Nussipov	Yocha Dehe Wintun Nation	(530) 796-3400	snussipov@yochadehe-nsn.gov
	Adam Hansen	Yuba Sutter Transit	(530) 634-6880	adam@yubasuttertransit.com
	Keith Martin	Yuba Sutter Transit	(530) 634-6880	keith@yubasuttertransit.com

3. Stakeholders (e.g., those with a significant interest in or who will be significantly affected by this project)

- For list of Stakeholders see Attachment A.

4. Project Scope Statement

Project Purpose/Need Describe the needs this project addresses

The purpose of this effort is to create a CMCP through multimodal agency collaboration. The plan will identify, analyze, and evaluate transportation facilities along the I-5 corridor, while also determining needs, gaps and trends associated with multimodal modes of transportation, some of which include transit, arterial, rail, bicycle, and pedestrian elements. The plan will prioritize projects, and provide a basis for qualifying for funding through Senate Bill (SB) 1 and other potential local, regional, state, and federal funding sources.

Objectives Describe the measurable outcomes of the project/study

- Identify existing and future conditions.
- Develop and prioritize a list of multimodal transportation improvements and strategies.
- Develop funding strategy for corridor improvements.



I-5 CMCP



COMPREHENSIVE MULTIMODAL CORRIDOR PLAN

Yolo / Sacramento I-5 Comprehensive Multimodal Corridor Plan

<p>Deliverables <i>List the high-level “products” to be created (e.g., Collecting Data, identify alternatives, components of the plan etc.)</i></p> <ul style="list-style-type: none"> • Published CMCP. • A list of prioritized multimodal transportation improvements and strategies. • A plan to monitor and evaluate the corridor performance and to update the CMCP. 									
<p>Scope <i>Provide a brief description of the study (attach location map of the project)</i></p> <p>The CMCP incorporates the complete I-5 corridor in Sacramento county and a portion of Yolo county, ending at the State Route 16 (SR 16) junction in the City of Woodland. The corridor also includes, transit routes, bicycle, and pedestrian facilities. Study area map is attached (see Attachment D).</p>									
<p>Milestones <i>Propose start and end dates for Project Phases (e.g., time frames for each deliverables) and other major milestones</i></p> <p>Scope Effort and Team Formation (December 2019 –April 2020)</p> <ul style="list-style-type: none"> • Data Collection (March 2020 – June 2021) • Conduct Performance Assessment (Existing Baseline) (April 2021 – July 2021) • Conduct Performance Assessment (Future Baseline) (April 2021 – July 2021) • Select and Prioritize Solutions (July 2021 – September 2021) Project Evaluation and Selection <ul style="list-style-type: none"> Recommend Potential Projects and Timeframe Strategies (short, medium, and long-term) • Develop Corridor Performance Plan to Monitor and Evaluate Progress (August 2021 – November 2021) • Draft Corridor Plan (August 2021 – September 2021) • Publish Final Corridor Plan (October 2021 - November 2021) • Public Engagement (Tentative Dates: May, July, and September 2021) 									
<p>Major Known Risks (including significant Assumptions) Identify obstacles that may cause the project to fail.</p> <table border="1"> <thead> <tr> <th>Risk</th> <th>Risk Rating (Hi, Med, Lo)</th> </tr> </thead> <tbody> <tr> <td>Stakeholder/Public Acceptance: Stakeholder and the public might not fully support a project/strategy or its priority rating.</td> <td>High</td> </tr> <tr> <td>Level of coordination needed: Agreement/concurrence may be difficult to achieve for various elements.for the development of the CMCP due to unforeseen availability or resource issues.</td> <td>High</td> </tr> <tr> <td>Technical Analysis Requirements Length of analysis may cause schedule slippage beyond the November 2021 deadline.</td> <td>Medium</td> </tr> </tbody> </table>		Risk	Risk Rating (Hi, Med, Lo)	Stakeholder/Public Acceptance: Stakeholder and the public might not fully support a project/strategy or its priority rating.	High	Level of coordination needed: Agreement/concurrence may be difficult to achieve for various elements.for the development of the CMCP due to unforeseen availability or resource issues.	High	Technical Analysis Requirements Length of analysis may cause schedule slippage beyond the November 2021 deadline.	Medium
Risk	Risk Rating (Hi, Med, Lo)								
Stakeholder/Public Acceptance: Stakeholder and the public might not fully support a project/strategy or its priority rating.	High								
Level of coordination needed: Agreement/concurrence may be difficult to achieve for various elements.for the development of the CMCP due to unforeseen availability or resource issues.	High								
Technical Analysis Requirements Length of analysis may cause schedule slippage beyond the November 2021 deadline.	Medium								
<p>Constraints <i>List any conditions that may limit the project team's options with respect to resources, schedule, or budget</i></p> <ul style="list-style-type: none"> • Staff resources • Consultant resources <ul style="list-style-type: none"> ○ Public Engagement <ul style="list-style-type: none"> ▪ In-person challenges due to COVID-19 ○ Technical Analysis Requirement: • Staff resources <ul style="list-style-type: none"> ○ Need for additional resources (mapping, studies, surveys, etc.) to adequately address tasks. ○ Need for additional time or staff to meet project goals 									



Yolo / Sacramento I-5 Comprehensive Multimodal Corridor Plan

External Collaboration *Will project success depend on coordination of efforts between the project team and one or more other individuals or groups or projects*

Project success is dependent on the collaboration between Caltrans Districts 3 and local, regional and Stake stakeholder

5. TAC Roles and Responsibilities

TAC

The TAC will serve as a working group to collaborate efforts in compiling necessary data for inclusion in the CMCP as well as ensuring CMCP participation within each TAC member's jurisdiction and/or interest group (transit, rail, port, etc.).

Roles

- Attend monthly TAC meetings scheduled for the last Wednesday of every month beginning March 2021 through November 2021. If meetings are not needed, they will be canceled.
- Consistent and active participation in the development of the CMCP.
- Serve as the point of contact for the represented agency or group.
- Disseminate information to their represented agency and provide feedback to the TAC based on the needs of their agency or group.
- Authority to make decisions or speak on behalf of the represented agency or group.
- Participate in and coordinate public engagement activities.

Responsibilities

- Provide assigned agreed upon deliverables in a timely fashion.
- Identify and prioritize multimodal improvements, strategies and programs that meet the goals of the CMCP.
- Participate in public outreach activities.

6. Stakeholders' Roles and Responsibilities

Stakeholders

This group is comprised of key stakeholders along the I-5 Corridor in District 3. Caltrans will keep stakeholders apprised of the CMCP progress. The stakeholders will then ensure information is being shared with leadership/management within the Corridor and provide input/feedback.

Roles

- Attend bi-monthly Stakeholder meetings scheduled on either the first or second Friday of the month beginning March 2021.
- Consistent and active participation in the development of the CMCP.
- Serve as point of contact for represented agency or group.
- Caltrans will apprise Stakeholders of CMCP progress
- Authority to make decisions or speak on behalf of the represented agency or group.
- Assist in public engagement activities.

Responsibilities

- Review and provide input on deliverables.
- Assist in outreach events.

7. Communication Strategy *(specify how the project manager will communicate to the Project Sponsor, Project Team members and Stakeholders, e.g., frequency of status reports, reviews, frequency of Project Team meetings, Outreach, etc.)*

- TAC meetings to occur monthly, on the last Tuesday of every month, as needed. Meetings may be canceled based on milestones and CMCP schedule (see Attachment B for schedule).
- Stakeholder meetings to occur on the first or second Friday on a bi-monthly basis. Meetings may be canceled based on milestones and CMCP schedule (see Attachment B for schedule).
 - Caltrans will inform stakeholders of the CMCP process and progress.

8. Sign-off



I-5 CMCP



COMPREHENSIVE MULTIMODAL CORRIDOR PLAN

Yolo / Sacramento I-5 Comprehensive Multimodal Corridor Plan

	Name	Signature	Date (MM/DD/YYYY)
Project Sponsor(s)	Sue Takhar, District 3 Deputy District Director – Planning, Local Assistance, and Sustainability (DPLAS)	<i>Sukhwinder Takhar</i>	04/2/2021
Project Manager	Dianira Soto, District 3 Corridor Planning Manager, DPLAS	<i>Dianira Soto</i>	04/02/2021

9. Notes (past studies, e.g., PI, TCRs etc.)
<ul style="list-style-type: none"> District 3 I-5 CSMP-TCR District 3 I-5 CSMP District 3 Regional Concept of Transportation Operations District 3 Vulnerability Assessments District 3 Climate Change Adaptation Report
10. Attachments (location map of the study area, roles and responsibilities of team members, etc.)
<ul style="list-style-type: none"> Stakeholders list (Attachment A) TAC and Stakeholder Meeting Schedule (Attachment B) CMCP Tasks Schedule (Attachment C) Study area map (Attachment D)

**ATTACHMENT A
SACRAMENTO / YOLO I-5 COMPREHENSIVE MULTIMODAL CORRIDOR PLAN
STAKEHOLDERS LIST**

Organization	Name	Title
Caltrans District 3	Sue Takhar	Deputy District Director
Caltrans District 3	Alex Fong	Assistant Division Chief
Caltrans District 3	Dianira Soto	Corridor Planning Manager
Caltrans District 3	Brian Alconcel	Supervising Transportation Engineer
Caltrans District 3	Jess Avila	Senior Bridge Engineer
Caltrans District 3	Raju Porandla, P.E., PTP	Senior Transportation Engineer
Caltrans District 3	Matt Cadrett	Transportation Planner
Caltrans District 3	Sathish Prakash	Senior Transportation Engineer
California Trucking Association	Eric Sauer	Senior Vice President
Capital Southeast Connector JPA	Derek Minnema	Executive Director
City of Davis	Bob Clarke	Public Works Engineering & Transportation Director
City of Davis	Brian Abbanat	Senior Transportation Planner
City of Elk Grove	Christopher Jordan	Director, Strategic Planning and Innovation
City of Elk Grove	Robert Murdoch	Director, Public Works
City of Sacramento	Jesse Gothan, PE	Supervising Engineer, Public Works Engineering Services
City of Sacramento	Lucinda Willcox	Public Works, Program Manager, Office of the Director
City of Sacramento	William Shunk	Associate Civil Engineer
City of West Sacramento	Paul Hosley	Communications and Media Officer
City of West Sacramento	William Roberts	Public Works Operations and Maintenance Director
City of West Sacramento	Jon Robinson	Interim Director, Community Development
City of West Sacramento	Gary Predoehl	Capital Improvements Manager
City of Woodland	Brent Meyer	City Engineer
City of Woodland	Clara Olmedo	Associate Engineer
City of Woodland	Katie Wurzel	Principal Civil Engineer
Delta Protection Council	Virginia Gardiner	Program Manager
Denise Sagara	Yolo County Farm Bureau	Executive Director
Federal Highway Administration (FHWA) - California Division	Antonio Johnson	Planning Team Leader
FHWA	Charles Meyer	Safety and Operations/ITS Team Leader
FHWA	Steve Pyburn	Traffic Operations Engineer

**ATTACHMENT A
SACRAMENTO / YOLO I-5 COMPREHENSIVE MULTIMODAL CORRIDOR PLAN
STAKEHOLDERS LIST**

Organization	Name	Title
FHWA	Ivy Attah	Safety and Traffic Operations Engineer
FHWA	Jean Mazur	FTA Transportation Program Specialist
Sacramento Regional Transit	James Boyle	Director of Planning
North Natomas Jibe	Becky Heieck	Executive Director
Sacramento Area Council of Governments (SACOG)	James Corless	Executive Director
SACOG	Matt Carpenter	Director, Transportation Services
SACOG	Greg Chew	Senior Planner, Airport Land Use Planning
SACOG	Chris Dougherty	Senior Transportation Planner
Sacramento Area Bicycle Advocates	Debra Banks	Executive Director
Sacramento County Dept. of Transportation	Matt Darrow	Principal Civil Engineer
Sacramento County Dept. of Transportation,	Rick Carter	Principal Civil Engineer
Sacramento International Airport	Cynthia Nichol	Director
Sacramento Metropolitan Air Quality Management District	Alberto Ayala	Executive Director
Sacramento Metropolitan Air Quality Management District	Molly Wright, AICP	Air Quality Planner / Analyst
Sacramento Regional Transit	James Boyle	Planning Director
Sacramento Transportation Authority	Sabrina Drago	Executive Director
South Natomas TMA	Jason Vitaich	Executive Director
Sutter County	Steve Smith	County Administrator
Sutter County	Neal Hay	Public Works Director
WALKS Sacramento	Chris Holm	Project Manager
Wilton Rancheria	Jesus Tarango, Jr.	Chairperson
Wilton Rancheria	Mariah Mayberry	Tribal Monitor
Yocha Dehe Wintun Nation	Anthony Roberts	Chairperson
Yolo County	Taro Echiburu	Director, Dept of Community Services
Yolo County Department of Community Services	Nicholas Burton, P.E.	Public Works Director
Yolo County Transit District (YCTD)	Terry Bassett	Executive Director
YCTD	Jose Perez	Deputy Director of Planning, Operations, and Special Projects
Yolo Solano Air Quality Management District	Mat Ehrhardt, P.E.	Executive Director/APCO
Yuba Sutter Transit	Keith Martin	Transit Manager
Yuba Sutter Transit	Adam Hansen	Planning Program Manager

ATTACHMENT B
SACRAMENTO / YOLO I-5 COMPREHENSIVE MULTIMODAL CORRIDOR PLAN
TECHNICAL ADVISORY COMMITTEE AND STAKEHOLDER MEETING SCHEDULE

Technical Advisory Committee
Monthly (Last Tuesday of the Month)

Date	Time	Location	Address	City
August 24, 2020	10:00 a.m. – 11:30 a.m.	WebEx		
October 30, 2020	1:00 p.m. – 2:00 p.m.	WebEx		
February 22, 2021	10:00 a.m. – 11:00 a.m.	WebEx		
March 30, 2021	10:00 a.m. – 11:00 a.m.	WebEx		
April 27, 2021	10:00 a.m. – 11:00 a.m.	WebEx		
May 25, 2021	10:00 a.m. – 11:00 a.m.	WebEx		
June 29, 2021	10:00 a.m. – 11:00 a.m.	WebEx		
July 27, 2021	10:00 a.m. – 11:00 a.m.	WebEx		
August 31, 2021	10:00 a.m. – 11:00 a.m.	WebEx		
September 21, 2021	1:00 p.m. – 2:00 p.m.	WebEx		
October 19, 2021	1:00 p.m. – 2:00 p.m.	WebEx		
November 16, 2021	1:00 p.m. – 2:00 p.m.	WebEx		

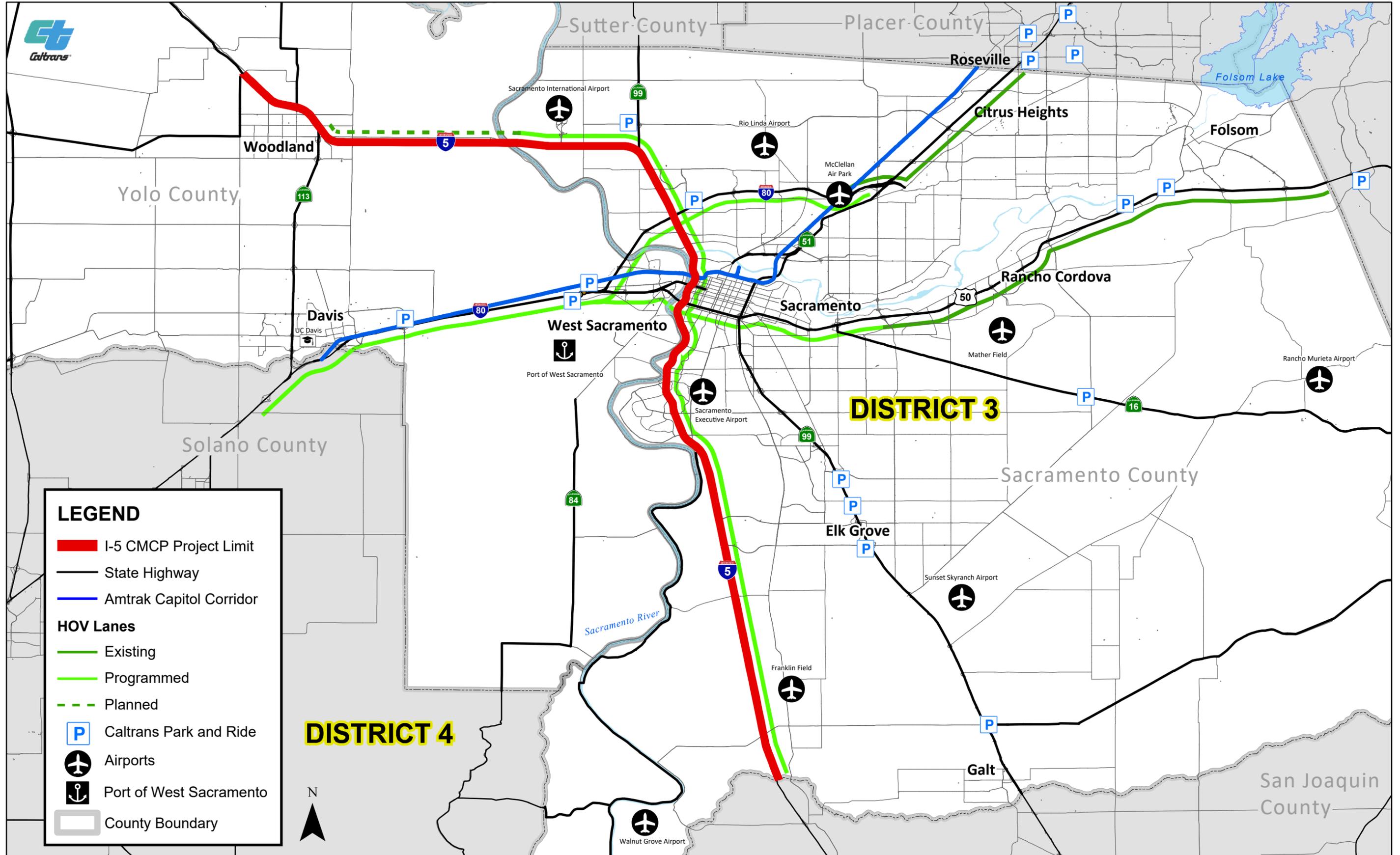
Stakeholders
Bi-Monthly (1st or 2nd Friday of the Month)

Date	Time	Location	Address	City
March 5, 2021	10:00 a.m. – 11:00 a.m.	WebEx		
May 14, 2021	1:00 p.m. – 2:00 p.m.	WebEx		
July 9, 2021	1:00 p.m. – 2:00 p.m.	WebEx		
September 3, 2021	10:00 a.m. – 11:00 a.m.	WebEx		
November 12, 2021	1:00 p.m. – 2:00 p.m.	WebEx		

Attachment C: I-5 CMCP Schedule

Task Name	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21				
Scope Effort and Team Formation																													
Data Collection																													
Conduct Performance Assessment (Existing Baseline)																													
Conduct Performance Assessment (Future Baseline)																													
Select and Prioritize Solutions																													
Develop Corridor Performance Plan to Monitor and Evaluate Progress																													
Draft Corridor Plan																													
Publish Final Corridor Plan																													
*Public Engagement																													

I-5 Comprehensive Multimodal Corridor Plan



LEGEND

- █ I-5 CMCP Project Limit
- State Highway
- Amtrak Capitol Corridor
- HOV Lanes**
- Existing
- Programmed
- - - Planned
- P Caltrans Park and Ride
- Airports
- Port of West Sacramento
- County Boundary

DISTRICT 4

DISTRICT 3



Appendix VI

I-5 CMCP Segment Maps

SAC-5 PM 10.826
END SEGMENT 1

SAC-5 PM 0.018
BEGIN SEGMENT 1

Sacramento/Yolo I-5 Comprehensive Multimodal Corridor Plan SEGMENT 1

Bicycle/Pedestrian Access

- Class I
- Class II
- Class III

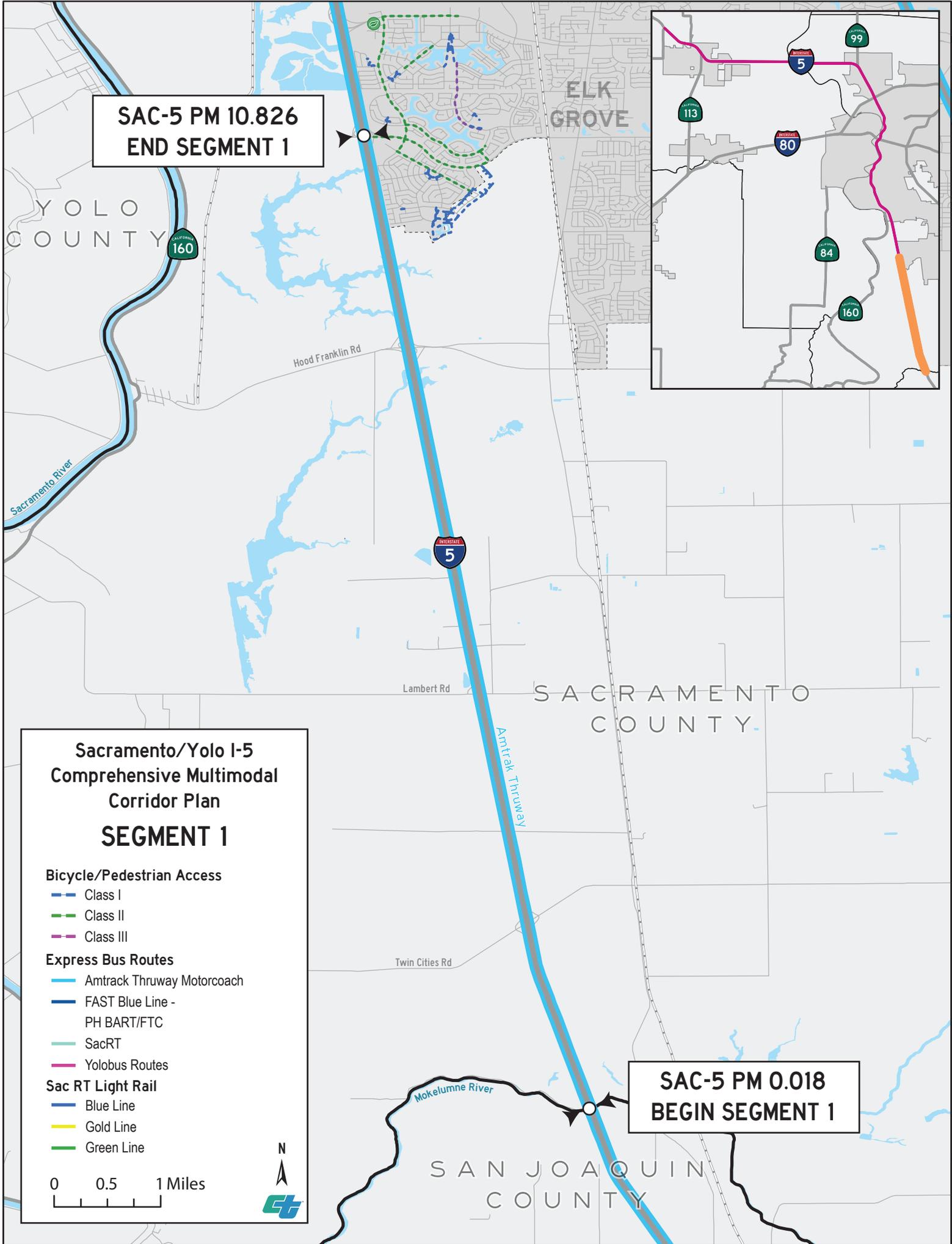
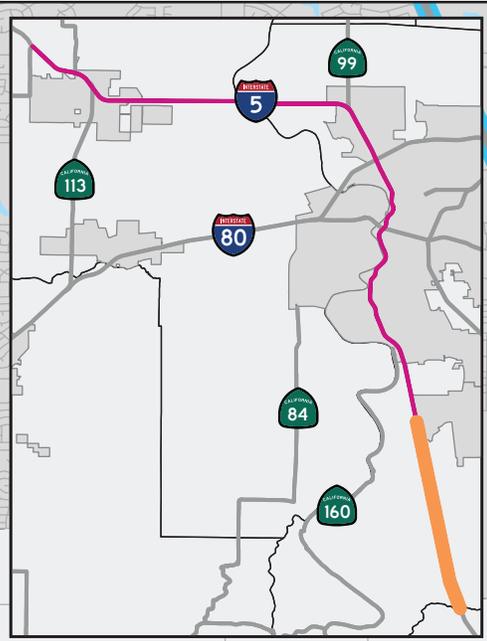
Express Bus Routes

- Amtrak Thruway Motorcoach
- FAST Blue Line - PH BART/FTC
- SacRT
- Yolobus Routes

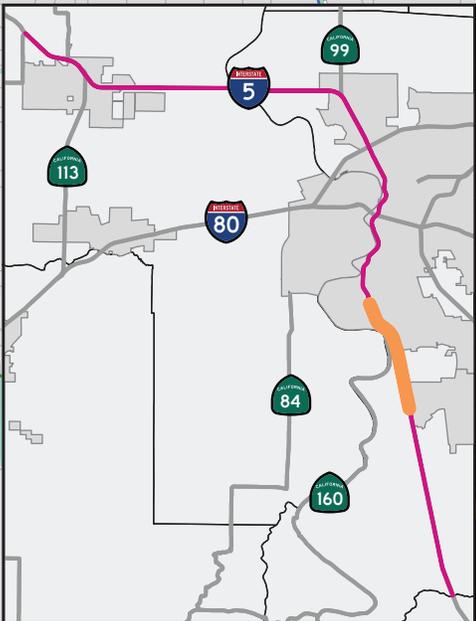
Sac RT Light Rail

- Blue Line
- Gold Line
- Green Line

0 0.5 1 Miles



SAC-5 PM 17.165
END SEGMENT 2



SACRAMENTO

YOLO
COUNTY

SACRAMENTO
COUNTY

160

5

160

Sacramento River

Amtrak Thruway

Laguna Blvd

ELK GROVE

Elk Grove Blvd

SAC-5 PM 10.826
BEGIN SEGMENT 2

Sacramento/Yolo I-5 Comprehensive Multimodal Corridor Plan SEGMENT 2

Bicycle/Pedestrian Access

- Class I
- Class II
- Class III

Express Bus Routes

- Amtrak Thruway Motorcoach
- FAST Blue Line - PH BART/FTC
- SacRT
- Yolobus Routes

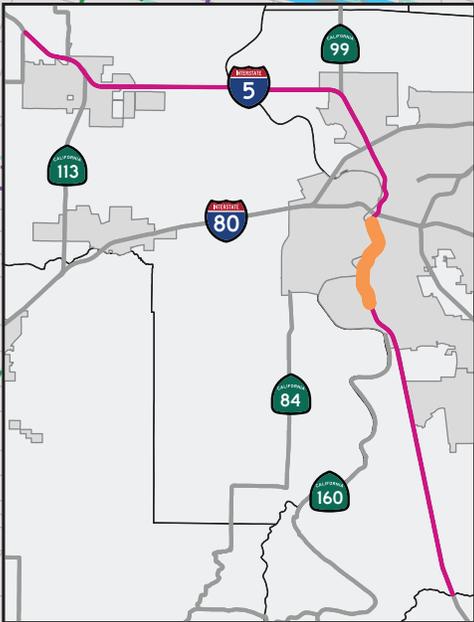
Sac RT Light Rail

- Blue Line
- Gold Line
- Green Line

0 0.25 0.5 Miles



SAC-5 PM 22
END SEGMENT 3



YOLO COUNTY

WEST SACRAMENTO

Sacramento River



Sutterville Rd

SACRAMENTO

Sacramento Executive Airport



43rd Ave

SACRAMENTO COUNTY

Seamus Ave

Gloria Dr

Amtrak Thruway

Florin Rd

SAC-5 PM 17.165
BEGIN SEGMENT 3

Sacramento/Yolo I-5 Comprehensive Multimodal Corridor Plan SEGMENT 3

Bicycle/Pedestrian Access

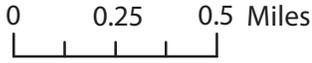
- Class I
- Class II
- Class III

Express Bus Routes

- Amtrak Thruway Motorcoach
- FAST Blue Line - PH BART/FTC
- SacRT
- Yolobus Routes

Sac RT Light Rail

- Blue Line
- Gold Line
- Green Line



**Sacramento/Yolo I-5
Comprehensive Multimodal
Corridor Plan**

SEGMENT 4

Bicycle/Pedestrian Access

- Class I
- Class II
- Class III

Express Bus Routes

- Amtrak Thruway Motorcoach
- FAST Blue Line - PH BART/FTC
- SacRT
- YoloBus Routes

Sac RT Light Rail

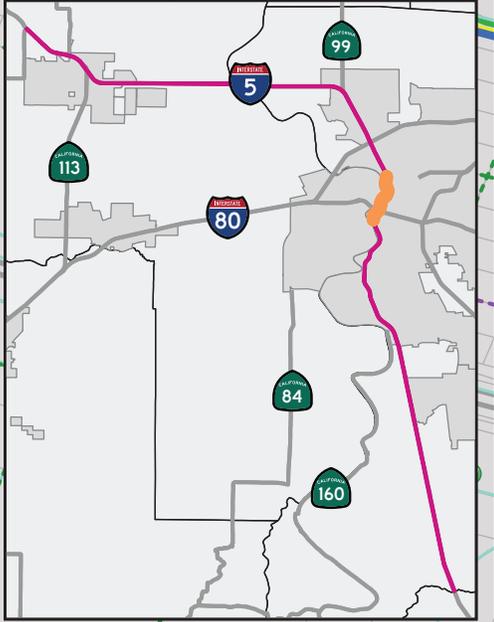
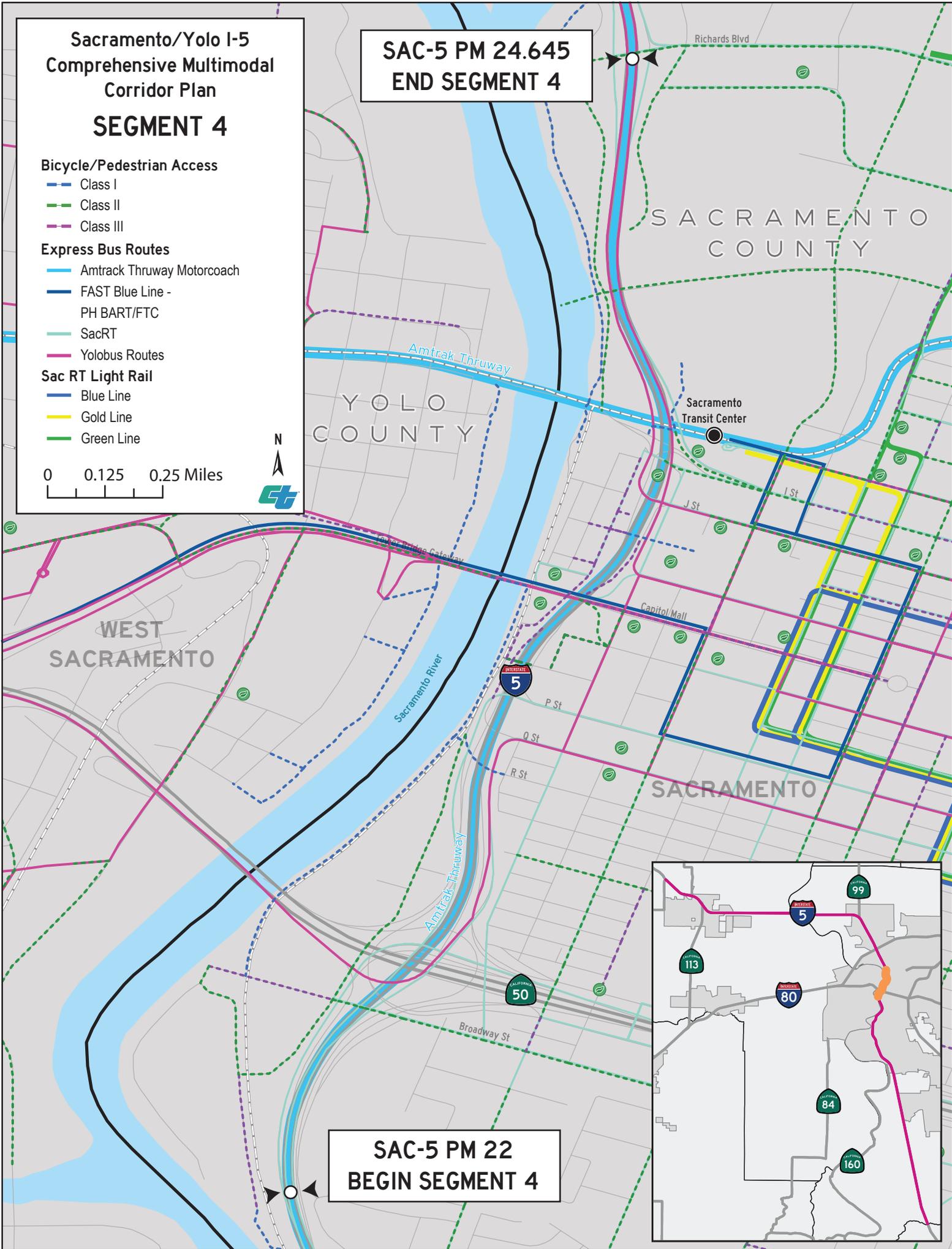
- Blue Line
- Gold Line
- Green Line

0 0.125 0.25 Miles

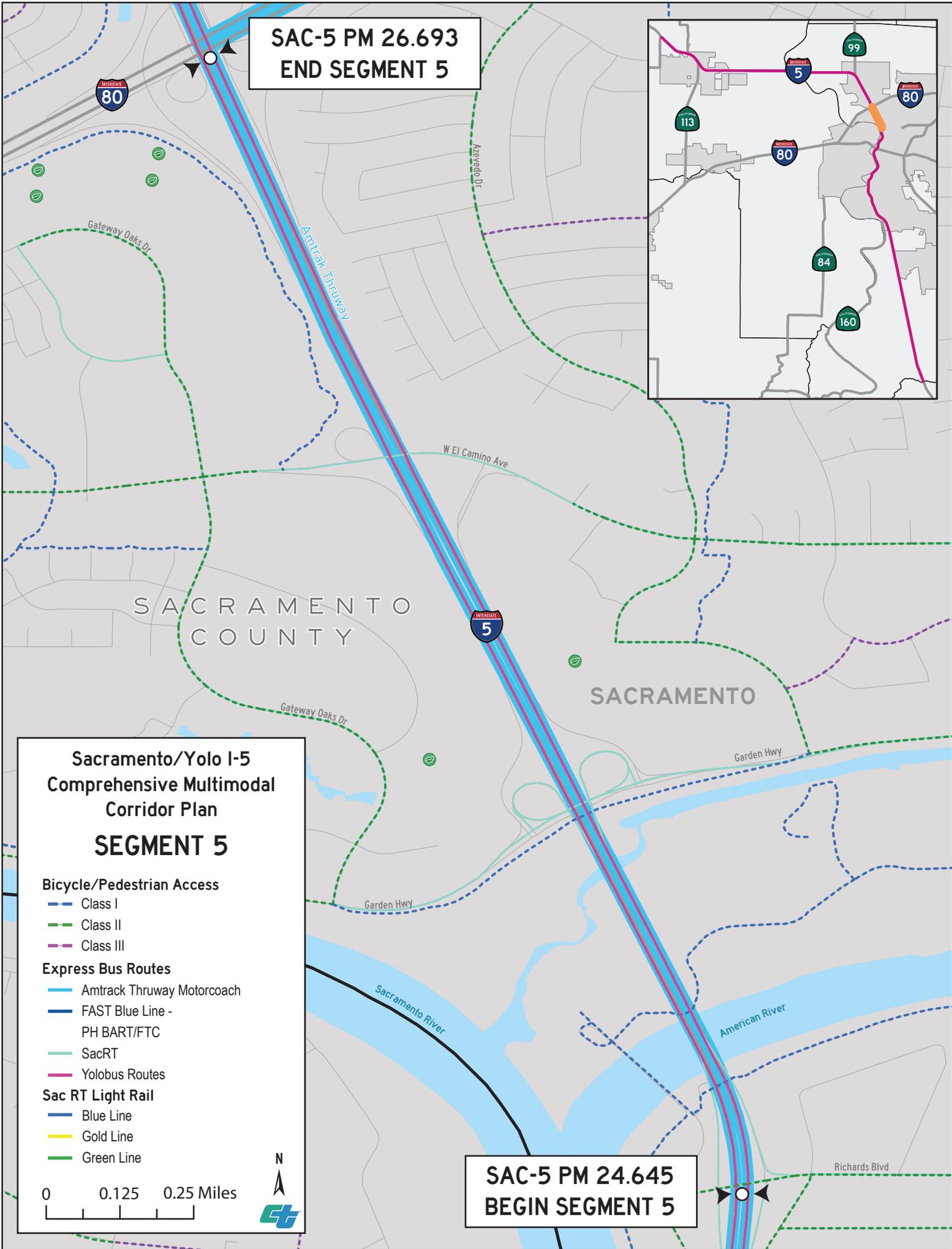
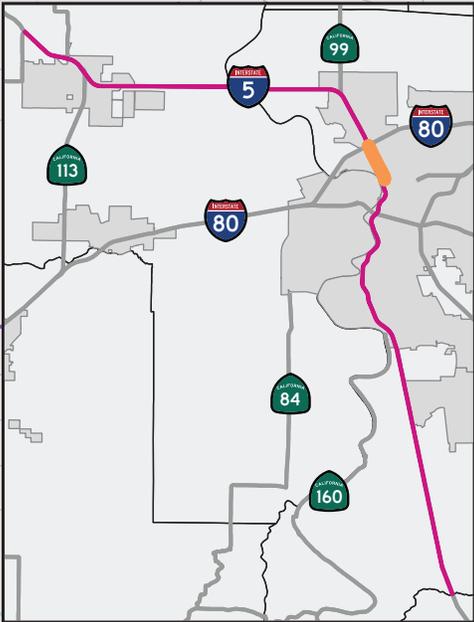


**SAC-5 PM 24.645
END SEGMENT 4**

**SAC-5 PM 22
BEGIN SEGMENT 4**



SAC-5 PM 26.693
END SEGMENT 5



**Sacramento/Yolo I-5
Comprehensive Multimodal
Corridor Plan
SEGMENT 5**

Bicycle/Pedestrian Access

- Class I
- Class II
- Class III

Express Bus Routes

- Amtrak Thruway Motorcoach
- FAST Blue Line - PH BART/FTC
- SacRT
- YoloBus Routes

Sac RT Light Rail

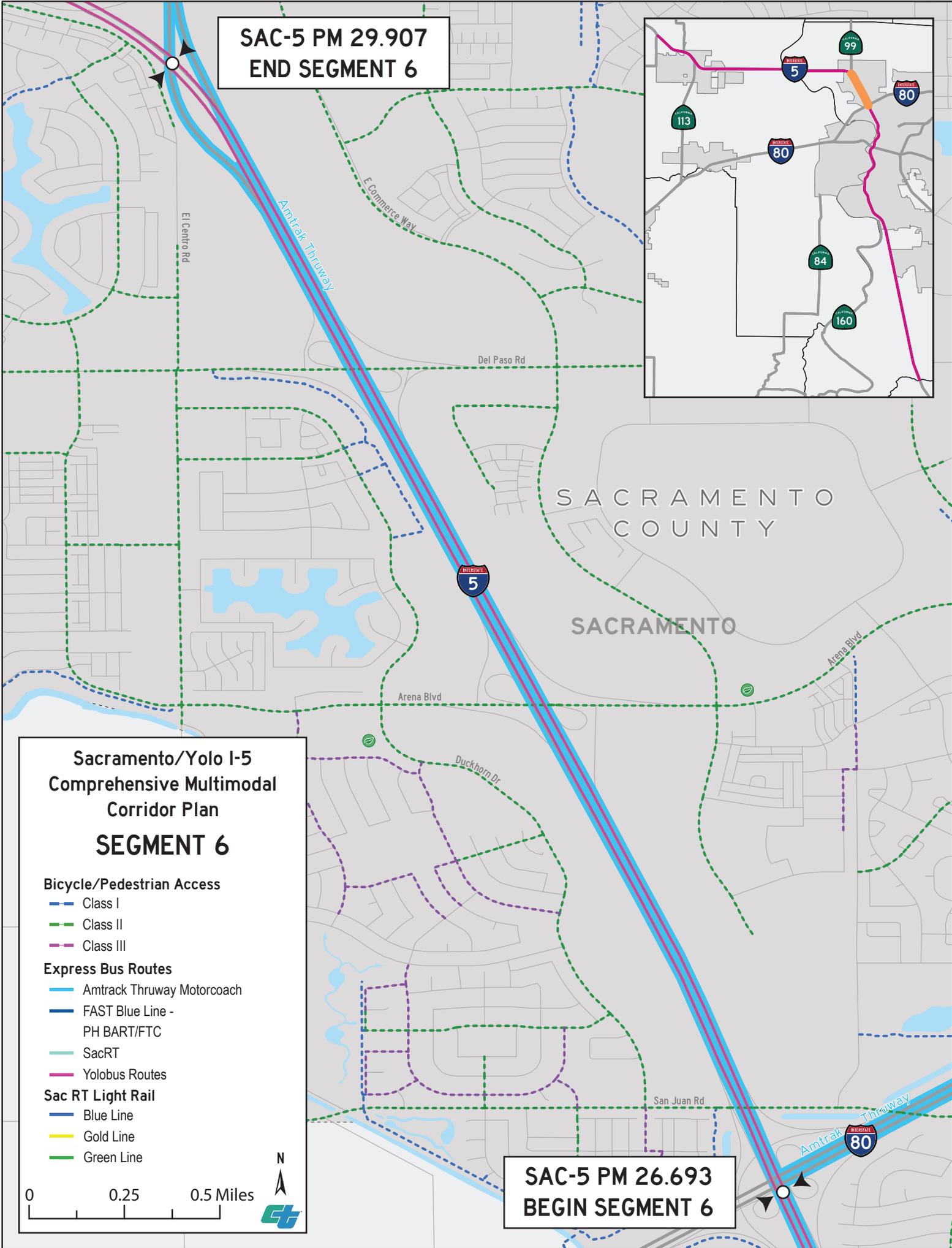
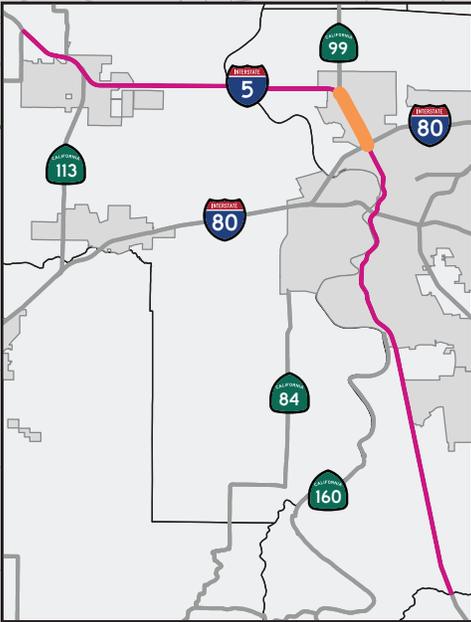
- Blue Line
- Gold Line
- Green Line

0 0.125 0.25 Miles



SAC-5 PM 24.645
BEGIN SEGMENT 5

**SAC-5 PM 29.907
END SEGMENT 6**



SACRAMENTO
COUNTY
SACRAMENTO

**Sacramento/Yolo I-5
Comprehensive Multimodal
Corridor Plan
SEGMENT 6**

Bicycle/Pedestrian Access

- Class I
- Class II
- Class III

Express Bus Routes

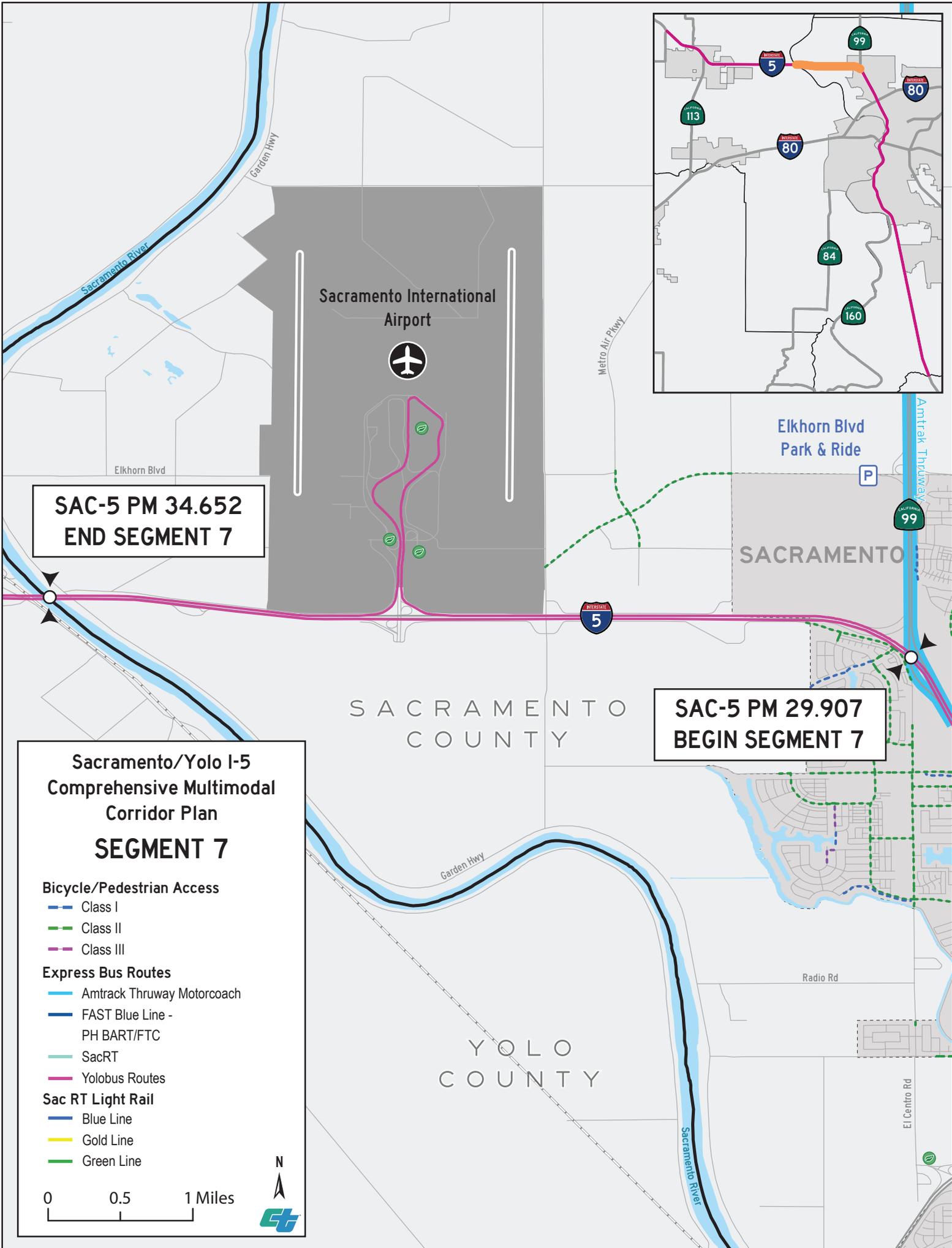
- Amtrak Thruway Motorcoach
- FAST Blue Line - PH BART/FTC
- SacRT
- Yolobus Routes

Sac RT Light Rail

- Blue Line
- Gold Line
- Green Line

0 0.25 0.5 Miles

**SAC-5 PM 26.693
BEGIN SEGMENT 6**



**SAC-5 PM 34.652
END SEGMENT 7**

**SAC-5 PM 29.907
BEGIN SEGMENT 7**

**Sacramento/Yolo I-5
Comprehensive Multimodal
Corridor Plan
SEGMENT 7**

Bicycle/Pedestrian Access

- Class I
- - - Class II
- - - Class III

Express Bus Routes

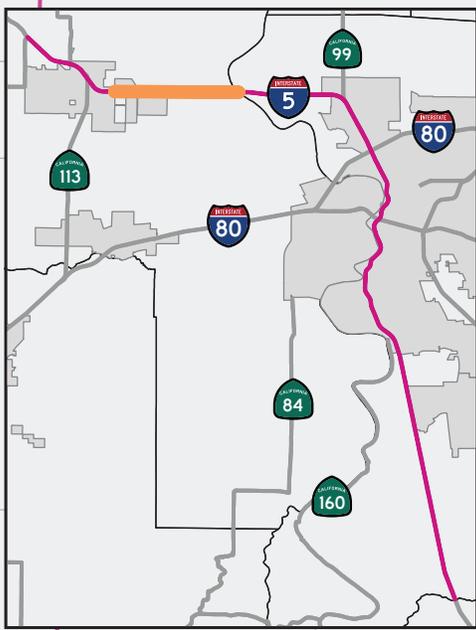
- Amtrak Thruway Motorcoach
- FAST Blue Line - PH BART/FTC
- SacRT
- Yolobus Routes

Sac RT Light Rail

- Blue Line
- Gold Line
- Green Line

0 0.5 1 Miles

N
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CT



YOLO
COUNTY

**YOL-5 PM 5.53
END SEGMENT 8**

**YOL-5 PM 0
BEGIN SEGMENT 8**

WOODLAND

County Rd 102

County Rd 25

County Rd 27

**Sacramento/Yolo I-5
Comprehensive Multimodal
Corridor Plan
SEGMENT 8**

Bicycle/Pedestrian Access

- Class I
- Class II
- Class III

Express Bus Routes

- Amtrack Thruway Motorcoach
- FAST Blue Line - PH BART/FTC
- SacRT
- Yolobus Routes

Sac RT Light Rail

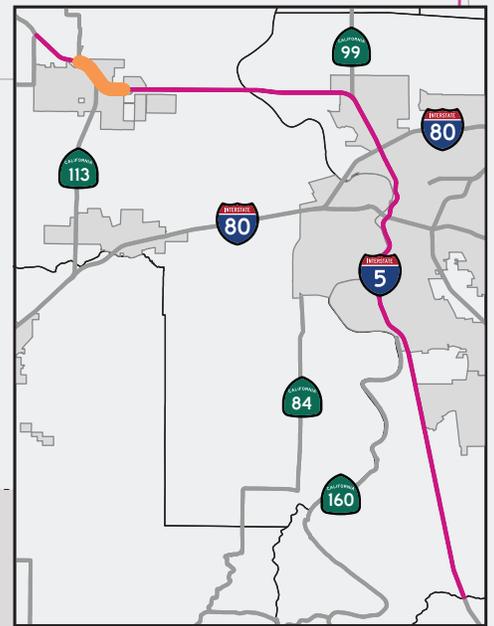
- Blue Line
- Gold Line
- Green Line

0 0.5 1 Miles

N
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YOLO COUNTY

YOL-5 PM R8.262
END SEGMENT 9



E Kentucky Ave

Pioneer Ave

WOODLAND

Beamer St



Gibson Rd

YOL-5 PM 5.53
BEGIN SEGMENT 9

Sacramento/Yolo I-5 Comprehensive Multimodal Corridor Plan SEGMENT 9

Bicycle/Pedestrian Access

- Class I
- Class II
- Class III

Express Bus Routes

- Amtrack Thruway Motorcoach
- FAST Blue Line - PH BART/FTC
- SacRT
- Yolobus Routes

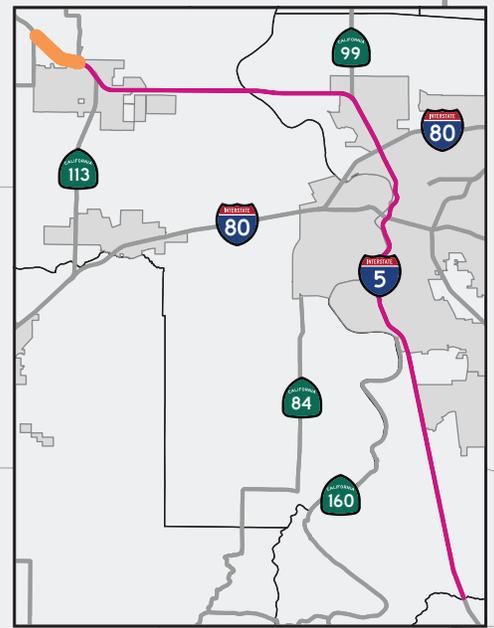
Sac RT Light Rail

- Blue Line
- Gold Line
- Green Line

0 0.25 0.5 Miles



YOL-5 PM R10.807
END SEGMENT 10



County Rd 99



Sacramento/Yolo I-5 Comprehensive Multimodal Corridor Plan SEGMENT 10

Bicycle/Pedestrian Access

- Class I
- Class II
- Class III

Express Bus Routes

- Amtrack Thruway Motorcoach
- FAST Blue Line - PH BART/FTC
- SacRT
- Yolobus Routes

Sac RT Light Rail

- Blue Line
- Gold Line
- Green Line

YOL-5 PM R8.262
BEGIN SEGMENT 10

West St

Kentucky Ave

WOODLAND

W Beamer St

0 0.25 0.5 Miles



Appendix VII

Zero Emission Vehicles Charging Stations

Appendix VII | Zero Emissions Vehicles Charging Stations

Station Name	Charge Type	Address	Cost	Parking	Amenities	Hours	Additional Information
Hampton Inn Elk Grove	J-1772	2305 Longport Court Elk Grove, CA 95758		Parking: Free	Dining, Restrooms, Lodging, EV Parking, Shopping, Wi-Fi		4 Tesla Destination Chargers and 2 J-1772 chargers. One of the J-1772 chargers is in an accessible space, so only one is open to the general public. Chargers are out back and signed as EV Parking Only.
Delta Shores - In N Out	J-1772Volta6.656 kW	8200 Delta Shores Circle Sacramento, CA 95832	Free	Parking: Free	Dining, Restrooms, EV Parking, Shopping	6:00 A.M. - Midnight	One station near In & Out, two near Starbucks
Dollar Tree	J-1772ChargePoint6.6 kW	1420 Meadowview Road Sacramento, CA 95832	All Days \$0.35/kWh	Parking: Free	EV Parking, Shopping	Open 24/7	Dollar Tree has two separate driveways that feed into it. These chargers are closest to the driveway off of the Meadowview entrance. Two spots next to the building, furthest away from the doors of the business but with plenty of spacing allowed from other cars.
Belle Cooledge Library	J-1772	5600 S. Land Park Drive Sacramento, CA 95822		Parking: Free			Two CS-40 - Clipper Creek Level 2.
The Park Shopping Center	J-1772SemaConnect7.2 kW	4690 Freeport Boulevard Sacramento, CA 95822	\$2.00/Hr.	Parking: Free	Dining, Restrooms, EV Parking, Wi-Fi, Shopping, Grocery	Open 24/7	Two stations in front of Chicago Title, currently \$2/hour
Target	CCS/SAE, CHAdeMOElectrify America50 - 150 kW	2505 Riverside Boulevard Sacramento, California, 95818	Pass (Free): (1-350 kW) \$0.43/kWh	Parking: Free	Grocery, EV Parking, Restrooms	Open 24/7	
Southside Park	CHAdeMO, CCS/SAEEVgo50 - 175 kW	2115 6th Street Sacramento 95818	This location has variable pricing	Parking: Free	Park, EV Parking, Restrooms, Shopping, Grocery, Dining	Open 24/7	EVgo Fast Chargers are located on the southwest corner of Southside Park on 6th Street, near the tennis courts.
SP+ Parking	J-1772ChargePoint6.6 kW	500 R Street Sacramento, CA 95811	\$0.10/kWh	Parking: Free	Garage	Closed weekends & every night after 7:00 P.M.	EV Parking, Shopping
Q St Parking Garage - Lot 55	J-1772EV Connect7.2 kW	800 Q Street Sacramento, CA 95811	\$0.17 per kWh	Parking: Free	Garage		
California Energy Commission	J-1772EV Connect7.2 kW	1516 9th Street Sacramento, CA 95814	.17/kWh	Parking: Free			
DGS Lot 24 - 1	J-1772EV Connect7.2 kW	1500 10th Street Sacramento, CA 95814	Parking: Pay	Pull in parking	Garage		

Station Name	Charge Type	Address	Cost	Parking	Amenities	Hours	Additional Information
Public Parking	J-1772ChargePoint	959 Bridge Street, West Sacramento, CA 95691		Parking \$10 a day or \$1,75 p/h	EV Parking, Dining, Restrooms	Open 24/7	ChargePoint station 6.6 kW. Free charging. Map marker location is precise.
520 Capitol Mall	J-1772	520 Capitol Mall Sacramento, CA 95814			Garage		Parking garage, must pay to enter, enter off N Street, charger on ground floor in the corner
500 Capital Mall	J-1772ChargePoint6.6 kW	500 Capitol Mall # 2350 Sacramento, CA 95814		\$1/hour for first 4 hours, then \$3/hour after.	Garage	EV Parking	4 shared chargers. 8 cables total. Enter off N Street.EV parking \$1/hour for the first 4 hours, then \$3 after 4 hours.
300 Capitol Mall	J-1772, Wall	300 N Street Sacramento, CA 95814	Parking fee				
Embassy Suites Sacramento - Riverfront Promenade	J-1772GE WattStation7.2 kW	100 Capitol Mall Sacramento California, 95814	Payment Required	\$30/day for parking	Dining, Lodging		Two GE Watt Stations. Currently no additional cost for charging, but subject to usual hotel parking fee of \$30/day.
One Capitol Mall Tower Bridge Garage	J-1772ChargePoint	135 Neasham Circle Sacramento, CA, 95814	Payment Required	\$3 per hour; \$15 maximum for parking. Charging is Free.		6 a.m. - 6 p.m. daily	Five charging stations are located in Parking Lot R next to the exit on the lower level. Free with ChargePoint Card or activate with credit card. Clipper Creek units.
Capitol Garage - 10th & L Street	Wall, J-1772ChargePoint		\$1.50 1/2 hr., \$20 weekday max, \$5 weekend daily max.	Parking: Pay	Parking Level: 2, 3	Open 24/7	Free charging, pay parking. You must enter on 10th Street between L Street and the alley. EV chargers are on third floor. Second floor chargers are for state vehicles only
City Hall Garage Lot I	Wall, J-1772	932 10th Street Sacramento, CA 95814	Weekday Rates: (6 a.m. to 5 p.m.) \$1.50 each half hour; \$18 daily maximum charge. Night and Weekend Rates: \$1.50 each half hour; \$5 maximum charge.	Parking Level: 2, 8		Open 24/7	Six L2 stations on second level, 15 L2 stations (including 60 amp one) and 110 outlets on roof level. Allows gas car parking after 4:00 P.M.
State Treasurer's Office	J-1772EV Connect7.2 kW		\$0.31/hr. + \$0.12/kWh	Idle Parking Time Rate: \$1.15/hr.	Garage		
Priority Parking	J-1772ChargePoint	812 L Street Sacramento, CA 95814	Payment Required	Free with parking; Parking Garage - \$12/full day	Valet Parking, Dining	Closes at 7pm	

Station Name	Charge Type	Address	Cost	Parking	Amenities	Hours	Additional Information
Renaissance Tower	J-1772ChargePoint	801 K Street Sacramento, CA 95814		Parking: Pay		Open 24/7	Enter parking from 8th Street, one-way north. Charging stations are located on the second floor of the parking garage
Park Tower Garage	J-1772, Tesla ChargePoint, Tesla Destination16 kW	849 J Street Sacramento, CA 95814	Payment Required	\$5.25 per hour; \$19.25 maximum	EV Parking, Lodging, Shopping, Dining, Restrooms	Garage business hours; pay lot	Enter from J Street, one-way east. CS-40 - Clipper Creek updated J1772 compliant equipment. paid \$7 for weekend parking
St. Joseph's Parking Lot - Juror Parking	J-1772ChargePoint6.6 kW	650 9th Street Sacramento, CA, 95814	Free	Parking: Free	EV Parking, Dining	Open 24/7	Two ChargePoint chargers. Enter parking lot from 8th Street (one-way north). Charger is on 9th Street side of lot. Chargers are free but parking during the day is for jurors. After 5pm it becomes paid parking.
7th Street Garage	J-1772, CHAdeMO, CCS/SAEChargePoint6.6 - 50 kW	725 7th Street Sacramento, CA 95814	Payment Required	\$1.75/half-hour; \$17.50 max	Shopping, Lodging, EV Parking, Restrooms, Dining	Mon. - Fri.: 6:30 a.m. - 6 p.m.	Located on second floor: Charging is free, parking rates apply. ChargePoint RFID card required.
US Bank Tower	J-1772ChargePoint	U.S. Bank Tower 621 Capitol Mall Sacramento, CA 95814	4 hours charging free, then \$5/hr. thereafter.	\$10 early bird parking M - F, in by 9:30, out by 7.			
Kimpton Sawyer Hotel	J-1772, Tesla ChargePoint, Tesla Destination6.6 - 10 kW	500 J Street, Sacramento, CA 95814		Parking is \$4/hr. Max/Lost Ticket \$28	Restrooms, EV Parking, Shopping, Lodging, Dining, Park, Valet Parking	Open 24/7	You can enter the Downtown Commons east parking garage by 24 hr. fitness at 1010 7th Street entrance. It is on the first level. You have to drive to the back area of garage under the Kimpton Sawyer Hotel. 2 dual ChargePoint stations. Need a ChargePoint card to access. Paid or validated parking garage.
J St Supercharger	Tesla (Fast)Supercharger250 kW	450 J Street Sacramento, CA 95814	Payment Required	Parking is \$4/hour. Free parking for 3 hours with validation from local merchants (DOCO). The movies provide 4 hours validation.	Shopping, EV Parking, Dining, Restrooms	Open 24/7	20 Superchargers, available 24/7, up to 250kW, located in section C2

Station Name	Charge Type	Address	Cost	Parking	Amenities	Hours	Additional Information
Downtown Plaza Garage - Lot G	J-1772ChargePoint	419 J Street Sacramento, CA 95814	Free 3 hour parking with validation.		Dining, EV Parking, Shopping, Lodging, Restrooms	Open 24/7	5th and J streets (another entrance at 3rd and L streets)
City of Sacramento - Lot U	Wall, J-1772ChargePoint6.6 kW	414 J Street Sacramento, CA 95814	Payment Required	Parking is \$4/hour. Free parking for 3 hours with validation from local merchants (DOCO). The movies provide 4 hours validation.	Dining, Restrooms, EV Parking, Lodging, Shopping	Open 24/7	DOCO; bottom level of the parking garage on the back wall. Follow sign for EV chargers after reaching the bottom level.
City of Sacramento - Lot G	J-1772ChargePoint	325 L Street Sacramento, CA 95814			Dining, Lodging, EV Parking, Restrooms, Shopping, Wi-Fi, Park		Three ChargePoint card-access and three Clipper Creek units on lower level.
Sacramento Amtrak Station	CHAdEMO, CCS/SAEGreenlots25 kW	303 I Street Sacramento CA 95814	\$0.25/kWh after tax+ \$0.35 access fee. Use Green lots card or app or credit card. 1hr limit. Pay for parking at kiosks.	Parking: Pay	Shopping, Restrooms, Dining, Lodging, Park, EV Parking	Open 24/7	
City of Sacramento - Lot P	J-1772ChargePoint	200 I Street Sacramento, CA 95814			Park, Restrooms, Dining, Shopping		Enter parking from I Street under the I-5. The charger is located in the center of the first floor.
SMUD Museum of Science and Curiosity	J-1772ChargePoint6.6 kW	400 Jibboom Street Sacramento, CA 95811	Free, ChargePoint app required	\$6.00 parking.		Daily 10am-5pm	
Sacramento Police Department	J-1772ChargePoint	300 Richards Boulevard Sacramento, CA 95811		Parking: Free	Four ChargePoint stations, access weekdays 8 to 5.		
State Compensation Insurance Fund	J-1772SemaConnect7.2 kW	2275 Gateway Oaks Drive Sacramento, CA 95833		Parking: Free	Lodging, Dining, EV Parking	Open 24/7	
Gateway Oaks Sacramento	J-1772	2710 Gateway Oaks Drive Sacramento, CA, 95833					Single Clipper Creek CS-40 Level 2.
2860 Crown Corporate Center	J-1772ChargePoint	2860 Gateway Oaks Drive Sacramento, CA 95833	\$1.50 per hour	Parking: Free	EV Parking, Restrooms, Lodging	Open 24/7	Two 6.6kW per port, 240v, 30amp.
2870 Crown Corporate Center	J-1772ChargePoint	2870 Gateway Oaks Drive Sacramento, California,95833	\$1.50/hour	Parking: Free	EV Parking, Restrooms	Open 24/7	Two ChargePoint chargers in rear parking lot between 2880 & 2870. Two 5kW per port, 240v, 24amp.
2890 Crown Corporate Center	J-1772ChargePoint	2890 Gateway Oaks Drive Sacramento, CA 95833	\$1.50/hr.	Parking: Free	EV Parking, Restrooms	Open 24/7	6.6kW per port, 240v, 30amp.
Market West	CCS/SAE, CHAdEMOElectrify America50 - 150 kW	3270 Arena Boulevard Sacramento, CA 95834	Pass (Free): (1-350 kW) \$0.43/kWh		Restrooms, EV Parking, Shopping, Grocery	Open 24/7	
Vintage at Natomas Field Senior Apartments	J-1772	4000 Alan Shepard Street Sacramento, CA 95834		Parking: Free	Dining, EV Parking, Park, Shopping, Grocery	Open 24/7	Shopping center nearby with many food options and hair/nail salons. Right near Building 9.

Station Name	Charge Type	Address	Cost	Parking	Amenities	Hours	Additional Information
TownePlace Suites by Marriott Sacramento Airport Natomas	J-1772ChargePoint6.6 kW	4090 E Commerce Way Sacramento, CA 95834		Front parking lot of the new Fairfield Suites	Lodging, Dining, Restrooms, EV Parking		
CPS HR Consulting	J-1772ChargePoint6.6 kW	2450 Del Paso Road Sacramento, CA 95834		Parking: Free	Dining, EV Parking, Shopping, Grocery		
Sacramento International Airport - Airport Boulevard	CCS/SAE, CHAdeMOElectrify America50 - 150 kW	6900 Airport Boulevard Sacramento, CA 95837	Pass (Free): (1-350 kW) \$0.43/kWh			Open 24/7	Pull in parking
Sacramento International Airport - Waiting Area	CHAdeMO, CCS/SAE, J- 1772Greenlots25 kW	5750 Crossfield Drive Sacramento, CA 95837	\$0.25/kWh after tax+ \$0.35 access fee. Use Greenlots card or app or credit card.	Parking: Free	EV Parking, Wi-Fi, Restrooms	Open 24/7	
Woodland Supercharger	Tesla (Fast)Supercharger250 kW	2185 Bronze Star Drive Woodland, CA 95776	Payment Required	Parking: Free	Dining, EV Parking, Shopping, Restrooms, Wi-Fi, Grocery	Open 24/7	8 Superchargers, available 24/7, up to 250kW
Woodland Gateway Center - Red Robin Restaurant	J-1772	2031 Bronze Star Drive Woodland, CA 95776	Parking: Free		Restrooms, Dining, EV Parking, Shopping, Grocery	Open 24/7	Map marker is precise. I-5 exit 536, then south. Located west of Red Robin, and north of Starbucks. Charging station is on east side of a small brick utility building. Two older stations, two newer ones.
Yolo County Transportation District Office	J-1772	350 Industrial Way Woodland, CA 95776		Parking: Free	EV Parking, Restrooms, Dining, Shopping, Grocery	Open 24/7	Two Level 2 stations off east main near the entrance. Make first left, immediately after railroad tracks.
Best Western Shadow Inn	J-1772SemaConnect7.2 kW	584 N, East Street Woodland, CA 95776		\$1.45/Hr.	Restrooms, Dining, Lodging, EV Parking	Open 24/7	
Pacific Gas and Electric	J-1772ChargePoint	242 N. West Street Woodland, CA 95695	19 cents per kWh	Parking: Free	EV Parking, Restrooms	Open 24/7	

Appendix VIII

Special Status Species

Appendix VIII | I-5 CMCP Special Status Species

Scientific Name	Common Name	Legal Status Federal/State/Other	Habitat Associations	Segment Number
Plants				
<i>Atriplex depressa</i>	Brittlescale	-/-/1B.2	Found in areas with saline and alkaline soils.	Segment 8-9
<i>Brasenia schreberi</i>	Watershield	-/-/2B.3	Perennial aquatic plant with floating, peltate leaves and rhizomatous stems.	Segment 1
<i>Carex comosa</i>	Longhair sedge	-/-/2B.1	Found in fields, meadows, swamps, ditches, and wet, disturbed sites.	Segment 1
<i>Downingia pusilla</i>	Dwarf downingia	-/-/2B.2	Found in vernal pools, roadside ditches.	Segment 2
<i>Extriplex joaquinana</i>	San Joaquin spearscale	-/-/1B.2	Grows in alkaline soils in the Sacramento-San Joaquin River Delta and adjacent parts of the Central Valley.	
<i>Hibiscus lasiocarpus var. occidentalis</i>	Woolly rose-mallow	-/-/1B.2	Found often in riprap on sides of levees and in marshes and swamps (freshwater).	Segment 2-8
<i>Lasthenia chrysantha</i>	Alkali-sink goldfields	-/-/1B.1	Grows in vernal pools and alkali flats.	Segment 1
<i>Lathyrus jepsonii var. jepsonii</i>	Delta tule pea	-/-/1B.2	Tends to grow in marshes and wet places.	Segment 1

Appendix VIII | I-5 CMCP Special Status Species

Scientific Name	Common Name	Legal Status Federal/State/Other	Habitat Associations	Segment Number
<i>Legenere limosa</i>	False venus' looking glass	-/-/1B.1	Found in wet areas, vernal pools, ponds.	Segment 1-2
<i>Puccinellia simplex</i>	California alkali grass	-/-/1B.2	Found in grows in mineral springs and other moist habitat with saline soils.	Segment 8
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	-/-/1B.2	An aquatic perennial herb up to 130 cm tall, growing from a spherical tuber. Leaves are very often submerged, variable in shape.	Segment 1-2
<i>Scutellaria lateriflora</i>	Blue skullcap	-/-/2B.2	Wetland species and grows along fens and shorelines.	Segment 1
<i>Trifolium hydrophilum</i>	Saline clover	-/-/1B.2	FAC plant found in wetlands and blooms from April to June.	Segment 1-2
Mammals				
<i>Taxidea taxus</i>	American badger	-/-/SSC	Prefer to live in dry, open grasslands, fields, and pastures.	Segment 9-10
Birds				
<i>Agelaius tricolor</i>	tricolored blackbird	-/T/SSC	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grain fields. Habitat must be	Segment 1-6-7-9-10

Appendix VIII | I-5 CMCP Special Status Species

Scientific Name	Common Name	Legal Status Federal/State/Other	Habitat Associations	Segment Number
			large enough to support 50 pairs. Probably requires water at or near the nesting colony.	
<i>Athene cunicularia</i>	burrowing owl	-/-/SSC	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows.	Segment 1-2-6
<i>Buteo swainsoni</i>	Swainson's hawk	-/T/-	Commonly nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields.	Segment 1-2-3-4-5-6-7-8-9-10
<i>Charadrius montanus</i>	Mountain plover	-/-/SSC	Prefers dry habitat with short grass (usually due to grazing) and bare ground.	Segment 9-10
<i>Charadrius nivosus nivosus</i>	Western snowy plover	T/-/SSC	Can be seen nesting along the shores, peninsulas, offshore islands, bays, estuaries, and rivers.	Segment 9-10
<i>Coccyzus americanus</i>	Western yellow-billed cuckoo	T/E/-	Wide, dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are	Segment 2-3-4-5-6

Appendix VIII | I-5 CMCP Special Status Species

Scientific Name	Common Name	Legal Status Federal/State/Other	Habitat Associations	Segment Number
			preferred for foraging; may avoid valley-oak riparian habitats where scrub jays are abundant.	
<i>Elanus leucurus</i>	white-tailed kite	-/-/FP	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging.	Segment 6-7
<i>Melospiza melodia</i>	song sparrow (Modesto population)	-/-/SSC	Found in nearly any open habitat, including marsh edges, overgrown fields, backyards, desert washes, and forest edges.	Segment 1-2-3-4-5-6
<i>Progne subis</i>	purple martin	-/-/SSC	Towns, farms, semi-open country near water; in west, also natural cavities in mountain forest, saguaro desert. Colonial, with dozens of martins nesting in the same spot; they feed in open areas, especially near water.	Segment 4
<i>Vireo bellii pusillus</i>	Least Bell's Vireo	E/E/-	Found in willow-dominated dense riparian areas. In winter occupy a variety of habitats including mesquite scrub	Segment 4-5

Appendix VIII | I-5 CMCP Special Status Species

Scientific Name	Common Name	Legal Status Federal/State/Other	Habitat Associations	Segment Number
			within arroyos, palm groves, and hedgerows bordering agricultural and residential areas.	
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed blackbird	-/-/SSC	Found in freshwater marshes during the summer. They particularly like to live amongst cattails, tule, and bulrush.	Segment 2
Crustaceans				
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	T/-/-	Found in Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County. Common in vernal pools; also found in sandstone rock outcrop pools.	Segment 1-2
<i>Lepidurus packardii</i>	vernal pool tadpole shrimp	E/-/-	Found from Shasta County south to Merced County in vernal pools and ephemeral stock ponds.	Segment 1
Fishes				
<i>Archoplites interruptus</i>	Sacramento perch	-/-/SSC	Native habitat included sloughs, sluggish rivers, and lakes with beds of rooted	Segment 3

Appendix VIII | I-5 CMCP Special Status Species

Scientific Name	Common Name	Legal Status Federal/State/Other	Habitat Associations	Segment Number
			and emergent vegetation; now this fish is found mostly in warm, turbid, moderately alkaline reservoirs or farm ponds.	
<i>Oncorhynchus mykiss irideus pop. 11</i>	Central Valley DPS steelhead	T/-/- Designated Critical Habitat	Sacramento River and tributary Central Valley rivers. Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 7.8 to 18°C. Habitat types are riffles, runs, and pools.	Segment 1-2-3-4-5-7-8
<i>Oncorhynchus Tshawytscha pop. 7</i>	Sacramento winter-run chinook salmon	E/E/- Designated Critical Habitat	Winter-run Chinook are currently restricted within the Sacramento River below Keswick dam; species does not spawn in tributaries. Species requires cold water over gravel beds to spawn.	Segment 3-4
<i>Oncorhynchus Tshawytscha pop. 11</i>	Central Valley spring-run ESU chinook salmon	T/T/-	Federal listing refers to pops spawning in Sacramento River and tributaries. Adult nos. depend on pool depth and	Segment 3

Appendix VIII | I-5 CMCP Special Status Species

Scientific Name	Common Name	Legal Status Federal/State/Other	Habitat Associations	Segment Number
			volume, amount of cover, and proximity to gravel. Water temps >27 C is lethal to adults	
<i>Pogonichthys macrolepidotus</i>	Sacramento splittail	-/-/SSC	Habitat includes backwaters and pools of rivers; lakes; slow-moving waters and dead-end sloughs of main rivers and Delta; shallow areas of bays. This species is unusually tolerant of brackish water compared to other cyprinids; it can live in waters with salinity of up to 10–18 ppt.	Segment 2-3-4-5-7-8
<i>Spirinchus thaleichthys</i>	longfin smelt	C/T/-	Spend their adult life in bays, estuaries, and nearshore coastal areas, and migrate into freshwater rivers to spawn.	Segment 2-3-4-5-7-8
Insects				
<i>Desmocerus californicus dimorphus</i>	Valley elderberry longhorn beetle	T/-/-	Stream side habitats below 3,000 ft. throughout the Central Valley. Occur in riparian and oak savanna habitats with elderberry	Segment 3-4-5

Appendix VIII | I-5 CMCP Special Status Species

Scientific Name	Common Name	Legal Status Federal/State/Other	Habitat Associations	Segment Number
			shrubs; elderberries are the host plant.	
Reptiles				
<i>Emys marmorata</i>	Western pond turtle	-/-/SSC	Found in rivers, lakes, streams, ponds, wetlands, vernal pools, ephemeral creeks, reservoirs, agricultural ditches, estuaries, and brackish waters.	Segment 1-2
<i>Thamnophis gigas</i>	Giant garter snake	T/T/-	Sloughs, canals, low gradient streams and freshwater marsh habitats where there is a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	Segment 1-2-6-7-8

*** Status Explanations**

Federally Listed

- = No status definition.
- E = Endangered - Listed as being in danger of extinction.
- T = Threatened - Listed as likely to become endangered within the foreseeable future.
- C = Candidate - Candidate to become a proposed species
- P = Proposed

State Listed

- = No status definition.
- E = Listed as endangered under the California Endangered Species Act.
- T = Listed as threatened under the California Endangered Species Act.
- SSC = Species of special concern in California.

Appendix VIII | I-5 CMCP Special Status Species

R = Listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation

FP = Fully protected

California Native Plant Society Rare Plant Rank

LIST 1B = Rare, threatened, or endangered in California and elsewhere

0.1 = Seriously endangered in California

0.2 = Fairly endangered in California

0.3 = Not very endangered in California

LIST 2 = Rare, threatened, or endangered in California, but more common elsewhere

0.2 = Fairly endangered in California

0.3 = Not very endangered in California

LIST 3 = Plants about which more information is needed to determine their status.