SACRAMENTO AREA COUNCIL OF GOVERNMENTS

DRAFT ENVIRONMENTAL IMPACT REPORT
FOR THE
2020 METROPOLITAN TRANSPORTATION PLAN/ SUSTAINABLE COMMUNITIES STRATEGY
STATE CLEARINGHOUSE # 2019049139

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NOTICE OF PUBLIC HEARINGS FOR SACOG DRAFT MTP/SCS AND NOTICE OF AVAILABILITY OF THE ASSOCIATED DRAFT ENVIRONMENTAL IMPACT REPORT, AMENDMENT TO THE MTIP, AND AIR QUALITY CONFORMITY ANALYSIS

Sacramento Area Council of Governments (SACOG) is pleased to announce the release of the following documents on September 23, 2019:

- **Draft 2020 Metropolitan Transportation Plan/Sustainable Community Strategy (MTP/SCS)** – The Draft MTP/SCS covers the area within the counties of Sacramento, Yolo, Yuba, Sutter, Placer and El Dorado (excluding the Lake Tahoe basin). The Draft MTP/SCS, prepared in coordination with cities, counties, and other public agencies in the SACOG region, is a long-range transportation plan and sustainable communities strategy to serve existing and projected residents and workers within the Sacramento region through the year 2040. The Draft MTP/SCS accommodates an additional 620,500 residents, 270,000 jobs, and 260,100 homes with a transportation investment strategy of $34.9 billion. SACOG is required under federal and state law to update the MTP/SCS every four years.
- **Draft EIR (DEIR) on the Draft 2020 MTP/SCS** – The DEIR examines the potential for environmental impact from implementation of the Draft 2020 MTP/SCS. The DEIR identifies significant effects in the following areas: aesthetics; agriculture and forestry resources; air quality; biological resources; cultural and paleontological resources; energy and global climate change; geology, seismicity, soils and mineral resources; hazards and hazardous materials; hydrology and water quality; land use and planning; noise; population and housing; public services and recreation; transportation; and utilities and service systems.
- **Amendment #18 to the 2019-21 Metropolitan Transportation Improvement Program (MTIP) and Air Quality Conformity Analysis, associated with the proposed MTP/SCS**– The MTIP is the short-range transportation program for the SACOG region, which includes the counties of Sacramento, Sutter, Yolo, Yuba, and portions of El Dorado and Placer County. The MTP/SCS is the long-range transportation plan for the SACOG region. The Air Quality Conformity Analysis is a determination of compliance with air quality standards for both the MTIP and MTP/SCS.

Three public hearings will be held on the **Draft 2020 MTP/SCS**:

- **October 9, 2019**: Folsom Community Center – RG Smith Room, 50 Natoma Street, Folsom from 6:30-7:30;
- **October 16, 2019**: Woodland Senior and Community Center – 2001 East Street, Woodland from 6:30-7:30;
- **October 24, 2019**: SACOG, 1415 L Street, 3rd Floor, Sacramento from 5:30-6:30. Oral comments on the Draft EIR will be accepted at this meeting.

A public hearing on the **MTIP and Air Quality Conformity Analysis** will be held on:

- **October 3, 2019**, during the Transportation Committee meeting at SACOG, 1415 L Street, Suite 300, Sacramento CA.

Auburn
Citrus Heights
Colfax
Davis
El Dorado County
Elk Grove
Folsom
Galt
Isleton
Lincoln
Live Oak
Loomis
Marysville
Placer County
Placerville
Rancho Cordova
Rocklin
Roseville
Sacramento
Sacramento County
Sutter County
West Sacramento
Wheatland
Winters
Woodland
Yolo County
Yuba City
Yuba County

A public comment period for the Draft 2020 MTP/SCS, Draft EIR, Amendment #18 to the 2019-21 MTIP, and Air Quality Conformity Analysis will be held from **September 23, 2019 date to November 7, 2019**. You can comment on any of these documents in the following ways:

- Attend one or more of the meetings identified above and provide oral or written comments
- Mail your comments to SACOG, 1415 L St. #300, Sacramento CA, 95814, Attention: MTP/SCS Comments; EIR Comments; or MTIP and Air Quality Conformity Comments
- Email your comments to:
    - mtpscscomments@sacog.org for MTP/SCS
    - eircomments@sacog.org for DEIR
    - jcaceres@sacog.org for MTIP and Air Quality Conformity Analysis

Copies of the documents are available as follows:

- Access online at www.sacog.org
- Review a printed copy at SACOG beginning September 23, 2019, during normal business hours
- Request a printed copy for a fee or an electronic copy for free from SACOG
- Review an electronic copy at any of the libraries listed below:

    - Arcade, 2443 Marconi Ave. Sacramento;
    - Arden-Dimick, 891 Watt Ave. Sacramento;
    - Carmichael, 5605 Marconi Ave. Sacramento;
    - Central, 828 I St. Sacramento;
    - Colonial Heights, 4799 Stockton Blvd. Sacramento;
    - Belle Cooledge, 5600 South Land Park Dr. Sacramento;
    - Courtland, 170 Primasing Ave. Courtland;
    - Del Paso Heights, 920 Grand Ave. Sacramento;
    - Elk Grove, 8900 Elk Grove Blvd. Elk Grove;
    - Fair Oaks, 11601 Fair Oaks Blvd. Fair Oaks;
    - Franklin, 10055 Franklin High Rd. Elk Grove;
    - Galt – Marian O. Lawrence, 1000 Caroline Ave. Galt;
    - Isleton, 412 Union St. Isleton;
    - Ella K. McClatchy, 2112 22nd St. Sacramento;
    - McKinley, 601 Alhambra Blvd. Sacramento;
    - Martin Luther King, Jr., 7340 24th St. Bypass Sacramento;
    - North Natomas, 4660 Via Ingoglia Sacramento;
    - North Sacramento – Hagginwood, 2109 Del Paso Blvd. Sacramento;
    - Orangevale, 8820 Greenback Ln., Suite L Orangevale;
    - Rancho Cordova, 9845 Folsom Blvd. Sacramento;
    - Rio Linda, 631 L Street. Rio Linda;
    - Robbie Waters Pocket-Greenhaven, 7335 Gloria Dr. Sacramento;
    - South Natomas, 2901 Truxel Rd. Sacramento;
    - Southgate, 6132 66th Ave. Sacramento;
    - Sylvan Oaks, 6700 Auburn Blvd. Citrus Heights;
    - Valley Hi-North Laguna, 7400 Imagination Pkwy. Sacramento;
    - Walnut Grove, 14177 Market St. Walnut Grove;
    - El Dorado County Library, 345 Fair Ln. Placerville;

- Placer County Library, 350 Nevada St. Auburn;
- Sutter County Library, 750 Forbes Ave. Yuba City;
- Yolo County Library, 226 Buckeye St. Woodland;
- Yuba County Library, 303 Second St. Marysville.

Contact SACOG staff with any questions at 916-321-9000.

Public notice of public involvement activities and time established for public review and comments on the MTIP will satisfy the POP requirements, as defined in FTA Circular 9030.1E.

The California Environmental Quality Act requires this notice to disclose whether any listed toxic sites are present at the project site. Some areas within the Draft MTP/SCS are contained on the lists compiled pursuant to California Government Code sections 65962.5(a)(4) and (c)(1-3). Since this is a regional, programmatic DEIR, subsequent project-level environmental documents will be required to disclose the presence of toxic sites for the individual projects.

Issued September 23, 2019.

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List of Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
2017 NHTS	2017 National Household Travel Survey
2018 SACOG HTS	2018 SACOG Household Travel Survey
AAR	Association of American Railroads
AB	Assembly Bill
ADA	Americans with Disabilities Act
AFV	alternative fuel vehicles
AHSC	Affordable Housing and Sustainable Communities Program
AIA	airport influence areas
AICUZ	Air Installation Compatible Use Zone
AIRFA	American Indian Religious Freedom Act
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
ALUC	Airport Land Use Commissions
ALUCP	airport land use compatibility plan
APS	Alternative Planning Strategy
ARPA	Archaeological Resources Protection Act
ASCE	American Society of Civil Engineers
ATCM	Airborne Toxic Control Measure
BMP	best management practice
CAAQS	California ambient air quality standards
CAFE	corporate average fuel economy
Cal EMA	California Emergency Management Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	California Office of Emergency Services
Cal OSHA	California Division of OSHA
CalARP	California Accidental Release Prevention
CalEPA	California Environmental Protection Agency
Cal-IPC	California Invasive Plant Council
CalRecycle	California Department of Resources, Recycling, and Recovery
Caltrans	California Department of Transportation
CALVEG	California Vegetation Maps
CAP	climate action plan
CARB	California Air Resources Board
CARI	California Aquatic Resource Inventory
CBC	California Building Code
CBC	California Building Code
CCR	California Code of Regulations
CCSCE	Center for Continuing Study of the California Economy
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife

CDPH	California Department of Public Health
CDPR	California Department of Parks and Recreation
CEC	California Energy Commission
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERFA	Community Environmental Response Facilitation Act
CESA	California Endangered Species Act
CFCP	California Farmland Conservancy Program
CFR	Code Federal Regulations
CGS	California Geological Survey
CHL	California Historical Landmarks
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CLG	Certified Local Governments
CMA	Congestion Management Agency
CMAQ	Congestion, Mitigation, and Air Quality Program
CMP	Congestion Management Process
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CSUS	California State University, Sacramento
CTC	California Transportation Commission
CTPA	California Timberland Productivity Act
CUPA	Certified Unified Program Agency
CV	connected vehicle
CWA	Clean Water Act
DDT	dichlorodiphenyltrichloroethane
DMV	California Department of Motor Vehicles
DOC	California Department of Conservation
DOE	Determinations of Eligibility
DOF	California Department of Finance
DOT Act	Department of Transportation Act
DOT	U.S. Department of Transportation
DPC	Delta Protection Commission
DRT	demand responsive transit
DSC	Delta Stewardship Council
DTSC	California Department of Toxic Substances and Control
DWR	Department of Water Resources
ECA	Essential Connectivity Areas
EDCAQMD	El Dorado County Air Quality Management District

EDCTC	El Dorado County Transportation Commission
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FAA	Federal Aviation Administration
FAST	Fixing America's Surface Transportation
FAV	fully autonomous vehicle
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FLP	Forest Legacy Program
FMCSA	Federal Motor Carrier Safety Administration
FMMP	Farmland Monitoring and Mapping Program
FPPA	Farmland Protection Policy Act
FR	Federal Register
FRA	Federal Railroad Administration
FRAQMD	Feather River Air Quality Management District
FSP	Sacramento Metropolitan Freeway Service Patrol
FSZ	Farmland Security Zone
FTA	Federal Transit Administration
GHG	greenhouse gases
GIS	Geographic Information System
GWh	gigawatt-hours
GWP	global warming potential
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HALS	Historic American Landscapes Survey
HAZMAT	Hazardous Materials
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCP	habitat conservation plan
HFTA	High Frequency Transit Areas
HHFT	high-hazard flammable trains
HMGP	Hazard Mitigation Grant Program
HMTA	Hazardous Material Transport Act
HOV	high-occupancy vehicle
HPD	Historic Property Data File
HPMS	Highway Performance Monitoring System
HTUA	high-threat urban areas
HUD	U.S. Department of Housing and Urban Development
I-5	Interstate 5
I-80	Interstate 80
IBC	International Building Code
ICC	International Code Council
IPCC	Intergovernmental Panel on Climate Change
ITS	Intelligent Transportation Systems

LCFS	Low Carbon Fuel Standard
LOS	level of service
LRA	Local Responsibility Areas
LRT	light rail
LRU	Land Resource Units
LURMP	Land Use and Resources Management Plan
MBTA	Migratory Bird Treaty Act
MCAB	Mountain Counties Air Basin
MLRA	Major Land Resource Areas
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
MND	Mitigated Negative Declaration
MOA	memorandum of agreement
MOU	memoranda of understanding
MPO	metropolitan planning organization
MRZ	Mineral Resource Zone
$MTCO_2e$	metric tons of carbon dioxide equivalent
MTP	metropolitan transportation plan
MWh	megawatts
NAAQS	national ambient air quality standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
ND	Negative Declaration
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOA	Naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act of 1977
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OHP	Office of Historic Preservation
OPR	Governor's Office of Planning and Research
ORMP	Oak Resources Management Plan
OSHA	Occupational Safety and Health Administration
OSPA	Oil Spill Prevention Administration Fund
OSPR	Office of Spill Prevention and Response
OWTS	Onsite Wastewater Treatment Systems
PAYGO	pay-as-you go

PCB	polychlorinated biphenyls
PCAPCD	Placer County Air Pollution Control District
PCCP	Placer County Conservation Program
PCPTA	Placer County Transportation Planning Agency
PEA	Preliminary Endangerment Assessment
PG&E	Pacific Gas and Electric
PHI	Points of Historical Interest
PHMSA	Pipeline and Hazardous Materials Safety Administration
$PM_{2.5}$	fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less
PM_{10}	respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
PRC	Public Resources Code
proposed MTP/SCS	2020 Metropolitan Transportation Plan/Sustainable Communities Strategy
PUC	Public Utilities Code
RCRA	Resource Conservation and Recovery Act
ROG	reactive organic gases
ROSB	Railroad Operations and Safety Branch
RTP	regional transportation plan
RTPA	regional transportation planning agency
RUCS	Rural-Urban Connections Strategy
RWQCB	regional water quality control board
SacRT	Sacramento Regional Transit
SACSIM	Sacramento Regional Activity-Based Simulation Model
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SALCP	Sustainable Agricultural Lands Conservation Program
SARA	Superfund Amendments and Reauthorization Act
SAVSA	Sacramento Abandoned Vehicle Service Authority
SB	Senate Bill
SCS	sustainable communities strategy
SCEA	Sustainable Communities Environmental Assessment
SDC	Seismic Design Criteria
SECAT	Sacramento Emergency Clean Air and Transportation
SEMS	Standard Emergency Management System
SER	Standard Environmental Reference
SHPO	State Historic Preservation Officer
SFEI	San Francisco Estuary Institute
SIP	State Implementation Plan
SLCP	Short-Lived Climate Pollutant
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SMUD	Sacramento Metropolitan Utility District
SO_2	sulfur dioxide

SR	State Route
SRA	State Responsibility Area
SSHCP	South Sacramento Habitat Conservation Plan
STA	Sacramento Transportation Authority
SVP	Society of Vertebrate Paleontology
SWAP	state wildlife action plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCM	Transportation Control Measures
TCP	traditional cultural properties
TCR	tribal cultural resource
TDM	Travel Demand Management
THP	Timber Harvest Plan
TMA	Transportation Management Associations
TNC	transportation network company
TPA	transit priority area
TPP	Transit Priority Projects
TPZ	Timberland Preserve Zones
TSCA	Toxic Substances Control Act
UC Davis	University of California, Davis
UCMP	University of California Museum of Paleontology
UFC	Uniform Fire Code
UPRR	Union Pacific Railroad
UPS	United Parcel Service
U.S. 50	U.S. Highway 50
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VOC	volatile organic compound
VMT	vehicle miles traveled
WUI	wildland-urban interface
YSAQMD	Yolo-Solano Air Quality Management District
YSRCP	Yuba-Sutter Regional Conservation Plan
YOE	year-of-expenditure
ZEV	zero-emission vehicle

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ES—Executive Summary

ES.1 Project Under Review

This Draft EIR evaluates the environmental impacts related to the adoption and implementation of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS) for the Sacramento Area Council of Governments (SACOG) region.

The Metropolitan Transportation Plan (MTP) is a long-range comprehensive plan for the region's multi-modal transportation system and preparing the MTP is one of SACOG's primary statutory responsibilities under federal and state law. An MTP, also referred to in other regions as a Regional Transportation Plan (RTP) or Long-Range Transportation Plan (LRTP), is the mechanism used in California by both Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Agencies (RTPAs) to conduct long-range (at least 20-year) transportation planning in their regions. SACOG must adopt a MTP and update it every four years, or more frequently, if the region is to receive federal or state transportation dollars for public transit, street/road, bicycle, and pedestrian improvements.

In 2012, SACOG adopted the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (2012 MTP/SCS), a long-range plan for transportation in the region as informed by the Sacramento Region Blueprint (Blueprint). The 2012 MTP/SCS was the first MTP to be adopted in compliance with the Sustainable Communities and Climate Protection Act (Senate Bill 375, or SB 375), which requires MPOs to include a Sustainable Communities Strategy (SCS) element in their MTP updates. The SCS is aligned in purpose with the Sacramento region's smart land use Blueprint, and the MTP is intended to implement the Blueprint. The MTP/SCS was last updated in 2016.

The plan area for the proposed MTP/SCS includes El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties, exclusive of the Tahoe Basin. Located in the north San Joaquin Valley in Central California, the plan area encompasses 3,863,373 acres (6,036 square miles). The plan area contains 686,847 acres of developed land (as of 2016). To accommodate a projected increase of approximately 620,500 people, 260,000 new housing units and 270,000 new employees in the region through the year 2040, the proposed MTP/SCS projects the development of an additional 40,633 acres of land.

The proposed MTP/SCS includes programmed capital and operational improvements to the regional transportation system including road, bicycle, pedestrian, and transit projects. The plan also includes maintenance and rehabilitation activities to preserve the existing and expanded transportation system through 2040. Funding to support the transportation investments in the proposed MTP/SCS comes from a number of federal, state, and local sources, each with specific purposes and restrictions. In total, SACOG forecasts $34.9 billion in revenues over the planning period.

The transportation projects contained in the proposed MTP/SCS are matched to the available revenues for the planning period. The general level, type, and extent of investments covered by the plan are described in more detail below.

- $12.6 billion goes to road and highway maintenance and rehabilitation, including routine maintenance, major reconstructions, and various safety improvements.
- $10.1 billion goes to transit investments, including rail extensions and a 100 percent increase in vehicle service hours. An estimated $3.1billion ($billion YOE) in capital investments support the additional $7.0 billion needed to operate these transit services.
- $6.8 billion goes to road and highway capital improvements, including road widening in growth areas, carpool lanes on highways, and new connections for local access.
- $2.5 billion goes to bicycle and pedestrian improvements, including bicycle trails, sidewalks, ADA retrofits, and supporting facilities. In addition, an estimated 8 percent of the road capital projects have a bicycle or pedestrian feature that is not included separately in the bicycle and pedestrian improvement allocation.
- $3.1 billion goes to programs, system management and operations, including intersection improvements, safety projects, signal timing, freeway operational improvements, community design incentives, travel demand management (including the rideshare program), clean air, open space, technology deployment, and enhanced programs.

The proposed MTP/SCS is organized into the following chapters:

Chapter 1 –The Promise and Peril of 2040 provides regional context and describes the future envisioned by the plan.

Chapter 2 – What is the Metropolitan Transportation Plan/Sustainable Communities Strategy describes the major phases of the planning process and overall requirements for the plan.

Chapter 3 – The Sacramento region in the year 2040 highlights the regional population, housing, and employment projections, describes the plan's objectives and outcomes for 2040, implementation challenges and obstacles, and describes the revenue forecast supporting transportation investments in the plan.

Chapter 4 – Policy and Implementing Actions describes the policies and implementation actions that support plan implementation.

ES.2 Areas of Controversy

CEQA Guidelines section 15123(b)(2) requires that an EIR contain a summary discussion of areas of controversy known to the lead agency (SACOG), including issues raised by agencies and the public. SACOG initiated the EIR scoping process on April 25, 2019, with circulation of a Notice of Preparation (NOP) through the State Clearinghouse (SCH No. 2019049139) distributed to public agencies and regional stakeholders considered likely to be interested in the plan and its potential impacts. SACOG conducted an MTP/SCS EIR public scoping workshop on May 9, 2019. Comments were encouraged in person, via email, phone, facsimile, or U.S. mail. Issues and areas of controversy raised during the NOP comment period are categorized below. A copy of the NOP and comments received is provided in Appendix PD-1. The topics listed below represent possible areas of controversy based on issues raised by individual commenters.

Proposed MTP/SCS-Specific Concerns:

- Compliance with SB 375 GHG reduction targets;
- Proportion of funding allocated to new roadway capacity;
- Level of funding allocated to transit operations and active transportation;
- Level of funding for transit operations in early phases;
- Transportation and transit improvements in Placer County;
- Challenges in implementing the proposed MTP/SCS;
- Growth allowed outside of existing "Established Communities";
- Growth allowed outside of planned areas in Yolo County;
- Potential gentrification and displacement effects of compact growth patterns and infill development;
- Alignment of local growth and proposed SCS land use pattern;
- Incentives for "SCS compliance";
- Relationship between vehicle miles traveled (VMT) and greenhouse gas emissions (GHG) emissions; and
- Optimal number of lanes for Managed Lanes projects for purposes of assessing VMT reductions.

Environmental Impact Area Concerns:

- Consistency with the Delta Protection Commission's Land Use Resource Management Plan;
- Surface and groundwater quality and supplies;
- Loss of agricultural and habitat lands;
- VMT impacts, including impacts from "induced VMT";
- Air quality including construction, toxic air contaminants, and connection of impacts to likely health consequences;
- Demand for electricity and impacts to electrical infrastructure;
- Impacts from anticipated growth under University of California Davis campus' Long-Range Development Plans;
- GHG emissions and climate change;
- Cultural and tribal cultural resources;
- Wildfire; and
- Growth inducement.

ES.3 Issues to be Resolved

CEQA Guidelines section 15123(b)(3) requires that an EIR contain a discussion of issues to be resolved. Issues to be resolved in this EIR include choosing among alternatives and the proposed MTP/SCS and how to mitigate significant environmental impacts identified in this EIR. When approving the proposed MTP/SCS, the SACOG Board must decide whether the benefits of the proposed MTP/SCS override those environmental impacts that cannot be feasibly avoided or substantially reduced. If so, the SACOG Board would adopt a Statement of Overriding Considerations.

ES.4 Summary of Plan Consistency

Section 15125(d) of the CEQA Guidelines requires the EIR to discuss "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." The proposed MTP/SCS serves as, among other things, a regional transportation plan, regional housing allocation plan, and regional land use strategy. As a regional planning tool, the MTP/SCS is not required to be consistent with local general plans or specific plans; rather, local land use decisions must be examined by local lead agencies for such consistency, and for purposes of project-specific CEQA analysis and streamlining will also be examined for consistency with the adopted MTP/SCS. Other regional plans include air quality attainment plans, area-wide waste treatment and water quality control plans, plans for the reduction of GHG emissions, habitat conservation plans, natural community conservation plans, and Delta plans. Inconsistencies with other regional plans are discussed throughout this Draft EIR in Chapters 3 – 17.

ES.5 Summary of Impacts

This summary provides an overview of the analysis contained in Chapters 3 through 17 and 19 of this EIR including: impacts found not to be significant; impacts found to be significant; mitigation measures that would avoid or reduce significant impacts; and impacts found to be significant and unavoidable. A summary of all impacts is provided in Table ES.1.

ES.5.1 Impacts Found Not to be Significant

Section 15128 of the CEQA Guidelines requires an EIR to contain a statement briefly indicating the reasons why various possibly significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. This EIR addresses the full scope of possible environmental impacts in detail. Please see Chapters 3 through 17 and 19. Pursuant to Section 15060(d) of the CEQA Guidelines, no Initial Study was prepared for the proposed MTP/SCS.

ES.5.2 Impacts Found to be Significant

Section 15382 of the CEQA Guidelines defines a significant effect on the environment as a substantial, or potentially substantial, adverse change in any physical conditions within the area affected by the project. These physical areas include land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Adoption and implementation of the proposed MTP/SCS has been determined to result in significant effects in several impact areas as described in Chapters 3 through 17 and 19.

ES.5.3 Mitigation Measures That Would Avoid or Reduce Significant Impacts

Section 15370 of the CEQA Guidelines defines mitigation as: avoiding the impact, minimizing the impact, rectifying the impact, reducing or eliminating the impact, and/or compensating for the impact. Chapters 3 through 17 and 19 of this EIR identify mitigation measures that could be implemented to reduce or avoid identified impacts.

ES.5.4 Impacts Found to be Significant and Unavoidable

Under CEQA, a significant and unavoidable effect of the project is one that would cause a substantial adverse effect on the environment and for which no mitigation is available to reduce the impact to a less than significant level if the project is approved. Chapters 3 through 17 and 19 of this EIR identify impacts that would remain significant (and would therefore be unavoidable) even after implementation of feasible mitigation measures, if any.

ES.6 Summary of Alternatives

Chapter 18 contains a comparative analysis of the alternatives listed below. Table 18.3 in Chapter 18 provides a comparative summary of impacts of each of these alternatives.

No Project Alternative
Alternative 1: Outward Expansion
Alternative 2: Increased Infill
Alternative 3: All Infill Development

ES.7 Cumulative Impacts

The cumulative impact analysis is provided in Chapter 19: Other CEQA Considerations. Table ES.1 summarizes cumulative impacts.

ES.8 Summary Table

The following table (Table ES.1: Summary of Impacts) has been organized to correspond with environmental issues discussed in Chapters 3 through 17 and 19 of this EIR. Each row addresses a separate impact from Chapters 3 through 17 and 19. The first column provides the impact number and the full text of the impact statement. The impact number contains an alpha-coded prefix that indicates the topical area. For example, AES is used for Aesthetics. The second column differentiates between land use impacts and transportation impacts.

The next nine columns reflect the conclusion of the impact analysis for each of the identified geographies. A coding system is utilized comprised of solid, half, and hollow circles to represent the following:

○ = **LS** (Less than significant. No mitigation required.)

◑ = **PS/LS/SU** (Less than significant after mitigation but identified as significant and unavoidable because SACOG cannot compel implementation.)

● = **PS/SU/SU** (May be significant and unavoidable after mitigation is implemented; however, the project-specific impacts are unknown without analysis at the project level.)

◙ = **PS/SU** (Significant and unavoidable after mitigation is implemented or mitigation is not known.)

The last column identifies each mitigation measure by number and summarizes the mitigation measures.

Table ES.1 Summary of Impacts

REG: Regional
CCC: Center and Corridor Communities
EC: Established Communities
DC: Developing Communities
RRC: Rural Residential Communities
LNID: Lands Not Identified for Development
PLA: Placer County HFTA
SAC: Sacramento County HFTA
YOL: Yolo County HFTA

○	Less than Significant; No mitigation required
◑	Potentially Significant; Less than Significant after mitigation, but identified as Significant and Unavoidable because SACOG cannot compel implementation
●	Potentially Significant; May be Significant and Unavoidable after mitigation is adopted; however, the project-specific impacts are unknown without analysis at the project-level
◙	Potentially Significant; Significant and Unavoidable after mitigation is adopted or mitigation is not known

Impact Statement		A.	B. Localized					C. High Frequency Transit Areas			Mitigation*
		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	
AESTHETICS											
IMPACT AES-1: HAVE A SUBSTANTIAL ADVERSE EFFECT ON A SCENIC VISTA.	Land Use	◑	◑	◑	◑	○	○	◑	◑	◑	Mitigation Measure AES-1: Protect public views of important scenic vistas, scenic resources along state scenic highways, and visual character and quality.
	Transpo.	◑	◑	○	◑	○	○	○	◑	○	Mitigation Measure AES-2: Design river crossings to minimize aesthetic and visual impacts to the greatest feasible extent.
IMPACT AES-2: SUBSTANTIALLY DAMAGE SCENIC RESOURCES, INCLUDING, BUT NOT LIMITED TO, TREES, ROCK OUTCROPPINGS, AND HISTORIC BUILDINGS ALONG A STATE SCENIC HIGHWAY.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure AES-3: Implement Mitigation Measures AES-1.
	Transpo.	◑	◑	◑	◑	○	○	◑	◑	◑	
IMPACT AES-3: IN NON-URBANIZED AREAS, SUBSTANTIALLY DEGRADE THE EXISTING VISUAL CHARACTER OR QUALITY OF PUBLIC VIEWS OF THE SITE AND ITS SURROUNDINGS? (PUBLIC VIEWS ARE THOSE THAT ARE EXPERIENCED FROM PUBLICLY ACCESSIBLE VANTAGE POINTS.) IF THE PROJECT IS IN AN URBANIZED AREA, WOULD THE PROJECT CONFLICT WITH APPLICABLE ZONING AND OTHER REGULATIONS GOVERNING SCENIC QUALITY?	Land Use	◑	○	○	◑	◑	○	○	○	○	Mitigation Measure AES-4: Design projects to be visually compatible with surrounding areas.
	Transpo.	◑	○	○	◑	○	○	○	○	○	
IMPACT AES-4: CREATE A NEW SOURCE OF SUBSTANTIAL LIGHT OR GLARE WHICH WOULD ADVERSELY AFFECT DAY OR NIGHTTIME VIEWS IN THE AREA.	Land Use	◑	○	○	◑	◑	○	○	○	○	Mitigation Measure AES-5: Reduce sun glare resulting from implementation of planned transportation improvements.
	Transpo.	◑	○	○	◑	◑	◑	○	○	○	Mitigation Measure AES-6: Design structures to avoid or reduce impacts resulting from glare. Mitigation Measure AES-7: Design lighting to minimize light trespass and glare.

REG: Regional CCC: Center and Corridor Communities EC: Established Communities DC: Developing Communities RRC: Rural Residential Communities LNID: Lands Not Identified for Development PLA: Placer County HFTA SAC: Sacramento County HFTA YOL: Yolo County HFTA		○	Less than Significant; No mitigation required								
		◑	Potentially Significant; Less than Significant after mitigation, but identified as Significant and Unavoidable because SACOG cannot compel implementation								
		●	Potentially Significant; May be Significant and Unavoidable after mitigation is adopted; however, the project-specific impacts are unknown without analysis at the project-level								
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Impact Statement		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	
IMPACT AES-5: CAST SHADOW IN SUCH A WAY AS TO CAUSE A PUBLIC HAZARD OR SUBSTANTIALLY DEGRADE THE EXISTING VISUAL/AESTHETIC CHARACTER OR QUALITY OF A SITE OR PLACE FOR A SUSTAINED PERIOD OF TIME.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT AES-6: RESULT IN CONSTRUCTION IMPACTS THAT WOULD SUBSTANTIALLY ADVERSELY AFFECT A SCENIC VISTA, SUBSTANTIALLY DAMAGE SCENIC RESOURCES ALONG A STATE SCENIC HIGHWAY, SUBSTANTIALLY DEGRADE VISUAL CHARACTER OR QUALITY OF PUBLIC VIEWS IN NON-URBAN AREAS OR CONFLICT WITH APPLICABLE ZONING AND OTHER REGULATIONS GOVERNING SCENIC QUALITY IN URBANIZED AREAS, CREATE A NEW SOURCE OF SUBSTANTIAL LIGHT AND GLARE WITH ADVERSE EFFECTS ON VIEWS, OR CAST SHADOWS THAT CAUSE A PUBLIC HAZARD OR SUBSTANTIALLY DEGRADE THE EXISTING VISUAL/AESTHETIC CHARACTER.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure AES-8: Reduce the visibility of construction-related activities. Mitigation Measure AES-9: Re-vegetate exposed earth surfaces. Mitigation Measure AES-10: Minimize contrasts between the project and surrounding areas.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure AES-11: Replace and renew landscaping along roadway corridors and development sites. Mitigation Measure AES-12: Implement Mitigation Measure AES-4
AGRICULTURE AND FORESTRY RESOURCES											
IMPACT AG-1: CONVERT PRIME FARMLAND, UNIQUE FARMLAND, OR FARMLAND OF STATEWIDE IMPORTANCE, AS SHOWN ON THE MAPS PREPARED PURSUANT TO THE FMMP OF THE DOC, TO NON-AGRICULTURAL USE.	Land Use	◙	◙	◙	◙	◙	○	◙	◙	◙	Mitigation Measure AG-1: Mitigate for loss of farmland.
	Transpo.	◙	◙	◙	◙	◙	◙	◙	◙	◙	
IMPACT AG-2: CONFLICT WITH EXISTING ZONING OR GENERAL PLAN LAND USE DESIGNATIONS FOR AGRICULTURAL USE, OR WITH A WILLIAMSON ACT CONTRACT.	Land Use	◙	◙	◙	◙	◙	○	◙	○	◙	Mitigation Measure AG-2: Implement Mitigation Measure AG-1 Mitigation Measure AG-3: Design proposed projects to avoid or minimize, to the greatest extent feasible, conflicts and inconsistencies with land protected by agricultural zoning or a Williamson Act contract, taking into account the terms of the applicable zoning and/or contract.
	Transpo.	◙	◙	◙	◙	◙	◙	◙	◙	◙	

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IMPACT AG-3: CONFLICT WITH EXISTING ZONING OR LAND USE DESIGNATION FOR, OR CAUSE REZONING OF, FOREST LAND, TIMBERLAND, OR TIMBERLAND ZONED TIMBERLAND PRODUCTION.	Land Use	○	○	○	○	○	○	○	○	○	Mitigation Measure AG-4: Mitigate for loss of forest land or timberland.
	Transpo.	◉	○	◉	◉	◉	◉	○	○	○	
IMPACT AG-4: INVOLVE OTHER CHANGES IN THE EXISTING ENVIRONMENT, WHICH, DUE TO THEIR LOCATION OR NATURE, COULD RESULT IN CONVERSION OF FARMLAND TO NON-AGRICULTURAL USE.	Land Use	◉	○	◉	◉	○	○	◉	○	◉	Mitigation Measure AG-5: Minimize conversion of farmland to non-agricultural use. Mitigation Measure AG-6: Inventory innovative ideas and best practices from the RUCS toolkit, EPA, and USDA Supporting Sustainable Rural Communities publication, and other sources and implement a locally appropriate strategy to manage growth issues at the rural-urban interface to support the long-term viability of agriculture in the SACOG region.
	Transpo.	◉	○	◉	◉	◉	◉	◉	○	◉	
IMPACT AG-5: RESULT IN THE LOSS OF "FOREST LAND" AS DEFINED IN THE CALIFORNIA FOREST LEGACY ACT OF 2007 (PRC SECTION 12220(G)) OR CONVERSION OF FOREST LAND TO NON-FOREST USE.	Land Use	◉	○	○	◉	◉	○	○	○	○	Mitigation Measure AG-7: Implement Mitigation Measure AG-4.
	Transpo.	◉	○	○	◉	◉	◉	○	○	○	

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Impact Statement		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	
IMPACT AG-6: RESULT IN CONSTRUCTION IMPACTS THAT WOULD CONVERT PRIME FARMLAND, UNIQUE FARMLAND, OR FARMLAND OF STATEWIDE IMPORTANCE; CONFLICT WITH EXISTING ZONING OR LAND USE DESIGNATION FOR AGRICULTURAL USE OR A WILLIAMSON ACT CONTRACT; CONFLICT WITH EXISTING ZONING OR LAND USE DESIGNATIONS FOR, OR CAUSE REZONING OF, FOREST LAND, TIMBERLAND, OR TIMBERLAND ZONED TIMBERLAND PRODUCTION; INVOLVE OTHER CHANGES IN THE EXISTING ENVIRONMENT WHICH, DUE TO THEIR LOCATION OR NATURE, COULD RESULT IN CONVERSION OF FARMLAND TO NON-AGRICULTURAL USE; OR RESULT IN THE LOSS OF FOREST LAND OR CONVERSION OF FOREST LAND INTO NON-FOREST USE.	Land Use	◉	◉	◉	◉	◉	○	◉	◉	◉	Mitigation Measure AG-8: Minimize construction-related impacts to agricultural and forestry resources.
	Transpo.	◉	◉	◉	◉	◉	◉	◉	◉	◉	
AIR QUALITY											
IMPACT AIR-1: CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF AN APPLICABLE AIR QUALITY PLAN.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT AIR-2: EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL TAC CONCENTRATIONS, INCLUDING THOSE FROM CONSTRUCTION OR OPERATIONAL EMISSIONS.	Land Use	◉	◉	◉	◉	◉	○	◉	◉	◉	Mitigation Measure AIR-1: Adhere to CARB Handbook siting guidance to the maximum extent possible and implement best management practices identified by CARB, SMAQMD in the MSAT Protocol Guidance Document, and in EPA's Recommendation for Constructing Roadside Vegetation Barriers to Improve Near-Road Air Quality
	Transpo.	◉	◉	◉	◉	◉	○	◉	◉	◉	Mitigation Measure AIR-2: Implement the strategies contained in the CARB Technical Advisory.

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IMPACT AIR-3: RESULT IN OTHER EMISSIONS (SUCH AS THOSE LEADING TO ODORS) ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE	Land Use	◑	◑	◑	◑	○	○	◑	◑	◑	Mitigation Measure AIR-3: Implementing agencies shall require assessment of new and existing odor sources for individual land use projects to determine whether sensitive receptors would be exposed to objectionable odors and apply recommended applicable mitigation measures as defined by the applicable local air district and best practices.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT AIR-4A: BE INCONSISTENT WITH OR EXCEED APPLICABLE THRESHOLDS OF SIGNIFICANCE ESTABLISHED BY THE LOCAL AIR DISTRICT FOR LONG-TERM OPERATIONAL CRITERIA AIR POLLUTANT EMISSIONS.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure AIR-4: Implementing agencies shall require recommended applicable mitigation measures as defined by the applicable local air district.
	Transpo.	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure AIR-5: Implement Mitigation Measure TRN-1.
IMPACT AIR-4B: BE INCONSISTENT WITH OR EXCEED APPLICABLE THRESHOLDS OF SIGNIFICANCE ESTABLISHED BY THE LOCAL AIR DISTRICT FOR SHORT-TERM CONSTRUCTION CRITERIA AIR POLLUTANT EMISSIONS.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure AIR-6: Implementing agencies shall require project applicants to implement applicable, or equivalent, construction mitigation measures as defined by the applicable local air district.
	Transpo.	◑	◑	◑	◑	◑	○	◑	◑	◑	

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Impact Statement		A. REG	B. Localized CCC	EC	DC	RRC	LNID	C. High Frequency Transit Areas PLA	SAC	YOL	Mitigation*
BIOLOGICAL RESOURCES											
IMPACT BIO-1: HAVE A SUBSTANTIAL ADVERSE EFFECT, EITHER DIRECTLY OR THROUGH HABITAT MODIFICATION, ON ANY SPECIES IDENTIFIED AS A CANDIDATE, SENSITIVE, OR SPECIAL-STATUS SPECIES IN LOCAL OR REGIONAL PLANS, POLICIES, OR REGULATIONS OR BY CDFW OR USFWS.	Land Use	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure BIO-1a: Conduct a Biological Resources Assessment. Mitigation Measure BIO-1b: Identify Special-Status Plant Species, and Avoid, Minimize, and Mitigate Impacts. Mitigation Measure BIO-1c: Identify Special-Status Wildlife, and Avoid, Minimize, and Mitigate Impacts.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
IMPACT BIO-2: HAVE A SUBSTANTIAL ADVERSE EFFECT ON ANY RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITY IDENTIFIED IN LOCAL OR REGIONAL PLANS, POLICIES, OR REGULATIONS OR BY CDFW OR USFWS	Land Use	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure BIO-2: Implement Mitigation Measure BIO-1a.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure BIO-3: Avoid, Minimize, and Mitigate Impacts on Sensitive Natural Communities.
IMPACT BIO-3: HAVE A SUBSTANTIAL ADVERSE EFFECT ON STATE OR FEDERALLY PROTECTED WETLANDS (INCLUDING, BUT NOT LIMITED TO, MARSH, VERNAL POOL, AND COASTAL WETLANDS) THROUGH DIRECT REMOVAL, FILLING, HYDROLOGICAL INTERRUPTION, OR OTHER MEANS.	Land Use	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure BIO-4: Implement Mitigation Measure BIO-1a.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure BIO-5: Avoid, Minimize, and Mitigate Impacts on Wetland and Other Waters.
IMPACT BIO-4: INTERFERE SUBSTANTIALLY WITH THE MOVEMENT OF ANY NATIVE RESIDENT OR MIGRATORY FISH OR WILDLIFE SPECIES OR WITH ESTABLISHED NATIVE RESIDENT OR MIGRATORY WILDLIFE CORRIDORS, OR IMPEDE THE USE OF NATIVE WILDLIFE NURSERY SITES.	Land Use	◑	◑	◑	◑	◑	◑	◑	○	○	Mitigation Measure BIO-6: Implement Mitigation Measure BIO-1a.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	○	○	Mitigation Measure BIO-7: Avoid, Minimize, and Mitigate Impacts on Wildlife Movement Corridors or Native Wildlife Nursery Sites.

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Impact Statement		**REG**	**CCC**	**EC**	**DC**	**RRC**	**LNID**	**PLA**	**SAC**	**YOL**	
IMPACT BIO-5: CONFLICT WITH ANY LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES, SUCH AS A TREE PRESERVATION POLICY OR ORDINANCE.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	**Mitigation Measure BIO-8: Implement Mitigation Measure BIO-1a.**
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	**Mitigation Measure BIO-9: Avoid, Minimize, and Mitigate for Impacts to Protected Trees and Other Biological Resources Protected by Local Ordinances.**
IMPACT BIO-6: CONFLICT WITH THE PROVISIONS OF AN ADOPTED HABITAT CONSERVATION PLAN, NATURAL COMMUNITIES CONSERVATION PLAN, OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN.	Land Use	◑	○	○	○	○	○	○	○	○	**Mitigation Measure BIO-10: Implement Mitigation Measure BIO-1a.** **Mitigation Measure BIO-11: Implement Mitigation Measure BIO-1b.** **Mitigation Measure BIO-12: Implement Mitigation Measure BIO-1c.**
	Transpo.	◑	○	○	○	○	○	○	○	○	**Mitigation Measure BIO-13: Implement Mitigation Measure BIO-2.** **Mitigation Measure BIO-14: Implement Mitigation Measure BIO-3.** **Mitigation Measure BIO-15: Implement Mitigation Measure BIO-4.**
IMPACT BIO-7: SUBSTANTIALLY REDUCE THE HABITAT OF A FISH OR WILDLIFE SPECIES; CAUSE A FISH OR WILDLIFE POPULATION TO DROP BELOW SELF-SUSTAINING LEVELS; THREATEN TO ELIMINATE A PLANT OR ANIMAL COMMUNITY; OR SUBSTANTIALLY REDUCE THE NUMBER OR RESTRICT THE RANGE OF AN ENDANGERED, RARE, OR THREATENED SPECIES.	Land Use	◑	◑	◑	◑	◑	◑	◑	◑	◑	**Mitigation Measure BIO-16: Implement Mitigation Measure BIO-1a.** **Mitigation Measure BIO-17: Implement Mitigation Measure BIO-1b.** **Mitigation Measure BIO-18: Implement Mitigation Measure BIO-1c.**
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	**Mitigation Measure BIO-19: Implement Mitigation Measure BIO-2.** **Mitigation Measure BIO-20: Implement Mitigation Measure BIO-3.** **Mitigation Measure BIO-21: Implement Mitigation Measure BIO-4.**

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CULTURAL AND PALEONTOLOGICAL RESOURCES											
IMPACT CR-1: CAUSE A SUBSTANTIAL ADVERSE CHANGE IN THE SIGNIFICANCE OF A HISTORICAL BUILT ENVIRONMENT RESOURCE PURSUANT TO CEQA GUIDELINES SECTION 15064.5.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure CR-1: Conduct project-specific historic built environment resource studies and identify and implement project-specific mitigation.
	Transpo.	●	●	●	●	●	●	●	●	●	
IMPACT CR-2: CAUSE A SUBSTANTIAL ADVERSE CHANGE IN THE SIGNIFICANCE OF AN ARCHAEOLOGICAL RESOURCE PURSUANT TO CEQA GUIDELINES SECTION 15064.5.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure CR-2: Conduct project-specific archaeological resource studies and identify and implement project-specific mitigation.
	Transpo.	●	●	●	●	●	●	●	●	●	Mitigation Measure CR-3: Reduce visibility or accessibility of historical or unique archaeological resources.
IMPACT CR-3: DIRECTLY OR INDIRECTLY DESTROY A UNIQUE PALEONTOLOGICAL RESOURCE OR SITE.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure CR-4: Conduct project-specific paleontological resource studies and identify and implement mitigation.
	Transpo.	●	●	●	●	●	●	●	●	●	
IMPACT CR-4: DISTURB ANY HUMAN REMAINS, INCLUDING THOSE INTERRED OUTSIDE OF FORMAL CEMETERIES.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	

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IMPACT CR-5: CAUSE A SUBSTANTIAL ADVERSE CHANGE IN THE SIGNIFICANCE OF A TRIBAL CULTURAL RESOURCE.	**Land Use**	●	●	●	●	●	○	●	●	●	**Mitigation Measure CR-5: Conduct project-specific consultation with traditionally and culturally affiliated California Native American tribes to identify tribal cultural resources and implement project-specific mitigation.**
	Transpo.	●	●	●	●	●	●	●	●	●	**Mitigation Measure CR-6: Reduce visibility or accessibility of tribal cultural resources.**
IMPACT CR-6: ELIMINATE IMPORTANT EXAMPLES OF MAJOR PERIODS OF CALIFORNIA HISTORY OR PREHISTORY PURSUANT TO CEQA GUIDELINES SECTION 15065(A)(1).	**Land Use**	◑	◑	◑	◑	◑	◑	◑	◑	◑	**Mitigation Measure CR-7: Implement Mitigation Measures CR-1 through CR-6.**
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
ENERGY AND GLOBAL CLIMATE CHANGE											
IMPACT GHG-1: CONFLICT WITH THE SACOG REGION'S ACHIEVEMENT OF SB 375 GHG EMISSIONS REDUCTION TARGETS.	**Land Use**	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**None required.**
	Transpo.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
IMPACT GHG-2: SUBSTANTIALLY INTERFERE WITH ACHIEVEMENT OF THE STATE'S LONG-TERM CLIMATE GOALS. AS SET FORTH IN CARB'S 2017 SCOPING PLAN	**Land Use**	◙	◙	◙	◙	◙	◙	◙	◙	◙	**Mitigation Measure GHG-1: Implement Mitigation Measure TRN-1.** **Mitigation Measure GHG-2: Coordinate and support local agencies within the plan area of the proposed MTP/SCS to reduce regional GHGs from all sectors.**
	Transpo.	◙	◙	◙	◙	◙	◙	◙	◙	◙	**Mitigation Measure GHG-3: Implement all feasible on- and off-site mitigation measures to reduce GHG emissions below a lead agency-approved threshold of significance.**

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IMPACT GHG-3: CONFLICT WITH APPLICABLE LOCAL GHG REDUCTION PLANS.	**Land Use**	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**None required.**
	Transpo.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
IMPACT ENE-1: RESULT IN POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACT DUE TO WASTEFUL, INEFFICIENT, OR UNNECESSARY CONSUMPTION OF ENERGY RESOURCES, DURING PROJECT CONSTRUCTION OR OPERATION.	**Land Use**	○	○	○	○	○	○	○	○	○	**None required.**
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT ENE-2: CONFLICT WITH OR OBSTRUCT A STATE OR LOCAL PLAN FOR RENEWABLE ENERGY OR ENERGY EFFICIENCY.	**Land Use**	○	○	○	○	○	○	○	○	○	**None required.**
	Transpo.	○	○	○	○	○	○	○	○	○	

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GEOLOGY, SEISMICITY, SOILS AND MINERAL RESOURCES											
IMPACT GEO-1A: DIRECTLY OR INDIRECTLY CAUSE SUBSTANTIAL ADVERSE EFFECTS, INCLUDING THE RISK OF LOSS, INJURY, OR DEATH DUE TO RUPTURE OF A KNOWN EARTHQUAKE FAULT.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT GEO-1B: DIRECTLY OR INDIRECTLY CAUSE SUBSTANTIAL ADVERSE EFFECTS, INCLUDING THE RISK OF LOSS, INJURY, OR DEATH INVOLVING STRONG SEISMIC GROUND SHAKING.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT GEO-1C: DIRECTLY OR INDIRECTLY CAUSE SUBSTANTIAL ADVERSE EFFECTS, INCLUDING THE RISK OF LOSS, INJURY, OR DEATH INVOLVING SEISMIC-RELATED GROUND FAILURE, INCLUDING LIQUEFACTION.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT GEO-1D: DIRECTLY OR INDIRECTLY CAUSE SUBSTANTIAL ADVERSE EFFECTS, INCLUDING THE RISK OF LOSS, INJURY, OR DEATH INVOLVING LANDSLIDES.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT GEO-2: RESULT IN SUBSTANTIAL SOIL EROSION OR THE LOSS OF TOPSOIL.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	

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Impact Statement		A.	B. Localized					C. High Frequency Transit Areas			Mitigation*
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IMPACT GEO-3: LOCATE A PROJECT ON A GEOLOGIC UNIT OR SOIL THAT IS UNSTABLE, OR THAT WOULD BECOME UNSTABLE AS A RESULT OF THE PROJECT, AND POTENTIALLY RESULT IN ON-SITE OR OFF-SITE LANDSLIDE, LATERAL SPREADING, SUBSIDENCE, LIQUEFACTION, OR COLLAPSE.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT GEO-4: RESULT IN DEVELOPMENT ON EXPANSIVE SOIL, CREATING SUBSTANTIAL RISKS TO LIFE OR PROPERTY.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT GEO-5: HAVE SOILS INCAPABLE OF ADEQUATELY SUPPORTING THE USE OF SEPTIC TANKS OR ALTERNATIVE WATER DISPOSAL SYSTEMS WHERE SEWERS ARE NOT AVAILABLE FOR THE DISPOSAL OF WASTEWATER.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT GEO-6: DIRECTLY OR INDIRECTLY DESTROY A UNIQUE GEOLOGIC FEATURE.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT GEO-7: RESULT IN SUBSTANTIAL IMPACTS TO GEOLOGY, SEISMICITY, AND SOILS FROM CONSTRUCTION OF PROPOSED MTP/SCS PROJECTS.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	

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Impact Statement		**REG**	**CCC**	**EC**	**DC**	**RRC**	**LNID**	**PLA**	**SAC**	**YOL**	
IMPACT GEO-8: RESULT IN THE LOSS OF AVAILABILITY OF A KNOWN DESIGNATED MINERAL RESOURCE THAT WOULD BE OF VALUE TO THE REGION AND THE RESIDENTS OF THE STATE.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT GEO-9: RESULT IN THE LOSS OF AVAILABILITY OF A LOCALLY-IMPORTANT MINERAL RESOURCE RECOVERY SITE DELINEATED ON A LOCAL GENERAL PLAN, SPECIFIC PLAN, OR OTHER LAND USE PLAN.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT GEO-10: RESULT IN A SUBSTANTIAL IMPACT TO MINERAL RESOURCES FROM CONSTRUCTION OF PROPOSED MTP/SCS PROJECTS.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
HAZARDS AND HAZARDOUS MATERIALS											
IMPACT HAZ-1: CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT THROUGH THE ROUTINE TRANSPORT, USE, OR DISPOSAL OF HAZARDOUS MATERIALS.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	

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Impact Statement		**REG**	**CCC**	**EC**	**DC**	**RRC**	**LNID**	**PLA**	**SAC**	**YOL**	
IMPACT HAZ-2A: CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT THROUGH REASONABLY FORESEEABLE UPSET AND ACCIDENT CONDITIONS INVOLVING THE RELEASE OF HAZARDOUS MATERIALS INTO THE ENVIRONMENT.	**Land Use**	○	○	○	○	○	○	○	○	○	**None required.**
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT HAZ-2B: CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT THROUGH REASONABLY FORESEEABLE UPSET AND ACCIDENT CONDITIONS INVOLVING THE RELEASE OF ASBESTOS INTO THE ENVIRONMENT.	**Land Use**	○	○	○	○	○	○	○	○	○	**None required.**
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT HAZ-3: EMIT HAZARDOUS EMISSIONS OR HANDLE HAZARDOUS OR ACUTELY HAZARDOUS MATERIALS, SUBSTANCES, OR WASTE WITHIN 0.25 MILE OF AN EXISTING OR PROPOSED SCHOOL.	**Land Use**	○	○	○	○	○	○	○	○	○	**None required.**
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT HAZ-4: RESULT IN DEVELOPMENT ON A SITE WHICH IS INCLUDED ON A LIST OF HAZARDOUS MATERIALS SITES COMPILED PURSUANT TO GOVERNMENT CODE SECTION 65962.5 AND, AS A RESULT, CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR ENVIRONMENT.	**Land Use**	◑	◑	◑	◑	◑	◑	◑	◑	◑	**Mitigation Measure HAZ-1: Conduct site-specific investigation to characterize the potential presence of hazardous wastes.**
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	

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IMPACT HAZ-5: FOR A PROJECT LOCATED WITHIN AN AIRPORT LAND USE PLAN, OR WHERE SUCH A PLAN HAS NOT BEEN ADOPTED, WITHIN TWO MILES OF A PUBLIC AIRPORT OR PUBLIC USE AIRPORT, RESULT IN A SAFETY HAZARD EXCESSIVE NOISE FOR PEOPLE RESIDING OR WORKING IN THE PROJECT AREA.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT HAZ-6: IMPAIR IMPLEMENTATION OF, OR PHYSICALLY INTERFERE WITH, AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN.	Land Use	◑	○	○	○	○	○	○	○	○	Mitigation Measure HAZ-2: Implement Mitigation Measure HAZ-4
	Transpo.	○	○	○	○	○	○	○	○	○	Mitigation Measure HAZ-3: Implement Mitigation Measure HAZ-6
IMPACT HAZ-7: RESULT IN CONSTRUCTION IMPACTS THAT WOULD CAUSE A HAZARD TO THE PUBLIC OR THE ENVIRONMENT.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT HAZ-8: EXPOSE PEOPLE OR STRUCTURES TO A SIGNIFICANT RISK OF LOSS, INJURY, OR DEATH INVOLVING WILDLAND FIRES.	Land Use	◑	◑	◑	◑	◑	◑	○	○	○	Mitigation Measure HAZ-4: Minimize the risk of loss, injury, or death to people or structures as a result of wildland fires.
	Transpo.	◑	◑	◑	◑	◑	◑	○	○	○	
IMPACT HAZ-9: RESULT IN PROJECTS LOCATED IN OR NEAR STATE RESPONSIBILITY AREAS OR LANDS CLASSIFIED AS VERY HIGH FIRE HAZARD SEVERITY ZONES THAT COULD SUBSTANTIALLY IMPAIR AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN, EXACERBATE WILDFIRE RISK, OR POST-FIRE CREATE FLOODING OR LANDSLIDE HAZARDS.	Land Use	◑	◑	◑	◑	◑	◑	○	○	○	Mitigation Measure HAZ-5: Implementation Mitigation Measure HAZ-4
	Transpo.	◑	◑	◑	◑	◑	◑	○	○	○	Mitigation Measure HAZ-6: Minimize the risk of impairing an adopted emergency response plan or evacuation plan, exacerbating wildfire risk, or post-fire hazards.

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HYDROLOGY AND WATER QUALITY											
IMPACT HYD-1: VIOLATE WATER QUALITY STANDARDS OR WASTEWATER REQUIREMENTS OR OTHERWISE SUBSTANTIALLY DEGRADE SURFACE OR GROUNDWATER QUALITY.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT HYD-2: SUBSTANTIALLY DECREASE GROUNDWATER SUPPLIES OR INTERFERE SUBSTANTIALLY WITH GROUNDWATER RECHARGE SUCH THAT THE PROJECT MAY IMPEDE SUSTAINABLE GROUNDWATER MANAGEMENT	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT HYD-3A: SUBSTANTIALLY ALTER EXISTING DRAINAGE PATTERNS, INCLUDING ALTERATION OF THE COURSE OF A STREAM OR RIVER OR ADDITION OF IMPERVIOUS SURFACES, IN A MANNER THAT WOULD RESULT IN SUBSTANTIAL EROSION OR SILTATION.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT HYD-3B: SUBSTANTIALLY ALTER EXISTING DRAINAGE PATTERNS, INCLUDING ALTERATION OF THE COURSE OF A STREAM OR RIVER OR ADDITION OF IMPERVIOUS SURFACES, IN A MANNER THAT WOULD SUBSTANTIALLY INCREASE RATES OR AMOUNTS OF SURFACE RUNOFF AND RESULT IN FLOODING.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	

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Impact Statement		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	
IMPACT HYD-3C: SUBSTANTIALLY ALTER EXISTING DRAINAGE PATTERNS, INCLUDING ALTERATION OF THE COURSE OF A STREAM OR RIVER OR ADDITION OF IMPERVIOUS SURFACES, IN A MANNER THAT WOULD CREATE OR CONTRIBUTE RUNOFF, WATER THAT WOULD EXCEED THE CAPACITY OF EXISTING OR PLANNED STORMWATER DRAINAGE SYSTEMS, SUCH THAT THE CONSTRUCTION OF NEW, EXPANDED, OR RELOCATED FACILITIES THAT COULD CAUSE SIGNIFICANT EFFECTS IS REQUIRED, OR PROVIDE SUBSTANTIAL ADDITIONAL SOURCES OF POLLUTED RUNOFF.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT HYD-4: IN FLOOD HAZARD, TSUNAMI, OR SEICHE ZONES, RISK RELEASE OF POLLUTANTS DUE TO PROJECT INUNDATION.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT HYD-5: CONFLICT WITH OR OBSTRUCT THE IMPLEMENTATION OF A WATER QUALITY CONTROL PLAN OR SUSTAINABLE GROUNDWATER MANAGEMENT PLAN.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT HYD-5: CONFLICT WITH OR OBSTRUCT THE IMPLEMENTATION OF A WATER QUALITY CONTROL PLAN OR SUSTAINABLE GROUNDWATER MANAGEMENT PLAN.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	

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Impact Statement		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	
LAND USE AND PLANNING											
IMPACT LU-1: PHYSICALLY DIVIDE AN EXISTING COMMUNITY	Land Use	○	○	○	○	○	○	○	○	○	Mitigation Measure LU-1: Implementing agencies and/or project sponsors shall implement measures, where feasible and necessary based on project- and site-specific considerations that include, but are not limited to:
	Transpo.	◑	◑	◑	◑	◑	○	◑	◑	◑	
IMPACT LU-2: CAUSE A SIGNIFICANT ENVIRONMENTAL IMPACT RESULTING FROM A CONFLICT WITH THE SCS REQUIREMENTS OF SENATE BILL 375.	Land Use	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	None required.
	Transpo.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
IMPACT LU-3: CAUSE A SIGNIFICANT ENVIRONMENTAL IMPACT RESULTING FROM A CONFLICT WITH THE PROVISIONS OF THE LAND USE AND RESOURCE MANAGEMENT PLAN ADOPTED BY THE DELTA PROTECTION COMMISSION.	Land Use	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	None required.
	Transpo.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
NOISE											
IMPACT NOI-1: RESULT IN NOISE LEVELS THAT EXCEED THE COMMUNITY TYPE CNEL THRESHOLDS IDENTIFIED IN TABLE 13-4 OR INCREASE NOISE LEVELS MORE THAN 1.5 DB AT LOCATIONS CURRENTLY IN EXCEEDANCE OF THE CNEL THRESHOLDS FOR CENTER AND CORRIDOR COMMUNITIES OR MORE THAN 3 DB AT LOCATIONS CURRENTLY IN EXCEEDANCE OF THE CNEL THRESHOLDS OVER BASELINE CONDITIONS FOR THE OTHER COMMUNITY TYPES.	Land Use	○	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure NOI-1: Employ measures to reduce noise from new land uses and transportation projects.
	Transpo.	○	◑	◑	◑	◑	○	○	◑	○	

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IMPACT NOI-2: RESULT IN EXCESSIVE VIBRATION AND GROUNDBORNE NOISE.	Land Use	N/A	○	○	○	○	○	○	○	○	Mitigation Measure NOI-2: Employ vibration-reducing measures on new and expanded rail systems.
	Transpo.	N/A	◑	◑	◑	◑	○	◑	◑	◑	
IMPACT NOI-3: RESULT IN CONSTRUCTION IMPACTS THAT WOULD INCREASE NOISE LEVELS ABOVE THE COMMUNITY TYPE CNEL THRESHOLDS IDENTIFIED IN TABLE 13-4, RESULT IN INCREASES OF MORE THAN 1.5 DB AT LOCATIONS CURRENTLY IN EXCEEDANCE OF THE CNEL THRESHOLDS FOR CENTER AND CORRIDOR COMMUNITIES OR MORE THAN 3 DBA AT LOCATIONS CURRENTLY IN EXCEEDANCE OF THE CNEL THRESHOLDS OVER BASELINE CONDITIONS FOR THE OTHER COMMUNITY TYPES; OR RESULT IN EXCESSIVE LEVELS OF VIBRATION AND GROUNDBORNE NOISE.	Land Use	N/A	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure NOI-3: Reduce noise, vibration, and groundborne noise generated by construction activities.
	Transpo.	N/A	◑	◑	◑	◑	◑	◑	◑	◑	
POPULATION AND HOUSING											
IMPACT POP-1: DISPLACE SUBSTANTIAL NUMBERS OF EXISTING PEOPLE OR HOUSING, NECESSITATING THE CONSTRUCTION OF REPLACEMENT HOUSING ELSEWHERE.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	

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PUBLIC SERVICES AND RECREATION											
IMPACT PS-1: IMPEDE ACHIEVEMENT OF ACCEPTABLE LEVELS OF SERVICE, INCLUDING CAPITAL CAPACITY, PROGRAMMING, EQUIPMENT, AND PERSONNEL, FOR POLICE PROTECTION, FIRE PROTECTION, EMERGENCY RESPONSE, SCHOOL, LIBRARY, SOCIAL, PARKS AND RECREATION, AND/OR OTHER PUBLIC SERVICES, AND INCLUDING INCREASED USE OF PARKS AND RECREATIONAL FACILITIES SUCH THAT SUBSTANTIAL PHYSICAL DETERIORATION WOULD OCCUR OR BE ACCELERATED.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure PS-1: Ensure adequate public service and utilities will be available to comply with applicable service levels.
	Transpo.	◑	◑	◑	◑	◑	○	◑	◑	◑	
IMPACT PS-2: RESULT IN IMPACTS ASSOCIATED WITH THE CONSTRUCTION OF NEW OR THE EXPANSION OF EXISTING FACILITIES REQUIRED TO MAINTAIN ACCEPTABLE LEVELS OF SERVICE FOR POLICE PROTECTION, FIRE PROTECTION, EMERGENCY, SCHOOL, LIBRARY, SOCIAL, PARK AND RECREATION SERVICES, AND/OR OTHER PUBLIC SERVICES.	Land Use	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure PS-2: Implement the construction-related mitigation measures identified in other chapters of this EIR.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
TRANSPORTATION											
IMPACT TRN-1: SUBSTANTIALLY INTERFERE WITH ACHIEVEMENT OF VMT REDUCTIONS CONSISTENT WITH CARB'S 2017 SCOPING PLAN.	Land Use	◙	◙	◙	◙	◙	○	◙	◙	◙	Mitigation Measure TRN-1: Strategies to reduce VMT from existing and proposed land use development.
	Transpo.	◙	◙	◙	◙	◙	○	◙	◙	◙	
IMPACT TRN-2: CAUSE COMBINED BICYCLE, WALK, AND TRANSIT PERSON TRIPS PER CAPITA TO BE LOWER THAN THE BASELINE AVERAGE IN THE APPLICABLE SUB-AREA, AND CAUSE A DECLINE IN THE BICYCLE, WALK, AND TRANSIT PERSON TRIPS PER CAPITA THAT IS LOWER THAN THE BASELINE REGIONAL AVERAGE.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT TRN-3: CAUSE AVERAGE TRANSIT PASSENGER BOARDINGS PER VEHICLE SERVICE HOUR TO BE LOWER THAN THE BASELINE AVERAGE FOR TRANSIT SERVICE PROVIDED IN THE RELEVANT SUB-AREA .	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	

REG: Regional CCC: Center and Corridor Communities EC: Established Communities DC: Developing Communities RRC: Rural Residential Communities LNID: Lands Not Identified for Development PLA: Placer County HFTA SAC: Sacramento County HFTA YOL: Yolo County HFTA	○	Less than Significant; No mitigation required
	◑	Potentially Significant; Less than Significant after mitigation, but identified as Significant and Unavoidable because SACOG cannot compel implementation
	●	Potentially Significant; May be Significant and Unavoidable after mitigation is adopted; however, the project-specific impacts are unknown without analysis at the project-level
	◙	Potentially Significant; Significant and Unavoidable after mitigation is adopted or mitigation is not known

Impact Statement		A.	B. Localized					C. High Frequency Transit Areas			Mitigation*
		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	
IMPACT TRN-4: CAUSE INTERFERENCE WITH EXISTING OR PLANNED BICYCLE AND PEDESTRIAN FACILITIES.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT TRN-5: CAUSE A DISRUPTION TO THE MOVEMENT OF AGRICULTURAL PRODUCTS ON RURAL ROADWAYS.	Land Use	○	○	○	◑	◑	○	○	○	○	Mitigation Measure TRN-2: Strategies to support the movement of agricultural products on rural roadways near growth areas.
	Transpo.	○	○	○	◑	◑	○	○	○	○	
IMPACT TRN-6: CAUSE A DISRUPTION TO AVIATION ACCESS OR SERVICE.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT TRN-7: CAUSE A DISRUPTION TO GOODS MOVEMENT INTO OR THROUGH THE SACOG REGION.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
IMPACT TRN-8: CAUSE A DISRUPTION TO THE ONGOING OPERATIONS OF THE APPLICABLE REGIONAL OR LOCAL AREA TRANSPORTATION SYSTEM DUE TO CONSTRUCTION ACTIVITIES.	Land Use	○	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure TRN-3: Apply best practice strategies to reduce the localized impact from construction activities on the transportation system.
	Transpo.	○	◑	◑	◑	◑	◑	◑	◑	◑	

REG: Regional CCC: Center and Corridor Communities EC: Established Communities DC: Developing Communities RRC: Rural Residential Communities LNID: Lands Not Identified for Development PLA: Placer County HFTA SAC: Sacramento County HFTA YOL: Yolo County HFTA	○	Less than Significant; No mitigation required
	◑	Potentially Significant; Less than Significant after mitigation, but identified as Significant and Unavoidable because SACOG cannot compel implementation
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	◙	Potentially Significant; Significant and Unavoidable after mitigation is adopted or mitigation is not known

Impact Statement		A.	B. Localized					C. High Frequency Transit Areas			Mitigation*
		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	
IMPACT TRN-9: RESULT IN INCONSISTENCY WITH PROJECT DESIGN STANDARDS RELATED TO TRAFFIC SAFETY.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	
UTILITIES AND SERVICE SYSTEMS											
IMPACT USS-1: INCREASE DEMAND FOR SURFACE OR GROUNDWATER IN EXCESS OF AVAILABLE SUPPLIES DURING NORMAL, DRY, OR MULTIPLE DRY YEARS.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure USS-1: Implement Mitigation Measure PS-1.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure USS-2: Implement water conservation strategies.
IMPACT USS-2: EXCEED THE CAPACITY OF EXISTING WATER STORAGE, CONVEYANCE, DISTRIBUTION, AND TREATMENT FACILITIES SUCH THAT THE CONSTRUCTION OF NEW, EXPANDED, OR RELOCATED FACILITIES THAT COULD CAUSE SIGNIFICANT ENVIRONMENTAL EFFECTS IS REQUIRED.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure USS-3: Implement the construction- and operational-related mitigation measures identified in other chapters of this EIR.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure USS-4: Implement Mitigation Measure USS-1 Mitigation Measure USS-5: Implement Mitigation Measure USS-2

REG: Regional CCC: Center and Corridor Communities EC: Established Communities DC: Developing Communities RRC: Rural Residential Communities LNID: Lands Not Identified for Development PLA: Placer County HFTA SAC: Sacramento County HFTA YOL: Yolo County HFTA	○	Less than Significant; No mitigation required	
	◑	Potentially Significant; Less than Significant after mitigation, but identified as Significant and Unavoidable because SACOG cannot compel implementation	
	●	Potentially Significant; May be Significant and Unavoidable after mitigation is adopted; however, the project-specific impacts are unknown without analysis at the project-level	
	◙	Potentially Significant; Significant and Unavoidable after mitigation is adopted or mitigation is not known	

Impact Statement		A.	B. Localized					C. High Frequency Transit Areas			Mitigation*
		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	
IMPACT USS-3: EXCEED THE CAPACITY OF EXISTING UTILITY INFRASTRUCTURE, INCLUDING WASTEWATER TREATMENT, FIRE FLOWS, SOLID WASTE, ELECTRIC POWER, NATURAL GAS, AND TELECOMMUNICATIONS SUCH THAT THE CONSTRUCTION OF NEW, EXPANDED, OR RELOCATED FACILITIES THAT COULD CAUSE SIGNIFICANT ENVIRONMENTAL EFFECTS IS REQUIRED.	Land Use	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure USS-6: Implement Mitigation Measure USS-1.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure USS-7: Implement Mitigation Measure USS-2.
IMPACT USS-4: GENERATE SOLID WASTE IN EXCESS OF STATE OR LOCAL STANDARDS OR OTHERWISE CONFLICT WITH FEDERAL, STATE, AND LOCAL MANAGEMENT AND REDUCTION STATUTES AND REGULATIONS RELATED TO SOLID WASTE, INCLUDING SOLID WASTE REDUCTION GOALS.	Land Use	○	○	○	○	○	○	○	○	○	None required.
	Transpo.	○	○	○	○	○	○	○	○	○	

*Only a summary of mitigation is provided in this table. See the applicable chapter for a full list of all identified mitigation measures by impact.

Chapter 1—Introduction

In accordance with the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.), this Program Environmental Impact Report (EIR) describes the environmental effects associated with adoption and implementation of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). For this Draft EIR, "proposed MTP/SCS" means the Draft MTP/SCS released by the Sacramento Area Council of Governments (SACOG) Board of Directors on September 23, 2019, and available for review at https://www.sacog.org. This Draft EIR has been prepared by SACOG pursuant to CEQA (PRC Section 21000 et seq.) and the CEQA Guidelines (14 California Code of Regulation [CCR] Section 15000 et seq.)

1.1 Regulatory Context for the MTP/SCS

SACOG is designated by the state and federal governments as the Metropolitan Planning Organization (MPO) for the Sacramento region and, as such, is responsible for developing a metropolitan transportation plan (MTP) and sustainable communities strategy (SCS) every four years in coordination with El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties (including the 22 cities within those counties, with the exception of the Tahoe Basin). The proposed MTP/SCS incorporates countywide transportation planning developed by the El Dorado County Transportation Commission and the Placer County Transportation Planning Agency under memoranda of understanding (MOUs) between those agencies and SACOG. Federal and state laws regarding the proposed MTP/SCS are described below.

1.1.1 Federal Laws Regarding Regional Transportation Plans

General Federal Requirements Under the FAST (Fixing America's Surface Transportation [Public Law 114-94]) Act and MAP-21 (Moving Ahead for Progress in the 21st Century Act [Public Law 112-141]), the U.S. Department of Transportation (USDOT) requires that MPOs, such as SACOG, prepare long-range regional transportation plans, called RTPs, or MTPs by SACOG, and update them every four years if they are in areas designated as "nonattainment" or "maintenance" for the national ambient air quality standards. SACOG uses the term MTP to differentiate between transportation plans that are developed by El Dorado and Placer counties and the subject regional Plan developed by SACOG. Prior to enactment of MAP-21, the primary federal requirements regarding RTPs were included in the metropolitan transportation planning rules—Title 23 of the Code of Federal Regulations (CFR) Part 450 and 49 CFR Part 613. The FAST Act and MAP-21 make a number of changes to the statutes that underpin these regulations. Key federal requirements for long range plans include the following:

- RTPs must be developed through an open and inclusive process that ensures public input, seeks out and considers the needs of those traditionally under served by existing transportation systems, and consults with resource agencies to ensure potential problems are discovered early in the RTP planning process;
- RTPs must be developed for a period of not less than 20 years into the future;

- RTPs must reflect the most recent assumptions for population, travel, land use, congestion, employment, and economic activity;
- RTPs must have a financially constrained element, transportation revenue assumptions must be reasonable, and the long-range financial estimate must account for construction-related inflation costs;
- RTPs must include a description of the performance measures and performance targets used in assessing the performance of the transportation system;
- RTPs must include a system performance report evaluating the condition and performance of the system with respect to performance targets adopted by the state that detail progress over time;
- RTPs may include multiple scenarios for consideration and evaluation relative to the state performance targets as well as locally-developed measures.
- RTPs must conform to the applicable federal air quality plan, called the State Implementation Plan (SIP), for ozone and other pollutants for which an area is not in attainment; and
- RTPs must consider planning factors and strategies in the local context.

THE FEDERAL CLEAN AIR ACT OF 1970

The federal Clean Air Act (CAA) of 1970 (42 U.S. Code Section 7401 et seq.) was passed in response to growing concerns regarding the public health dangers of air pollution. The law was originally formulated in response to pollution generated by workplaces such as factories, and subsequently was amended to address vehicle-generated pollution with a focus on regulating the composition of gasoline. In 1990, a set of CAA Amendments were passed that recognized the transportation system itself affects travel behavior, and by extension, air quality. As part of the Amendments, new transportation projects are required to be in "conformity" with the CAA, meaning that transportation planning agencies such as SACOG must examine the long-term air quality impacts of their transportation system and ensure that it is compatible with the region's air quality goals. In doing so, regional agencies must work with state and local partner agencies to assess the impacts of growth on air pollution and decide how to manage growth.

The CAA conformity requirements pursuant to the Amendments of 1990 apply in all MPO nonattainment and maintenance areas. Section 176(c) of the CAA, as amended (Title 42 U.S. Code Section 7506(c), and the related requirements of Title 23 U.S. Code 109(j), require "transportation conformity," to ensure that federal funding and approval are given to transportation plans, programs and projects consistent with the air quality goals established by a SIP. For MPO nonattainment and maintenance regions, which the SACOG region is classified as for ozone and particulate matter, the MPO, Federal Highway Administration, and Federal Transit Administration are responsible for making the RTP conformity determination. Under the USDOT Metropolitan Planning Regulations (Title 23 CFR Part 450 and 771 and Title 49 CFR Part 613) and the U.S. Environmental Protection Agency's Transportation Conformity Rule (Title 40 CFR Part 93) requirements, the RTP needs to meet four requirements: 1.) regional emissions analysis, 2.) timely implementation of Transportation Control Measures, 3.) financial constraints analysis, and 4.) interagency consultation and public involvement. The Transportation Conformity Rule (Title 40 CFR Part 93 Subpart A) sets forth the policy, criteria, and procedures for demonstrating and assuring conformity of transportation activities.

1.1.2 California State Laws Regarding Regional Transportation Plans

THE SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT OF 2008

The Sustainable Communities and Climate Protection Act (Senate Bill [SB] 375) (Statutes of 2008, chapter 728) focuses on aligning transportation, housing, and other land uses to achieve regional greenhouse gas (GHG) emission reduction targets established under the California Global Warming Solutions Act, also known as Assembly Bill (AB) 32 (Statutes 2005, chapter 488). While other efforts to reduce GHG emissions focus on alternative fuels and vehicle efficiency, SB 375 is intended to reduce emissions by coordinating land use and transportation planning at the regional level.

SB 375 requires California MPOs to develop an SCS as a component of an RTP, with the purpose of identifying policies and strategies to reduce per-capita passenger vehicle-generated GHG emissions. The SCS must identify the general location of land uses, residential densities, and building intensities within the region; identify areas within the region sufficient to house all the population, including all economic segments of the population; identify areas within the region sufficient to house an eight-year projection of the regional housing need; identify a transportation network to service the regional transportation needs; gather and consider the best practically available scientific information regarding resource areas and farmland in the region; consider the state's housing goals; set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce GHG emissions from automobiles and light-duty trucks to achieve, if there is a feasible way to do so, the GHG emission reduction targets approved by the California Air Resources Board; and allow the regional transportation plan to comply with the CAA (Government Code Section 65080, subd. (b)(F)(2)(B)). The process for developing an SCS must also follow public participation requirements outlined in SB 375. If the SCS does not achieve the GHG emission reduction targets set by ARB, an Alternative Planning Strategy (APS) must be developed to demonstrate how the targets could be achieved. Pursuant to SB 375, CARB approved the most recent set of SCS GHG emission reduction targets in March 2018.

CALIFORNIA GLOBAL WARMING SOLUTIONS ACT, SENATE BILL 32

SB 32 (Statutes of 2016, Chapter 249), extended the state's GHG reduction target under AB 32, requiring achievement of a 40 percent reduction from 1990 levels of GHG emissions by 2030, as initially directed by Executive Order B-30-15. In California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), CARB, the state agency tasked with furthering the state toward its long-term GHG reduction targets, provides the framework for the state to achieve its 2030 target as mandated by SB 32. These statewide efforts extend to achieve the state's target of achieving an 80 percent reduction from 1990 levels by 2050 as established by Executive Order S-3-05. CARB identifies passenger vehicle-sourced GHGs as a sector where notable reductions are required, which can be partially achieved through implementation of the land use and transportation strategies in RTP/SCSs.

1.2 Purpose of This Draft EIR

The purpose of an EIR is to identify a project's significant effects on the environment, identify alternatives to the project, and indicate the manner in which significant effects can be mitigated or avoided (PRC Section 21002.1(a)). Section 15382 of the CEQA Guidelines defines a "significant effect on the environment" as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora,

fauna, ambient noise, and objects of historic or aesthetic significance as compared to baseline conditions. An economic or social change by itself is not considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

This Draft EIR analyzes the environmental effects of the proposed MTP/SCS and provides local decisionmakers and the public with an objective analysis of the potential environmental consequences of implementing the proposed MTP/SCS. Mitigation has been recommended, where necessary and/or feasible, to reduce or avoid significant environmental impacts identified in the analysis. However, SACOG has no authority to enforce recommended mitigation measures on future lead agencies. Agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081) and projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above to address site-specific conditions. For this reason, the mitigation measures listed in the preceding Executive Summary, and fully described in the following chapters, indicate the level of significance after mitigation of an impact, but also disclose SACOG's lack of authority to enforce such measures.

CEQA Guidelines Section 15168 defines a program EIR as "…an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either: 1) geographically; 2) as logical parts in the chain of contemplated actions; 3) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or 4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways."

Generally, the degree of specificity in an EIR should correspond to the degree of specificity of the underlying activity being evaluated (CEQA Guidelines Section 15146). This Draft EIR provides a programmatic analysis of potential impacts of the proposed MTP/SCS and provides a foundation for second-tier CEQA documents for subsequent projects but does not analyze the project-specific impacts of individual projects.

Many specific projects are not currently defined to the level that would allow for project-specific analysis. Individual environmental analysis of each project will be undertaken as necessary by the appropriate implementing agency prior to each project being considered for approval. Project-specific and site-specific details of subsequent transportation and land use projects identified in the proposed MTP/SCS will vary widely. When a first-tier program EIR is prepared, "leaving project-specific details to subsequent EIRs when specific projects are considered" is a proper approach to CEQA tiering (In re Bay Delta [2008] 43 Cal. 4th 1143, 1174).

This Draft EIR serves as a first-tier environmental document under CEQA, supporting second-tier environmental documents for:

- planned transportation improvements consistent with the proposed MTP/SCS; and
- residential or mixed-use projects and HFTA projects consistent with the projected land use pattern presented in the SCS.

Significance determinations reflect the programmatic nature of the analysis of regional-scale, projected land use pattern and planned transportation improvements. The analyses address broadly defined types of impacts without the ability to determine the precise project locations, size, and

design, or site-specific environmental characteristics of proposed projects. Some impact issues are determined to be potentially significant, because the possibility that future projects would cause a substantial adverse effect on environmentally sensitive resources cannot be dismissed. This is a conservative approach (i.e., avoiding a risk of understating environmental impacts), in light of these potentials, which is intended to satisfy the good-faith, full-disclosure purpose of CEQA. When specific projects are proposed and subjected to project-level environmental review, it is possible that impacts recognized as potentially significant in this section can be avoided or maintained at a less-than-significant level through environmentally sensitive project siting and design.

Where feasible, mitigation measures are identified. While the MTP/SCS EIR provides these mitigation measures, SACOG cannot require lead agencies to adopt and enforce them; it is ultimately the responsibility of a lead agency to adopt and implement feasible mitigation.

Consequently, the analysis takes the conservative approach in its post-mitigation significance conclusions (i.e., avoids a risk of overstating the degree to which feasible mitigation will be adopted and implemented by other parties) and discloses, for CEQA compliance purposes, that potentially significant environmental impacts may be unavoidable. Future proposed projects would likely require individual CEQA review. It is expected that the proposed projects would be able to feasibly avoid or mitigate to a less-than-significant level some of these potentially significant impacts as an outcome of their project-specific environmental reviews.

Local jurisdictions and other implementing agencies would undertake future environmental review as CEQA lead agencies for projects in the proposed MTP/SCS. These local jurisdictions would include the six counties and twenty-two cities within the plan area of the proposed MTP/SCS. Other lead agencies may include public transit providers, other public agencies such as air districts and the California Department of Transportation, Native American tribes, college and university transportation providers, and transportation management associations, among others. All of these types of agencies, as well as the SACOG member agencies, would be able to prepare subsequent environmental documents that incorporate, by reference, the appropriate information from this Draft EIR. Please see Section 2.8.4, Future Environmental Review in Chapter 2, Project Description for additional discussion.

1.3 Scope of This Draft EIR

This Draft EIR analyzes the potential environmental impacts of the proposed MTP/SCS, in particular the long-term impacts of the plan's components. The Draft EIR also provides the basis for project-level CEQA compliance for implementation of future transportation projects and qualifying land use projects.

For each topic analyzed in this Draft EIR, there is an introduction, a regulatory and environmental setting, an explanation of the methodology and assumptions for the analysis, the criteria for determining significance of impacts, and the impacts and proposed mitigation measures. The following topics are analyzed in this Draft EIR:

- aesthetics;
- agricultural and forestry resources;
- air quality;
- biological resources;
- cultural, paleontological, and tribal cultural resources;

- energy and global climate change;
- geology, soils, seismicity, and mineral resources;
- hazards, hazardous materials, and wildfire;
- hydrology and water quality;
- land use and planning;
- noise and vibration;
- population and housing;
- public services and recreation;
- transportation;
- utilities and service systems;
- alternatives analysis; and
- other CEQA considerations.

1.4 Organization of This Draft EIR

1.4.1 Report Structure

The content and format of this Draft EIR are designed to meet the requirements of CEQA and the CEQA Guidelines. The Draft EIR is organized into the following chapters so that the reader can easily obtain information about the proposed MTP/SCS:

- **Executive Summary:** Presents a summary of the proposed MTP/SCS and alternatives and a summary of the impacts and mitigation measures.
- **Chapter 1 – Introduction:** Describes the overall purpose, scope, and organization of this Draft EIR.
- **Chapter 2 – Project Description:** Provides a description of the SACOG region, project background, project objectives, and the components of the proposed MTP/SCS.
- **Chapters 3 through 17 – Environmental Analysis:** Chapters 3 through 17 are devoted to and describe the following for each environmental resource analyzed in this Draft EIR: existing environmental and regulatory setting; significance criteria; potential environmental impacts and their level of significance; and mitigation measures, if necessary and feasible, that would eliminate or reduce significant impacts.
- **Chapter 18 – Alternatives Analysis:** Describes and evaluates alternatives to the proposed project.
- **Chapter 19 – Other CEQA Considerations:** Provides an analysis of growth-inducing impacts, significant irreversible changes, and cumulative impacts.
- **Chapter 20 – References:** Identifies the documents used (printed references) and individuals consulted (personal communications) during preparation of this Draft EIR.
- **Chapter 21 – Report Preparation**: Lists the individuals involved in preparing this Draft EIR.

Technical appendices are included at the end of the Draft EIR.

1.4.2 Level of Analysis

Potential impacts of the proposed MTP/SCS are analyzed first in terms of the proposed land use pattern, then in terms of the planned transportation improvements of the proposed MTP/SCS. Where applicable, the sum total of impacts from the combined land use pattern and planned

transportation improvements of the proposed MTP/SCS are analyzed. This analytical structure is used to provide the reader information about all components of the proposed MTP/SCS. At the same time, the programmatic and long-term nature of this Draft EIR necessitates a general approach to the evaluation of existing conditions and potential impacts associated with implementation of the proposed MTP/SCS. Generally, these analyses are qualitative in nature, with quantitative analysis provided where information is available and applicable. The Draft EIR meets the CEQA standard for level of analysis by providing sufficient information about the environmental impacts of the proposed MTP/SCS "in light of what is reasonably feasible" (CEQA Guidelines Section 15151).

In addition to describing impacts of both the proposed land use pattern and planned transportation improvements of the proposed MTP/SCS, this Draft EIR includes analysis conducted at three geographic levels. First, land use and transportation impacts are analyzed at the regional level. Second, the analysis breaks the region down into the five Community Types discussed in Chapter 2 – Project Description of this document: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the proposed MTP/SCS. Finally, implementation of the proposed MTP/SCS is analyzed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). HFTAs are areas of the region that are within one-half mile of a major transit stop or high-quality transit corridor. Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas. This analytical framework was used to provide greater detail on the potential environmental effects of this regional-scale plan on smaller geographies. It was also employed to provide tiering opportunities for subsequent projects that qualify for SB 375 CEQA streamlining benefits.

1.4.3 Timeframe

The planning period of the proposed MTP/SCS spans a 24-year time period, from 2016 to 2040.

2016 BASELINE

The CEQA Guidelines provide that the existing physical conditions at the time the Notice of Preparation ("NOP") is published will "normally" constitute the baseline. (Guidelines Section 15125(a).) However, CEQA Guidelines Section 15125(a)(1) indicates that, "where existing conditions change or fluctuate over time, and where necessary to provide the most accurate picture practically possible of the project's impacts, a lead agency may define existing conditions by referencing historic conditions…that are supported by substantial evidence."

By 2040, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016, rather than the NOP issuance date, because it is the most recent year for which comprehensive land use, demographic, traffic count, and vehicle miles traveled (VMT) data are available for the plan area of the proposed MTP/SCS, as described further below.

SACOG's travel model requires comprehensive land use data, which are built upon baseline land use data. Baseline data are created at the parcel-level on a four-year cycle to coincide with each MTP/SCS update cycle. The housing unit, employee, and land use data used in the baseline land use data set come from different sources with information available for the year selected as the proposed

MTP/SCS baseline, including local government inventories (where available), assessor data, and aerial photography. These data sources, in combination with jurisdiction housing permit data from December 2015, the 2010 Census, the 2016 California Department of Finance, and the 2016 InfoUSA employment data sets (updated by SACOG with state and local government data, and compared to State Employment and Development Department records), were used to create SACOG's spatial estimate of existing land uses.

Once data is acquired, it must be processed into a format compatible with SACOG's travel model. The resulting baseline data set is then vetted through local jurisdictions for accuracy. Edits are made to the baseline data set if local agencies provide corrections; the baseline data set is then recirculated for confirmation of accuracy. This detailed data assembly and vetting at a parcel level for the entire SACOG region takes approximately 18 to 24 months. The baseline land use data set that represents 2016 conditions was completed in late 2017. Due to the substantial length of time required to compile and model these data, coupled with the limited accessibility of retrieving more recent data, the 2016 data set represents the most current and feasible data compiled and fully vetted. This 2016 data set was then used to develop alternative planning scenarios for consideration by the SACOG Board of Directors and for use in the extensive planning and public engagement process of the proposed MTP/SCS through September of 2019.

The most complete regional data on travel conditions is available for 2016. The U.S. Census Bureau American Community Survey's average five-year estimates up to 2016 provide the most complete coverage for many of the demographic data needed to simulate travel demand using the Sacramento Regional Activity-Based Simulation Model (SACSIM) model. SACOG last assembled traffic counts taken by local agencies within their jurisdictions in 2016. While subsequent year counts taken by local agencies may be available for some locations, 2016 constitutes the most comprehensive and consistent set of counts for the region. Additionally, vehicle miles traveled (VMT) estimates for the region are used in conjunction with traffic count data to establish traffic conditions. The VMT estimates are compiled from Highway Performance Monitoring System (HPMS) data, which have been published for years up to 2016 at the time the NOP was released. Therefore, 2016 is the most current year for which both comprehensive VMT and traffic count data are available. Because it is important to have VMT and traffic count data for the same year to establish baseline conditions, 2016 is being used as the baseline year.

Because the baseline must be an integrated set of land use, demographic, traffic count, and VMT data, and 2016 provides the most complete, integrated data portrait of the existing conditions in the region, it is being used as the baseline year for purposes of this Draft EIR. In other words, 2016 is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region, and thus will give "the most accurate picture practically possible" of MTP/SCS impacts as required under CEQA Guidelines Section 15125.

Where appropriate and identified throughout this Draft EIR, the environmental and regulatory settings of various resource areas have used more recent data to better characterize baseline conditions. Or, conversely, where data were unavailable for 2016 or a more recent year, the most recent data were used. See the Methods and Assumptions section for each resource area for an additional discussion of data used to characterize environmental and regulatory settings.

INTERIM TIMEFRAMES

The year 2040 is the horizon year of the proposed MTP/SCS. While the proposed MTP/SCS would be implemented gradually over the planning period, this Draft EIR does not analyze interim timeframes because the four-year update cycle of the MTP/SCS already requires short-term adjustments to the proposed MTP/SCS.

An exception to this approach is in Chapter 4 – Air Quality, which evaluates air pollutant emissions consistent with federal Transportation Conformity requirements (42 U.S. Code 7506(c)). See Chapter 4 – Air Quality for a discussion of Transportation Conformity. Additionally, Chapter 8 – Energy and Global Climate Change examines impacts for the year 2035 and in comparison to a baseline of 2005 to satisfy statutory requirements and state goals related to GHG emissions (i.e., a 19 percent reduction in per capita emissions by 2035 as compared to a 2005 baseline pursuant to SB 375) (Health & Safety Code Section 38551(b)). Refer to Chapter 8 – Energy and Global Climate Change for more detailed discussion of SACOG's 2035 target under SB 375. To address consistency with the 2017 Scoping Plan, Chapter 8 – Energy and Global Climate Change also estimates GHG emissions for the plan area of the proposed MTP/SCS for 2030 (SB 32) and 2050 (Executive Order S-3-05). Refer to Chapter 8 – Energy and Global Climate Change for additional information regarding state regulations, laws, and GHG reduction targets.

1.5 Public Review and Participation Process

SACOG is committed to effectively involving the public in the update of the proposed MTP/SCS and, therefore has conducted an extensive outreach process during the preparation of this Draft EIR to affected agencies and organizations interested in the proposed MTP/SCS. In accordance with the Public Participation Plan approved by the Board of Directors at the outset of the MTP/SCS planning process, SACOG has provided, and will continue to provide, opportunities for the public to participate in the development of the proposed MTP/SCS.

Public involvement is a major component of the regional transportation planning process. In accordance with the public outreach requirements of MAP-21 and SB 375, SACOG has provided opportunities for citizens, affected public agencies, representatives of public transportation employees, freight shippers, providers of freight transportation services, private providers of transportation, representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, and other interested parties, with reasonable opportunities to be involved in the metropolitan transportation planning process for the development of the proposed MTP/SCS. SACOG conducted eight general public workshops around the region, an online public workshop, 10 sounding board or Regional Planning Partnership meetings with local stakeholders, plus numerous other stakeholder meetings, six information meetings for elected officials, and monthly briefings at SACOG board and advisory committees. In addition, SACOG reached out to the federally designated Native American tribal governments within the region. A full summary of this outreach process occurs in Chapter 2 – Project Description of this Draft EIR and Appendix G: Communication and Outreach of the proposed MTP/SCS.

1.5.1 Comments on the Draft EIR for the Proposed MTP/SCS

SACOG initiated the EIR scoping process on April 25, 2019, with circulation of a Notice of Preparation (NOP) through the State Clearinghouse (SCH No. 2019049139), distributed to public agencies and persons considered likely to be interested in the plan and its potential impacts. The NOP provided formal notification to all federal, state, and local agencies involved with funding or approval of the proposed MTP/SCS, and to other interested organizations and members of the public, of the preparation of this Draft EIR for the project. A copy of the NOP is provided in Appendix PD-1, as well as the responses received. In addition, SACOG held a Scoping Meeting on May 9, 2019.

The Draft EIR for the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy is available for a 45-day public review, as required by CEQA. It was released as a companion document to the draft MTP/SCS, which the SACOG Board authorized for public review at its September 19, 2019, meeting. A Notice of Availability has been published in local newspapers and mailed to an extensive distribution list, and the Draft EIR has been posted on the SACOG website with a comment period beginning on September 23, 2019. SACOG has filed a Notice of Completion with the Governor's Office of Planning and Research, State Clearinghouse, indicating that this Draft EIR has been completed and is available for review and comment by the public. During this public review period, the Draft EIR, including the technical appendices, is available for review at the SACOG office, located at the address below. It is also available on the SACOG website at: www.sacog.org or at the following library locations:

Sacramento County:

- Arcade, 2443 Marconi Avenue, Sacramento;
- Carmichael, 5605 Marconi Avenue, Sacramento;
- Central, 828 I Street, Sacramento;
- Colonial Heights, 4799 Stockton Boulevard, Sacramento;
- Belle Cooledge, 5600 South Land Park Drive, Sacramento;
- Courtland, 170 Primasing Avenue, Courtland;
- Del Paso Heights, 920 Grand Avenue, Sacramento;
- Fair Oaks, 11601 Fair Oaks Boulevard, Fair Oaks;
- Franklin, 10055 Franklin High Road, Elk Grove;
- Galt – Marian O. Lawrence, 1000 Caroline Avenue, Galt;
- Ella K. McClatchy, 2112 22nd Street, Sacramento;
- McKinley, 601 Alhambra Boulevard, Sacramento;
- Martin Luther King, Jr., 7340 24th Street Bypass, Sacramento;
- North Natomas, 4660 Via Ingoglia, Sacramento;
- North Sacramento – Hagginwood, 2109 Del Paso Boulevard, Sacramento;
- Orangevale, 8820 Greenback Lane, Suite L, Orangevale;

- Rancho Cordova, 9845 Folsom Boulevard, Sacramento;
- Rio Linda, 631 L Street, Rio Linda;
- Robbie Waters Pocket-Greenhaven, 7335 Gloria Drive, Sacramento;
- South Natomas, 2901 Truxel Road, Sacramento;
- Southgate, 6132 66th Avenue, Sacramento;
- Sylvan Oaks, 6700 Auburn Boulevard, Citrus Heights;
- Valley Hi-North Laguna, 7400 Imagination Parkway, Sacramento; and
- Walnut Grove, 14177 Market Street, Walnut Grove.

All Other Counties:

- El Dorado County Library, 345 Fair Lane, Placerville;
- Placer County Library, 350 Nevada Street, Auburn;
- Sutter County Library, 750 Forbes Avenue, Yuba City;
- Yolo County Library, 226 Buckeye Street, Woodland; and
- Yuba County Library, 303 Second Street, Marysville.

Public hearings on the Draft MTP/SCS are scheduled as follows; a public comment meeting focused on the Draft EIR is noted below:

- Public hearing on the Draft MTP/SCS
  Wednesday, October 9, 2019, 6:30-7:30 p.m.
  Folsom Community Center – RG Smith Room
  50 Natoma Street, Folsom

- Public hearing on the Draft MTP/SCS
  Wednesday, October 16, 2019, 6:30-7:30 p.m.
  Woodland Senior and Community Center
  2001 East Street, Woodland, CA

- Public hearing on the Draft MTP/SCS
  Draft EIR Comment Meeting
  Thursday, October 24, 2019, 5:30-6:30 p.m.
  SACOG Offices
  1415 L Street, 3rd Floor, Sacramento, CA

Public hearing on the MTIP and Air Quality Conformity Analysis
Thursday, October 3, 2019 during the Transportation Committee Meeting at SACOG
1415 L Street, Suite 300, Sacramento, CA 95814

It is anticipated that the Final EIR will be considered for certification at the SACOG Board of Directors meeting on February 20, 2020.

Comments on the 2020 MTP/SCS Draft EIR may be made in writing before the end of the comment period (November 7, 2019). Oral comments at the comment meeting will also be accepted, though it is important to note that these comments will be recorded in the form of summary minutes, not transcription. Commenters interested in entering their comments verbatim into the record must do so in a written form, and they must be received by the close of the comment period. Written comments should be mailed or emailed to the address provided below. Following the close of the public comment period, responses to the comments received on the Draft EIR will be prepared and published, and together with the Draft EIR, and any revisions thereto, will constitute the Final EIR. Comments on this Draft EIR are due to SACOG no later than 5:00 p.m., November 7, 2019, and can be delivered by any of the following methods:

By mail:
Sacramento Area Council of Governments
ATTN: EIR Comments
1415 L Street, Suite 300
Sacramento, CA 95814

By email:
eircomments@sacog.org
By fax:
ATTN: EIR Comments
(916) 321-9551

Chapter 2—Project Description

2.1 Introduction

The proposed project is the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). The Metropolitan Transportation Plan (MTP) is a long-range comprehensive plan for the region's multi-modal transportation system; preparing the MTP is one of SACOG's primary statutory responsibilities under federal and state law. An MTP, also referred to in other regions as a Regional Transportation Plan (RTP) or Long-Range Transportation Plan, is the mechanism used in California by both Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Agencies to conduct long-range (at least 20-year) planning in their regions. SACOG must adopt an MTP and update it every four years, or more frequently, if the region is to receive federal or state transportation dollars for public transit, streets/roads, and bicycle and pedestrian improvements. In 2008, California enacted the Sustainable Communities and Climate Protection Act, also known as Sen. Bill 375 (Stats. 2012, Ch. 728) (SB 375), which requires MPOs to include a Sustainable Communities Strategy (SCS) element in their MTP updates. The SCS is aligned in purpose with the Sacramento Region Blueprint (Blueprint), further integrating smart land use planning principles with an efficient and diverse transportation network. In 2012, SACOG adopted its first Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) for 2035 (2012 MTP/SCS), a long-range plan for transportation in the region that is informed by the Blueprint and links air quality, land use, and transportation needs. The MTP/SCS was last updated in 2016.

The proposed 2020 MTP/SCS update revisits the growth forecast, land use assumptions, and transportation investments that served as the foundation of both the 2012 and 2016 plans. The proposed 2020 MTP/SCS is the first of SACOG's plans to include roadway pricing strategies (tolling and mileage fees) to help manage traffic and demand on the region's road and highway network.

This chapter describes the proposed MTP/SCS, which is being evaluated in this program EIR. The adoption and implementation of the proposed MTP/SCS, is considered the "proposed project." The project description that follows describes the proposed MTP/SCS for purposes of analyzing its potential to create environmental impacts (see Chapters 3 through 17 and 19 for environmental analyses). This chapter provides an overview of the project's regional location, project background, project objectives, and a detailed description of the proposed MTP/SCS.

2.2 Summary of Regional Land Use and Transportation Changes

At the regional level, land use patterns and growth footprint will influence the nature of the impacts associated with implementation of the proposed MTP/SCS. By 2040, the plan area of the proposed MTP/SCS will grow by approximately 620,500 people, 270,000 jobs, and 260,000 housing units. Implementation of the proposed MTP/SCS will convert approximately 46,400 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 26 percent and 30 percent increases over existing conditions, respectively. Accommodating the projected increase in population and housing with a relatively small increase in developed land is achieved

through a more compact development pattern than existing conditions. The location and pattern of this growth is important because it influences travel behavior and provides a means for determining the impact of future vehicle emissions in the proposed MTP/SCS planning area. A compact growth pattern served by an efficient transportation system provides the foundation to reduce automotive travel and increase walking, bicycling, and transit use, behaviors which lower vehicle miles traveled (VMT) and reduce individual trip numbers. The growth forecast and projected land use pattern of the proposed MTP/SCS would be implemented through local plans and individual development projects. As such, any additional improvements, local roads, utilities, storm water facilities, and any other public services is the responsibility of the local agency.

The proposed MTP/SCS is an update of the 2016 MTP/SCS. The proposed MTP/SCS addresses projected changes in population growth, projected changes in funding for transportation projects, and further integrates Blueprint principles through the SCS. The 2040 forecast for the proposed MTP/SCS assumes that population in the plan area is expected to be 2.99 million in 2040. This forecast is three percent lower than the 2016 MTP/SCS. In addition to a lower population forecast, the proposed MTP/SCS accounts for lower projected funding from existing sources of revenue for transportation compared to the previous MTP/SCS. However, the plan assumes roadway pricing, including tolls and mileage-based fees, will replace fuel taxes as a primary source of funding during the 20-year planning period covered by the proposed plan. These fees will generate additional funding that will help pay for maintaining, operating, and preserving the transportation system as well as serve as demand management strategies for managing traffic and demand on the roadway system. The proposed MTP/SCS focuses on maximizing the efficiency of existing infrastructure and identifying investments that bring the most benefit to the regional transportation network. Overall, the proposed MTP/SCS guides the Sacramento region toward a more sustainable future through continued integration of smart land use decisions with an efficient, well-managed, and diverse transportation system. The updated SCS serves to implement SACOG's longstanding effort to integrate land use and transportation planning by tying the plan's performance to reduced automotive travel and increased walking, bicycling, and transit use based on Blueprint-influenced land use patterns.

With respect to transportation projects proposed as a part of the proposed MTP/SCS, the plan includes 1,250 new lane miles of highways, arterials, and expressways to accommodate the addition of approximately 620,500 people in the plan area. The proposed MTP/SCS also provides maintenance, major reconstruction, and rehabilitation activities on the 33,100 lane miles making up the 2040 road and highway network.

The proposed MTP/SCS includes, for the first time in this region, significant freeway corridors with managed lanes, including pricing strategies. A total of 86 centerline miles of freeway are proposed for "managed lanes" treatments. While the exact nature and extent of the management and pricing will be determined through more focused, detailed project development work on each corridor, for purposes of the MTP/SCS, express lanes (i.e. freeway facilities split into tolled lanes, and un-tolled lanes) were assumed on these corridors. Tolls would be set to maintain more reliable, faster travel than the un-tolled lanes. Express lanes are intended to preserve faster, more reliable travel options for travelers when needed, and to raise revenue to offset costs of building, maintaining and operating the facilities, and to provide subsidies for non-auto options like express buses in the corridors.

Implementation of planned transportation projects assumed as a part of the proposed MTP/SCS are difficult to quantify in acres. However, for purposes of analyzing the transportation impact to environmental resources (including Agriculture and Forestry, Biological Resources, Hazards, and

Land Use Planning), transportation projects were spatially analyzed by calculating a 100-foot buffer around the centerlines of proposed road widenings, new roads, and new or expanded interchanges. New transit infrastructure is included on existing or new or widened roads and is therefore included in this analysis. However, this category of projects represents only about 19 percent of the total budget of transportation projects planned in the proposed MTP/SCS. Using this buffered area, approximately 11,730 acres of land associated with transportation projects was analyzed. Because there is some overlap of the land use growth footprint and the transportation project buffer area(1,323 acres), the combined net new growth footprint for assumed land use pattern and planned transportation improvements is 56,807 acres. The entire transportation network was analyzed in the Climate, Air Quality, and Transportation chapters as well as qualitatively in all other chapters.

A detailed discussion of the land use and transportation changes assumed by community type, high frequency transit area, and by transportation project category is described throughout the rest of this chapter.

2.3 Project Location and Study Area

The plan area for the proposed MTP/SCS includes El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties, exclusive of the Tahoe Basin. This plan area is shown in Figure 2-1. Located in the north San Joaquin Valley in Central California, the plan area encompasses 3,859,812 acres (6,030 square miles) and is bounded by Colusa, Lake, Napa, and Solano counties to the west; Butte, Sierra, and Nevada counties to the north; the Lake Tahoe Basin, Plumas, and Alpine counties to the east; and Amador, San Joaquin, and Contra Costa counties to the south. The bulk of the plan area is located in the Sacramento Valley, a basin generally bounded by the Sierra Nevada mountain range to the east and the coastal ranges to the west. The eastern portion of the region – Placer County, El Dorado County, and Eastern Yuba County – is located in the Sierra Nevada mountains and foothills. The western portion of the region, in Yolo County, marks the eastern edge of the coastal mountain ranges. North to south, the plan area spans from the lower Sacramento Valley in northern Sutter and Yuba counties to the Sacramento River Delta in southern Sacramento County. In the valley portion of the plan area – Sacramento County, western Placer County, western Yuba County, Sutter County, and eastern Yolo County – the topography is generally flat, with the exception of the Sutter Buttes mountain range in Sutter County.

Urban uses in the MTP/SCS plan area are primarily concentrated in an urban core in northern and central Sacramento County, eastern Yolo County, southwestern Placer County, and western El Dorado County, with smaller urban areas separated from this core and each other by rural lands. Approximately 80 percent of the MTP/SCS plan area is designated for agriculture, open space, or timber uses. The SACOG region includes 22 incorporated cities within its boundaries: Auburn, Citrus Heights, Colfax, Davis, Elk Grove, Folsom, Galt, Isleton, Lincoln, Live Oak, Loomis, Marysville, Placerville, Rancho Cordova, Rocklin, Roseville, Sacramento, West Sacramento, Wheatland, Winters, Woodland, and Yuba City. As of 2016, 70 percent of jobs, 61 percent of housing units, and 61 percent of the population of the MTP/SCS plan area were in incorporated cities, while 30 percent of jobs, 39 percent of housing units, and 39 percent of the population were in unincorporated areas. The California Department of Finance indicates that in 2016 the current population within the six counties, excluding the Tahoe Basin, is 2,376,311 (estimated using 2010 Census data), representing a nearly 24 percent increase in population since 2000 (1,901,964) (U.S. Census 2000, 2010; California Department of Finance 2017). In addition to the 22 incorporated

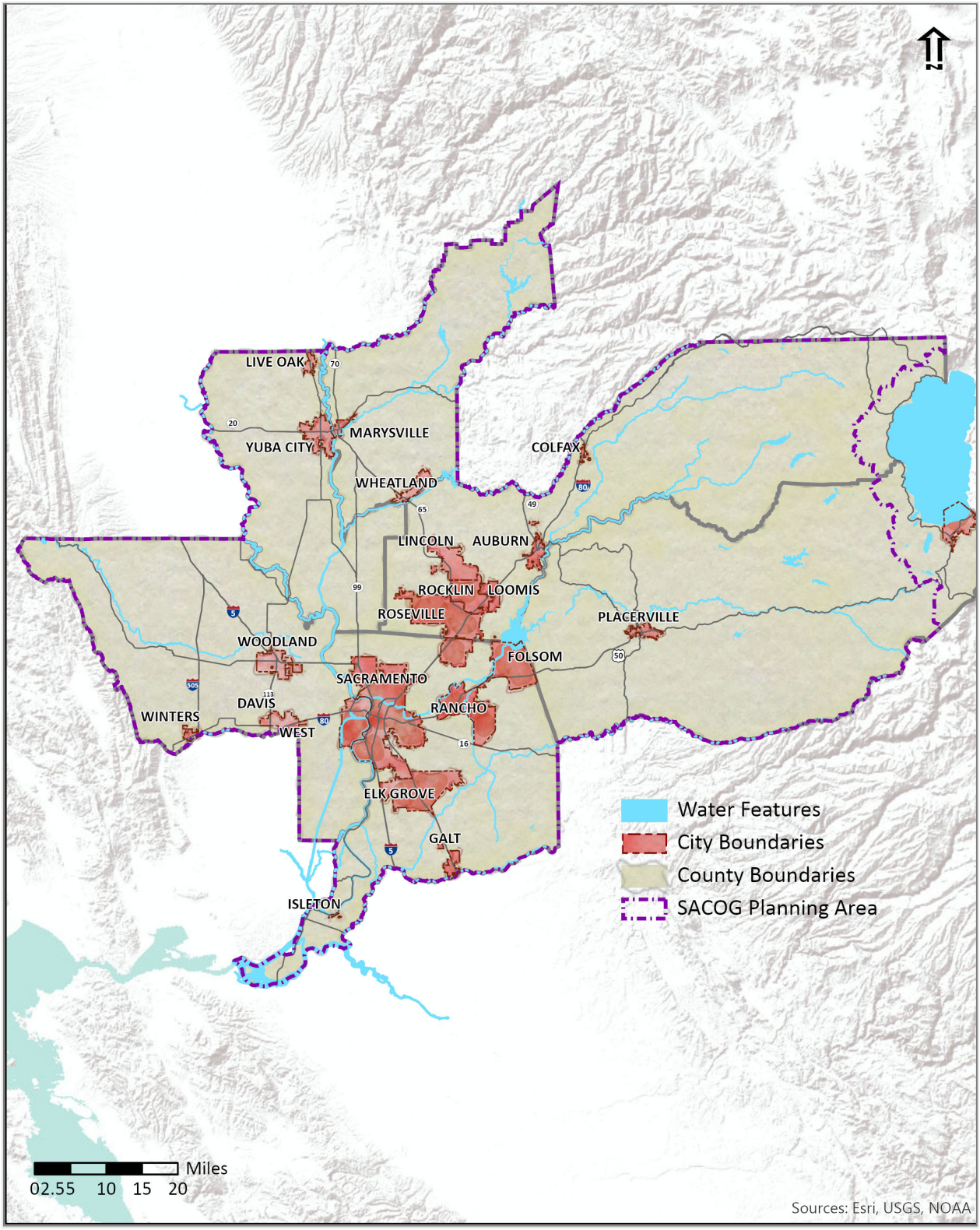


Figure 2-1
Plan Area for the Proposed MTP/SCS

cities and six counties, the plan area also includes lands owned or held in trust by the federal government on behalf of the following Native American Tribes: Shingle Springs Band of Miwok Indians, United Auburn Indian Community of the Auburn Rancheria, Wilton Miwok Indians, and Yocha Dehe Wintun Nation, Tsi Akim Maidu, Colfax-Todds Valley Consolidated Tribe, Ione Band of Miwok Indians, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, Washoe Tribe of Nevada and California, Buena Vista Rancheria of Me-Wuk Indians, Estom Yumeka Maidu Tribe of the Enterprise Rancheria, Mchoopda Indian Tribe, Mooretown Rancheria of Maidu Indians, Strawberry Valley Rancheria, Cortina Rancheria-Kletsel Dehe Band of Wintun Indians. SACOG projections indicate that population in the plan area is expected to grow by 620,500 people, an increase of 26 percent, from 2016 to 2040.

The existing transportation system within the MTP/SCS plan area supports a broad range of passenger and freight travel. The roadway system includes three interstate highways, several state highways, and numerous local roadways that serve various combinations of auto, truck, pedestrian, bicycle, and transit travel. The proposed MTP/SCS includes over 1,500 miles of Class I and II bicycle trails and routes (97-percent increase from 2016), and 4,500 hours of new transit service (114% increase from 2016). Other infrastructure includes a deep-water shipping port, a major international airport, numerous general aviation airports, and freight and passenger rail service.

2.4 Project Background

2.4.1 Regional Planning Context for the Proposed MTP/SCS

This section summarizes the planning context of the proposed MTP/SCS according to three major efforts: the Sacramento Region Blueprint, the Rural-Urban Connections Strategy, and the prior MTP/SCS.

SACRAMENTO REGION BLUEPRINT

In December 2004, the SACOG Board of Directors adopted the Blueprint consisting of a conceptual map and seven Blueprint growth principles (Blueprint principles)

The Blueprint growth strategy was the product of a three-year regional visioning process that engaged citizens, special interest groups, and elected officials from each of SACOG's member jurisdictions on how the region should accommodate the forecasted population and employment growth. See Section 12.3.3 of this EIR for a broader discussion of the Blueprint Vision.

RURAL-URBAN CONNECTIONS STRATEGY

In 2008, SACOG launched the Rural-Urban Connections Strategy (RUCS). The RUCS program is designed to help implement the Sacramento Region Blueprint through finding methods to help ensure the economic vitality of rural areas of the region, including sustainable transportation and land use, agriculture, natural resources and other uses for the rural landscape. See Section 12.3.3 of this EIR for a broader discussion of the RUCS.

2012 AND 2016 MTP/SCS (METROPOLITAN TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY FOR 2035 AND 2036)

In 2012, SACOG adopted the 2012 MTP/SCS, building upon the consensus achieved through the Blueprint process and the 2008 MTP to develop a long-range regional transportation plan that supports Blueprint priorities. The 2012 MTP/SCS was SACOG's first MTP to include a Sustainable Communities Strategy, as required by SB 375, which proactively linked land use, air quality, and transportation needs. In 2016, SACOG adopted its second MTP and Sustainable Communities Strategy through a minor, implementation-focused, update that added a single year to the horizon and kept the regional growth projections constant.

Development of both the 2012 and 2016 MTP/SCS included 18-month public priority-setting processes to identify a list of transportation improvement projects to best meet the needs of the region as a whole. The development of the plans used broad public outreach, combined with extensive input from elected officials, community groups and citizen planners, to consider a host of potential transportation investments.

2.4.2 The New Regional Planning Paradigm: Development of the Proposed MTP/SCS

The coordinated land use and transportation planning envisioned by SB 375 is aligned with the land use and transportation principles of the Blueprint. This is reflected in planning efforts since the Blueprint's adoption in 2004, including the coordination between the Blueprint and the MTP/SCS. The proposed MTP/SCS maintains the integration of land use and transportation planning principles and ties the plan's performance to greenhouse gas (GHG) emissions reduction targets through reduced automotive travel and increased walking, bicycling, and transit use, based on forecasted land use patterns. The proposed MTP/SCS also has many performance goals that extend well beyond GHG emissions reduction.

The work of developing a regional growth forecast, applying that growth to regional land uses, and integrating the transportation system is a key part of complying with SB 375. This section summarizes the planning process for the development of the proposed MTP/SCS. The planning process began in 2017 and is divided into three major planning phases, each inclusive of public and stakeholder participation, jurisdiction coordination and consultation, and regular updates and direction from the SACOG Board. The three phases, described in more detail below, are:

1. Issues exploration and policy framework: After exploring a number of existing and future opportunities and challenges, the board took action in December of 2017 on updated regional growth projections and a policy framework focused on how the plan supports an economically prosperous future for all the region's residents.
2. Policy research and analysis using discussion draft scenario: With a policy framework for the plan update, SACOG developed a research, analysis and outreach framework that relied on a discussion draft scenario to inform the update of the MTP/SCS.
3. Draft preferred scenario framework and analysis: Board action on the preferred scenario framework took place in December 2018 and outlined the key topics, considerations, and direction for the 2020 MTP/SCS update. The framework was organized into six topical areas that described the board's policy direction for the preferred scenario. The topics included performance targets, land use pattern, transportation budget, investment priorities, new

mobility, and system pricing. Using the framework, SACOG worked with local jurisdictions and member and partner agencies to develop a Preferred Scenario. The Preferred Scenario consists of a land use forecast, and a transportation budget and project list.

2.4.3 Project Objectives

SACOG's mission is to "provide leadership and a dynamic, collaborative public forum for achieving an efficient regional transportation system, innovative and integrated regional planning, and a high quality of life within the greater Sacramento region." SACOG's purpose in proposing the MTP/SCS is to provide a strategy to approach the many challenges faced by the Sacramento region as the population grows and the region expands over the next two decades. The proposed MTP/SCS seeks to guide the Sacramento region toward a more sustainable future through better integration of smart land use decisions with a well-managed transportation system, as envisioned by the Blueprint and the proposed project. The intent of the proposed MTP/SCS is to support economic prosperity and accommodate the expected population growth and accompanying demand for transportation in the region through a multi-modal approach based on the following policy objectives:

BUILD VIBRANT PLACES:

1. Support local land use authority with data, tools, incentives, and programs that reinforce the region's voluntary implementation of the Blueprint.
2. Support housing choice and diversity for all segments of the population that respond to changing economics and demographics in the region.
3. Support improved jobs-housing balance in subareas of the region and complete mixed-use communities.
4. Minimize direct and indirect land use and transportation impacts on agriculture and natural resources.
5. Meet regional air quality plans and goals.
6. Meet federal and state requirements for regional transportation plans, including SB 375 and AB 32.
7. Achieve the greenhouse gas reduction targets assigned to SACOG by the California Air Resources Board.
8. Activate the CEQA streamlining benefits of SB 375.

FOSTER THE NEXT GENERATION OF MOBILITY SOLUTIONS:

1. Support transportation choice and diversity for all segments of the population through a balanced transportation system where investments in various modes complement each other and support the diversity of travel demand in various community types.
2. Reduce vehicle miles traveled (VMT).
3. Broaden mobility options, as measured by an increase in the transit, bicycle and pedestrian travel mode share.
4. Connect workers to jobs across the region.

MODERNIZE THE WAY WE PAY FOR TRANSPORTATION:

1. Identify and work toward a sustainable replacement of fuel taxes for funding transportation investments.
2. Identify and work toward new funding opportunities through roadway pricing that includes facility-based tolling (e.g. managed/express lanes) and/or pay-as-you-go (PAYGO) fees based on mileage driven.

BUILD AND MAINTAIN A SAFE, RELIABLE, AND MULTIMODAL TRANSPORTATION SYSTEM:

1. Support transportation investments that provide high performance benefits for all community types in the region.
2. Improve the condition of the existing transportation system through the maintenance of transportation corridors that can support various modes of travel.
3. Maximize cost-effective investments that both preserve the current system and support the existing and future development served by that system.
4. Deliver cost-effective results from investments in each transportation mode and is feasible to construct and maintain.
3. Satisfy financial constraint requirements, such that all revenues reasonable to assume are used and matched to eligible projects.
4. Deliver more productive and cost-effective public transit services.
5. Support the economic vitality of the region through efficient goods movement that includes minimizing disruptions to the movement of agricultural products on rural roadways.
6. Utilize performance measures to prioritize transportation investments.
7. Support safety and emergency preparedness, as demonstrated by land use and transportation changes that include capital investments in disaster-prone areas, transit services, and improved system maintenance.

2.5 Description of the Proposed MTP/SCS

This section describes the contents of the proposed MTP/SCS, including the land use forecast to accommodate forecasted population and employment growth, the transportation system proposed to accommodate the growth pattern, and the supporting policies and strategies to implement the plan. It also outlines the required elements of the plan. The proposed MTP/SCS is organized into the following chapters:

Chapter 1 –The Promise and Peril of 2040 provides regional context and describes the future envisioned by the plan.

Chapter 2 – What is the Metropolitan Transportation Plan/Sustainable Communities Strategy describes the major phases of the planning process and overall requirements for the plan.

Chapter 3 – The Sacramento region in the year 2040 highlights the regional population, housing, and employment projections, describes the plan's objectives and outcomes for 2040, implementation challenges and obstacles, and describes the revenue forecast supporting transportation investments in the plan.

Chapter 4 – Policy and Implementing Actions describes the policies and implementation actions that support plan implementation.

In summary, Chapters 1 and 2 provide introduction and background to the development of the plan, and Chapters 3 and 4 provide analysis of the plan's land use forecast, transportation investments, and policies on various transportation and environmental issues as well as action-oriented pieces of the proposed MTP/SCS.

As per Government Code 65080, each MPO shall prepare and adopt an RTP directed at achieving a coordinated and balanced regional transportation system. The table below describes the major elements required for the 2020 MTP/SCS and where these elements are incorporated into the plan document. For a more detailed listing of plan requirements and where these requirements are fulfilled in the plan and technical appendices, see 2020 MTP/SCS Appendix L: Plan Requirements and Regulatory Framework.

	Contents	Government Code Section	Plan Chapter
Policy Element	▪ Describes the transportation issues in the region; ▪ Identifies and quantifies regional needs; ▪ Describes the desired short-range and long-range transportation goals; ▪ Identifies pragmatic policy statements ▪ Maintains internal consistency with the Financial Element and fund estimates	65080 (b)(1)	Chapter 3 describes and quantifies regional issues and needs Chapters 4 identifies policies
Sustainable Communities Strategy	▪ Identify the general location of uses, residential densities, and building intensities within the region. ▪ Identify areas within the region sufficient to house all the population of the region, including all economic segments of the population over the course of the planning period of the regional transportation plan taking into account net migration into the region, population growth, household formation and employment growth. ▪ Identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region pursuant to Government Code Section 65584. ▪ Identify a transportation network to service the transportation needs of the region. ▪ Gather and consider the best practically available scientific information regarding resource areas and farmland in the region as defined in	65080(b)(2)(B)	Chapter 3 and Appendix C: Land Use Forecast describe the plan's Sustainable Communities Strategy

	Contents	Government Code Section	Plan Chapter
	subdivisions (a) and (b) of Government Code Section 65080.01. ▪ Consider the state housing goals specified in Sections 65580 and 65581. ▪ Utilize the most recent planning assumptions, considering local general plans and other factors (see Section 6.25 for additional guidance). ▪ Set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the GHG emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the GHG emission reduction targets approved by the ARB. ▪ Provide consistency between the development pattern and allocation of housing units within the region (Government Code 65584.04(i)(1) ▪ Allow the regional transportation plan to comply with Section 176 of the federal Clean Air Act (42 U.S.C. Section 7506)		
Action Element	▪ Describe the programs and actions necessary to implement the RTP, including the SCS, and assigns implementation responsibilities. ▪ Identify investment strategies, alternatives and project priorities beyond what is already programmed.	65080(b)(3)	Chapter 4 describes near-term actions needed to implement the MTP/SCS Appendix A: Project List describes the specific transportation investments
Financial Element	▪ Summary of costs to operate and maintain the current transportation system; ▪ Estimate of costs and revenues to implement the projects identified in the Action Plan; ▪ Inventory of existing and potential transportation funding sources; ▪ List of candidate projects if funding becomes available; ▪ Potential funding shortfalls; ▪ Identification of alternative policy directions that affect the funding of projects.	65080(b)(4)(A)	Chapter 3 and Appendix B describe the financial forecast, constraints, and shortfalls of the MTP/SCS Appendix A identifies specific projects and describes project costs to build and maintain the transportation system

The following describes the foundational pieces of the proposed MTP/SCS, which compose the project for the purposes of this environmental analysis (MTP/SCS Land Use Forecast, MTP/SCS Transportation System, and MTP/SCS Policies and Strategies).

2.6 MTP/SCS Land Use Forecast

This section summarizes the land use forecast of the proposed MTP/SCS and is divided into three parts. The first part, "2040 Regional Growth Forecast," describes the regional forecast of population, employment, and housing. The second part, "Developing the Land Use Forecast," describes how that regional forecast is translated into a land use forecast. The third part, "Details of the Forecasted Land Use Pattern," describes the actual land use forecast of the proposed MTP/SCS.

2.6.1 2040 Regional Growth Forecast

SACOG typically updates its growth projections with each four-year MTP/SCS update cycle. The Center for Continuing Study of the California Economy (CCSCE) developed the growth projections for SACOG, including projections of future employment (by major employment sector), population, and household growth at the regional scale. The CCSCE's regional growth projection method follows three major steps: 1) employment projections based on projections of U.S. and California job growth and the competitive position of the Sacramento region to capture a share of the state and national job growth; 2) population projections based on projected job growth, accounting for foreign immigration and domestic migration into the region; and 3) household projections based on projected population growth. Housing unit projections are based on the assumption that the region must accommodate all of the projected housing demand for the planning period. This forecasting methodology for population is similar to the California Department of Finance (DOF) methodology, except that DOF projections do not forecast employment or households. This draft information is summarized for, and reviewed by, the SACOG Board and staff, member cities and counties, and stakeholders, and is ultimately approved by the SACOG Board. Once the projections are approved by the SACOG Board, they become the growth forecast that is utilized for planning purposes in the proposed MTP/SCS.

The 2040 growth forecast indicates that population in the plan area is expected to grow by 620,500 people, an increase of about 26 percent, between 2016 and 2040. As shown in Table 2-1 below, the total population, housing, and jobs in 2040 are similar to the 2016 MTP, however, the projection from the base year for the proposed MTP/SCS has less population, housing, and job growth than the 2016 MTP/SCS, which had a 2036 planning horizon and a baseline year of 2012. The proposed MTP/SCS is based on a forecasted need to accommodate approximately 270,000 new employees and 260,000 new housing units between 2016 and 2040 as shown in Table 2-2 below.

Table 2-1
Comparison of 2016 MTP and Proposed MTP/SCS Regional Growth Forecasts

Year	2016 MTP (Forecast Period 2012-2036)				Proposed 2020 MTP/SCS (Forecast Period 2016-2040)			
	Employees	Population	Households	Housing Units	Employees	Population	Households	Housing Units
2012	887,911	2,268,138	847,553	903,451	N/A	N/A	N/A	N/A
2016	N/A	N/A	N/A	N/A	1,060,751	2,376,311	881,799	921,123
2035/2036	1,327,265	3,078,772	1,140,202	1,188,347	1,279,016	2,903,090	1,100,474	1,144,694
2040	N/A	N/A	N/A	N/A	1,330,813	2,996,832	1,136,599	1,181,251

[1]*Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.*
Source: SACOG and CCSCE 2017 and SACOG 2018

Table 2-2
Comparison of Change in Growth Between 2016 MTP/SCS and Proposed MTP/SCS

Forecast Period	Employees	Population	Households	Housing Units
2016 MTP/SCS (2012-2036)	439,354	810,634	292,649	284,896
Proposed MTP/SCS (2016-2040)	270,062	620,521	254,800	260,128

The U.S. economy has been growing at a slightly slower rate than was originally projected for both the 2012 and 2016 updates to the MTP/SCS. California is projected to get a smaller share of U.S. job and population growth, and the region's economy recovered from the recession at a slower rate than some other areas of the state, with state budget deficits restraining job growth in the public sector. The SACOG region is still expected to outpace the state and nation in job growth in the latter part of the planning period. Appendix E: Plan Performance of the proposed MTP/SCS has more detail on the differences between this current set of projections and the projections used in the 2016 MTP/SCS.

The proposed MTP/SCS has a similar budget for transportation investments as compared to the 2016 MTP/SCS. While fuel-based sources of revenue are expected to decline over the period covered by the MTP/SCS, new revenues from roadway pricing strategies help make up this loss of revenues but are not projected to be enough to meet all of the region's needed expenditures, particularly for road, highway, and transit state of good repair. The proposed MTP/SCS maintains a continued focus on a strategic and limited package of transportation projects. Through consultation with local agency staff and technical analysis, a focused effort was made to identify transportation investments that achieve high cost-effectiveness and strong performance benefits.

2.6.2 Developing the Land Use Forecast

The regional growth forecast is for the whole region and is not disaggregated to political jurisdictions or any other geographic subarea. However, SACOG must also project the land use pattern that is most likely to occur over the planning horizon of the proposed plan.

Using the regional growth forecast of employment and housing, SACOG prepared an estimated growth pattern for the region, which is the land use forecast, or growth pattern, of the proposed MTP/SCS. This land use forecast is the result of a technical process that included coordination with local agency planning departments and stakeholders, consideration of market and policy/regulatory factors, and direction from the SACOG board.

These many factors were used to forecast a land use growth pattern that represents where throughout the region the projected amount of employment and housing will occur during the MTP/SCS planning period. This process is governed by federal requirements related to regional transportation plans and the federal Clean Air Act (CAA) of 1970 (42 U.S.C. Section 7401 et seq.), including Highways (23 C.F.R. Section 450) and Environmental Protection (40 C.F.R. Section 93), which require that land use, population, and employment model assumptions are based upon the best available information, and that there is a reasonable relationship between the expected land use and the envisioned transportation system. In the current planning cycle, this process is also affected by SB 375, and specifically by its requirement to develop an SCS.

A number of factors are considered in developing the land use forecast. Local general plans, spheres of influence, community and specific plans, land division and development codes, and design

guidelines are considered, as they guide the type and intensity of future land uses. State and federal policies and regulations are also considered, most notably (but not limited to) those relating to development in floodplains and other natural hazard areas (e.g., fire), federal Clean Water Act of 1972 (33 U.S.C. Section 1251 et seq.) and federal Endangered Species Act of 1973 (16 U.S.C. Section 1531 et seq.) permit requirements, Transportation Control Measures in air quality plans under the CAA, and state housing requirements.

Local, state, and federal policies and regulations have a strong influence on the estimated growth pattern, although they are not the final determinant in SACOG's growth forecasting process for the following reasons. First, the sum of all those policies and regulations never yields a growth pattern exactly consistent with the projected amount of employment and housing growth for the entire region during the planning period. Second, the nature of planning and plan updates is ever-changing and, as a result, the time horizons of local general plans seldom exactly match the time horizon of the MTP/SCS. Finally, local plans and regulations are likely to change many times throughout the planning horizon of the MTP/SCS; assuming such plans are, in effect, unchangeable for the entire 20 plus years of the proposed MTP/SCS is not likely to be accurate.

Many other factors are therefore documented, analyzed, and considered in creating the growth forecast. These may include an estimate of the direction and magnitude of future changes to the policy and regulatory environment. If a major local general plan update is in process, but not yet adopted, SACOG may consider the probable substance of the updated plan in addition to the currently adopted plan. Practical considerations affecting the cost and timing of providing infrastructure (e.g., water, sewer, transportation) are analyzed. Market and economic considerations are also analyzed, such as consumers' interest in different types of housing and developers'/builders' ability to deliver that housing at affordable prices. Future demographic trends identified in the regional growth forecast (i.e., percentage of households with children, older heads of households, etc.) are an important part of this analysis. Performance and the growth pattern's effect on the plan's ability to achieve the greenhouse gas reduction target is also a consideration. Appendix D: Land Use Forecast Documentation of the proposed MTP/SCS provides further detail on the land use forecasting process for the plan.

2.6.3 Details of the Forecasted Land Use Pattern

This section describes the land use forecast of the proposed MTP/SCS by three geographic areas. The first geographic description, "Existing and Forecasted Land Uses in the Region," provides a regional overview of existing and forecasted land uses, including a map of the general land use pattern of the proposed MTP/SCS. The second description provides an overview by Community Type. "Community Type" is a geography that is used to develop and evaluate the land use forecast of the proposed MTP/SCS. As such, the Community Types are first described in the "Community Type Framework," then followed by a description of the land use forecast by this geography in "Distribution of Land Uses by Community Type." The third description of the proposed MTP/SCS land use forecast is provided by High Frequency Transit Area (HFTA). Like Community Type, HFTA is a geography used to develop and evaluate the land use forecast of the proposed MTP/SCS. As such, the HFTAs are first described in "High Frequency Transit Area Framework," then followed by a description of the land use forecast by this geography in "Distribution of Land Uses by High Frequency Transit Area." In the 2012 and 2016 MTP/SCS, the HFTAs were called "Transit Priority Areas" or "TPAs." These are the areas with qualifying transit for the "Transit Priority Projects" in SB 375. Therefore, the earlier SCSs referred to them as "Transit Priority Areas."

Since that time, Senate Bill 743 employed the term "Transit Priority Areas," and defines it differently than as used in the earlier SCSs. Consequently, the 2020 MTP/SCS now refers to the areas eligible for SB 375 "Transit Priority Projects" as "High Frequency Transit Areas." See below for the full definition of the transit included in these areas. The definition of "Transit Priority Areas" in SB 743 covers a smaller geography. This difference is further described and illustrated in Chapter 3 of the proposed MTP/SCS.

EXISTING AND FORECASTED LAND USES IN THE REGION

In each MTP/SCS update cycle, SACOG prepares a land use forecast to accommodate the regional growth forecast of population, employment, and housing demand. The proposed MTP/SCS includes a forecast of the amount of growth that will occur in the study area over a 24-year planning period (2016 to 2040). The regional growth forecast is based on economic and demographic projections through 2040, adopted and pending land use plans and policies, market and economic considerations, and other state and federal policies and regulations that can affect the location and pace of growth. In the proposed plan, it also serves as the land use pattern of the proposed MTP/SCS.

The MTP/SCS plan area contained 686,847 acres of developed land in 2016. To accommodate a projected increase of approximately 620,521 people, 260,000 new housing units and 270,000 new employees in the region through 2040, the proposed MTP/SCS projects the development of an additional 46,403 acres of land. In other words, to accommodate a 26 percent increase in population, the regional urban footprint will expand by approximately seven percent between 2016 and 2040. This new development land represents 1.2 percent of the acreage of the region. Table 2-3 provides a list of existing developed acres and forecasted developed acres by county.

The distribution of new development acres in the proposed MTP/SCS reflects an urban and suburban focused development pattern. Of the MTP/SCS plan area's 46,403 new developed acres, 74 percent are within Placer and Sacramento counties, which are the most urbanized counties in the region in both 2016 and 2040. Although El Dorado County has a relatively large share of existing developed acres, due to its predominantly rural residential land use pattern, its share of new development acres is significantly lower than other counties. The growth footprint in Yolo, Yuba, and Sutter counties is comparably smaller than other counties, as shown in Table 2-3.

Table 2-3
Summary of Expected Developed Acres by County

County (Incorporated and Unincorporated Areas)	Existing Developed Acres (2016)		Additional Developed Acres (2016-2040)		All Developed Acres (2040)		All Acres (Developed and Undeveloped)	
	Acres	Percent Distribution	Acres	Percent Distribution	Acres	Percent Distribution	All Acres	Additional Development as Percent of All Acres
El Dorado	208,992	30.43%	5,859	12.63%	214,851	29.30%	998,710	0.59%
Placer	139,588	20.32%	17,587	37.90%	157,175	21.44%	853,006	2.06%
Sacramento	190,564	27.74%	16,571	35.71%	207,135	28.25%	587,957	2.82%
Sutter	12,691	1.85%	1,602	3.45%	14,292	1.95%	373,066	0.43%
Yolo	39,671	5.78%	2,963	6.39%	42,635	5.81%	640,379	0.46%

County (Incorporated and Unincorporated Areas)	Existing Developed Acres (2016)		Additional Developed Acres (2016-2040)		All Developed Acres (2040)		All Acres (Developed and Undeveloped)	
	Acres	Percent Distribution	Acres	Percent Distribution	Acres	Percent Distribution	All Acres	Additional Development as Percent of All Acres
Yuba	95,341	13.88%	1,820	3.92%	97,162	13.25%	406,693	0.45%
Region Total	686,847	100.00%	46,403	100.00%	733,250	100.00%	3,859,812	1.20%

Existing developed acres excludes agricultural land including agricultural land that includes a farm home.
Source: SACOG MTP/SCS Land Use Forecast for 2040, June 2019.

As shown in Tables 2-4 and 2-5, the majority of regional housing and employment growth, approximately 80 percent, is projected to occur in Placer and Sacramento counties. Yolo County receives the next highest amount of growth, followed by El Dorado, Sutter, and Yuba counties. In all cases, this results in improved jobs-to-housing ratios. This is illustrated in Table 2-6, which shows starting and ending jobs-to-housing ratios for each county during the MTP/SCS planning period. In regional land use and transportation planning, "improved" jobs-to-housing ratio is defined as a ratio that moves toward the regional average, as described further below.

The regional average ratio for the Sacramento region in 2016 was 1 job per household. As noted above, SACOG's regional projections methodology identifies the total employment projected to occur in the region and the population that will occur in conjunction with that employment growth, taking into account net migration into the region, population growth within the region, and household formation. The new households are converted into housing unit demand.

Table 2-4
Summary of Expected Housing Growth by County (Dwelling Units)

County (Incorporated and Unincorporated Areas)	2016		2016-2040		2040	
	2016 Dwelling Units[1]	Percent of Total	New Dwelling Units[1]	Percent of Total	2040 Dwelling Units[1]	Percent of Total
El Dorado	63,793	6.93%	8,498	3.27%	72,291	6.12%
Placer	146,701	15.93%	54,169	20.82%	200,870	17.00%
Sacramento	570,360	61.92%	154,500	59.39%	724,860	61.36%
Sutter	34,186	3.71%	8,093	3.11%	42,279	3.58%
Yolo	77,705	8.44%	28,662	11.02%	106,367	9.00%
Yuba	28,378	3.08%	6,206	2.39%	34,584	2.93%
Region Total	921,123	100%	260,128	100%	1,181,251	100%

[1]*Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.*
Source: SACOG MTP/SCS Land Use Forecast for 2040, June 2019

Table 2-5
Summary of Expected Employment Growth by County (Employees)

County (Incorporated and Unincorporated Areas)	2016 Employees[1]	Percent of Total	New Employees[1]	Percent of Total	2040 Employees[1]	Percent of Total
El Dorado	48,690	4.59%	9,275	3.43%	57,965	4.36%
Placer	162,577	15.33%	61,505	22.77%	224,082	16.84%
Sacramento	688,895	64.94%	151,377	56.05%	840,273	63.14%
Sutter	34,417	3.24%	9,552	3.54%	43,969	3.30%
Yolo	104,771	9.88%	30,604	11.33%	135,376	10.17%
Yuba	21,401	2.02%	7,746	2.87%	29,149	2.19%
Region Total	1,060,751	100%	270,060	100%	1,330,813	100%

[1] Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.
Source: SACOG MTP/SCS Land Use Forecast for 2040, June 2019

Table 2-6
Jobs to Housing Ratios by County[1]

County (Incorporated and Unincorporated Areas)	Jobs / Household		
	2016 Total	2016-2040 Growth	2040 Total
El Dorado	0.9	1.0	0.9
Placer	1.2	1.2	1.2
Sacramento	1.3	1.0	1.2
Sutter	1.1	1.2	1.1
Yolo	1.3	1.0	1.2
Yuba	0.8	1.3	0.9
Region Total	**1.2**	**1.1**	**1.2**

[1]Table illustrates how jobs-housing ratios change over the planning period. The 2016-2040 growth column shows the ratio of new jobs to new households added to each county to result in the jobs-housing ratio at the end of the planning period.
Source: SACOG, MTP/SCS Preferred Scenario Land Use Forecast, June 2019

COMMUNITY TYPE FRAMEWORK

The Community Types Framework was used in the land use forecasting process of the proposed MTP/SCS. Local land use plans (adopted and proposed general plans, specific plans, master plans, corridor plans, etc.) were divided into one of five "Community Types" based on the location and land use composition of the plans. The 2020 Draft MTP/SCS and its Appendix D: Land Use Forecast describe the correspondence of Community Types to the local land use plans that factored into the proposed MTP/SCS land use forecast. As growth occurs over time specific geographic areas evolve, such as from lands not identified for development, to developing; developing to established; established to center and corridor. This is because of general plan build out and local agency exercised land use authority. Therefore, the Community Types are one component that can, and will, get updated with each MTP/SCS update as needed. Figure 2-2 illustrates these Community Types, which are also defined as follows:

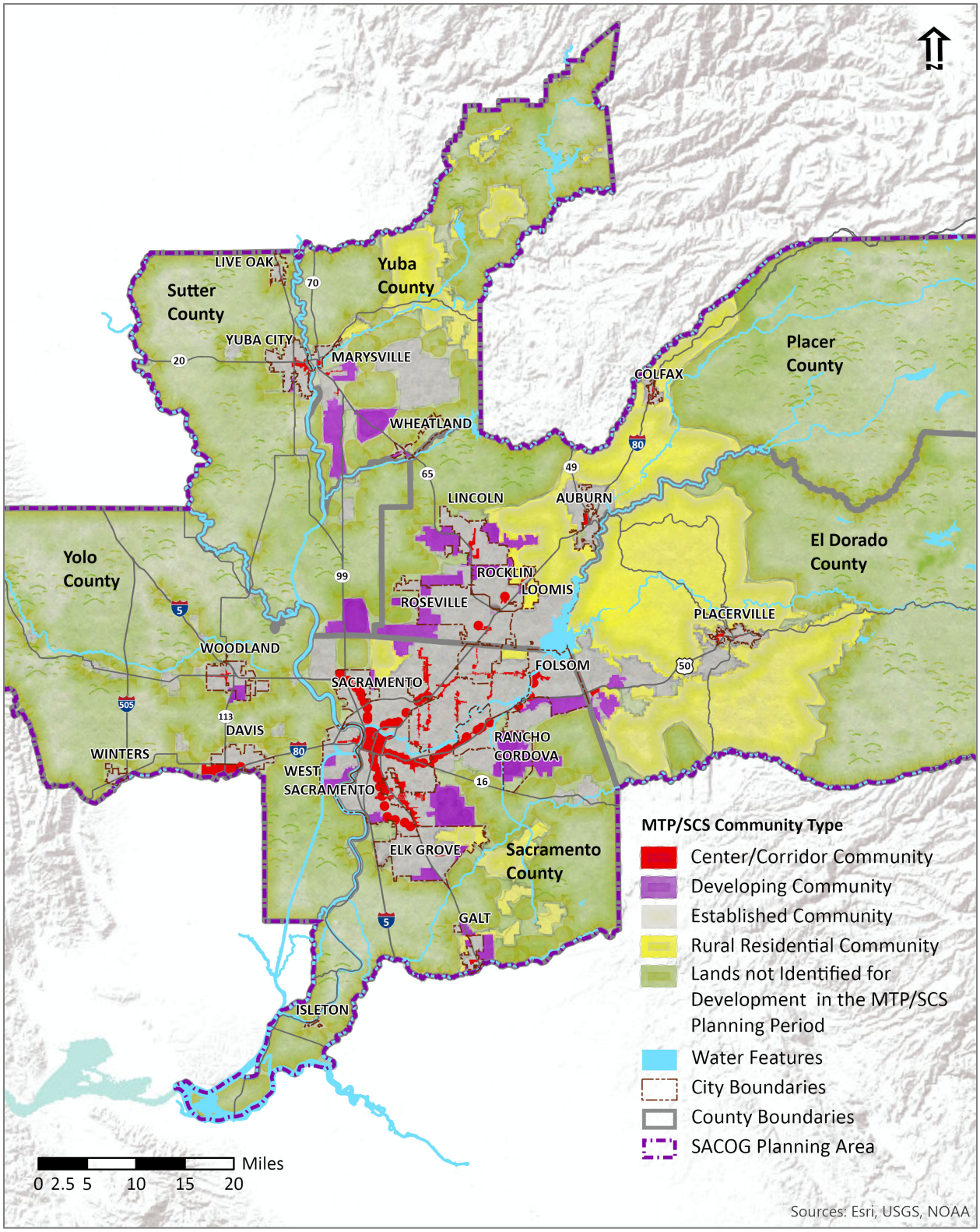


Figure 2-2
Community Types in the Plan Area for the Proposed MTP/SCS

Center and Corridor Communities

Land uses in Center and Corridor Communities are typically higher density and more mixed than surrounding land uses. Center and Corridor Communities are identified in local plans as historic downtowns, main streets, commercial corridors, rail station areas, central business districts, town centers, or other high-density destinations. They typically have more compact development patterns, a greater mix of uses, and a wider variety of transportation infrastructure compared to the rest of the region. Some have frequent transit service, either bus or rail, and all have pedestrian and bicycling infrastructure that is more supportive of walking and bicycling than other Community Types.

Established Communities

Established Communities are typically the areas adjacent to, or surrounding, Center and Corridor Communities. Many are characterized as "first tier," "inner ring," or mature suburban communities. Local land use plans aim to maintain the existing character and land use pattern in these areas. Land uses in Established Communities are typically made up of existing low- to medium-density residential neighborhoods, office and industrial parks, or commercial strip centers. Depending on the density of existing land uses, some Established Communities have bus service; others may have commuter bus service or very little service. Most of the region's roads are in Established Communities in 2016 and in 2040.

Developing Communities

Developing Communities are typically, though not always, situated on vacant land at the edge of existing urban or suburban development; they are the next increment of urban expansion. Developing Communities are identified in local plans as special plan areas, specific plans, or master plans and may be residential-only, employment-only, or a mix of residential and employment uses. Transportation options in Developing Communities often depend, to a great extent, on the timing of development. Bus service, for example, may be infrequent or unavailable today, but may be available every 30 minutes or less once a community builds out. Walking and bicycling environments vary widely, though many Developing Communities are designed with dedicated pedestrian and bicycle facilities.

Rural Residential Communities

Rural Residential Communities are typically located outside of urbanized areas and designated in local land use plans for rural residential development. Rural Residential Communities are predominantly residential with some small-scale hobby or commercial farming. Travel occurs almost exclusively by automobile, and transit service is minimal or nonexistent.

Lands Not Identified for Development in the MTP/SCS Planning Period

These areas of the region are not expected to develop during the MTP/SCS planning period. These areas are dominated by commercial agriculture, forestry, resource conservation, mining, flood protection, or a combination of these uses. Some of these areas have long-term plans and policies to preserve or maintain the existing "non-urban" uses; however, some are covered under adopted or proposed plans that allow urban development and/or are included in the adopted Blueprint vision for future growth.

Though the proposed MTP/SCS does not forecast any urban or suburban development in these areas by 2040, it is likely that some housing and employment growth ancillary to agriculture, forestry, mining, and other rural uses will occur in these areas within that timeframe. This is particularly true in the areas that have long-term plans and policies to sustain the current rural uses. It is especially difficult to estimate where this growth will go on a parcel basis because employment in these areas is often seasonal and dispersed over a large geography, and because residential uses are often a secondary or an accessory use to agriculture and/or the other rural uses listed above.

DISTRIBUTION OF LAND USES BY COMMUNITY TYPE

This section describes the land use pattern of the proposed MTP/SCS by the five Community Types previously described. Tables 2-7, 2-8, and 2-9 will be referenced in each Community Type discussion.

Center and Corridor Communities

The proposed MTP/SCS projects 33 percent of the regional housing demand and 31 percent of regional employment demand to occur in Center and Corridor Communities. This represents 8 percent of the new development land in the proposed MTP/SCS. Table 2-8 shows the number of dwelling units and employees in Center and Corridor Communities compared to other Community Types and Table 2-9 shows the acreage of new development by Community Type. Center and Corridor Communities were the most employment-oriented Community Type in the region in 2016 (2.3 employees per dwelling unit in 2040). The proposed MTP/SCS has a 76 percent increase in housing in Center and Corridor Communities to develop vacant or underutilized land that is in close proximity to services and employment opportunities, take advantage of existing transportation infrastructure (light rail and bus service where they are present), and create more types of housing products for the projected population in central locations. As shown in Table 2-9, new housing in Center and Corridor Communities is predominantly attached product, due to higher residential densities proposed or allowed in these areas by local jurisdictions.

The compact and mixed-use character of land uses in Center and Corridor Communities helps reduce VMT by providing more opportunities for shorter trips by non-auto modes of travel. Center and Corridor Communities are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel.

In addition, Center and Corridor Communities will add a variety of transportation improvements by 2040, including new transit, non-motorized, and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Center and Corridor Communities will receive new and expanded bus and rail transit, and complete streets that serve supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points. Blueprint supportive programs and transportation systems management strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure in the Center and Corridor Communities.

Table 2-7
Summary of Expected Housing and Employment Growth by Community Type (Dwelling Units and Employees)

Community Type	2016				2016-2040				2040			
	Dwelling Units[1]	Percent of Total	Employees [1]	Percent of Total	New Dwelling Units[1]	Percent of Total	New Employees [1]	Percent of Total	Dwelling Units[1]	Percent of Total	Employees [1]	Percent of Total
Center and Corridor Communities	113,880	12.36%	370,890	34.96%	86,661	33.31%	82,850	30.68%	200,541	16.98%	453,739	34.09%
Developing Communities	20,793	2.26%	12,339	1.16%	89,313	34.33%	39,754	14.72%	110,106	9.32%	52,093	3.91%
Established Communities	712,012	77.30%	645,326	60.84%	81,365	31.28%	146,053	54.08%	793,377	67.16%	791,379	59.47%
Rural Residential Communities	74,438	8.08%	32,196	3.04%	2,789	1.07%	1,405	0.52%	77,227	6.54%	33,601	2.52%
Lands Not Identified for Development in the MTP/SCS Planning Period	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]
Region Total	921,123	100%	1,060,751	100%	260,128	100%	270,062	100%	1,181,251	100%	1,330,813	100%

[1]Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.

[2]The proposed MTP/SCS does not forecast or model growth in the "Lands Not Identified for Development in the MTP/SCS Planning Period" Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.) As a result, existing developed acres in the "Lands Not Identified for Development in the MTP/SCS Planning Period "Community Type was included in "Established" and "Rural Residential" Community Type totals.

Source: SACOG Proposed MTP/SCS Land Use Forecast for 2040, June 2019

Table 2-8
Summary of Expected Developed Acres by Community Type

Community Type	Existing Developed Acres (2016)		Additional Developed Acres (2016-2040)		All Developed Acres (2040)		All Acres (Developed and Undeveloped)	
	Acres[1]	Percent Distribution Among Community Types	Acres[1]	Percent Distribution Among Community Types	Acres[1]	Percent Distribution Among Community Types	All Acres[1]	New Developed Acres as Percent of All Acres
Center and Corridor Communities	26,118	4%	3,886	8%	30,003	3.87%	36,999	10.50%
Developing Communities	17,850	3%	16,573	36%	34,422	4.44%	89,730	18.47%
Established Communities	253,187	37%	15,693	34%	268,880	34.69%	1,298,225	1.21%
Rural Residential Communities	389,693	57%	10,251	22%	399,944	51.60%	2,434,858	0.42%
Lands Not Identified for Development in the MTP/SCS Planning Period	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	2,638,152	n/a[2]
Region Total	686,847	100.00%	46,403	100.00%	775,138	100.00%	3,863,373	1%

[1] Totals may not match due to rounding.
[2]The proposed MTP/SCS does not forecast or model growth in the "Lands Not Identified for Development in the MTP/SCS Planning Period" Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.) As a result, existing developed acres in the "Lands Not Identified for Development in the MTP/SCS Planning Period" Community Type was included in "Established" and "Rural Residential" Community Type totals.
Source: SACOG MTP/SCS Land Use Forecast for 2040, June 2019.

Established Communities

The proposed MTP/SCS forecasts 31 percent of the projected housing demand and 53 percent of employment demand to Established Communities. This represents 36 percent of the new development land in the proposed MTP/SCS. Table 2-7 shows the number of dwelling units and employees in Established Communities compared to other Community Types and Table 2-8 shows the acreage of new development by Community Type. Similar to Center and Corridor Communities, Established Communities already have a significant amount of development, but these areas are generally not as dense as Center and Corridor Communities. Although these areas will continue to grow, their proportional share of regional housing decrease from 2016 to 2040. As shown in Table 2-7, the housing units in Established Communities will increase by approximately 81,365, but decrease in proportional share from 77 percent to 67 percent. Employment growth and acres developed will experience a smaller change in proportional shares, with jobs increasing by about 146,053, and acres developed increasing by almost 16,000 for regional shares of 59 percent and 35 percent respectively.

Table 2-9
Summary of New Housing Product Distribution by Community Type (Percent)

Community Type	Rural Residential[1]	Large-Lot Single-Family[2]	Small-Lot Single Family[3]	Attached[4]	Total[5]
Center and Corridor Communities	0%	2%	13%	85%	100%
Established Communities	0%	26%	21%	52%	100%
Developing Communities	0%	47%	26%	27%	100%
Rural Residential Communities	88%	11%	0%	1%	100%
Lands Not Identified for Development in the MTP/SCS Planning Period	n/a[6]	n/a[6]	n/a[6]	n/a[6]	n/a[6]
Region Total	1%	25%	20%	54%	100%

[1]Rural Residential: single-family detached homes built at densities less than 1 dwelling unit per acre.
[2]Large-Lot Single-Family: single-family detached homes built at densities between 1 and 8 dwelling units per acre.
[3]Small-Lot Single-Family: single-family detached homes built at densities between 8 and 25 dwelling units per acre.
[4]Attached Residential: Single-family or multi-family homes ranging from duplexes, triplexes, apartments, condominiums, townhomes, row houses, halfplexes, etc. built at densities from 8 to over 50 dwelling units per acre.
[5] Totals may not match due to rounding.
[6]The proposed MTP/SCS does not forecast or model growth in the Lands Not Identified for Development in the Proposed MTP/SCS Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.) As a result, existing developed acres in the Lands Not Identified for Development in the MTP/SCS Planning Period Community Type was included in Established and Rural Residential Community Type totals.
Source: SACOG MTP/SCS Land Use Forecast for 2040, June 2019

Established Communities contain the existing residential neighborhoods, office parks, industrial parks, and shopping centers of the region. The modest rate of housing growth in Established Communities is due in part to their substantially "built out" condition, but also because much of the potential housing demand in these areas that might otherwise be realized through amended plans and codes to allow higher densities is channeled to the Center and Corridor Communities. Employment growth in Established Communities is higher than housing growth because the proposed MTP/SCS projects improved employment-to-housing ratios in communities with a low employment base today, and continued build out of existing office and industrial parks in regional jobs centers. New housing in Established Communities is fairly balanced between large-lot single-family, small-lot single-family and attached products, as shown in Table 2-9.

The type of growth in Established Communities takes advantage of existing transportation infrastructure and surrounding land uses. However, Established Communities will have a variety of transportation improvements by 2040 including new transit, non-motorized and roadway projects, and ongoing investments in transit operations and roadway maintenance. As with Center and Corridor Communities, Established Communities receive new and expanded bus and rail transit, and complete streets that serve supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points along major arterials and freeways leading to and from major employment centers in Sacramento, Rancho Cordova, and Roseville. Blueprint supportive programs and system management strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure.

Developing Communities

The proposed MTP/SCS forecasts 34 percent of the new housing and 15 percent of new employment will occur in Developing Communities. This represents 36 percent of the new development land in the proposed MTP/SCS. Table 2-7 shows the number of dwelling units and employees in Developing Communities compared to other Community Types, and Table 2-8 shows the acreage of new development by Community Type. Unlike Established Communities, which experience high employment growth relative to housing growth, Developing Communities experience high housing growth relative to employment growth. This is due to two factors: 1) most Developing Communities in the proposed MTP/SCS are not expected to fully build out by the horizon year of the plan and, therefore, a critical mass of housing will not yet be present to support planned employment growth; 2) most Developing Communities are located around regional jobs centers in southwest Placer County, southeastern Sacramento County, and urbanized Yolo County, and are intended to provide nearby housing for those jobs centers. New housing in Developing Communities is predominantly large-lot single-family and small-lot single-family product, although attached products comprise a substantial share as well, as shown in Table 2-9.

The type of housing assumed to be built in these communities will have a significant shift during the planning period from primarily large lot detached homes today (which constitutes 80 percent of the housing in these areas in 2016) to small lot detached and attached housing types (which will constitute 53 percent of the housing growth by 2040 in Developing Communities compared to only 20 percent in 2016). As more housing is added to these communities, it is assumed that jobs and services will also grow. In 2016, the jobs in Developing Communities accounted for approximately one percent of the regional jobs, but is assumed to make up about 15 percent of the job growth from 2016 to 2040. As these communities become more established with a mix of housing and commercial uses, residents will be able to travel shorter distances to reach most routine destinations.

Developing Communities will have a somewhat different mix of transportation projects in comparison to Center and Corridor Communities and Established Communities. Developing Communities will have more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2040. Developing Communities have little or no transit service in 2016, but with the proposed MTP/SCS, by 2040 some areas will include bus service every 30 minutes or more frequent. These areas will also include walk and bike facilities that are included in the new developments. Blueprint supportive programs and system management strategies, including technology and demand management programs, allow for greater optimization of the transportation infrastructure supporting developing communities.

Rural Residential Communities

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to have very limited growth by 2040. These areas are expected to increase by about 2,789 housing units and 1,405 jobs, or around one percent of the regional growth. This development will consume about 10,251 acres. This community type is expected to have the lowest rate of growth and will have a decreasing share of regional population, housing units, and employment.

The proposed MTP/SCS forecasts that 1 percent of the new housing and less than 0.5 percent of new employment will occur in Rural Residential Communities. This represents 22 percent of the new development land in the proposed MTP/SCS. Table 2-7 shows the number of dwelling units and employees in Rural Residential Communities compared to other Community Types and Table 2-8 shows the acreage of new development by Community Type. Due to the rural and residential focus of Rural Residential Communities, employment growth is minimal. The majority of growth in Rural Residential Communities is located in the foothills of El Dorado, Placer, and Yuba counties. New housing in Rural Residential Communities is almost entirely rural residential and large-lot single-family housing product, as shown in Table 2-9.

While the land uses in Rural Residential Communities are staying largely the same in the proposed MTP/SCS, these communities benefit from changes in adjacent Developing Communities and Established Communities that bring important destinations closer and reduce the need to travel long distances on a regular basis. Existing transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the plan area. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, with the focus on road maintenance and rehabilitation, safety projects and limited new or widened roadways or freeway improvements. Road projects in Rural Residential Communities focus on improving agricultural and goods movement travel as well as improving or maintaining accessibility for slow moving farm equipment. Rural Residential Communities will also benefit from improvements to lifeline and rural transit services that focus on bringing workers to job sites and providing access to crucial destinations such as hospitals, social services, and shopping. A number of road safety improvements, such as the addition of shoulders, guardrails to highways, rumble strips, intersection signalizations, or restriping, in Rural Residential Communities create a safer environment for pedestrians and bicyclists.

Lands Not Identified for Development in the MTP/SCS Planning Period

The proposed MTP/SCS does not forecast growth in these areas. The unique nature of agricultural, forestry, mining, and other rural economic activity – that it is seasonal and dispersed over a large geography at any given time of the day, week, or year – makes the associated employment difficult to forecast spatially. Similarly, housing growth in this Community Type is difficult to forecast spatially because it is often a secondary or an accessory use to agriculture and/or other rural uses. Though the proposed MTP/SCS does not forecast any development in these areas by 2040, it is possible that some housing and employment growth associated with agriculture, forestry, mining, and other rural uses could occur in these areas within that timeframe. This is particularly true in the areas that have long-term plans and policies to sustain the current rural uses.

The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. While the investments intended to serve this community type are limited, proposed transportation investments will equate to approximately 1,605 acres of new and/or expanded roadways in Lands Not Identified for Development. Many of these roadway miles occur within this community type because they are being built to serve urban communities and the required route will run through Lands Not Identified for Development.

HIGH FREQUENCY TRANSIT AREA FRAMEWORK

A subset of the proposed MTP/SCS housing and employment growth falls within what SACOG refers to as High Frequency Transit Areas (HFTAs). HFTAs are areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or high-quality transit corridor included in the proposed MTP/SCS. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (Pub. Resources Code, Section 21155). Figure 2-2 illustrates the relationship of the HFTAs to Community Types. In both the proposed MTP/SCS and this DEIR, HFTAs are considered an overlay geography and do not necessarily correspond directly to Community Types.

As stated previously, one of the objectives of the proposed MTP/SCS is to activate the CEQA streamlining benefits of SB 375, in order to encourage implementation of the proposed MTP/SCS land use and transportation pattern and all the resulting performance benefits of that development pattern. The goal, therefore, in identifying HFTAs in the proposed MTP/SCS is to facilitate the use of SB 375 CEQA streamlining benefits available to qualifying residential and mixed-use projects and transit priority projects.

The housing and employment land use forecast assumptions for the HFTAs in the proposed MTP/SCS were first based on an assessment of existing and proposed local land use plans, which identified those existing or proposed rail station areas and transportation corridors where local governments allow new housing and employment uses at development densities high enough to support high-quality transit. Local market conditions and national housing and employment market trends also factored into the land use forecast assumptions. Some existing transportation corridors with relatively lower growth were also identified for high-quality transit service because of their location between major growth areas or because of existing transit needs that cannot be served at current funding levels but are expected to be served as the region grows in population and revenues for transit funding.

Once the land use forecast assumptions were completed, high-quality transit service was assigned to transportation corridors. Five factors have been shown to influence the transit ridership and productivity of different types of transit service in transit corridors:

- Population and Job Density—higher density corridors support more frequent transit service.
- Mix of Use—corridors with a mix of complementary land uses support use of transit during off-peak periods, especially midday and evening.
- Income Demographics—corridors with higher concentrations of lower income households generate higher demand for transit service.
- Block Size/Street Pattern—areas where the street pattern supports walking also support pedestrian access to transit.
- Access to Job Centers—locations with concentrations of employment generate potential for peak/commuter transit. Job centers where parking is normally paid out of pocket generate the highest levels of transit, carpooling, and non-auto modes of commute.

In addition to these primarily land use criteria, roadway improvements (including construction of new roadways, and widening or reconstruction of existing roadways) will consider the utility of the roadway to multiple users, including vehicle drivers and passengers, transit vehicles, transit passengers, pedestrians, bicyclists, and commercial vehicles. This more expansive look at roadway improvements is part of SACOG's Complete Streets policy.

These factors were used in an iterative process to develop the transit service assumptions that yielded the HFTA geography. Appendices C: Land Use Forecast, D: Land Use Forecast Documentation, E: Plan Performance, and K: Sacramento Activity-Based Travel Simulation Model of the proposed MTP/SCS include full discussions of the land use and transportation forecasting methodologies.

Distribution of Land Uses by High Frequency Transit Areas

Blueprint principles call for diverse housing options, in the form of housing products not currently widely available, in places where transit service can be efficiently provided. In support of the Blueprint principles, a primary goal of the proposed MTP/SCS is to increase the number of people – both residents and employees – who have access to high-quality transit. By 2040, the proposed MTP/SCS forecasts 28 percent of new dwelling units and 25 percent of new employees within HFTAs, bringing high-quality transit service to an additional 105,243 dwelling units and 104,531 employees.

This section describes the land use pattern of the proposed MTP/SCS by the HFTAs, which are divided by county. Tables 2-10, 2-11, and 2-12 will be referenced in each HFTA discussion. Figure 2-3 illustrates the HFTAs of the proposed MTP/SCS, which together cover 104,997 acres.

Table 2-10
Summary of Expected Housing and Employment within 2040 High Frequency Transit Areas[1]

High Frequency Transit Areas (HFTAs)[1]	Existing Dwelling Units	Existing Employees	New Dwelling Units	New Employees	All Dwelling Units	All Employees
Placer HFTAs	17,638	39,178	11,495	12,073	29,133	51,251
Sacramento HFTAs	325,111	457,079	75,901	75,693	401,012	532,772
Yolo HFTAs	42,318	57,499	17,846	16,765	60,164	74,264
All HFTAs	**385,067**	**553,756**	**105,243**	**104,531**	**490,310**	**658,287**

[1]High Frequency Transit Areas are those areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or high-quality transit corridor. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (Pub. Resources Code, Section 21155).
Source: SACOG, MTP/SCS Preferred Scenario Land Use Forecast, June 2019

Table 2-11
Summary of Expected Development by Transit Priority Area (Acres)

High Frequency Transit Areas (HFTAs)[1]	Existing Developed Acres (2016)		Additional Developed Acres (2016-2040)		Total Developed Acres (2040)		All Acres (Developed and Undeveloped)	
	Acres	Percent Distribution	Acres	Percent Distribution	Acres	Percent Distribution	All Acres	New Development as Percent of All Acres
Placer HFTAs	5,082	6.32%	1,584	26.42%	6,666	7.72%	10,702	14.80%
Sacramento HFTAs	66,376	82.62%	3,403	56.75%	69,779	80.82%	80,068	4.25%
Yolo HFTAs	8,885	11.06%	1,009	16.83%	9,894	11.46%	14,226	7.09%
All HFTAs	80,342	100.00%	5,997	100.00%	86,339	100.00%	104,997	5.71%

[1] High Frequency Transit Areas are those areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or high-quality transit corridor. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (Pub. Resources Code, Section 21155).
Source: SACOG, MTP/SCS Preferred Scenario Land Use Forecast, June 2019

Table 2-12
Summary of Expected Housing Product Distribution by County (Percent)

High Frequency Transit Areas (HFTAs)[1]	Rural Residential[2]	Large-Lot Single-Family[3]	Small-Lot Single- Family[4]	Attached[5]
Placer HFTAs	0%	35%	20%	45%
Sacramento HFTAs	0%	7%	13%	79%
Yolo HFTAs	0%	4%	10%	85%
All HFTAs	0%	10%	13%	76%

[1]High Frequency Transit Areas are those areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or high-quality transit corridor. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (Pub. Resources Code, Section 21155).
[2]Rural Residential: single-family detached homes built at densities less than 1 dwelling unit per acre.
[3]Large-Lot Single-Family: single-family detached homes built at densities between 1 and 8 dwelling units per acre.
[4]Small-Lot Single-Family: single-family detached homes built at densities between 8 and 25 dwelling units per acre.
[5]Attached Residential: Single-family or multi-family homes ranging from duplexes, triplexes, apartments, condominiums, townhomes, rowhouses, halfplexes, etc. built at densities from 8 to over 50 dwelling units per acre.

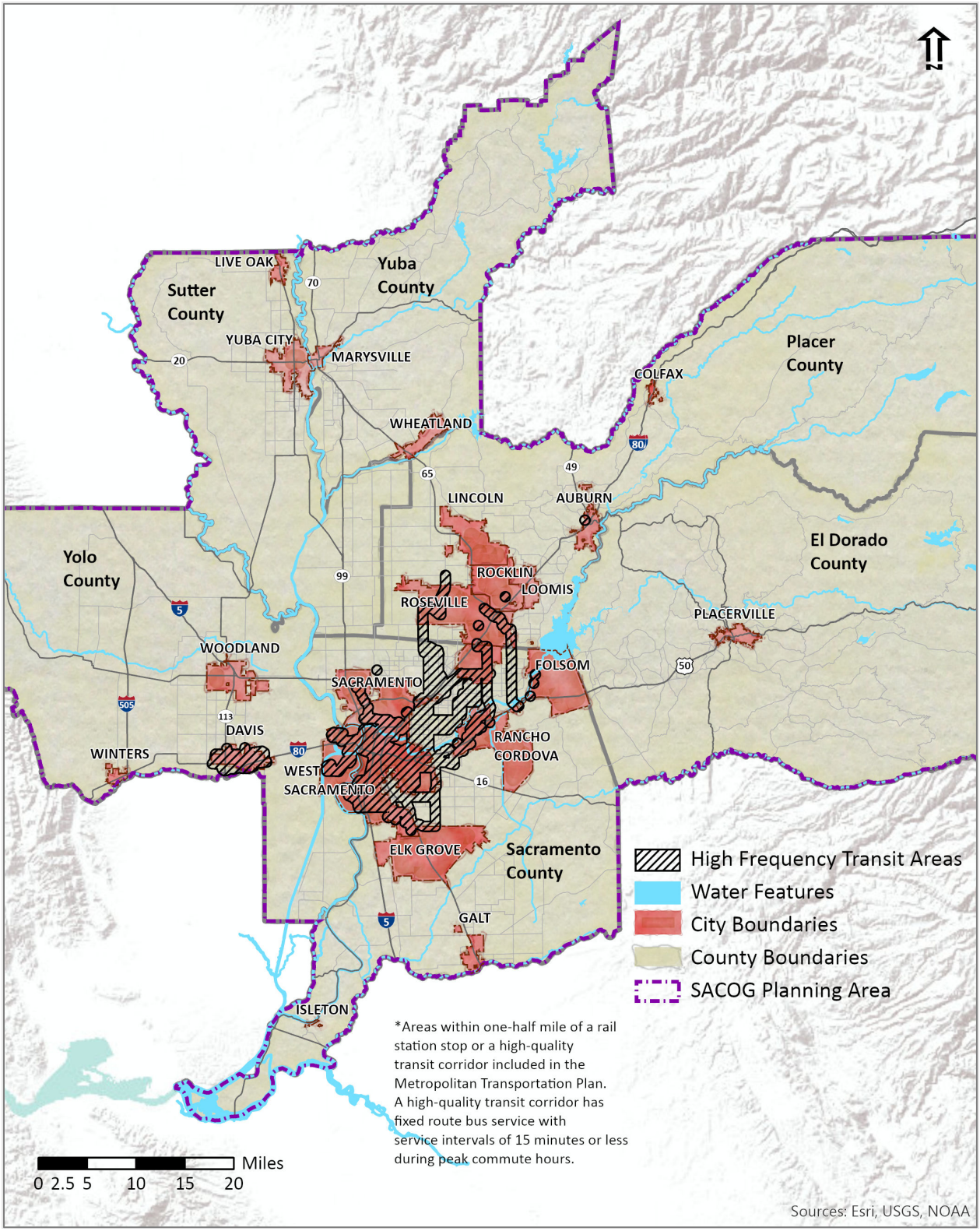


Figure 2-3
High Frequency Transit Areas

Placer High Frequency Transit Areas

The Placer HFTAs cover Capital Corridor train station areas in the cities of Roseville, Rocklin and Auburn, as well as high-quality bus routes in the city of Roseville. The proposed MTP/SCS projects 4 percent of regional housing growth and 4 percent of regional employment growth to occur in the Placer HFTAs. This new development occupies 1,584 acres, or 15 percent of the total land area within the Placer HFTAs and 3 percent of the new development land in the proposed MTP/SCS. Table 2-10 shows the number of dwelling units and employees in the Placer HFTAs compared to other HFTAs; Table 2-11 shows the size, in acres, of the Placer HFTAs and acres of new development. New development in the Placer HFTAs is predominantly employment, due primarily to the concentration of transit service in the Roseville employment centers along the Interstate 80 corridor. Of the new housing in the Placer HFTAs, 45 percent are in attached housing product types as shown in Table 2-12. This development is generally more densely developed than surrounding areas.

The projected land use pattern, together with the planned transportation improvements in Placer County HFTAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations, and by increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses that are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Placer County HFTAs will have a variety of transportation improvements by 2040, including new transit, non-motorized and roadway projects, and ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento. The Placer HFTAs are served by the Capitol Corridor train, as well as high-quality transit services in Roseville. These systems are connected to the larger regional transit network, making the Placer HFTAs very accessible regional destinations. The sum of the investments creates more efficient travel, as well as opportunities for non-auto modes of travel.

Sacramento High Frequency Transit Areas

The Sacramento HFTAs cover several types of transit routes: light rail station areas within the cities of Folsom, Rancho Cordova, Sacramento, and unincorporated Sacramento County; a Capital Corridor train station area in the City of Sacramento; a transit corridor in the central/downtown area of the City of Sacramento, and numerous bus and bus rapid transit routes in the cities of Citrus Heights, Rancho Cordova, Sacramento, and unincorporated Sacramento County. The proposed MTP/SCS projects 29 percent of regional housing and 28 percent of regional employment growth to occur in the Sacramento HFTAs. The Sacramento County HHFTAs will include approximately 75,901 new housing units and 75,693 new jobs. This new development occupies 3,403 acres, or 4 percent of the total land area within the Sacramento HFTAs and 7 percent of the new development land in the proposed MTP/SCS. Table 2-10 shows the number of dwelling units and employees in the Sacramento HFTAs compared to other HFTAs; Table 2-11 shows the size, in acres, of the

Sacramento HFTAs and acres of new development. New development in the Sacramento HFTAs is fairly balanced between housing and employment growth due in part to the extensive geographic coverage of the HFTAs, which cover regional job centers (e.g., downtown Sacramento and Rancho Cordova) as well as residential areas and commercial areas. In Sacramento County in particular, most of the cities and the unincorporated county have initiated commercial corridor plans intended to allow significantly more residential development than allowed under past land use plans. Of the new housing in the Sacramento HFTAs, 79 percent are in attached housing product types as shown in Table 2-12.

The projected land use pattern, together with the planned transportation improvements in Sacramento County HFTAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations, and by increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses that are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Sacramento County HFTAs will have a variety of transportation improvements by 2040 including new transit, non-motorized and roadway projects, and ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new fixed guideway service, and more express bus service. The Sacramento HFTA is served by light rail, Capitol Corridor, and numerous bus routes. In 2040, the Sacramento HFTAs will have a transit corridor in downtown, new light rail to the Natomas Town Center area, and bus rapid transit service. The transit in the Sacramento HFTAs is connected to the larger regional transit network, giving more opportunities for shorter trips and non-auto forms of travel.

Yolo High Frequency Transit Areas

The Yolo HFTAs include the majority of West Sacramento and Davis, and those portions of Yolo County adjacent to the city limits of Davis that fall within half a mile of a high-quality bus route. The Yolo HFTAs covers a Capital Corridor train station in the City of Davis, a transit corridor in the central area of West Sacramento, and numerous bus and bus rapid transit routes in the cities of Davis and West Sacramento. Yolo County HFTAs will include approximately 17,846 new housing units and 16,765 new jobs. The proposed MTP/SCS projects 7 percent of new housing and 6 percent of new employment to the Yolo HFTAs. The area has relatively balanced growth in residential and employment, bolstering the existing jobs centers in downtown West Sacramento and UC Davis. This new development occupies 1,009 acres, or 7 percent of the total land area within the Yolo HFTAs and 2 percent of the new development land in the proposed MTP/SCS. Table 2-10 shows the number of dwelling units and employees in the Yolo HFTAs compared to other HFTAs; Table 2-11 shows the size, in acres, of the Yolo HFTAs and acres of new development. New development in the Yolo HFTAs is fairly balanced between housing and employment growth due in part to the extensive geographic coverage of the HFTAs, which include regional job centers (e.g., central West Sacramento and UC Davis) as well as residential areas and commercial areas. Of the new housing in the Yolo HFTAs, 85 percent are in attached housing product types as shown in Table 2-12.

The projected land use pattern, together with the planned transportation improvements in Yolo County HFTAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and by increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses that are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Yolo County HFTAs will have a variety of transportation improvements by 2040 including new transit, non-motorized and roadway projects, and ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, new fixed guideway transit service in West Sacramento, and increased express service to downtown Sacramento. In addition, the Yolo HFTAs are served by Capitol Corridor as well as numerous bus routes. These new transit services will be connected to new and existing regional transit service.

2.6.4 MTP/SCS Transportation System

The proposed MTP/SCS includes a set of capital and operational improvements to the regional transportation system, including road, bicycle, pedestrian, and transit projects. The proposed plan also includes maintenance and rehabilitation activities to preserve the existing and expanded transportation system through 2040.

This section summarizes the transportation system of the proposed MTP/SCS. It is divided into three parts. The first part, "Developing a Transportation System for the Regional Growth Pattern," describes the process for creating the transportation budgets and investments. The second part, "MTP/SCS Financial Assumptions," describes the forecast and source of future transportation revenues. The third part, "MTP/SCS Distribution of Expenditures," describes the actual investments of the proposed MTP/SCS by five major categories of transportation investments in the plan (Maintenance and Rehabilitation, Public Transit Service, Road and Highway, Bicycle and Pedestrian, and Programs and Planning).

DEVELOPING A TRANSPORTATION SYSTEM FOR THE REGIONAL GROWTH PATTERN

The policy priorities for the transportation funds covered by the proposed MTP/SCS influence the projected future growth pattern. Since release of the Blueprint, the overall policy priorities for SACOG funds and the establishment of specific programs reflect a commitment to support the Blueprint principles. During this period of increasing SACOG Board support for linking Blueprint principles to the proposed MTP/SCS, a trend towards performance-based outcomes that link integrated land use and transportation decisions has become increasingly evident in federal and state transportation policies and investment priorities. Through its MTP/SCS and short-term funding decisions for transportation projects, SACOG emphasizes investments that reduce vehicle miles traveled; increase transit, pedestrian and bike, and high-occupancy vehicle mode shares; reduce congestion at key bottlenecks; and preserve and rehabilitate the existing transportation system. These transportation infrastructure investments will influence the future growth pattern.

At the onset of the proposed MTP/SCS planning process, SACOG coordinated with state and local agencies to develop a comprehensive package of projects intended to meet the current and future transportation needs of the plan area. Through SACOG Board direction, public and stakeholder engagement, technical analyses, and further coordination with local and state agencies, SACOG developed a package of transportation projects tailored to fit projected land uses, demographic changes, and travel needs in the region through 2040. Tables 2-13, 2-14, 2-15 show the acres associated with new or expanded roads and interchanges by county, Community Type, and HFTA. As noted earlier, only this subset of transportation projects was spatially analyzed using a 100-foot buffer.

Table 2-13
Summary of Proposed MTP/SCS Investments by County

County	Planned Transportation Improvements (100 foot buffer in acres)
El Dorado	587
Placer	2,937
Sacramento	6,481
Sutter	384
Yolo	829
Yuba	513
Region	**11,730**

Table 2-14
Summary of Proposed MTP/SCS Investments by Community Type

Community Type	Planned Transportation Improvements (100 foot buffer in acres)
Center/Corridor	1,350
Established	5,145
Developing	3,312
Rural Residential	344
Lands Not Identified	1,580
Region	**11,730**

Table 2-15
Summary of Proposed MTP/SCS Investments by HFTA

HFTA	Planned Transportation Improvements (100 foot buffer in acres)
Placer HFTA	495
Sacramento HFTA	1,909
Yolo HFTA	240
Total HFTA	**2,643**

Funding to support the transportation investments in the proposed MTP/SCS comes from a number of federal, state, and local sources, each with specific purposes and restrictions. In total, SACOG forecasts $34.9 billion in revenues for the plan period. On average, this comes out to approximately $1.5 billion per year over 22 years.

Federal and state laws require that the proposed MTP/SCS constrain its budget by assuming only revenues that can reasonably be expected over the planning period. The revenue assumptions contained in the plan are based on historic trends and current research. The revenue forecast does include sources of funding for transportation that would come from roadway and mileage pricing strategies. Both of these strategies are supported by ongoing research at the federal, state, and regional levels to find long-term replacements to fuel-based taxes. The following provides a summary of MTP/SCS revenues by federal, state, and local sources. Appendix B: Revenue Forecast of the proposed MTP/SCS provides a more detailed description of budget and investment assumptions.

Federal Revenues

Federal revenues in the proposed MTP/SCS total $4.3 billion, or 12 percent of the total budget. Federal programs typically support one-time capital investments over ongoing investments for road maintenance and transit operations. However, some federal funds are available to support major road rehabilitation projects such as reconstruction and replacement of decaying bridges, as well as transit preventative maintenance aimed at extending the life of transit facilities or vehicles. Federal funding sources come in the form of Congestion, Mitigation, and Air Quality Program (CMAQ), Surface Transportation Block Grants (formerly Regional Surface Transportation Program) and Federal Transit Administration Chapter 53 funds, the Highway Bridge Program, and a few other smaller federal discretionary programs.

State and Local Revenues

State funds in the proposed MTP/SCS total $8.7 billion, or 25 percent of the total budget. California Department of Transportation (Caltrans) maintenance and capital investments for the state highway system and intercity rail services operated within the region comprise approximately 75 percent of the state revenues in the proposed MTP/SCS. State assistance for local projects is similar to federal programs in the support of one-time capital investments. One notable exception is State Transit Assistance (STA), which can be used to support local transit operations. However, in the region, STA typically makes up less than 10 percent of annual transit operating budgets. The statewide Cap and Trade program also includes some funding for providing ongoing support for transit operations.

Local funds in the proposed MTP/SCS total $21.9 billion, or 63 percent of the total budget. Local revenues are the primary financial support for the basic maintenance and operation of the region's road and transit system (over 95 percent of local road maintenance and rehabilitation and over 75 percent of transit operations). The principal sources of local revenues are sales and fuel taxes, developer fees and contributions, local general funds, and transit fares. On average, local revenues also cover 65 to 90 percent of major capital improvements on local road systems and frequently pay for 100 percent of relatively minor improvements.

Roadway and System Pricing

One of the major challenges faced by the 2020 MTP/SCS is identifying sustainable, long-term strategies for funding transportation infrastructure. Fuel taxes, both state and federal, are primary sources of funding for transportation investments accounting for about half of all the funding available to build, maintain, and operate transportation infrastructure and services. However, improvements in vehicle fuel efficiency, and increases in electric and hybrid vehicles, are already reducing the demand outlook for gasoline and diesel. According to the California Energy Commission, consumption of gasoline is likely to decrease by one to three percent annually between 2018 and 2030.

The 2020 MTP/SCS addresses the long-term decline in fuel-based revenues by planning for new ways of funding transportation that can sustain infrastructure needs into the future. New funding assumptions include sales tax measures in Placer and Sacramento Counties and roadway pricing that includes facility-based tolling (e.g. managed/express lanes) and pay-as-you go (PAYGO) fees based on mileage driven as a replacement to the fuel tax.

Facility-based tolling, as it's included in the MTP/SCS, includes providing drivers an option to pay to use specific lanes on the state highway system that provide a more reliable and faster travel time. While buses and some carpools can still use these facilities for free, single-occupancy vehicles would be able to buy their way in by paying a toll. This strategy is common throughout California and the country but has not yet been used in the SACOG region. The MTP/SCS proposes the introduction of tolled-facilities to help manage congestion, provide a financing option for large capital investments, and improve transit service along priced facilities by allowing buses to use the less congested, tolled lanes.

Mileage-based, or PAYGO, fees included in the MTP/SCS are intended to replace state excise taxes on fuel. These fees would charge roadway users based on the miles they drive rather than on the fuel they purchase. The MTP/SCS examines dynamic fees that can vary based on roadway demand during different parts of the day and on different roadways. Both the federal government and state of California are exploring mileage-based fee structures for funding transportation. The 2020 MTP/SCS is the first time this concept is being examined for its potential to finance transportation infrastructure and manage travel demand.

Exploring a system that prices the use of roadways is a critical component of the regional strategy to raise revenue sufficient to build and maintain the region's transportation system, provide mobility benefits to residents, manage traffic and congestion, and help to achieve state-mandated greenhouse gas reduction targets.

MTP/SCS Distribution of Expenditures

The proposed MTP/SCS will make investments totaling $34.9 billion (in current dollars) to improve the regional transportation system. Table 2-16 summarizes the general categories of investment included in the proposed MTP/SCS through 2040. These are expressed in current dollars. MAP-21 requires that all cost estimates be escalated to year-of-expenditure (YOE) values, to reflect both the likely decrease in purchasing power of today's dollar and the increase in costs for maintaining and building the transportation system over the planning period. These YOE values are included in the MTP/SCS Appendix A: Transportation Project List.

Table 2-16
Summary of Proposed Investments in the Plan Area for the Proposed MTP/SCS

	Program Category	Total Budget- 2016 through 2040 (in billions)		
		2016 MTP/SCS	2020MTP/SCS	Total Change
1	**Maintenance & Rehabilitation (Current Year $*)** Maintain Caltrans highways & freeways Maintain local streets & roads Safety investments as part of rehabilitation projects	**$12.6**	**$12.6**	**$0**
2	**Road & Highway Capacity** New & widened roads, river crossings, interchanges, etc.	**$5.8**	**$ 6.8**	**$1.0**
3	**Transit Investments (Current Year $*)** Bus and rail operations and maintenance Paratransit services Strategic bus and rail infrastructure expansion Vehicle purchases	**$10.6**	**$10.1**	**$-0.5**
4	**Bike/Pedestrian (Current Year $*)** Bicycle Facilities Pedestrian Improvements ADA retrofits	**$2.8**	**$2.5****	**-$0.3**
5	**Program, Safety, System Management and Operations** Safety projects and programs Technology and operational improvements Project analysis and development Air Quality programs TDM and traveler information Incentive program	**$3.2**	**$3.1**	**-$0.1**
	Grand Totals (Current Year $*)	**$35.2**	**$34.9**	**-$0.3%**

**See Appendix B-1 for documentation of how costs and revenues are calculated and noted throughout this plan in order to meet SAFETEA-LU financial reporting requirements.*
***Amount reflects budget for direct investments in bicycle and pedestrian improvements. However, most bicycle and pedestrian improvements are included as part of the costs of road and highway capacity projects. The exact costs for these elements as part of larger investments are not readily available for the planned projects in the MTP/SCS. The total increase in miles of bicycle and pedestrian infrastructure and other improvements is consistent between the 2016 and 2020 MTP/SCS.*

The transportation projects contained in the proposed MTP/SCS are matched to the available revenues for the planning period. The general level, type, and extent of investments covered by the plan are described in more detail below.

- $12.6 billion goes to road and highway maintenance and rehabilitation, including routine maintenance, major reconstructions, and various safety improvements.
- $10.1 billion goes to transit investments, including rail extensions and a 100 percent increase in vehicle service hours. An estimated $3.1billion ($billion YOE) in capital investments support the additional $7.0 billion needed to operate these transit services.

- $6.8 billion goes to road and highway capital improvements, including road widening in growth areas, carpool lanes on highways, and new connections for local access.
- $2.5 billion goes to bicycle and pedestrian improvements, including bicycle trails, sidewalks, ADA retrofits, and supporting facilities. In addition, an estimated 8 percent of the road capital projects have a bicycle or pedestrian feature that is not included separately in the bicycle and pedestrian improvement allocation.
- $3.1 billion goes to programs, system management and operations, including intersection improvements, safety projects, signal timing, freeway operational improvements, community design incentives, travel demand management (including the rideshare program), clean air, open space, technology deployment, and enhanced programs.

Table 2-17 summarizes the transportation changes by travel mode between 2016 and 2040, while Table 2-18 provides a summary of illustrative transportation projects in the proposed MTP/SCS. Appendix A: Transportation Project List of the proposed MTP/SCS includes the full listing of transportation projects.

Table 2-17
Summary of Proposed MTP/SCS Transportation System Changes by Facility Type

	2016	2040		
	Total	Total	Change from 2016	Percent Change
General Purpose Freeways (lane miles)	1,661	1,688	26	2%
Freeway HOV Lane Miles (lane miles)	137	256	119	86%
Freeway Auxiliary Lanes/Ramps Lane (lane miles)	219	285	67	31%
Arterial Roadways /Expressway (lane miles) [1]	4,447	5,494	1,046	24%
Collector and Local Streets (lane miles)[2]	21,320	27,208	5,888	28%
Class I Bike Routes (route miles) [3]	493	950	457	93%
Bicycle Class II Routes (route miles) [3]	1,150	2280	1,130	98%
Transit Service (Total Daily vehicle service hours)[4]	3,994	8,549	4,555	114%
Local Rail Route Miles [5]	44	57	13	30%

Notes:
[1] "Arterial / Expressway Streets" include all surface streets with functional class minor arterial or higher, including arterial streets, expressways, rural highways, etc. 2016 quantities from HPMS; 2036 quantities estimates from SACOG regional travel demand model networks.
[2] "Collector and Local Streets" are below minor arterial in functional class. 2016 quantities from HPMS; 2040 quantities based on applying per-capita rates to population growth by community area type.
[3] Bicycle route mileage based on SACOG GIS centerline file quantities for 2016, and estimates of growth in mileage based on adopted bikeway master plans.
[4] "VSH" = vehicle service hours. One vehicle service hour = one transit vehicle operating for normal revenue service for one hour. All quantities estimated from SACOG regional travel demand model networks.
[5] "Bus Route Miles" and "Local Rail Route Miles" are a measure of service coverage, not service intensity. Example: a one mile stretch of road with one bus per hour = one bus route mile; the same one mile stretch of road with 20 buses per hour = one bus route mile.

Table 2-18
Illustrative Projects

Road Maintenance and Rehab	
Road and highway maintenance and rehabilitation, including routine maintenance, major reconstructions, and various safety improvements throughout region.	▪ Routine and preventive maintenance projects intended to extend the life of roads and highways, including sealing cracks, repairing pavement, cleaning and repairing drains, fixing signals, and sweeping streets ▪ More extensive repair, rehabilitation, and reconstruction of roadways, including sealing pavement, repaving, reconstructing subgrade and drainage, and reconfiguring intersections ▪ Bicycle, pedestrian, safety and aesthetic improvements, such as striping, curb ramps, sidewalk gap closures, rail crossings, and landscaping as part of larger rehabilitation projects ▪ Replacement, rehabilitation, painting, scour countermeasures, and bridge approach barrier and railing replacements on local and state-owned bridges
Road and Highway Capacity	
Major Local Road Improvements	▪ Placer Parkway- New 4-lane divided facility from SR 65 to Watt Ave; Interchange at SR 65 Whitney Ranch; at-grade crossings at Fiddyment, Foothills, and Watt ▪ Capital Southeast Connector- New four lane connector along White Rock and Grant Line Road from US 50 in El Dorado County to Douglas Road in Sacramento County, continuing with four lanes on Grant line from Bradshaw Road to Kammerer Road ▪ Road, bicycle, and pedestrian improvements serving the Railyards Specific Plan Area in downtown Sacramento ▪ Jackson Hwy. widening to four lanes from South Watt Avenue to Excelsior in Sacramento County ▪ Kammerer Road widening and extension in Elk Grove
State Highway Improvements	▪ US 50- New carpool lanes, Watt Ave to downtown Sacramento ▪ US 50-Modified interchange operational improvements at US50 & SR99, US50 & I-5 ▪ US 50-New auxiliary lanes, transition lanes, and interchange improvements in various locations in Sacramento, Rancho Cordova, and Folsom ▪ I-80 & I-5- New carpool lanes on I-80 and U.S. 50 connecting Davis to Downtown Sacramento, with new bike bridge across the Yolo Causeway ▪ I-80- Carpool lane extension, Watt/Longview west to I-5 ▪ I-80- Business 80/Capital City freeway capacity and operational improvements ▪ I-80 / U.S. 50 Managed Lanes from Solano County to the City of Sacramento ▪ I-80-/SR 65 interchange improvements ▪ SR 65- Operational improvements in Marysville through area where SR 20, 65 and 70 come together ▪ SR 65- Capacity and operational improvements from Galleria Blvd. to Lincoln Blvd. ▪ SR 99/70- Operational improvements between I-5 and Placer Parkway ▪ SR 70- widen shoulders and improve clear recovery zone and passing lanes in both directions from Laurellen Road to Butte County Line ▪ State Route 51 (Capital City) Corridor Improvements including widening the American River bridge, extending bus/carpool lanes, adding a new class 1 bike path, and auxiliary/transition lanes ▪ SR 51 Bus/Carpool Lanes from Arden to I-80 ▪ Reconstruct I-5/I-80 Interchange, including managed lane facility connectors, and construction of managed lane facility from the I-5/I-80 Interchange to downtown Sacramento

Bridges	▪ I Street Bridge replacement between Sacramento and West Sacramento ▪ 10th St. Feather River bridge widened to 6 lanes ▪ New Broadway Bridge connecting Sacramento and West Sacramento ▪ New all-modal river crossing between Downtown and Natomas ▪ One-to-two and two-to-four lane widenings on a number of small creek crossings ▪ Bicycle and pedestrian retrofits on existing and new bridges
Transit Improvements	
Fixed Guideway	▪ Green Line light rail extension from Township 9 to North Natomas Town Center ▪ Sacramento to Roseville third main track from Sacramento Valley Station to the Placer County line ▪ Sacramento-West Sacramento Downtown/Riverfront Transit Project ▪ Auburn to Donner Summit track improvements including double tracking, addition of crossovers, notching of tunnels, reactivation, and replacement of second mainline track between Auburn & Reno, Nevada
Local and Express Buses and Neighborhood Shuttles	▪ Increase bus service with 15 minute or better service from roughly one quarter in 2016 to about half of all services by 2040. Options range from increasing the amount of service on existing fixed route and express bus lines, to introducing new services including Bus Rapid Transit lines and microtransit options ▪ Expansion of ADA paratransit services to keep up with the fast-growing senior population. The proposed MTP/SCS also calls for paratransit vans to be replaced regularly and equipped with technologies that optimize trip planning, as well as use of quality vehicles ▪ Various street & operational improvements coordinated with complete streets corridor enhancements to enhance bus transit ▪ New rolling stock (bus and light rail vehicles) to replace aging vehicles on existing and expanded routes
Bike/Pedestrian Improvements	
Bike Lanes, Complete Streets & Recreational Trails	▪ Pedestrian bridges and pedestrian intersection improvements that include ADA-compatible ramps, bulb-outs, and special crossing signals ▪ Bike lanes on more neighborhood and major streets ▪ Multi-use bike/pedestrian trails (off-street, grade-separated) that offer residents the opportunity to make utilitarian and leisure trips separated from vehicular traffic. ▪ Sacramento Central City Specific Plan Multi-Modal Improvements including two-way conversions, three-to-two lane conversions, freeway ramps, and buffered bike lanes ▪ River District Specific Plan bikeway and pedestrian improvements ▪ Emphasis on complete street connections within and between cities, areas of pedestrian-scale development, and to transit and school facilities ▪ Bike facilities (racks, lockers, restrooms) at major transit stops/hubs (light rail, BRT, etc.) and at key activity centers (downtown Sacramento, shopping malls, large office complexes, etc.)
Programs, Safety, System Management and Operations	
Safety Projects, System Operations, and Programs	▪ *Green Means Go*: a multi-year pilot program to lower greenhouse gas emissions in the six-county Sacramento region by accelerating infill development, reducing vehicle trips, and electrifying remaining trips ▪ *Community Design:* Seed funding to encourage smart-growth development projects complementary to the MTP/SCS that may otherwise not happen ▪ *Air Quality Improvement Programs:* Current funding focuses on Transportation Control Measures (TCMs) that sunset in 2018 or 2024. Existing TCMs include the

	Sacramento Emergency Clean Air and Transportation (SECAT) grant program for replacing or retrofitting diesel engines and trucks, and Spare the Air programs to reduce vehicle miles traveled on bad air days ▪ *Intelligent Transportation Systems (ITS):* Anticipated investments include automated message signs, crosswalk signals with pedestrian countdown timers, real-time transit message signs, and transit signal priority for buses ▪ *Travel Demand Management (TDM):* Current funding provides support to programs implemented by Transportation Management Associations (TMAs); promotional campaigns including May is Bike Month and rideshare matching services, and other projects that provide education, incentives, or information to help residents choose transportation modes other than driving alone ▪ *511 Traveler Information:* This existing phone and web-based service will continue to expand as a more highly developed and user-friendly source of detailed travel information ▪ *Community Enhancements:* Funding for investments, including soundwalls, traffic calming, and streetscaping features, which can make a corridor or intersection more attractive while also improving its safety and operation ▪ *Project Development Support:* Funding for projects outside of the planning period of the proposed MTP/SCS to begin early stages of development, including project design, preliminary engineering, environmental clearance, and right-of-way acquisition. Due to limited revenues in the financially constrained proposed MTP/SCS, these projects are not anticipated to have sufficient funding to complete construction during the planning period

[1] A complete list of projects can be found in 2020 MTP/SCS Appendix A: Transportation Project List.
Source: Data provided by SACOG in 2019

1 – Road and Highway Maintenance and Rehabilitation

The MTP/SCS plan area covers nearly 30 thousand lane miles of existing or new collector and local streets, over 5,300 lane miles of freeway, high-occupancy vehicle (HOV), auxiliary, expressway, and arterials, and numerous small and large bridges that must be kept in a good state of repair for the transportation system to operate efficiently.

The maintenance and rehabilitation budget spends $12.6 billion to preserve, maintain, and rehabilitate the region's roads, highways, bridges, trails, sidewalks, and other bicycle and pedestrian facilities. The proposed MTP/SCS focuses on preserving existing assets and reducing maintenance backlogs before adding new infrastructure that would require additional maintenance spending in the future.

Compared to the 2016 MTP/SCS, the proposed 2020 MTP/SCS increases the budget for maintenance and rehabilitation by approximately $1 billion or 8 percent. This increase comes primarily from assumptions that the region and state will implement strategies for roadway pricing that will replace fuel taxes as a primary source of paying for transportation infrastructure. Around two-thirds of the maintenance and rehabilitation budget is related to city and county maintenance of local streets and facilities. The balance is administered by Caltrans for maintenance of the state highway system.

Many road maintenance or rehabilitation projects present opportunities to improve the travel experience of bicyclists and pedestrians. In addition to the direct investments assumed for the bicycle and pedestrian budget, discussed below, SACOG assumes that when appropriate and feasible, maintenance projects will include bicycle and pedestrian components such as striping and signage, sidewalk gap closures, ADA retrofits, and intersection improvements.

While in the past, the planning, design, construction, and operation of a street widening or new street might have focused on vehicular capacity and flow only, complete streets projects balance the needs of all potential users of a street. Based on these criteria, SACOG estimates that at least one-third of projects in the proposed MTP/SCS qualify as complete streets. In addition to the plan's investment in complete streets along urban corridors, the plan also includes complete corridor treatments in rural communities, where closing a shoulder gap or improving a county road intersection can significantly improve the safety of travel for all modes.

2 – Road and Highway Capacity Investments

The proposed MTP/SCS spends $6.8 billion on road, highway, and bridge capacity projects.

More than two-thirds of the total road and highway investment pays for capacity improvements to existing facilities, while the remainder of the budget includes a mix of new road and highway investments to serve infill and greenfield growth areas. The proposed MTP/SCS investment package focuses on more cost-effective and strategic capacity projects. Right-sizing, or value-engineering, of roadway investments for maximum cost-effectiveness is an important component of an MTP/SCS that achieves strong performance benefits with lower funding levels. Figures 2-4 and 2-5 illustrate the local roads, highways, and bridges in 2016 and improvements to these systems by 2040.

Local Road Investments
Of the $6.8 billion total in road, highway, and bridge capital projects, the proposed MTP/SCS invests nearly two-thirds of the budget in local roads to accommodate projected growth. More than 90 percent of new lane miles in the plan are on surface streets, not freeways. The proposed MTP/SCS roadway investments emphasize access to infill development areas, congestion relief, support for bus and rail transit, and improved bicycle and pedestrian access. Local road investments increase capacity for local passenger travel, creating a benefit to goods movement on highways.

State Highway Investments
The proposed MTP/SCS invests the remaining third of the road capacity budget in projects that will primarily be carried out by Caltrans. Investments focus on operational improvements and strategic new carpool lanes in many interior areas of the freeway system. Collectively, these investments serve travel between activity centers and accommodate trucks for inter-regional goods movement.

Added freeway lane miles account for less than five percent of the total in new roadway capacity. Of this increase in freeway lane miles, nearly all of them are carpool lanes, auxiliary lanes, new ramps, or widened ramps. Most of the carpool, auxiliary, and transition lane additions occur in the urbanized part of the region and are directed at closing gaps that relieve congestion along major commute corridors during peak commute periods and to serve suburban job centers where it will take time to build up employment densities to the point that transit becomes a serious option for commuting.

Bridge and River Crossing Investments
As a subset of the road and highway investments, the proposed MTP/SCS includes over $600 million (over million YOE) in investments for the development of more road, transit, bicycle, and pedestrian capacity on the region's bridges. Three-quarters of this budget pays for major crossings of the American, Sacramento, and Feather Rivers, with the remainder going towards minor capacity expansions on small crossings of creeks and tributaries.

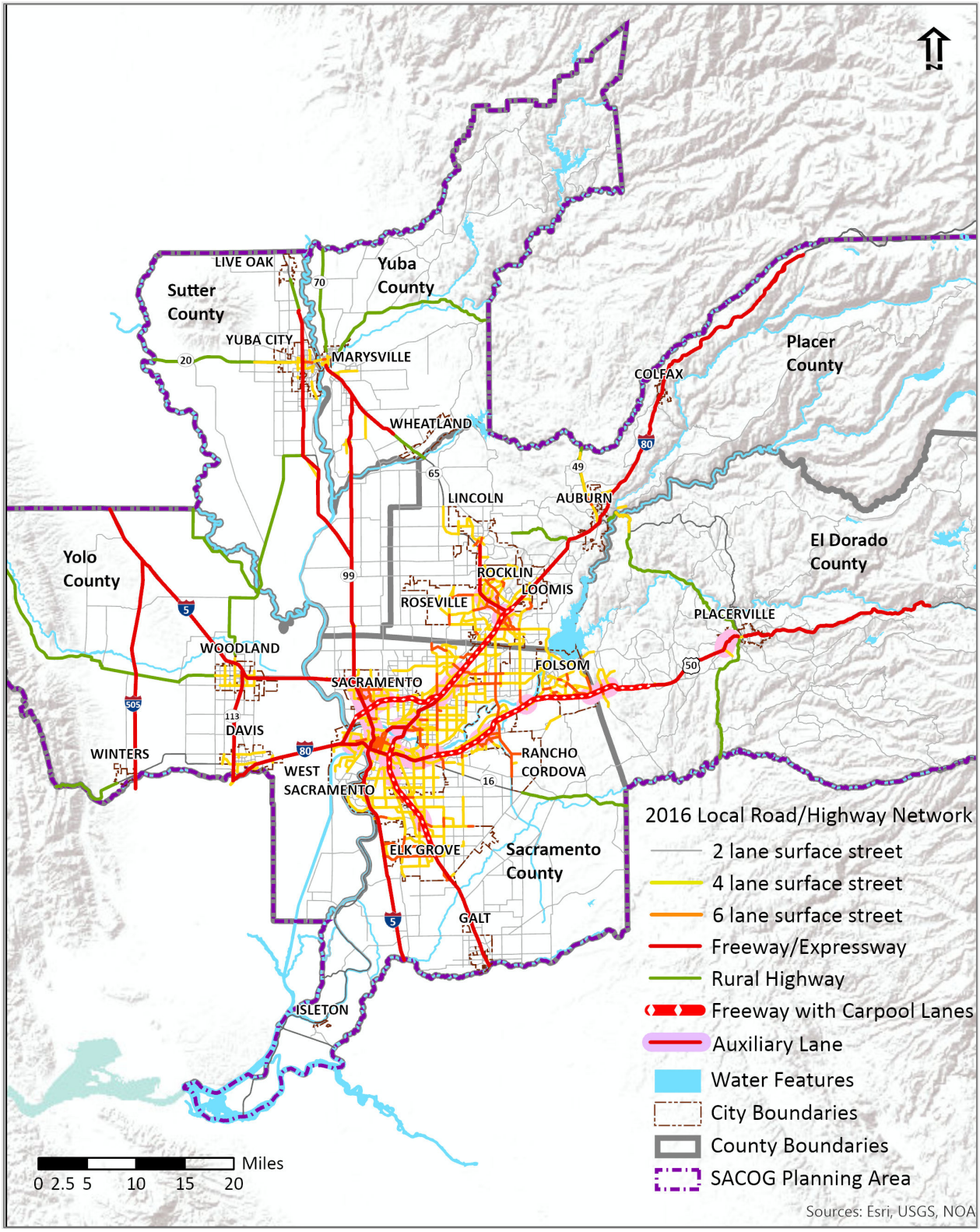


Figure 2-4
2016 Local Road and Highway Network

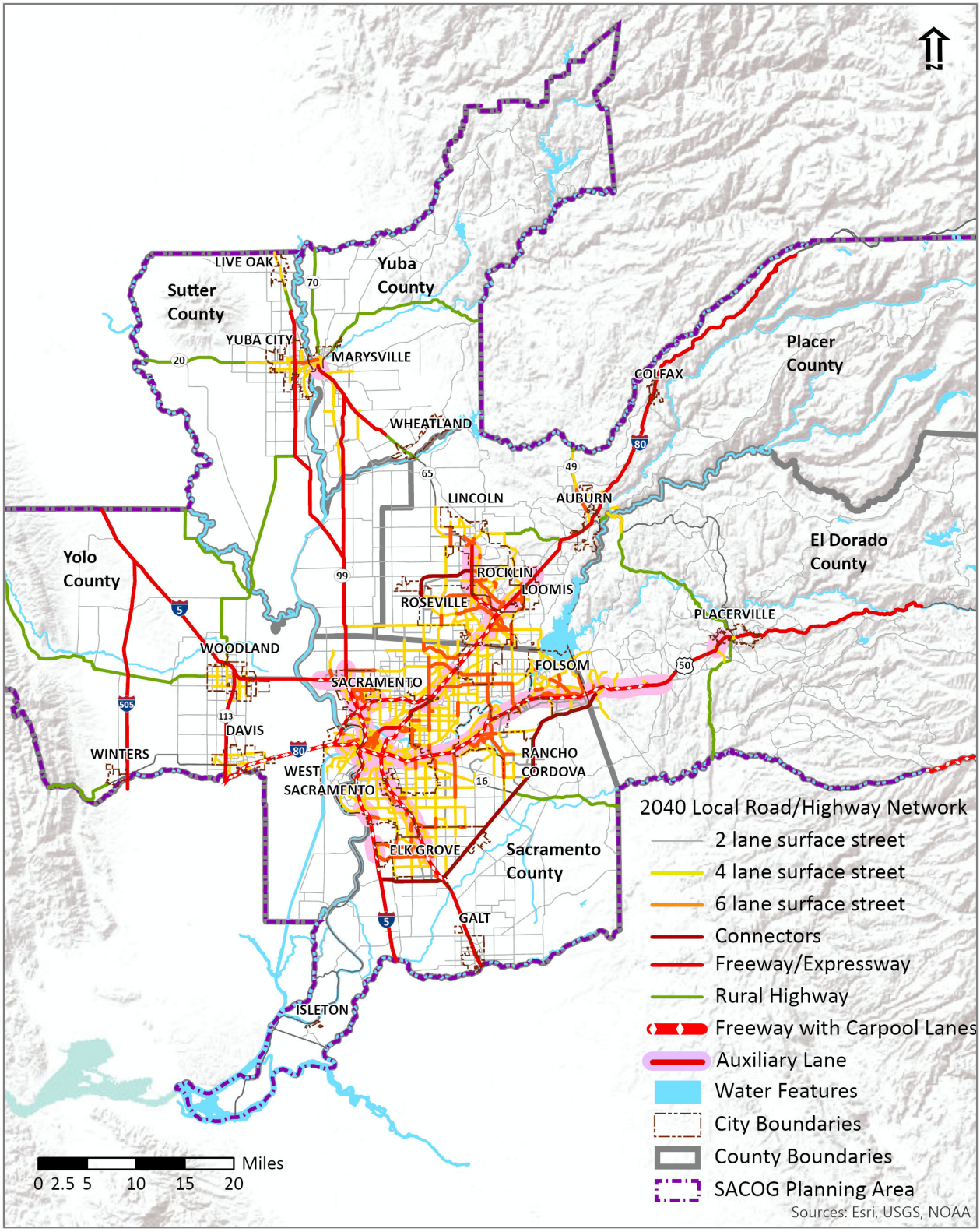


Figure 2-5
2040 Local Road and Highway Network

3 – Public Transit Investment

The proposed MTP/SCS provides $10.1 billion in transit capital ($3.1 billion) and operating ($7.0 billion) investments. Most of this investment, 69 percent of the total, is consumed by the cost of operating and maintaining the transit system. The remaining $3.1 billion pays for capital expenses such as purchasing new buses and rail vehicles, infrastructure associated with adding routes and stations to the bus and rail system, building new storage and maintenance facilities, and improvements to help buses move more quickly through traffic.

The combination of increased, frequent transit service and growth in HFTAs will result in transit productivity increasing from 30.2 passenger boardings per service hour to 47.3 by 2040. The types of transit offered in the plan vary by areas of the region. Investments include increasing the amount of service on existing routes, introducing new services, and adding high-capacity rail to high-demand corridors. Figures 2-6 and 2.7 illustrate the transit network and services in 2016 and included in the proposed MTP/SCS by 2040.

4 – Bicycle and Pedestrian Investments

In addition to "complete street" investments described earlier, the proposed MTP/SCS includes $2.5 billion in direct investments for bicycle and pedestrian facilities, such as new shared-use paths and trails. This total is the same budget total included in the 2012 MTP/SCS.

Projects reflecting the range of bicycle and pedestrian investments in the proposed MTP/SCS are listed in the *Regional Bicycle, Pedestrian, and Trails Master Plan* (Master Plan). This document lists projects supporting a regional pedestrian and bikeway network and is incorporated by reference. The Master Plan provides a summary of planned bicycle and pedestrian infrastructure projects in each jurisdiction, and among multiple jurisdictions. The goal is to develop a connected system of facilities that provide safe and convenient bicycle and pedestrian travel throughout the region. The development of the regional network is oriented towards utilitarian trips and emphasizes connectivity to current facilities and connections to transit systems and key destinations. Figures 2-8 and 2-9 illustrate the extent of class I and class II bicycle facilities throughout the MTP/SCS plan area.

5 – Programs, Planning, Safety, System Management and Operations

The proposed MTP/SCS includes $3.1 billion in funding for supplementary programs, planning, and operational efforts. Operational projects to improve the efficiency of the transportation system and can reduce the need for expensive expansion projects. These improvements also improve safety and provide more reliable travel options for residents.

A number of the supplemental programs included in this category connect the competitive distribution of funding to consistency with the region's smart growth vision as set forth in the Blueprint. For example:

- The *Community Design Program* funds placemaking projects that improve or enhance the livability of a community and promotes land use projects that lead to fewer vehicle miles traveled and more walking, biking, and transit use.

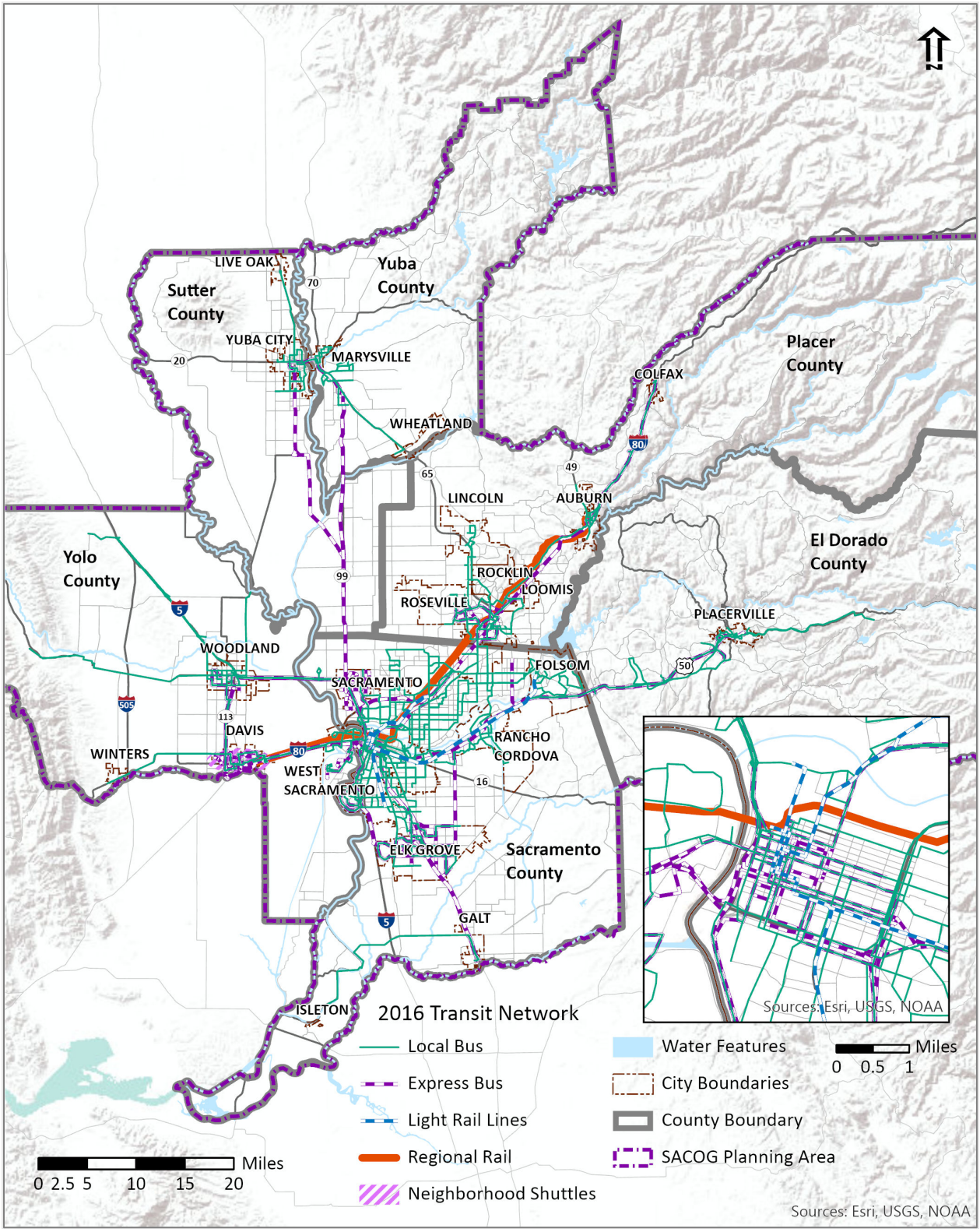


Figure 2-6
2016 Transit Network

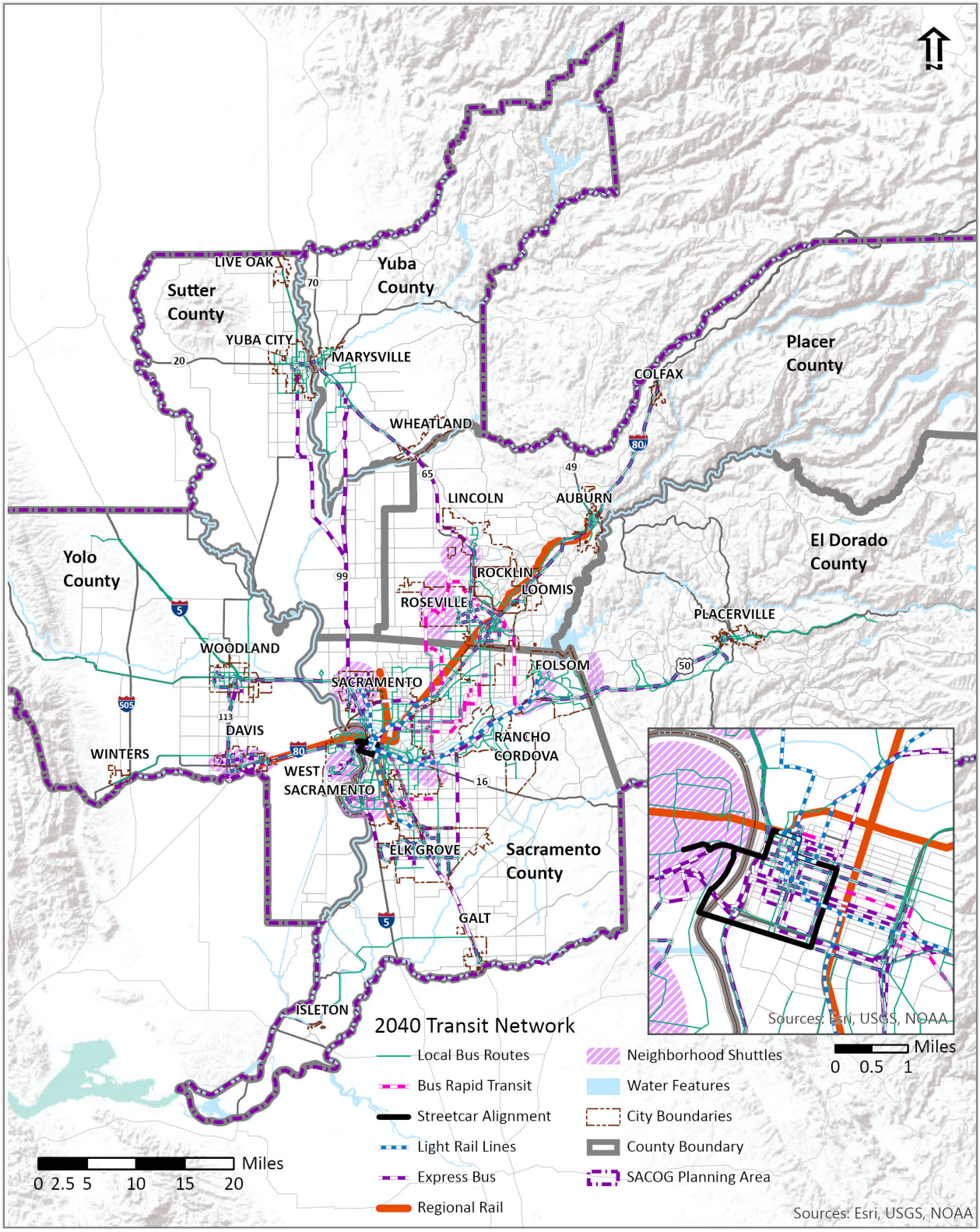


Figure 2-7
2040 Transit Network

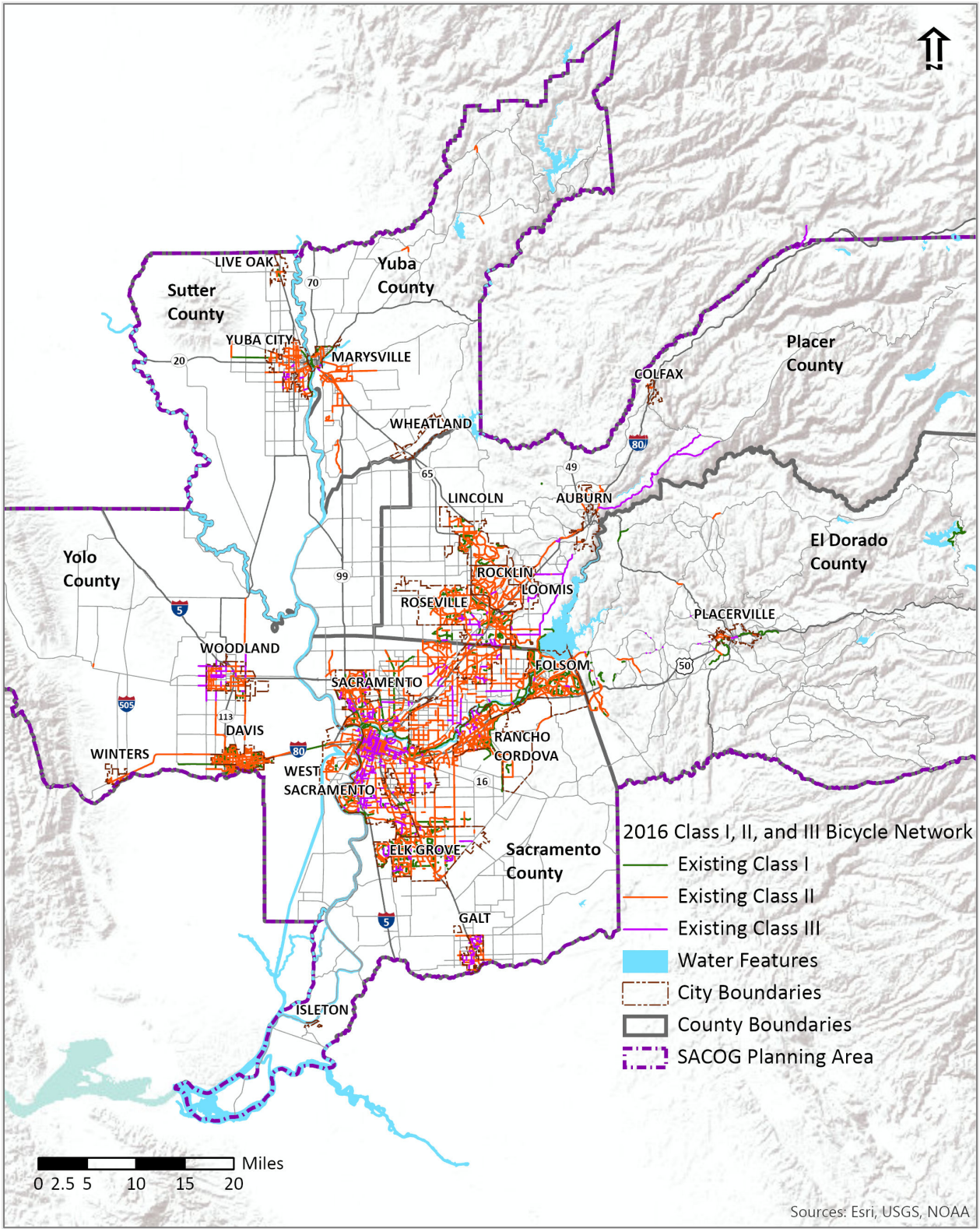


Figure 2-8
2016 Class I, II, and III Bicycle Network

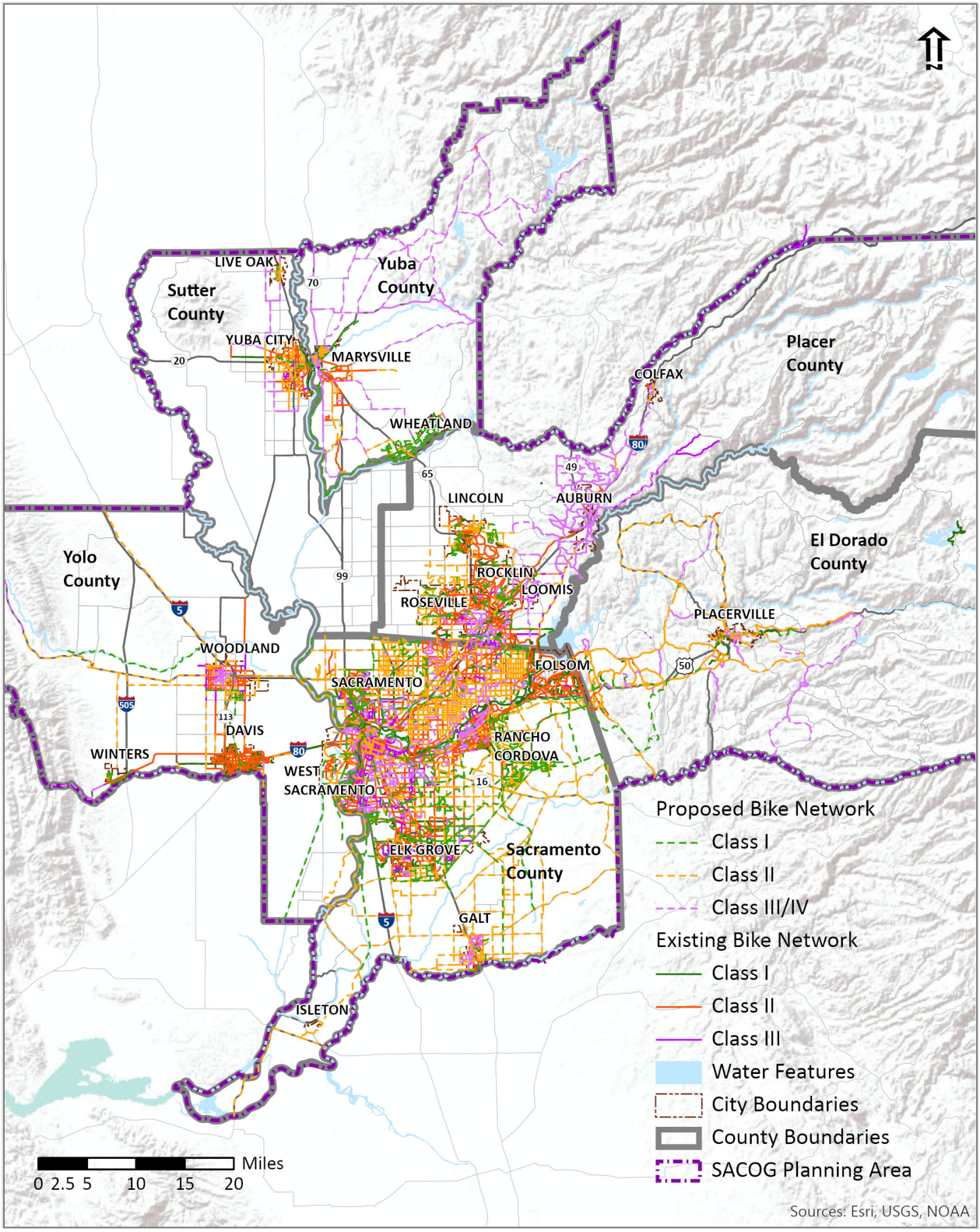


Figure 2-9
2040 Class I, II, and III Bicycle Network

- The *Transportation Demand Management Program* aims to reduce vehicle trips and miles traveled by implementing cost-effective and innovative programs, services, projects, strategies and policies that encourage people to change their travel behavior. The program consists of three avenues for distributing funding to project sponsors working towards those goals. The Traditional TDM program works with established regional partners, such as transportation management agencies, to continue implementing known TDM strategies and programs. TDM *Mini-Grants* support small events and non-infrastructure programs or projects to reduce single occupancy vehicle trips and miles and prioritizes testing new strategies and tactics for changing travel behavior. The TDM Innovations grant program also seeks to explore new and innovative projects and activities that implement strategies that reduce single occupant vehicle travel and produce measurable results, such as parking pricing programs, technology-based solutions, and marketing projects.
- SACOG *Air Quality* programs seek to decrease the volume of pollutants emitted in a number of ways, from increasing multimodal options to informational programs to influence the voluntary reduction of driving during poor air quality events. Originally part of the region's commitment to decrease ozone-related emissions, components of the Air Quality programs are also present in other SACOG programs, such as the evolution of the Sacramento Emergency Clean Air and Transportation program from a standalone project to being part of Green Region.

2.7 MTP/SCS Policies and Supportive Strategies

The policy elements of the proposed MTP/SCS are required to address the transportation issues of the region, identify and quantify needs expressed within both short- and long-rage planning horizons, and maintain internal consistency with other MTP/SCS elements (Gov. Code, Section 65080(b)). The policies for the proposed MTP/SCS can be grouped into four general categories: 1) Building vibrant places that supports infill development and housing diversity; 2) New and innovative mobility that stresses the importance of cost-effective programs, transportation choices, and transit, and that does not rely on individuals driving single-occupant vehicles; 3) Roadway pricing strategies that help to manage traffic, provide travel choices, and raise revenues to build and maintain the transportation system; and 4) Performance-based prioritization of transportation investments to ensure the region is investing in transportation in ways that further regional objectives and make the best use of limited funds.

2.8 Intended Uses of This EIR

In compliance with the CEQA (Pub. Resources Code, Section 21000 et seq.), this report describes the environmental consequences of the proposed MTP/SCS. This EIR is designed to fully inform the SACOG Board of Directors, in addition to other responsible agencies, persons, and the general public of the potential environmental effects of the proposed project and identified alternatives.

SACOG is the Lead Agency for environmental review of this EIR. A notice of preparation (NOP) was submitted to appropriate agencies to identify any issues of concern prior to preparation of the EIR. The NOP was circulated on April 25, 2019 to public agencies and persons considered likely to be interested in the project and its potential impacts. In addition, SACOG held a Scoping Meeting on May 9, 2019. The NOP was available for public review on SACOG's website (www.sacog.org). A copy of the NOP and all written comments are provided in Appendix PD-1 of this EIR.

2.8.1 Agencies Expected to Use the EIR

As described in the Future Environmental Review section below, other public agencies may use this EIR in their decision-making regarding projects that are consistent with the SCS. These agencies include local governments within the plan area, state agencies, regional transportation planning agencies within the plan area, public transit providers**,** air districts, Native American tribes, colleges and university transportation providers, and transportation management associations, among others.

2.8.2 List of Permits or Other Approvals Required to Implement the Project

The proposed MTP/SCS requires a conformity determination under the CAA section 176(c). The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) make the final determination of conformity on the Regional Transportation Plan elements. A FHWA/FTA air quality conformity determination for transportation (Conformity) is required for the 2020 MTP pursuant to the Environmental Protection Agency's (EPA) *Transportation Conformity Rule*, 40 CFR Parts 51 and 93, and the United States Department of Transportation's *Final Rule on Statewide and Metropolitan Planning*, 23 CFR Part 450. The conformity analysis that is submitted must indicate that all air quality conformity requirements have been met. Based on review by FHWA and FTA, and after consultation with the EPA Region 9 office, FHWA/FTA will make a fining that the 2020 MTP conform to the applicable State Implementation Plan in accordance with the provisions of 40 CFR Parts 51 and 93.

Under SB 375, the proposed MTP/SCS is subject to review and approval by the California Air Resources Board (CARB). Specifically, the SCS component of the regional plan will be reviewed by CARB to determine whether the adopted SCS, if implemented, would meet the region's 19 percent per capita greenhouse gas reduction target.

2.8.3 List of Environmental Review and Consultation Requirements

Federal consultation requirements include: 1) a process involving the MPO, state and local air quality planning agencies, state and local transportation agencies, the U.S. Environmental Protection Agency, and the U.S. Department of Transportation; and 2) a proactive public involvement process that provides opportunity for public review and comment by, at a minimum, providing reasonable public access to technical and policy information considered by the agency.

SB 375 requires consultation with: stakeholders, including affordable housing advocates, transportation advocates, neighborhood and community groups, environmental advocates, homebuilder representatives, broad-based business organization, landowners, commercial property interests, homeowners associations, congestion management agencies, transportation agencies, local agency formation commission, and members of city councils and boards of supervisors.

2.8.4 Future Environmental Review

This program EIR serves as a first-tier environmental document under CEQA and may support second-tier environmental documents for:

- transportation projects consistent with the SCS; and
- residential or mixed-use projects and transit priority projects consistent with the SCS.

Lead agencies implementing subsequent projects would undertake future environmental review for projects included in the proposed MTP/SCS. These agencies include the 6 counties and 22 cities within the plan area. Other project implementing agencies may include public transit providers**,** other public agencies such as air districts, Native American tribes, colleges and university transportation providers, the California Department of Transportation (Caltrans), and transportation management associations, among others. As and when permitted by the CEQA statutes and Guidelines, these agencies may be able to prepare subsequent environmental documents that could incorporate, by reference, the appropriate information from this program EIR. Subsequent environmental documents would focus on site-specific issues that have not been considered in this program EIR. If an activity/project were later found to have effects that were not examined in this program EIR, additional CEQA review may be required. If the lead agency found that implementation of a later activity/project would have no new effects and that no new mitigation measures would be required, that activity would require no additional CEQA review.

Notwithstanding the foregoing, this program EIR may not be used for tiering purposes in any way related to VMT impacts. As discussed in Chapter 16 – Transportation, although per-capita VMT within the region is forecast to continue to decline by 2040, total household-generated VMT as a result of the proposed MTP/SCS is forecast to increase largely due to adding about 620,500 new residents. The VMT per-capita decline indicates that the projected land use pattern and planned transportation improvements assumed in the proposed MTP/SCS would effectively work together to improve system efficiency and minimize increases in VMT. However, at a statewide level, CARB has reported that the state has not gone far enough in making changes in how communities are designed to meet state climate goals. While implementation of the proposed MTP/SCS will achieve VMT reductions per capita, they are not enough to help the state successfully achieve desired statewide goals.

CARB has explicitly recognized that MPOs could not achieve reductions without additional state policies and funding. However, at the time of writing this Draft EIR, it is unknown how CARB through statewide programs or coordination with local governments would meet the higher percent VMT reduction target by 2035 as identified in the 2017 Scoping Plan and other supporting documents. Therefore, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains.

Implementation of mitigation measures in Chapter 16 would minimize the contribution of the proposed MTP/SCS to cumulative VMT, but would not reduce this impact to less-than-significant levels. Until the state identifies a program for further VMT reductions, and regional planning agencies have funding and authorization to achieve the reductions, VMT impacts remain significant and unavoidable. For projects relying on the streamlining provisions of SB 375 described below, lead agencies must comply with state guidance on VMT reduction and conduct project-level analysis to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce VMT impacts to less than significant.

As a program EIR, the preparation of this document does not relieve subsequent lead agencies from the responsibility of complying with the requirements of CEQA. As previously mentioned, individual projects may be required to prepare a more precise, project-level analysis to fulfill CEQA requirements. The lead agency responsible for reviewing these future projects shall determine the level of CEQA review needed. The level of analysis needed, and the scope of that analysis, will depend on the specifics of the particular project.

SB 375 includes several CEQA streamlining provisions. These include streamlined review and analysis of residential or mixed-use projects consistent with the SCS; modified review and analysis, through an expedited Sustainable Communities Environmental Assessment (SCEA), for Transit Priority Projects (TPPs) that are consistent with the SCS; and a complete CEQA exemption for TPPs that are consistent with the SCS and meet a specific list of other requirements. In each of these cases, this MTP/SCS EIR will serve as a first-tier environmental document under CEQA. The CEQA reform provisions are summarized as follows:

Streamlined Review for Residential or Mixed-Use Projects Consistent with the SCS

Under the provisions of SB 375, an environmental impact report prepared for a residential or mixed-use residential project that is consistent with the general land use designation, density, building intensity, and applicable policies specified for the project area in either an SCS or APS for which the California Air Resources Board has accepted an MPO's determination that the SCS or APS would, if implemented, achieve its greenhouse gas emissions reduction target, "is not required" to discuss growth inducing impacts, or any project specific or cumulative impacts from cars and light-duty truck trips on global warming, or on the regional transportation network. (PRC Section 21159.28, subd. (a); Gov. Code, Section 65080, subd. (b)(2)(I).) In addition, an EIR prepared for a residential or mixed-use project that qualifies for the streamlining provisions is not required to reference, describe, or discuss a reduced residential density alternative to address the effects of car and light-duty truck trips generated by the project as part of its alternatives analysis. (PRC Section 21159.28, subd. (b).) Table 2-19 lists the qualifications for Residential or Mixed-Use Residential projects and the corresponding CEQA streamlining benefits.

Streamlined Review for Transit Priority Projects Consistent with the SCS

A TPP was a new type of project created by SB 375. Public Resources Code section 21155 sets forth the requirements for a project to qualify as a TPP. As with the residential or mixed use residential projects discussed above, a TPP must be consistent with the general use designations, density, building intensity, and applicable policies specified for the project area in either an SCS or APS for which CARB has accepted an MPO's determination that the SCS or APS would, if implemented, achieve the greenhouse gas emission reduction targets. (PRC Section 21155, subd. (a).) In addition, a TPP must meet the following requirements: (1) the project must contain at least 50 percent residential use based on total building square footage; (2) the project must have a minimum net density of 20 dwelling units per acre; and (3) the project must be located within one-half mile of a major transit stop or high quality transit corridor included in the regional transportation plan. (PRC Section 21155, subd. (b).)

Once an agency has determined that a project is a TPP, the project may be reviewed through a SCEA. (PRC Section 21155.2, subd. (b).) The standard of review for the SCEA is the "substantial evidence" standard, which is deferential to the agency. Thus, once an SCEA is deemed appropriate, the agency's analysis is presumed to be adequate and the burden of proof in a legal challenge is on a petitioner/plaintiff to demonstrate otherwise.

If a TPP must be reviewed by an EIR, the TPP EIR is not required to discuss growth-inducing impacts, any project specific or cumulative impacts from cars and light-duty truck trips on global

climate change, or on the regional transportation network. In addition, the EIR is not required to reference, describe, or discuss a reduced residential density alternative to address the effects of car and light-duty truck trips generated by the project as part of its alternatives analysis. Table 2-19 lists the qualifications for TPPs and the corresponding CEQA streamlining benefits.

CEQA Exemption for Sustainable Communities Projects Consistent with the SCS

A TPP that meets additional requirements may qualify as a sustainable communities project, a category of projects that is eligible for a CEQA exemption. These additional requirements, as well as the requirements for residential and mixed-use residential and TPP projects, are listed in Table 2-19.

Table 2-19
SB 375 CEQA Benefits

Project Designation	Qualifications	Streamlining Benefits
Mixed Use Residential Project (PRC Section 21159.28)	▪ At least 75% of total building square footage for residential use ▪ Consistent with the use designation, density, building intensity, and applicable policies for the project area of an SCS or APS accepted by CARB OR ▪ A Transit Priority Project as defined below	▪ Environmental documents are not required to reference, describe or discuss: 1) growth-inducing impacts, 2) impacts from car and light-duty truck trips on global warming or regional transportation network, 3) reduced-density alternative to project.
Transit Priority Project (PRC Sections 21155, 21155.2)	▪ At least 50% of total building square footage for residential use OR ▪ If 26-50% of total building square footage is non-residential, a minimum FAR of 0.75 ▪ Minimum net density of 20 du/acre ▪ Within 0.5 miles of major transit stop or high-quality transit corridor included in the regional transportation plan (No parcel more than 25% further, and less than 10% of units or no more than 100 units further than 0.5 miles) ▪ Consistent with the use designation, density, building intensity, and applicable policies of an SCS or APS	Benefits described above PLUS: ▪ Option to review under a "Sustainable Communities Environmental Assessment" • An Initial Study is prepared identifying significant or potentially significant impacts. • Where the lead agency determines that cumulative impacts have been addressed and mitigated in SCS/APS, they will not be "considerable." • Off-site alternatives do not need to be addressed. • Deferential review standard – the burden of proof for legal challenge is on the petitioner/plaintiff.
Sustainable Communities Project (PRC Sections 21155, 21155.1)	▪ Everything for Transit Priority Project PLUS: ▪ Served by existing utilities ▪ Does not contain wetlands or riparian areas ▪ Does not have significant value as a wildlife habitat and does not harm any protected species ▪ Not on the Cortese List ▪ Not on developed open space ▪ No impacts to historic resources	Exempt from CEQA

Project Designation	Qualifications	Streamlining Benefits
	▪ No risks from hazardous substances ▪ No wildfire, seismic, flood, public health risk ▪ 15% more energy-efficient than CA requirements and 25% more water-efficient than average for community ▪ No more than 8 acres ▪ No more than 200 units ▪ No building greater than 75,000 square feet ▪ No net loss of affordable housing ▪ Compatible with surrounding industrial uses ▪ Within ½-mile of rail/ferry or ¼-mile of high-quality bus line ▪ Meets minimum affordable housing requirements as prescribed in SB 375 OR in-lieu fee paid OR 5 acres of open space per 1,000 residents provided	

Streamlining for Infill Projects

Following up on SB 375, the legislature in 2011 adopted SB 226, directing that new CEQA Guidelines be developed to streamline the approval of infill projects consistent with either a sustainable communities strategy or an alternative planning strategy. (PRC Section21094.5.) CEQA Guidelines Section 15183.3 and new CEQA Guidelines Appendixes M and N were adopted in 2013 under this legislation. Eligible projects include those located in an urban area, consistent with the general land use, density, intensity, and policies of the SCS, and that satisfy the performance standards outlined in CEQA Guidelines Appendix M. Performance standards vary by project type and range from project size standards to proximity to transit to project design standards, for example.

Streamlining Under SB 743

SB 743 (2013) (PRC Section 21099 and 21155.4) created an exemption from CEQA for certain projects that are consistent with a specific plan. (PRC Section 21155.4.) A specific plan is a local plan that contains specific policies and development regulations for a defined area. The exemption applies if a project meets all of the following criteria:

1. It is a residential, employment center, or mixed use project;
2. It is located within a transit priority area (TPA);
3. The project is consistent with a specific plan for which an environmental impact report was certified; and
4. It is consistent with an adopted SCS or alternative planning strategy.

The exemption cannot be applied if the project would cause new or worse significant environmental impacts compared to what was analyzed in the environmental impact report for the specific plan. In that case, supplemental environmental review must be prepared.

SB 743 also specifies that aesthetic and parking impacts of residential, mixed-use residential, or employment center uses on infill sites within a TPA shall not be considered significant effects on the environment. (PRC Section 21099(d).)

Other Tiering Opportunities

Finally, for all other types of projects proposed to be carried out or approved by a lead agency within the region, the lead agency may utilize this EIR for the purposes of other allowed CEQA tiering if consistent with the analysis and conditions stated herein. (PRC Sections 21068.5, 21093-21094, CEQA Guidelines 15152, 15385.) Tiering is the process by which general matters and environmental effects in an EIR prepared for a policy, plan, program or ordinance are relied upon by a narrower second-tier or site-specific EIR. (PRC Section 21068.5.) Moreover, by tiering from this EIR (if certified by SACOG), a later tiered EIR would not be required to examine effects that (1) were mitigated or avoided in this EIR, (2) were examined at a sufficient level of detail in this EIR to enable those effects to be mitigated or avoided by site specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project, or (3) constitute cumulative effects and were adequately addressed in this EIR. (PRC Section 21094.)

Chapter 3—Aesthetics

3.1 Introduction

This chapter describes existing conditions (environmental and regulatory) and assesses the potential aesthetic impacts that may result from implementation of the proposed 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this EIR chapter is based on review of existing and available information and is regional in scope. Data, analysis and findings provided in this chapter were considered and prepared at a programmatic level. SACOG did not receive comments on aesthetics in response to the Notice of Preparation (NOP). Appendix PD-1 includes all NOP comments received.

3.2 Environmental Setting

The *aesthetic value* of an area is a measure of its *visual character* and *quality*, combined with the viewer response to the area (FWHA 1983). Visual character relates to the natural and built landscape features and the relationships that exist within the landscape. Form, line, color, and texture are the basic components used to describe visual character. Visual quality is the overall impression that an individual viewer retains after driving though, walking though, or flying over an area.

While aesthetic value is subjective, it is typically included as a criterion for evaluating those elements that contribute to the quality that distinguishes an area. Most communities identify scenic resources as an important asset, although what is considered "scenic" may vary according to its environmental setting.

Scenic resources can include natural open spaces, topographic formations, landscapes, and man-made features. Scenic resources can be maintained and enhanced in such a way as to continue promoting a positive image in the future. Many people associate natural landforms and landscapes with scenic resources, such as woodlands, lakes, rivers, streams, mountains, habitat, and agricultural lands. Scenic resources can also include urban open spaces and the built environment. Examples of these include urban parks, trails, and nature centers, archaeological and historical resources, and man-made structures like buildings and bridges with unique architectural features. Tall buildings may also provide excellent views of scenic resources beyond the urban core. Typically, jurisdictions identify *designated scenic resources*, or some similar classification system, to identify priority scenic resources. These designated scenic resources are a focus of this chapter.

It is useful to think of scenic resources in terms of "typical views" seen throughout the plan area of the proposed MTP/SCS because scenic resources are rarely encountered in isolation. A typical view may include several types of scenic resources, including both natural and man-made elements. The typical views seen in the plan area of the proposed MTP/SCS are outlined in the following paragraphs.

It is important to distinguish between public and private views. Private views are views seen from privately-owned land and are typically viewed by individual viewers, including views from private residences. Public views are experienced by the collective public. These include views of significant landscape features such as the Tower Bridge or the Sutter Buttes, as seen from public viewing spaces, not privately-owned properties. CEQA (Public Resources Code [PRC] Section 21000 et seq.) case law has established that only public views, not private views, are protected under CEQA. For example, in *Association for Protection etc. Values v. City of Ukiah (1991) 2 Cal. App. 4th 720 [3 Cal. Rptr.2d 488]* the court determined that "we must differentiate between adverse impacts upon particular persons and adverse impacts upon the environment of persons in general. As recognized by the court in *Topanga Beach Renters Assn. v. Department of General Services (1976) 58 Cal.App.3d 188 [129 Cal.Rptr. 739]:* '[A]ll government activity has some direct or indirect adverse effect on some persons. The issue is not whether [the project] will adversely affect particular persons but whether [the project] will adversely affect the environment of persons in general.'" Therefore, for this analysis, only public views are considered when analyzing the visual impacts of implementing the proposed MTP/SCS.

3.2.1 Typical Views of the MTP/SCS Plan Area's Visual Resources

Aesthetically significant features occur in a diverse array of environments within the plan area of the proposed MTP/SCS, ranging in character from urban centers to rural agricultural lands to natural woodlands. The extraordinary range of visual features is afforded by the mixture of climate, topography, and flora and fauna found in the natural environment, and the diversity of style, composition, and distribution of the built environment.

A *viewshed* is defined as all of the surface area within the field of view of an observer that is visible from a particular location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail) (FHWA 1983). The term is commonly used to describe the *extent* of a scenic resource. The extent of a viewshed can be limited by a number of intervening elements, including trees and other vegetation, built structures, or topography such as hills and mountains. Because of the regional scale of the plan area of the proposed MTP/SCS, generalized landscape units, instead of specific viewsheds, were assessed.

The bulk of the plan area of the proposed MTP/SCS is located in the Central Valley, a basin bounded by the Sierra Nevada Range to the east and the Coastal Ranges to the west. Topography in the Central Valley is generally flat, with relief anywhere from slightly below sea level near the Sacramento-San Joaquin River Delta to over 2,150 feet above sea level at the Sutter Buttes. The network of rivers that drain the Sierra Nevada ranges and Central Valley are a key aesthetic component of the natural landscape.

The plan area of the proposed MTP/SCS is characterized by many growth areas of varied size. The visual quality of these growth areas is enhanced by man-made elements. Examples of the visually significant built environment may include bridges or overpasses, architecturally appealing buildings or groups of buildings, landscaped freeways, and locations where historic events occurred. Transportation facilities also influence the visual quality of the region. In urban areas, roadway rights-of-way comprise 20 to 30 percent of total land area. Even for people not using the transportation system at a particular time, or who do not use certain modes of travel, transportation systems are usually a dominant element of the visual environment.

AGRICULTURAL LAND AND PASTURE

Agricultural lands are a dominant visual landscape in the region, with approximately 1.5 million acres of agricultural land in the plan area of the proposed MTP/SCS. Agriculture is an important industry for the region, but unlike most industrial uses, agricultural lands contribute to the scenic value of the region and offer a break from the urban landscape by providing an open space visual resource. The main agricultural uses in the region include annual crops, orchards, vineyards, dairies, and grazing land. Adding additional character to the visual landscape are agricultural buildings including barns, processing facilities, storage areas, and farm housing.

DOWNTOWN SACRAMENTO AND WEST SACRAMENTO SKYLINE AND HISTORIC DOWNTOWNS

The City of Sacramento skyline is distinguished by high-rise office towers ranging from 15-30 stories. Sacramento's downtown skyline is visible from miles around the city, including from eastbound Interstate 80 (I-80) on the Sacramento-Yolo Causeway, from westbound I-80 above the city of Roseville, from northbound Interstate 5 (I-5) between Elk Grove and Sacramento, from westbound U.S. Highway 50 (U.S. 50), and from southbound I-5 and Highway 99 (State Route [SR] 99) north of the downtown area. Distinctive features of the skyline include the Wells Fargo Center, the California Environmental Protection Agency building, the Robert T. Matsui Federal Courthouse, the Capitol Mall building, the U.S. Bank Tower, the U.S. Bank Plaza, the Renaissance Tower, the Golden 1 Center, and, by night, the blue light of the Esquire Plaza. Distinctive features in the West Sacramento skyline include the Ziggurat and the CalSTRS Building. Portions of a few additional buildings within West Sacramento, including the Raley Field baseball stadium, the Habitat and the Parks Modern Buildings are visible from the Sacramento riverfront between the Tower Bridge and Pioneer Bridge (City of Sacramento 2017).

The downtown Sacramento skyline, in particular, is dominated by highly reflective glass buildings, which can produce glare. Glare results when a light source directly in the field of vision is brighter than the eye can comfortably accept. Squinting or turning away from a light source is an indication of glare. The presence of a bright light in an otherwise dark setting may be distracting or annoying, referred to as discomfort glare, or it may diminish the ability to see other objects in the darkened environment, referred to as disability glare.

These downtown areas are also brighter than the outlying residential areas due to the amount of artificial light associated with exterior building lights, street lights, roadways, and parking area lights. Particularly in the Downtown Sacramento area, strings of white LED market lists were installed in December 2015 to illuminate both sides of K Street (Downtown Sacramento Partnership 2019).

Ambient light levels or illumination is measured in foot-candles. The unit is defined as the amount of illumination the inside surface of a 1-foot radius sphere would be receiving if there were a uniform point source of one candela in the exact center of the sphere. Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments; however, these lights have the potential to produce light that falls beyond the intended area, referred to as light trespass. Light trespass can adversely affect light sensitive uses, such as residential neighborhoods at nighttime.

Tall buildings, such as those found in downtown areas, can cast shadows on surrounding land uses. Density increases the prevalence of shadow. In some instances, shadow can be beneficial, providing

shade during hot, summer days. However, shadow can also cause discomfort and public hazard when it occurs sporadically, in conjunction with glare and light.

Many jurisdictions in the plan area of the proposed MTP/SCS have distinctive downtown "Main Street" districts that preserve important historical sites and protect the visual character of the area. Downtown Placerville and Historic Downtown Folsom are two of the most well-known examples, though this landscape type can be found in nearly all jurisdictions in the region.

LANDMARKS

In addition to the linear infrastructure systems, there are also discrete man-made elements within the landscape that serve as landmarks that inform the character of an area. The term landmark here is used to refer to a man-made structure (e.g., monument, building, other structure) that is easily recognizable. Through their scale and/or distinctive design, landmarks become reference points that provide structure and orientation, and contribute to the design character of the surrounding area and create a unique sense of place. The State Capitol and Tower Bridge are two landmarks.

MOUNTAIN VIEWS

Most of the plan area of the proposed MTP/SCS resides in the Central Valley, characterized by flat, open expanses with uninterrupted views of open space. However, mountains surround the plan area of the proposed MTP/SCS on the eastern and western borders. The Sierra Nevada Range makes up the eastern boundary of the plan area of the proposed MTP/SCS, covering vast areas of eastern Placer and El Dorado counties. The South Coast Ranges make up the western border of the plan area of the proposed MTP/SCS. Both mountain ranges are visible from many parts of the region due to the flat topography of the Central Valley.

Among the most unique topographic features within the plan area of the proposed MTP/SCS are the Sutter Buttes. Approximately 75 square miles in size, the Buttes are remnants of eroded volcanic lava domes. Rising 2,000 feet above the valley floor, the Buttes create a dramatic viewshed when juxtaposed to the vast open farmland in the surrounding area.

OPEN SPACE, HABITAT, AND PROTECTED LANDS

Open space provides visual relief from urbanized areas, including views for residents, motorists, and pedestrians. Open space is comprised of both designated open space and "de facto" open space. Designated open space is land that has been left undeveloped by regulation or policy. Such land uses could include national, state, and local parks and recreation areas, nature preserves, protected habitat, and areas protected by conservation easements. Other land is deemed open space not by design, but because the land is not involved in a commercial use, or in the case of farmed land, the land is consumed by a commercial use that also contributes to the visual quality of the area.

Preserves, parks, and forests make up most of the designated open space in the region. These areas are maintained by a combination of local jurisdictions, state agencies, federal agencies, and private foundations. Much of the forested land in Placer and El Dorado counties falls under federal protection.

Open space provides wildlife habitat and can also provide opportunities for other facilities and services such as passive recreation, pedestrian and bike access, storm drainage, floodwater conveyance, utility infrastructure, and land use buffering.

RESIDENTIAL AND COMMERCIAL NEIGHBORHOODS

Scattered throughout the plan area of the proposed MTP/SCS in most counties and cities are residential and commercial landscapes featuring single-family neighborhoods, low-rise multi-family complexes, low-rise office parks, and low-scale shopping areas. As compared to commercial areas, the areas where residential buildings dominate the viewshed are generally areas with more green space, less artificial light (meaning darker nighttime views), and less glare due to the limited amount of reflective materials. The retail centers generally consist of large concrete buildings located adjacent to the street frontage as well as set back with large, sparsely landscaped surface parking areas. These retail centers often produce artificial nighttime lighting both in the parking lots and on the storefronts and signs. Many of the storefronts consist primarily of glass or other reflective surfaces that can create glare.

TRANSPORTATION NETWORK

Many views of the plan area of the proposed MTP/SCS are from the Interstate and U.S. freeway routes that intersect the city. The freeways themselves are also a visual component of the city landscape. I-5 and SR 99 are the two main north/south routes. I-5 is a major truck route within the State of California and runs through the downtown area, adjacent to the Sacramento River. SR 99 is a four- to six-lane highway extending south from Business 80 (Capital City Freeway) to South Sacramento, Elk Grove, and the Central Valley. I-80, U.S. 50, and Capital City Freeway are the main east/west routes through the region. I-80 extends from the San Francisco Bay area, through West Sacramento and Sacramento and over the Sierra Nevada. U.S. 50 extends from downtown Sacramento to the Tahoe Basin. The Capital City Freeway extends northeast from downtown Sacramento through Sacramento County, connecting to I-80 just east of Watt Avenue.

Streets in the plan area of the proposed MTP/SCS range from multi-lane, signalized roads to narrow tree-lined streets in residential neighborhoods. Roadways include minor arterials, collector streets that connect residential uses to major street systems, local streets that serve the interior of a neighborhood, and alleys that provide delivery access to businesses located along the transportation system. Many streets have sidewalks and bicycle facilities included in the transportation right-of-way.

Rural areas tend to have narrower roads that cater to agricultural and goods movement traffic. Some rural roads in town centers or residential areas may have sidewalks and bicycle facilities, though widened shoulders are the more common pedestrian and bicyclist treatments. In more remote rural areas, the transportation system includes gravel or dirt roads.

California's Scenic Highway Program was created by the Legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. The program is administered by the California Department of Transportation (Caltrans) and regulated at the local level. The program consists of laws, incentives, and guidelines intended to protect the scenic, historic, and recreational resources within designated scenic highway corridors. A scenic highway corridor is defined by Caltrans as the area of land

generally adjacent to and visible from the highway (Caltrans 2019). It is usually limited by topography and/or jurisdictional boundaries.

Table 3-1 and Figure 3-1 show officially designated and eligible state scenic highways in the plan area of the proposed MTP/SCS. These designations represent recognition of the high scenic and visual qualities of these corridors. Specific design guidelines are required, and the officially designated corridors must be reviewed when improvements are proposed to determine if the highway will remain eligible for designation as a scenic corridor. The requirements for designation as a state scenic highway are explained Section 3.3.2 – State Regulations. Locally-designated scenic roads and routes are also present throughout the plan area of the proposed MTP/SCS and are subject to local laws and regulations as described in Section 3.3.3 – Local Regulations.

Table 3-1
Official and Eligible State Scenic Highways

County	Highway	Location	Designation
El Dorado	State Route 49 U.S. 50	Countywide East of Placerville to State Route 89	Eligible State Scenic Highway Official State Scenic Highway
Placer	State Route 49 Interstate 80 State Route 89	Countywide State Route 20 to Truckee Countywide	Eligible State Scenic Highway Eligible State Scenic Highway Eligible State Scenic Highway
Sacramento	State Route 160	Along the Sacramento River	Official State Scenic Highway
Sutter	None	None	None
Yolo	State Route 16 SR 128	From State Route 20 at north County border to west of Interstate 505 at Capay Countywide	Eligible State Scenic Highway Eligible State Scenic Highway
Yuba	State Route 49	From the Yuba County Line to the Yuba Summit	Eligible State Scenic Highway

Source: Caltrans 2019

In addition to roadways and freeways, rail lines also contribute to the region's urban form. The region has two types of rail systems, light rail and heavy rail, and each has different implications for urban form and community character. The primary function of the heavy gauge rail system is to transport freight cargo, but there is also some regional passenger rail on this system via Amtrak. Given their cargo function, the heavy rail lines tend to be located adjacent to industrial and warehouse type uses whose design character is utilitarian and scaled for train and truck traffic and large-scale storage and manufacturing operations; but heavy rail lines are also found in urbanized core areas throughout the region.

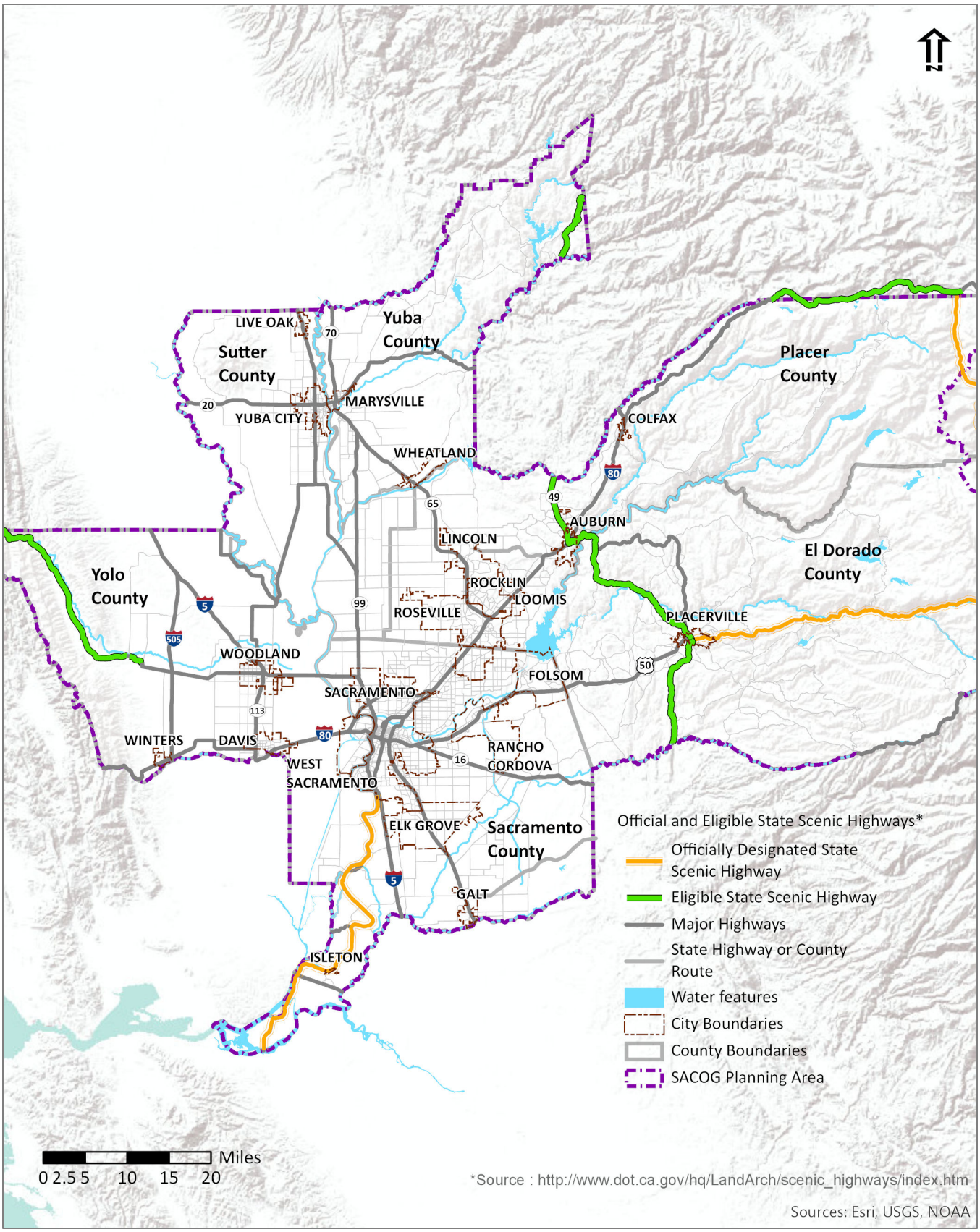


Figure 3-1
Official and Eligible State Scenic Highways in the Plan Area of the Proposed MTP/SCS

Light rail systems, on the other hand, are for public transit and are intended to attract people and to serve populated destinations. The light rail system is designed to be more integral to the urban fabric, typically located in urban downtowns where light rail lines are located in the center of active urban streets. Thus, unlike the heavy rail lines that create edges and barriers within the community, light rail lines can function as magnets or focal features around which development and people congregate. The high-density, mixed-use development in the Sacramento downtown area is indicative of light rail's potential to influence urban form and character, while the outlying stations tend to be stand-alone elements that are not yet fully integrated with, and have not yet significantly influenced, the surrounding development patterns. Refer to Chapter 16 – Transportation for a more thorough discussion and exhibits of the region's existing transportation network.

Trees and Forested Lands

The plan area of the proposed MTP/SCS is home to many native tree types, such as valley oak, blue oak, interior live oak, cottonwood, sycamore, and willow. Eastern Placer and El Dorado counties are almost completely forested, as is the northern tip of Yuba County. The plan area of the proposed MTP/SCS also includes numerous non-native species, which are generally used for ornamental value, shade production, resistance to particular pests, or proven adaptation to the urban environment. These trees also provide a visual break from the uniformity of urban development and can usually be found in housing developments, neighborhoods, and along local streets. The SACOG region includes urban forest areas with extensive tree landscaping throughout significant portions of most communities.

Waterways

The plan area of the proposed MTP/SCS is home to a number of rivers, lakes, creeks, and man-made waterways. These include the American and Feather rivers, both of which converge on the Sacramento River, the state's largest and longest river, for eventual outlet into the San Francisco Bay.

The American River Parkway borders the American River on both the northern and southern sides. The Parkway is one of Sacramento County's most visited and distinctive natural visual features and provides several scenic based activities (i.e., picnic sites, guided natural and historic tours, bird watching, and hiking). Portions of the American River are protected under the Wild and Scenic Rivers Act, including the segment from the confluence with the Sacramento River to the Nimbus Dam. Other protected segments of the American River lie outside the plan area of the proposed MTP/SCS. See Section 3.3.1 – Federal Regulations for more information about the Wild and Scenic Rivers Act.

Other major rivers in the plan area of the proposed MTP/SCS include:

- Bear River in southern Yuba County and northern Placer County;
- Cache Creek, entering Yolo County from the northwest and roughly paralleling SR 16;
- Cosumnes River in southern El Dorado and Sacramento counties;
- Feather River creating the eastern border of Sutter County and western border of Yuba County;
- Honcut Creek, a tributary of the Feather River;

- Mokelumne River in the Delta region of Sacramento County;
- Putah Creek, forming the boundary between Yolo and Solano counties; and
- Rubicon River in Placer County; and Yuba River in central Yuba County.

The plan area of the proposed MTP/SCS also includes a number of small creeks and lakes. Figure 3-2 shows the major waterways in the plan area of the proposed MTP/SCS.

In addition to the region's natural waterways, several manmade waterways contribute to the visual landscape. Folsom Lake, a reservoir formed by Folsom Dam and constructed in 1955 to control the American River, is one such example. Located at the base of the Sierra foothills, the lake and recreation area offers opportunities for hiking, biking, running, camping, picnicking, horseback riding, water-skiing, and boating. The Sacramento Deep Water Ship Channel, a canal from the Port of Sacramento to the Sacramento River, is another example of a man-made waterway. It was completed by the U.S. Army Corps of Engineers in 1963.

3.3 Regulatory Setting

3.3.1 Federal Regulations

FIXING AMERICA'S SURFACE TRANSPORTATION AND MOVING AHEAD FOR PROGRESS IN THE 21ST CENTURY (MAP-21) ACTS

Under the FAST (Fixing America's Surface Transportation [Public Law 114-94]) Act and MAP-21 (Moving Ahead for Progress in the 21st Century Act [Public Law 112-141]), the U.S. Department of Transportation requires that metropolitan planning organizations, such as SACOG, prepare long-range regional transportation plans (RTPs) and update them every four years if they are in areas designated as "nonattainment" or "maintenance" for federal air quality standards. Prior to enactment of MAP-21, the primary federal requirements regarding RTPs were included in the metropolitan transportation planning rules—Title 23 CFR Part 450 and 49 CFR Part 613. The FAST Act and MAP-21 make a number of changes to the statutes that underpin these regulations. With respect to aesthetics, there are numerous provisions for improvements and changes to the implementation of transportation enhancement activities. These include a list of qualifying transportation enhancement activities, which include several items supportive of visual quality enhancement such as acquisition of scenic easements and scenic or historic sites, scenic or historic highway programs, landscaping or other scenic beautification, and control and removal of outdoor advertising, among others.

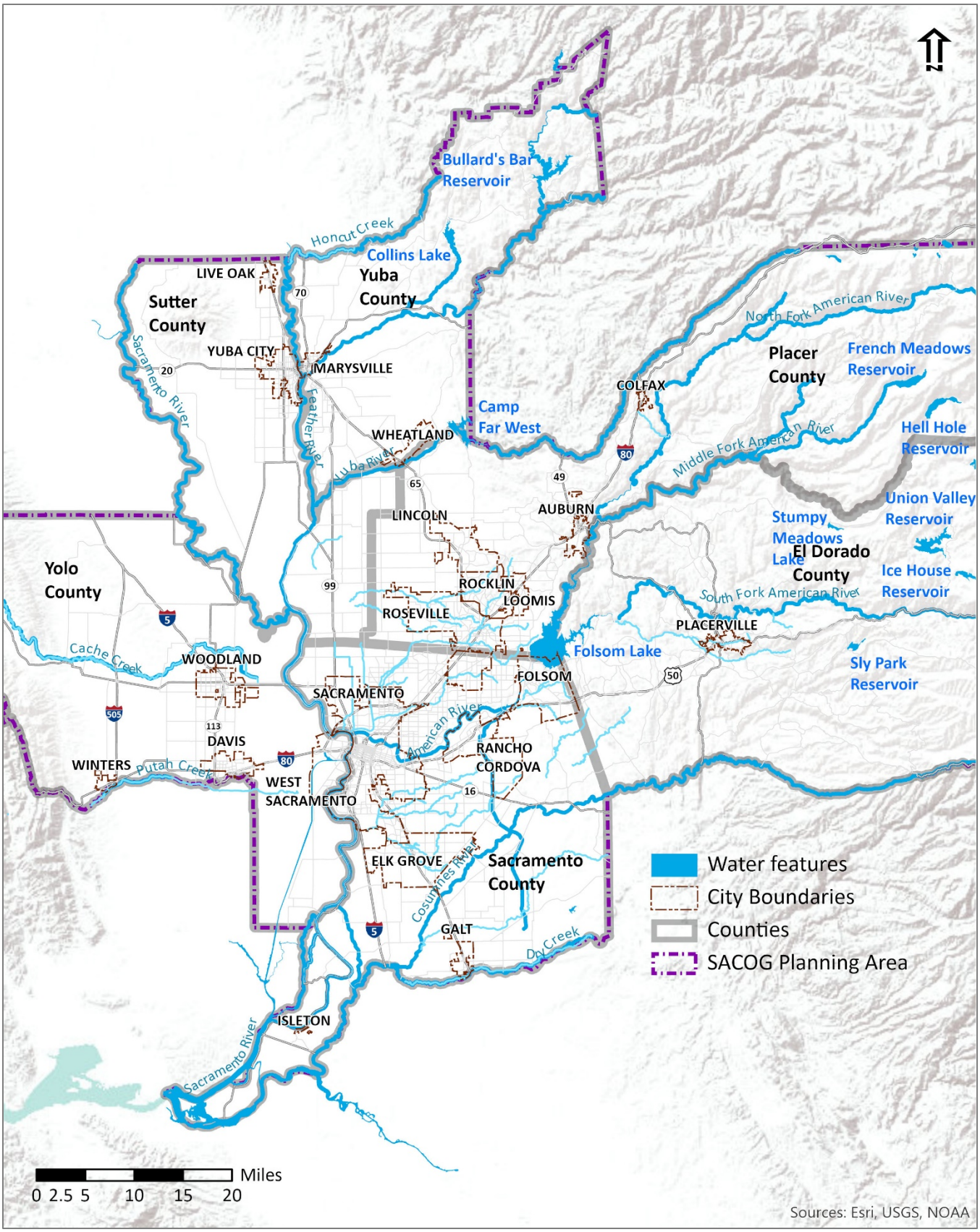


Figure 3-2
Waterways in the Plan Area of the Proposed MTP/SCS

WILD AND SCENIC RIVERS ACT

The Wild and Scenic Rivers Act of 1968 (16 U.S. Code Sections 1271–1287) consists of Public Law 90-542 (October 2, 1968) and amendments thereto. The Act established a method for providing federal protection for certain of the country's remaining free-flowing rivers, preserving them and their immediate environments for the use and enjoyment of present and future generations. Eligible rivers can be designated as Wild River Areas, Scenic River Areas, or Recreational River Areas. Recreational River Areas are "those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past." The Wild and Scenic Rivers Act, under Section 10, includes management direction for designated rivers. Section 10(a) states the following:

> *"...each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to protecting its aesthetic, scenic, historic, archaeologic, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area."*

UNITED STATES DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F)

Section 4(f) of the Department of Transportation Act of 1966 (49 U.S. Code Section 303) was enacted to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) requires a comprehensive evaluation of all environmental impacts resulting from federal-aid transportation projects administered by FHWA, Federal Transit Administration, and Federal Aviation Administration that involve the use-or interference with use-of the following types of land:

- public park lands;
- recreation areas;
- wildlife and waterfowl refuges; or
- publicly- or privately-owned historic properties of federal, state, or local significance.

This evaluation, called the Section 4(f) statement, must be sufficiently detailed to permit the U.S. Secretary of Transportation to determine that:

- there is no feasible and prudent alternative to the use of such land;
- the program includes all possible planning to minimize harm to any park, recreation area, wildlife and waterfowl refuge, or historic site that would result from the use of such lands; and
- if there is a feasible and prudent alternative, a proposed project using Section 4(f) lands cannot be approved by the Secretary; or if there is no feasible and prudent alternative, the proposed project must include all possible planning to minimize harm to the affected lands.

Detailed inventories of the locations and likely impacts on resources that fall into the Section 4(f) category are required in project-level environmental assessments.

In August 2005, Section 4(f) was amended to simplify the process for approval of projects that have only minimal impacts on lands protected by Section 4(f). Under the new provisions, the U.S. Secretary of Transportation may find such a minimal impact if consultation with the State Historic Preservation Officer results in a determination that a transportation project will have no adverse effect on the historic site or that there will be no historic properties affected by the proposed action. In such instances, analysis of avoidance alternatives is not required, and the Section 4(f) evaluation process is complete following consultation.

3.3.2 State Regulations

CALIFORNIA DEPARTMENT OF TRANSPORTATION SCENIC HIGHWAY PROGRAM

Caltrans Scenic Highway Program was created by the State legislature in 1963 to preserve and protect scenic highway corridors from change that would reduce the aesthetic value of lands adjacent to highways. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

State goals for scenic highways include the following:

1. preserve and enhance the unique visual, biological, and ecological resources of the Scenic Highway Corridor;
2. prevent and eliminate (when reasonably possible) conditions that detract from or compromise the quality of the aesthetic resources of the Scenic Highway Corridor;
3. encourage the development and maintenance of park and recreational facilities that contribute to the aesthetic quality of the Scenic Highway Corridor;
4. encourage preservation of historical landmarks adjacent to the Scenic Highway Corridor; and
5. encourage community civic groups to create programs that increase community interest in the visual assets of the Scenic Highway Corridor and facilitate the implementation of such programs.

To be included in the program, the highways proposed for designation must meet Caltrans' eligibility requirements and have visual merit. After it is determined that a proposed highway satisfies the qualifications for Scenic Highway designation, the local jurisdiction, with support of its citizens, must adopt a program to protect the scenic corridor. The five legislatively required standards for scenic highways are:

1. regulation of land use and density (i.e., density classifications and types of allowable land uses);
2. detailed land and site planning (i.e., permit or design review authority and regulations for the review of proposed developments);
3. prohibition of off-site outdoor advertising and control of on-site outdoor advertising;

4. careful attention to and control of earthmoving and landscaping (i.e., grading ordinances, grading permit requirements, design review authority, landscaping and vegetation requirement); and

5. the design and appearance of structures and equipment (i.e., placement of utility structures, microwave receptors, etc.).

The status of a state scenic highway changes from eligible to officially-designated when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives notification that the highway has been designated as a scenic highway.

CALTRANS ADOPT-A-HIGHWAY PROGRAM

To improve and maintain the visual quality of California highways, Caltrans administers the Adopt-a-Highway program, which was established in 1989. The program provides an avenue for individuals, organizations, or businesses to help maintain sections of roadside within California's State Highway System. Groups have the option to participate as volunteers or to hire a maintenance service provider to perform the work on their behalf. Adoptions usually span a two-mile stretch of roadside, and permits are issued for five-year periods. Since 1989, more than 120,000 California residents have kept 15,000 shoulder miles of state roadways clean by engaging in litter removal, tree and flower planting, graffiti removal, and vegetation removal.

OPEN SPACE EASEMENT ACT OF 1974

Cities and counties can use open space easements as a mechanism to preserve scenic resources, if they have adopted open-space plans, as provided by the Open Space Easement Act of 1974 (Government Code, Sections 51070–51097). According to this act, a city or county may acquire or approve an open-space easement through a variety of means, including use of public money.

CALIFORNIA CODE OF REGULATIONS TITLE 24 PART 6

The California Energy Code (14 CCR Section 6) creates standards in an effort to reduce energy consumption. The type of luminaries and the allowable wattage of certain outdoor lighting applications are regulated.

CAPITOL VIEW PROTECTION ACT

Chapter 2.8 of the Cal. Gov. Code includes the Capitol View Protection Act (Government Code Sections 8162.5–8162.9). These sections establish building height limits and setback requirements within a portion of downtown Sacramento surrounding the State Capitol and Capitol Park to preserve and enhance the visual prominence of the State Capitol, and character and scale of Capitol Park, as a unique cultural and open-space resource.

3.3.3 Local Regulations

CITY OF SACRAMENTO CAPITOL VIEW PROTECTION REQUIREMENTS

Title 17 of the Sacramento City Code includes the Capitol View Protection Requirements (17.216.860 C-3 zone). This section of the Sacramento City Code establishes building height limits, setback requirements, and parking alternatives within a portion of the Central Business District surrounding Capitol Park to provide visual protection to and from the Capitol building and Capitol Park (City of Sacramento n.d.).

SUTTER BUTTES OVERLAY ZONE ORDINANCE

The Sutter Buttes Overlay Zone (Chapter 15, Sutter County Zoning Code, Sections 1500–6010 through 1500–6040) reinforces and is coterminous with the Sutter Buttes Overlay in the Sutter County General Plan. The intent of the zone is to preserve the cultural, historic, geologic, and visual values of the Sutter Buttes. Structures within the Overlay Zone that are visible from public roads or adjacent residences are subject to development and siting standards that address landscaping, screening, grading, tree removal, roof areas and materials, building colors, roads and driveways, lighting, and other factors, and require approval of a zoning clearance. Specific development and siting standards are included in the ordinance for ridgelines (i.e., the crest of a ridge formed by a hillside/drainage divide), on hillsides (i.e., area either between a ridgeline and a valley floor or between ridgelines), and on the valley floor (i.e., consists of nearly level to gently sloping areas on alluvial fans).

CITY AND COUNTY GENERAL PLANS AND REGULATIONS

Policies to preserve and enhance the visual quality and aesthetic resources of developed and natural areas, including scenic roadways and routes, are often established in a jurisdiction's general plan and its implementing regulations. The value attributed to a visual resource is based on the characteristics and distinctiveness of the resource and the number of persons who view it. Vistas of undisturbed natural areas, unique or unusual features forming an important or dominant portion of a viewshed, and distant vistas offering relief from less attractive nearby features are frequently considered to be scenic resources. In some instances, a case-by-case determination of scenic value may be needed, but often there is agreement within the relevant community about which features are valued as scenic resources, and these values are reflected in the policies included in the general plan and its implementing regulations.

Local general plans and implementation regulations may include policies or provisions to:

- enhance the rural landscape;
- protect the rural night sky;
- preserve landmarks and icons;
- incorporate scenic elements into development;
- limit off-site advertising in scenic areas;
- place utilities underground;

- protect or enhance the quality of scenic roads or routes;
- promote sustainable design;
- reflect human-scale architecture;
- maintain and protect diverse established neighborhoods;
- promote mixed-use neighborhood centers;
- preserve natural waterways;
- maintain parks, forests, and other open space;
- encourage architectural design that creates a unique sense of place;
- preserve and create iconic buildings;
- provide appropriate transitions between land uses;
- encourage walking and biking;
- minimize obtrusive lighting; and
- avoid the creation of incompatible glare.

Local general plans are implemented by a variety of additional local plans and regulations that further achieve aesthetic goals and protect aesthetic resources. These include but are not limited to specific plans, area plans, zoning regulations, design requirements, design review programs, design guidelines, and park and open space plans.

3.4 Impacts and Mitigation Measures

3.4.1 Methods and Assumptions

This program-level analysis generally evaluates potential aesthetic impacts based on the location of the projected land use pattern and planned transportation network relative to the known distribution of existing aesthetic resources. This analysis evaluates impacts to scenic resources including scenic vistas, scenic resources along a state scenic highway, and visual character, as well as light, glare, and shadow impacts. By 2040, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. In general, existing conditions refers to conditions in the baseline year of 2016. The proposed MTP/SCS generally uses 2016 as the baseline because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline year for the proposed MTP/SCS. Exceptions to the 2016 baseline include the following:

- The most recent year for the State Scenic Highway Mapping System is 2019. Thus, 2019 data are used to provide the most accurate picture practically possible of the proposed MTP/SCS's impacts to state scenic highways.
- The remainder of the existing environmental setting for aesthetics reflects conditions in April 2019 when the NOP was published.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

The analysis of aesthetic impacts associated with the projected land use pattern assesses the amount of growth (population, housing, and employment) projected for the region, in each Community Type, and in the HFTAs by 2040 and how that growth might impact the aesthetic environment. The projected population and housing unit growth for the plan area of the proposed MTP/SCS in and of itself does not necessarily translate into adverse outcomes for the aesthetic environment. It is the siting and design of new development, in relation to existing development, that determines if the aesthetic environment would experience positive or negative impacts.

Although the proposed project sites within the plan area of the proposed MTP/SCS were not physically surveyed for this program-level review, a brief description of the types of typical views found within the region are discussed above. These typical views are used in the impact analyses rather than site-specific views, which are more appropriately considered in the context of future environmental documents prepared for specific transportation and/or development projects.

The proposed MTP/SCS includes different types of planned transportation improvements that would have different effects on the aesthetic environment. This analysis examines categories of planned transportation improvements in assessing the likely impacts of implementing the proposed MTP/SCS. For a full description of planned transportation improvements included in the proposed MTP/SCS, refer to Chapter 2 – Project Description.

Generally, with regard to aesthetic impacts, the greater the change from existing conditions, the more noticeable the change to the aesthetic environment. For example, the construction of a new roadway generally results in a greater amount of change to the existing aesthetic environment than the widening of an existing roadway. Likewise, greenfield development results in a greater amount of change to the existing aesthetic environment than infill development in an established community. Therefore, the general approach in this impacts analysis is to determine how implementation of the proposed MTP/SCS could potentially change the aesthetic environment from existing conditions and whether that change would have a potentially significant adverse effect based on the following criteria for determining significance.

The analysis assumes implementing agencies would ensure aesthetic resources are treated in accordance with applicable federal, state and local laws and regulations as part of project planning, design and engineering.

3.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

AES-1 Have a substantial adverse effect on a scenic vista.

AES-2 Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a state scenic highway.

AES-3 In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.

AES-4 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

AES-5 Cast shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.

AES-6 Result in construction impacts that would substantially adversely affect a scenic vista, substantially damage scenic resources along a state scenic highway, substantially degrade visual character or quality of public views in non-urban areas or conflict with applicable zoning and other regulations governing scenic quality in urbanized areas, create a new source of substantial light and glare with adverse effects on views, or cast shadows that cause a public hazard or substantially degrade the existing visual/aesthetic character.

3.4.3 Impacts and Mitigation Measures

IMPACT AES-1: HAVE A SUBSTANTIAL ADVERSE EFFECT ON A SCENIC VISTA.

Regional Impacts

The valuation of views as scenic is subjective, but there is often agreement within the community about which views are valued and should be protected. Effects on scenic vistas and from public viewing areas from the projected land use pattern and planned transportation improvements would be experienced regionally when projects directly alter an important built or natural feature or are placed in a location and have bulk and scale such that long-range views of important features are obscured. Examples of regionally important scenic vistas include the downtown Sacramento skyline, the Sierra Nevada Range, agricultural lands and pastures, trees and forested lands, landmarks such as the Capitol Building, and the Sutter Buttes. Development and redevelopment projects that would be similar in size, style or type (e.g., apartment buildings) to surroundings would typically not cause a substantial change to regional views of a scenic vista.

As discussed in Section 2.8.1, the 2040 growth forecast indicates that population in the plan area is expected to grow by 620,520 people, an increase of about 26 percent, between 2016 and 2040. The majority of the projected land use pattern would facilitate infill development, in accordance with the adopted land use plans and zoning ordinances of the cities and counties in the plan are of the proposed MTP/SCS. Compact, infill development proposed within urban areas would be generally consistent with the surrounding landscape and thus would generally not result in adverse effects on scenic vistas. Some proposed development in these areas, specifically tall and large development projects, could add bulk, scale, and massing that affects existing scenic vistas. In addition, the

projected land use pattern would also include development in non-urban and largely undeveloped areas, which would generally consist of new low- to medium-density development on vacant parcels. Such development could be visually prominent from or have an adverse effect on existing scenic vistas. At the same time, constructing taller buildings at higher densities could provide new views of existing scenic vistas and contribute to the area's overall aesthetic value by introducing new architectural elements or otherwise improving views to the area's scenic vistas. Thus, the projected land use pattern has the potential for both beneficial and adverse effects to scenic vistas.

Some scenic vistas or areas, such as the American River or State Capitol, enjoy additional protections. Portions of the American River are protected under the Wild and Scenic Rivers Act, which protects the "aesthetic, scenic, historic, archaeologic, and scientific features" of the River. Views of the State Capitol are protected by the Capitol View Protection Ordinance of the City of Sacramento and Capitol View Protection Act in Government Code Sections 8162.5 – 8162.9.

Many local jurisdictions have general plan policies relating to the protection of scenic vistas. These policies may limit the amount or type of development in designated scenic corridors or require special design guidelines when developing in certain areas. However, because scenic vistas are protected differently among the various jurisdictions in the plan area of the proposed MTP/SCS, it is possible that implementation of the proposed MTP/SCS would block or have substantial adverse effects on scenic vistas.

Therefore, the impacts on scenic vistas from implementation of the projected land use pattern of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-1. Mitigation is required. Mitigation Measure AES-1 is described below.

In urbanized areas, where the majority of planned transportation improvements would occur, roadway and other transportation improvements would not have an impact on scenic vistas at the regional level. Transportation infrastructure is already a dominant feature of the urban landscape, and improvements to existing facilities would not result in a significantly altered viewshed. In developing areas, where transportation infrastructure is less prevalent, implementation of the proposed MTP/SCS could open up new views of scenic vistas by allowing travelers to gain new vantage points of scenic vistas and landscape features. For instance, bicycle improvements, especially Class I bicycle paths, may create new views of scenic views previously unavailable. However, above-grade transportation infrastructure, such as bridges and overpasses in undeveloped areas, could introduce mass and scale that would block existing views from existing roadways, bicycle paths, and pedestrian facilities. Transit improvements are also proposed under the MTP/SCS, mostly within urban areas. Transit service improvement such as increasing service on existing fixed routes and express bus lines would take place within areas already developed for transit and thus would not block views. Regional transit development such as expansion of light rail is proposed largely within urban areas, surrounded by existing high-density housing and employment development. As such, it is not expected that expansion of rail would result in adverse impacts on scenic vistas. Thus, planned transportation improvements have the potential for both beneficial and adverse effects to scenic vistas.

Each jurisdiction addresses the protection of scenic vistas resources differently based on local views and community values. For this reason, it is possible that implementation of the proposed MTP/SCS transportation could result in blocked views of scenic vistas.

Therefore, the impacts on scenic vistas from implementation of the planned transportation improvements of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-1. Mitigation is required. Mitigation Measure AES-1 is described below.

Localized Impacts

Center, Corridor, and Established Communities
Because Center and Corridor Communities and Established Communities are already urbanized and built out, future development under the projected land use pattern would generally blend in with existing commercial and residential development and would not likely change the typical views found in these areas. However, increased densities planned in these communities means that growth would occur vertically not horizontally. This could block existing public views to scenic vistas. At the same time, constructing taller buildings at higher densities could provide new views of existing scenic vistas and contribute to the area's overall aesthetic value by introducing new architectural elements or otherwise improving views to the area's scenic vistas. Development implemented as a result of the proposed MTP/SCS would comply with local policies related to protection of scenic vistas. However, because project-level details, such as height and massing of future development, as well as their locations in relation to scenic vistas, are not known at this time, projects under the proposed MTP/SCS could result in substantial adverse effects to scenic vistas.

Therefore, the impacts on scenic vistas related to implementation of the projected land use pattern of the proposed MTP/SCS in Center and Corridor Communities and Established Communities are considered potentially significant (PS) for Impact AES-1. Mitigation is required. Mitigation Measure AES-1 is described below.

By 2040 a variety of planned transportation improvements would occur in Center and Corridor Communities and Established Communities, including new transit, non-motorized, and roadway projects in addition to ongoing improvements to transit operations and roadway maintenance. Most of the roadway, bicycle, and pedestrian infrastructure projects are improvements to existing facilities that would not substantially alter the aesthetic environment or block existing scenic vistas. Transportation infrastructure is already a dominant feature of the landscape in Center and Corridor Communities and Established Communities. Planned transportation improvements to existing infrastructure are unlikely to alter views significantly from existing conditions.

However, there are specific projects that could have significant impacts on scenic vistas in Centers and Corridor Communities. These projects involve crossings over the American River, the only river within the plan area of the proposed MTP/SCS protected by the Wild and Scenic Rivers Act. There are two planned transportation improvements that cross the American River. The first American River crossing would add lanes to the State Route 51 crossing of the river including a new bicycle and pedestrian crossing. The second would construct a multi-modal river crossing over the American River, connecting downtown Sacramento with South Natomas. These projects could open up new views of the river, but these projects have not yet undergone environmental review or design, and it is possible that they would affect existing scenic vistas.

Another consideration is the construction of sound walls, which could block ground-level scenic vistas. Sound walls are often constructed as a mitigation measure for noise impacts related to freeway and other major roadway improvement projects. They also can mitigate for toxic air contaminants and provide additional project security. In some cases, well-designed decorative sound

walls can improve the aesthetic environment of a freeway or major roadway by adding an element of visual interest to the surrounding transportation infrastructure.

Transit projects would consist of increased fixed route bus service, new light rail extensions and increased service on existing lines, new streetcar service, increased express bus service to downtown Sacramento, new transit operations' facilities, and system operational improvements. Most planned transportation improvements would involve improvements to existing service that operates on existing rights-of-way. Such improvements would not block scenic vistas.

The impacts on scenic vistas related to planned transportation improvements near river crossings from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact AES-1. Mitigation is required. Mitigation Measures AES-1 and AES-2 are described below. However, because no new river crossings are planned in Established Communities, the impacts on scenic vistas from implementation of the planned transportation improvements of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-1.

Developing Communities

Developing Communities have some existing development on the fringes of Established Communities, but for the most part, they are presently undeveloped. Development within Developing Communities would consist of predominantly large-lot single-family and small-lot single-family housing, although some attached units would be developed as well. As such, implementation of the projected land use pattern of the proposed MTP/SCS could result in the conversion of previously undeveloped land to urban uses in such a way that scenic vistas could likely be affected. Therefore, the impacts on scenic vistas from implementation of the projected land use pattern of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-1. Mitigation is required. Mitigation Measure AES-1 is described below.

Implementation of the proposed MTP/SCS would result in various planned transportation improvements throughout Developing Communities. However, Developing Communities would not necessarily see the same mix of planned transportation improvements as Center and Corridor Communities and Established Communities. Developing Communities would have relatively more road widening projects and newly constructed road projects to serve the new residential and employment developments that would be built by 2040. These areas would experience road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure under existing condition, these projects would not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service would be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure would be similarly phased in over the life of the MTP/SCS.

Because Developing Communities do not have as much existing transportation infrastructure as other Community Types, the construction of new planned transportation improvements including new transit service could possibly block scenic vistas. Another consideration is the construction of sound walls, which could block ground-level panoramic views. Sound walls are often constructed as a mitigation measure for noise impacts related to freeway and other major roadway improvement projects. They also can buffer surrounding land uses from air pollutants and provide additional

project security. In some cases, well-designed decorative sound walls can improve the aesthetic environment of a freeway or major roadway by adding an element of visual interest to the surrounding transportation infrastructure.

The impacts on scenic vistas from implementation of the planned transportation improvements of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-1. Mitigation is required. Mitigation Measure AES-1 is described below.

Rural Residential Communities
Rural Residential Communities are generally surrounded by open space, forested lands, and agricultural lands. They may have a variety of scenic vistas capturing many different types of typical views. Because the projected land use growth in this community type is modest, it is unlikely that scenic vistas would be changed substantially from existing conditions. Views from individual properties may be blocked, but because of the low-density makeup of Rural Residential Communities, it is unlikely that public views would be significantly altered from existing conditions.

Therefore, the impacts on scenic vistas from implementation of the projected land use pattern of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AES-1. No mitigation is required.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile and farm traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS would result in the construction of roadway improvements including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service. Although these projects would add a new visual element to the landscape, the limited number of anticipated projects would not likely block scenic vistas, as these types of transportation improvements typically occur at-grade.

Implementation of the proposed MTP/SCS would result in the construction of roadway improvements within the Rural Residential Communities, with the focus on road maintenance and rehabilitation, safety projects and limited new or widened roadways or freeway improvements. Because most planned transportation improvements would involve improvements to existing service that operates within existing rights-of-way, such improvements would generally not block scenic vistas or views of significant landscape features.

Therefore, the impacts on scenic vistas from implementation of the planned transportation improvements of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AES-1. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. For this reason, the impacts on scenic vistas related to implementation of the projected land use pattern of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-1. No mitigation is required.

The focus for planned transportation improvements in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Because of the low-density makeup of these areas and the limited number of projects, implementation of the proposed MTP/SCS would not likely affect scenic vistas, as these types of planned transportation improvements typically occur at-grade.

Therefore, the impacts on scenic vistas related to implementation of the planned transportation improvements of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-1. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County and Yolo County High Frequency Transit Areas
Similar to Center and Corridor Communities and Established Communities, the HFTAs are already urbanized. The projected land use pattern would facilitate higher-density infill development. The fact that the HFTAs are already urbanized means that future development would blend in with existing commercial and residential development and would not likely change the typical views found in these areas. However, increasing the intensity/density in urbanized areas would mean that the growth would occur vertically rather than horizontally. This could block scenic vistas. At the same time, constructing taller buildings at higher densities could provide new views of existing scenic vistas. Thus, implementation of the projected land use pattern in HFTAs has the potential for both beneficial and adverse effects to scenic vistas.

The impacts on scenic vistas from implementation of the projected land use pattern of the proposed MTP/SCS in the HFTAs are considered potentially significant (PS) for Impact AES-1. Mitigation Measure AES-1 is described below. If the project meets the criteria outlined in Senate Bill (SB) 743 it could be exempt from evaluating aesthetic impacts.

The HFTAs would see a variety of transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service would include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. Because most of these transportation improvements would be modifications to existing infrastructure, it is unlikely that implementation of the proposed MTP/SCS would block scenic vistas or views of other scenic vistas from public viewing areas.

However, there are specific projects that could have significant impacts on scenic vistas in the Sacramento County HFTAs. In general, projects that cross rivers have more potential to block scenic vistas that other types of planned transportation improvements because they occur above-grade, whereas most other planned transportation improvements occur at-grade. There are two planned transportation improvements that involve crossings over the American River, the only river within the plan area of the proposed MTP/SCS protected by the Wild and Scenic Rivers Act. The first American River crossing would add HOV lanes to I-5 from the I-5/I-80 interchange to downtown Sacramento. The second would construct a multi-modal river crossing over the American River, connecting downtown Sacramento with South Natomas. However, a river crossing

could also open up new views of the river. These projects have not yet undergone environmental or design review, but it is possible that they would have some impact on scenic vistas.

The impacts on scenic vistas from implementation of the planned transportation improvements involving river crossings from implementation of the proposed MTP/SCS in the Sacramento County HFTAs are considered potentially significant (PS) for Impact AES-1. Mitigation is required. Mitigation Measures AES-1 and AES-2 are described below.

The impacts on scenic vistas related to planned transportation improvements that do not include river crossings from the implementation of the proposed MTP/SCS in the Placer County and Yolo County HFTAs are considered less than significant (LS) for Impact AES-1. No mitigation required.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project-level would reduce the impacts on scenic vistas, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AES-1: Protect public views of important scenic vistas, scenic resources along state scenic highways, and visual character and quality.

The implementing agency shall protect public views of important scenic vistas, scenic resources, and visual character and quality by taking the following (or equivalent) actions:

- requiring that the scale and massing of new development in higher-density areas provide appropriate transitions in building height and bulk that are sensitive to the physical and visual character of adjoining neighborhoods that have lower development intensities and building heights;
- ensuring building heights stepped back from sensitive adjoining uses to maintain appropriate transitions in scale and to protect scenic vistas;
- avoiding electric towers, solar power facilities, wind power facilities, communication transmission facilities and/or above ground lines along scenic roadways and routes, to the maximum feasible extent;
- prohibiting projects and activities that would obscure, detract from, or negatively affect the quality of views from designated scenic roadways or scenic highways; and
- complying with other local general plan policies and regulations related to the protection of public views of important scenic vistas, scenic resources along a state scenic highway, and visual character and quality.

Mitigation Measure AES-2: Design river crossings to minimize aesthetic and visual impacts to the greatest feasible extent.

The implementing agency shall design river crossings to protect public views of important scenic vistas, scenic resources along a state scenic highway, and visual character and quality. Such design elements could include:

- designing the facility with aesthetics and dimensions which are architecturally pleasing and contextually appropriate for the adjacent neighborhoods;
- designing the facility to not exceed or expand the capacity of the approach roadway; and
- prohibiting design features that obscure, detract from, or negatively affect the quality of views from public viewing areas.

SIGNIFICANCE AFTER MITIGATION

As noted in Chapter 1 – Introduction, SB 743 eliminates the need to evaluate aesthetic impacts of a project if it is 1) a residential, mixed-use residential, or employment center project; 2) located on an infill site within a transit priority area.; and 3) does not impact historic or cultural resources. For projects that meet these criteria, the impacts to the aesthetic environment would be considered exempt from this analysis.

If the implementing agency adopts these mitigation measures, Impact AES-1 would be reduced to a less than significant (LS) level. Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact AES-1 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT AES-2: SUBSTANTIALLY DAMAGE SCENIC RESOURCES, INCLUDING, BUT NOT LIMITED TO, TREES, ROCK OUTCROPPINGS, AND HISTORIC BUILDINGS ALONG A STATE SCENIC HIGHWAY.

Regional Impacts

Effects on scenic resources including along a state scenic highway from the projected land use pattern and planned transportation improvements would be experienced regionally when projects directly alter an important built or natural feature such as trees, rock outcroppings, and historic buildings along a state scenic highway or are placed in a location and have bulk and scale such that views of these features are obscured. As discussed in Section 3.3.2, nearby official state scenic highways include U.S. 50, east of Placerville to State Route 89, and State Route 160 along the Sacramento River. Eligible state scenic highways in the plan area of the proposed MTP/SCS include State Route 49 throughout the county of El Dorado County, State Route 16, from State Route 20 at the north of the County of Yolo to west of Interstate 505 at Capay, and State Route 49 from the Yuba County line to the Yuba Summit.

As discussed in Section 2.8.1, the 2040 growth forecast indicates that population in the plan area is expected to grow by 620,520 people, an increase of about 26 percent, between 2016 and 2040. The majority of development under the projected land use pattern would occur as infill development, in accordance with the adopted land use plans and zoning ordinances of the cities and counties in the proposed MTP/SCS area. Compact, infill development proposed within urban areas would be generally consistent with the surrounding landscape and thus would generally not result in result in visual changes within a state scenic highway that would substantially damage scenic resources. However, in the majority of development proposed in non-urban areas, new low- to medium-

density development would occur on vacant parcels and thus would not result in visual changes within a state scenic highway that would substantially damage scenic resources.

Regional development and redevelopment projects that would be located within the viewshed of official state scenic highways or obstruct views from official state scenic highways could result in damage to scenic resources within state scenic highways, if they add significant bulk, mass, and scale to the areas. As such, implementation of the proposed MTP/SCS could result in the conversion of previously undeveloped land in such a way that views from state scenic highways could be affected. At the same time, constructing taller buildings at higher densities could provide new views of existing trees, rock outcroppings, and historic buildings along state scenic highways. Thus, the projected land use pattern has the potential for both beneficial and adverse effects to scenic resources along a scenic highway.

Development along officially designated and eligible state scenic highway corridors is unlikely to result in developmental changes that would damage scenic resources, such as trees, rock outcroppings, and historic buildings, largely due to Corridor Protection Programs that safeguard scenic corridors from encroaching development. The following text from the Caltrans Scenic Highway Program website illustrates the protections provided by a Corridor Protection Program.

"When a city or county nominates an eligible scenic highway for official designation, it must identify and define the scenic corridor of the highway. Scenic corridors consist of land that is visible from the highway right of way, and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries. The city or county must also adopt ordinances, zoning and/or planning policies to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. They should be written in sufficient detail to avoid broad discretionary interpretation and demonstrate a concise strategy to effectively maintain the scenic character of the corridor. These ordinances and/or policies make up the Corridor Protection Program." (Caltrans 2011).

In addition to Caltrans' regulations, many local jurisdictions have their own general plan policies relating to the protection of scenic resources. These policies may limit the amount or type of development in designated scenic corridors or require special design guidelines when developing in certain areas. However, because scenic resources are protected differently among the various jurisdictions in the plan area of the proposed MTP/SCSs and because two official scenic highways and five eligible scenic highways existing within the plan area of the proposed MTP/SCS, it is possible that implementation of the proposed MTP/SCS could still damage scenic resources, through potential obstruction of views from scenic highways.

Therefore, the impacts on scenic resources along a state scenic highway from implementation of the projected land use pattern of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-2. Mitigation is required. Mitigation Measure AES-3 is described below.

The proposed MTP/SCS contains three projects on official state scenic highways. One project is a bridge replacement, and the other two involve road widening and intersection improvements. These projects would occur along the already-developed highways and this would not result in substantial change to the existing transportation infrastructure. As such, they are unlikely to have significant impacts on the surrounding views. Additional transportation-related projects proposed, such as

bicycle paths and other roadway improvements would not occur within or be visible from state scenic highways. However, bicycle improvements, especially Class I bicycle paths, may create new views of scenic resources previously unavailable Transit improvements are also proposed under the MTP/SCS, mostly within urban areas. Transit service improvement as such as increasing service on existing fixed routes and express bus lines would take place within areas already developed for transit and thus would not result in damage to scenic resources along a state scenic highway. Regional transit development such as expansion of rail is proposed largely within urban areas, surrounded by high-density housing and employment development. As such, it is not expected that expansion of rail would result in damage to scenic resources along a state scenic highway. Further, as discussed above, most jurisdictions have general plan policies and associated regulations, in addition to Caltrans' regulations, relating to the protection of scenic resources.

Therefore, the impacts on scenic resources from implementation of the planned transportation improvements of the proposed MTP/SCS at the regional level have the potential for both beneficial and adverse effects. Because the proposed MTP/SCS contains three projects along official state scenic highway with the potential for adverse effects, this impact is considered to be potentially significant (PS) for Impact AES-2. Mitigation is required. Mitigation Measure AES-3 is described below.

Localized Impacts

Center and Corridor and Established Communities
Similar to localized impacts under Impact AES-2, because Center and Corridor Communities and Established Communities are already urbanized and built out, future development would blend in with existing commercial and residential development and would not likely result in visual changes along a state scenic highway that would substantially damage scenic resources. However, increasing the density in urbanized areas means that growth would occur vertically rather than horizontally. If these projects are located along scenic highways, this could damage scenic resources or create visual contrast between the project and existing conditions. At the same time, constructing taller buildings at higher densities could provide new views of existing trees, rock outcroppings, and historic buildings along state scenic highways. Further, cities and counties in the plan area of the proposed MTP/SCS also have policies (e.g., General Plan), regulations (e.g., zoning), and other guidance (e.g., design guidelines), that control the size and scale of new development to maintain visual compatibility with the natural and built environments. Developments implemented as a result of the proposed MTP/SCS would need to comply with these local policies. However, because not all scenic resources along a scenic highway are protected by local policies, implementation of the proposed MTP/SCS could damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a state scenic highway. Thus, the projected land use pattern has the potential for both beneficial and adverse effects to scenic resources along a scenic highway.

Therefore, the impacts on scenic highways from implementation of the projected land use pattern of the proposed MTP/SCS in Center and Corridor Communities and Established Communities are considered potentially significant (PS) for Impact AES-2. Mitigation is required. Mitigation Measure AES-3 is described below.

Center and Corridor Communities and Established Communities would see a variety of transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway

widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Most of the roadway, bicycle, and pedestrian infrastructure projects are improvements to existing facilities that would not result in visual changes along a state scenic highway that would substantially damage scenic resources. Further, some planned transportation improvements could result in beneficial effects to scenic resources along scenic highways. For instance, bicycle improvements, especially Class I bicycle paths, may create new views of scenic views previously unavailable. Transportation infrastructure is already a dominant feature of the landscape in Center and Corridor Communities and Established Communities. Making improvements to that infrastructure is unlikely to alter views along a state scenic highway that would substantially damage scenic resources.

Two planned transportation improvements would occur on officially designated state scenic highway corridors within both Established and Developing Communities. One project, in Placer County, would include widening Highway 49 from Luther Road to Nevada Street. The other project involves extending Combellack Road in Placerville near Highway 49. These projects could have substantial adverse effects on scenic resources along a scenic highway through alteration of an important built or natural feature such as trees, rock outcroppings, and historic buildings along a state scenic highway or by being placed in a location and have bulk and scale such that views of these features are obscured. Similar to development under the projected land use pattern, planned transportation improvements would comply with local policies protecting visual resources. However, because not all scenic resources along a scenic highway are protected by local policies, implementation of the planned transportation improvements of the proposed MTP/SCS could damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a state scenic highway.

Therefore, the impacts on scenic resources along a state scenic highway from implementation of the planned transportation improvements of the proposed MTP/SCS in Center and Corridor Communities and Established Communities are considered potentially significant (PS) for Impact AES-2. Mitigation is required. Mitigation Measure AES-3 is described below.

Developing Communities

The growth described in Chapter 2 – Project Description could damage scenic resources or create visual contrast between the project and existing conditions. Developing Communities have some existing development on the fringes of Established Communities, but for the most part, they are presently undeveloped. Implementation of the proposed MTP/SCS could result in the conversion of previously undeveloped land to urban uses in such a way that views from state scenic highways could be affected. At the same time, constructing taller buildings at higher densities could provide new views of existing trees, rock outcroppings, and historic buildings along state scenic highways. Thus, the projected land use pattern has the potential for both beneficial and adverse effects to scenic resources along a scenic highway.

Cities and counties in the plan area of the proposed MTP/SCS also have policies (e.g., General Plan), regulations (e.g., zoning), and other guidance (e.g., design guidelines), that control the size and scale of land development to maintain visual compatibility with the natural and built environments. Nonetheless, the impacts on scenic resources along a state scenic highway from implementation of the projected land use pattern of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-2. Mitigation is required. Mitigation Measure AES-3 is described below.

Implementation of the proposed MTP/SCS would result in the construction of various transportation improvement projects throughout Developing Communities. However, Developing Communities would not necessarily see the same mix of planned transportation improvements as Center and Corridor Communities and Established Communities. Developing Communities would see more road widening projects and newly constructed road projects to serve the new residential and employment developments that would be built by 2040. These areas would see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects would not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service would be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure would be similarly phased in over the life of the MTP/SCS. In Developing Communities, where transportation infrastructure is less prevalent, implementation of the proposed MTP/SCS could open up new views of scenic resources along a scenic highway by allowing travelers to gain new vantage points of these scenic resources. For instance, bicycle improvements, especially Class I bicycle paths, may create new views of scenic views previously unavailable. However, above-grade transportation infrastructure, such as bridges and overpasses in undeveloped areas, could introduce mass and scale that would block existing views from existing roadways, bicycle paths, and pedestrian facilities. As such, transportation improvements have the potential for both beneficial and adverse effects to scenic resources along a scenic highway.

Two planned transportation improvements would occur on officially designated state scenic highway corridors within both Established and Developing Communities. One project, in Placer County, would include widening Highway 49 from Luther Road to Nevada Street. The other project involves extending Combellack Road in Placerville near Highway 49.

These projects could have substantial adverse effects on the visual character of land adjacent to designated scenic highways or highways eligible for designation. Similar to the projected land use pattern, planned transportation improvements would need to comply with local policies protecting visual resources. However, because not all scenic resources along a scenic highway are protected by local policies, implementation of the proposed MTP/SCS could damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a state scenic highway.

The impacts on scenic resources along a state scenic highway related to transportation improvements near river crossings from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-2. Mitigation is required. Mitigation Measure AES-3 is described below.

Rural Residential Communities

Rural Residential Communities are surrounded by open space, forested lands, and agricultural lands. They have a variety of panoramic views capturing many different types of typical views. Because the growth in this community type is modest, it is unlikely that panoramic views or views of significant landscape features or landforms would be changed substantially from existing conditions. Nonetheless, if future projects are located along scenic highways, the proposed MTP/SCS has the potential to damage scenic resources or create visual contrast between the project and existing conditions. At the same time, constructing taller buildings at higher densities could provide new views of existing scenic resources and contribute to the area's overall aesthetic value by introducing new architectural elements or otherwise improving views to the area's scenic resources, as seen from

scenic highways. Thus, the projected land use pattern has the potential for both beneficial and adverse effects to scenic resources along a scenic highway.

Therefore, the impacts on scenic resources along a state scenic highway related to implementation of the projected land use pattern of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AES-2. Mitigation is required. Mitigation Measure AES-3 is described below.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile and farm traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS would result in the construction of roadway improvements including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. In Rural Residential Communities, where transportation infrastructure is less prevalent, implementation of the proposed MTP/SCS could open up new views of scenic resources along a scenic highway by allowing travelers to gain new vantage points of these scenic resources. For instance, bicycle improvements, especially Class I bicycle paths, may create new views of scenic resources previously unavailable. However, above-grade transportation infrastructure, such as bridges and overpasses in undeveloped areas, could introduce mass and scale that would block existing views from existing roadways, bicycle paths, and pedestrian facilities. No planned transportation improvements would occur on officially designated state scenic highway corridors within any Rural Residential Communities. Therefore, the impacts on scenic resources along a state scenic highway from implementation of the planned transportation improvements of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AES-2. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040.

Because the proposed MTP/SCS does not forecast any development in these areas, the impacts on scenic resources along a state scenic highway from implementation of the projected land use pattern of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-2. No mitigation is required.

The focus for planned transportation improvements in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Because of the low-density makeup of these areas and the limited number of projects, implementation of the proposed MTP/SCS would not likely affect scenic resources within scenic highways. No planned transportation improvements would occur on officially designated state scenic highway corridors within Lands Not Identified for Development. Therefore, the impacts on scenic resources along a state scenic highway related to implementation of the planned transportation improvements of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-2. No mitigation is required.

High Frequency Transit Areas Area Impacts

Placer County, Sacramento County and Yolo County High Frequency Transit Areas
If located along a scenic highway, the type of growth outlined in Chapter 2 – Project Description could damage scenic resources along a scenic highway. As in Center and Corridor Communities and Established Communities, the HFTAs are already urbanized. The projected land use pattern would facilitate higher-density infill development. The fact that the HFTAs are already urbanized means that future development would blend in with existing commercial and residential development and would likely not result in visual changes along a state scenic highway that would substantially damage scenic resources. However, increasing the intensity/density in urbanized areas would mean that the growth would occur vertically rather than horizontally. These projects, if located along scenic highways, would potentially damage scenic resources.

Therefore, impacts on scenic resources along a state scenic highway from implementation of the projected land use pattern of the proposed MTP/SCS in the HFTAs are considered potentially significant (PS) for Impact AES-2. Mitigation is required. Mitigation Measure AES-3 is described below. If the project meets the criteria outlined in SB 743 it could be exempt from evaluating aesthetic impacts.

The HFTAs would see a variety of transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service would include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. Because most of these transportation improvements would be modifications to existing infrastructure, it is unlikely that implementation of the proposed MTP/SCS would result in impacts to scenic resources along a state scenic highway. There are no planned transportation improvement projects on officially designated scenic highway corridors in the Sacramento County HFTAs. However, although unlikely, depending on the location of future projects, impacts to scenic resources along a state scenic highway could occur.

Thus, the impacts on scenic resources along a state scenic highway from implementation of the planned transportation improvements of the proposed MTP/SCS in HFTAs are considered potentially significant (PS) for Impact AES-2. Mitigation is required. Mitigation Measure AES-3 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measures at a project-level would reduce the impacts to aesthetic resources related to visual character, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AES-3: Implement Mitigation Measure AES-1.

SIGNIFICANCE AFTER MITIGATION

As noted in Chapter 1 – Introduction, SB 743 eliminates the need to evaluate aesthetic impacts of a project if it is 1) a residential, mixed-use residential, or employment center project; 2) located on an infill site within a transit priority area.; and 3) does not impact historic or cultural resources. For projects that meet these criteria, the impacts to the aesthetic environment would be considered exempt from this analysis.

If the implementing agency adopts this mitigation measure, Impact AES-2 would be reduced to a less than significant (LS) level. Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact AES-2 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT AES-3: IN NON-URBANIZED AREAS, SUBSTANTIALLY DEGRADE THE EXISTING VISUAL CHARACTER OR QUALITY OF PUBLIC VIEWS OF THE SITE AND ITS SURROUNDINGS? (PUBLIC VIEWS ARE THOSE THAT ARE EXPERIENCED FROM PUBLICLY ACCESSIBLE VANTAGE POINTS.) IF THE PROJECT IS IN AN URBANIZED AREA, WOULD THE PROJECT CONFLICT WITH APPLICABLE ZONING AND OTHER REGULATIONS GOVERNING SCENIC QUALITY?

Regional Impacts

Effects on visual character and quality of public views of project sites and their surroundings from the projected land use pattern and planned transportation improvements would be experienced regionally when projects directly alter the existing visual character or quality of an area or are placed in a location and add prominent bulk and scale such that existing visual of character is compromised. Development and redevelopment projects that would be similar in size, style or type (e.g., apartment buildings) to surroundings would typically not cause a substantial change to existing visual character and quality of public views of project sites and their surroundings.

As discussed in Section 2.8.1, the 2040 growth forecast indicates that population in the plan area is expected to grow by 620,520 people, an increase of about 26 percent, between 2016 and 2040. The majority of development under the projected land use pattern would occur as infill development, in accordance with the adopted land use plans and zoning ordinances of the cities and counties in the plan area of the proposed MTP/SCS. Infill development is generally aesthetically beneficial at the regional scale, as it occurs in existing urbanized areas already designated for and receiving growth and can reduce pressures for growth in undeveloped and/or agricultural and rural areas. For development within urbanized areas, local jurisdictions in the plan area of the proposed MTP/SCS require that development projects comply with existing zoning and other applicable regulations, including those governing scenic quality before issuing permits and approvals to land use projects. Because local jurisdictions in the plan area of the proposed MTP/SCS require that development projects in urbanized areas comply with existing zoning and other applicable regulations, including those governing scenic quality, before issuing permits and, infill development in urban areas is not expected to conflict with zoning for scenic quality. For projects proposing to streamline

environmental review, lead agencies must conduct project-level analysis for each project to analyze whether projects occurring within urbanized areas would be conflict with applicable zoning and other regulations governing scenic quality.

The introduction of proposed low- to medium-density development in largely undeveloped, non-urbanized areas would add bulk, scale, and massing in areas that are non-urbanized, which could be visually prominent compared to the existing landscape. Thus, this could degrade existing visual character and/or quality of public views in non-urbanized areas. However, as discussed above, many local jurisdictions have general plan policies and associated regulations governing the protection of visual character and quality. These policies may limit the amount or type of development in public view corridors or require special design guidelines to maintain or enhance existing visual character and quality. Development in less developed, non-urbanized areas in the region is likely to introduce new typical views to areas that were previously undeveloped. Depending on the design and siting of new developments in non-urbanized areas, these new views could potentially result in degradation of existing visual character or quality of public views of sites and their surroundings. For development within urbanized areas, local jurisdictions in the plan area of the proposed MTP/SCS require that development projects comply with existing zoning and other applicable regulations, including those governing scenic quality before issuing permits and approvals.

Therefore, in non-urbanized areas the impacts on visual character or quality of public views of sites and their surroundings from implementation of the projected land use pattern of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-3. Mitigation is required. Mitigation Measure AES-4 is described below.

In urbanized areas, because jurisdictions would require compliance with applicable zoning and other regulations, impacts to scenic quality would be less than significant (LS) for Impact AES-3. No mitigation is required.

The proposed MTP/SCS includes planned transportation improvements to existing facilities such as road widenings, intersection or interchange improvements, intelligent transportation system upgrades, turn pockets, HOV lanes, auxiliary and transition lanes, and other improvements. The remainder of the budget would pay for new road and highway facilities such as roads serving new development or high-growth areas, new interchanges, road extensions, and new river crossings to connect development across the region's major rivers. Other planned transportation improvements include improvements to the existing transit system and some expansion of rail, and bicycle path improvements.

Substantial road, highway, transit, and bicycle improvements under the proposed MTP/SCS would occur in areas where transportation infrastructure is already a dominant feature of the landscape. Such planned transportation improvements would not likely degrade the existing visual character or quality of the region because transportation infrastructure is already a dominant feature of the landscape in those areas. In less developed, non-urbanized areas of the region, adding new transportation infrastructure would add an element of urban character to previously undeveloped lands. Depending on design and siting details, the planned transportation improvements can result in degradation of existing visual character or quality of public views of the site and its surroundings in non-urbanized areas. In urbanized areas, the planned transportation improvements under the proposed MTP/SCS would be visually consistent with the existing visual environment and are unlikely to conflict with applicable zoning and other regulations governing scenic quality.

Therefore, in non-urbanized areas, the impacts on visual character or quality of public views of the site and its surroundings from implementation of the planned transportation improvements of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-3. Mitigation is required. Mitigation Measure AES-4 is described below.

In urbanized areas, because jurisdictions would require compliance with applicable zoning and other regulations, impacts at the regional level are less than significant (LS) for Impact AES-3. No mitigation is required.

Localized Impacts

Center and Corridor Communities and Established Communities
Because Center and Corridor Communities and Established Communities are already built out, development would mostly be infill development, increasing the density in downtowns, central business districts, and main streets throughout the plan area of the proposed MTP/SCS. These areas are considered urbanized areas. Local jurisdictions in the plan area of the proposed MTP/SCS require that development projects comply with existing zoning and other applicable regulations including those governing scenic quality before issuing permits and approvals. As such, it is expected that land use development and redevelopment projects would not conflict with applicable zoning and other regulations governing scenic quality.

Therefore, the impacts on conflicts with applicable zoning and other regulations governing scenic quality from implementation of the projected land use pattern of the proposed MTP/SCS in Center and Corridor Communities and Established Communities are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Center and Corridor Communities and Established Communities would see a variety of transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Most of the roadway, bicycle, and pedestrian infrastructure projects are improvements to existing facilities and would be visually consistent with existing aesthetic conditions in urbanized areas. Thus, these projects are unlikely to conflict with applicable zoning and other regulations governing scenic quality.

Transit projects would consist of increased fixed route bus service, new light rail extensions and increased service on existing lines, new streetcar service, increased express bus services, new transit operations' facilities, and system operational improvements. Most planned transportation improvements would involve improvements to existing service that operates on existing rights-of-way, where transit infrastructure is a dominant feature of the landscape. These projects would be visually consistent with existing aesthetic conditions in urbanized areas and are unlikely to conflict with applicable zoning and other regulations governing scenic quality.

Therefore, the impacts on conflicts with applicable zoning and other regulations governing scenic quality from implementation of the planned transportation improvements of the proposed MTP/SCS in Center and Corridor Communities and Established Communities are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Developing Communities
Currently, typical views in Developing Communities include some developed features like low-density office and commercial development and some transportation infrastructure, but views in this Community Type are still largely dominated by residential uses, and often look out over vacant land and open space. Developing communities are generally in non-urbanized areas. The type of development described in Chapter 2 - Project Description could significantly change typical views in this Community Type by adding a visual element of urban character to an existing rural or open space. New employment centers and housing units would not necessarily be built at the same density as Established Communities or Center and Corridor Communities, but development in Developing Communities would increase the density and intensity of the existing suburban or rural environment. Therefore, implementation of the proposed MTP/SCS could result in the conversion of previously undeveloped land to urban uses in such a way as to substantially degrade the existing visual character or quality of public views of sites and their surroundings for this Community Type.

Therefore, the impacts on visual character or quality of public views of sites and their surroundings from implementation of the projected land use pattern of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-3. Mitigation is required. Mitigation Measure AES-4 is described below.

Implementation of the proposed MTP/SCS would result in the construction of various transportation improvement projects throughout Developing Communities, which are generally existing non-urbanized areas. However, Developing Communities would not necessarily see the same mix of planned transportation improvements as Center and Corridor Communities and Established Communities. Developing Communities would see more road widening projects and newly constructed road projects to serve the new residential and employment developments that would be built by 2040. These areas would see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects would not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit under existing conditions, but new transit service would be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure would be similarly phased in over the life of the proposed MTP/SCS.

Because Developing Communities do not have as much existing transportation infrastructure as other Community Types, the construction of planned transportation improvements would add views of transportation infrastructure to new areas that could degrade the visual character or quality of public views of the sites and their surroundings for this Community Type.

Therefore, the impacts on visual character or quality of public views of sites and their surroundings from implementation of the planned transportation improvements of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-3. Mitigation is required. Mitigation Measure AES-4 is described below.

Rural Residential Communities
Rural Residential Communities are non-urbanized areas surrounded by open space, forested lands, and agricultural lands. Their typical views include mostly natural elements with some views of residential and low-scale commercial areas and the transportation infrastructure serving those land uses. Implementation of the proposed MTP/SCS would result in minimal growth and development

in Rural Residential Communities relative to other community types. Specifically, these areas are expected to increase by about 2,790 housing units and 1,400 jobs, or around one percent of the regional growth projected in the proposed MTP/SCS. Nonetheless, development in this Community Type, such as housing units and employments centers could result in additional scale, mass, and bulk throughout this Community Type that generally consists of open space, forested lands, and agricultural lands. Therefore, depending on their design and locations, these types of projects could be visually prominent compared to the existing visual landscape of the area and thus could substantially degrade the existing visual character or quality of public views of sites and their surroundings.

Therefore, the impacts on visual character or quality of public views of sites and their surroundings related to the projected land use pattern in Rural Residential Communities are considered potentially (PS) for Impact AES-3. Mitigation is required. Mitigation Measure AES-4 is described below.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile and farm traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS would result in the construction of roadway improvements including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service. As with the projected land use pattern, planned transportation improvements are anticipated to follow the same pattern as existing transportation infrastructure. Most planned transportation improvements would involve improvements to existing infrastructure, but even the projects that add completely new roadways would not be substantially different from other transportation infrastructure visible throughout this Community Type.

Therefore, the impacts on visual character or quality of public views of sites and their surroundings related to implementation of the planned transportation improvements of the proposed MTP/SCS in Rural Residential Communities, are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this non-urbanized Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040.

Therefore, the impacts on visual character or quality of public views of sites and their surroundings from implementation of the projected land use pattern of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-3. No mitigation is required.

The focus for planned transportation improvements in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Because of the low-density, non-urbanized makeup of these areas and the limited number of projects being implemented, implementation of the proposed MTP/SCS are not likely to substantively degrade the visual character or quality of public views of sites and their surroundings in this Community Type at the local-level. These projects would be spread out over the entire region. Most planned transportation improvements would involve improvements to existing infrastructure, however the

projects that add completely new roadways would not be substantially different from other transportation infrastructure visible throughout this Community Type.

Therefore, the impacts on visual character or quality of public views of sites and their surroundings from implementation of the planned transportation improvements of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-3. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County and Yolo County High Frequency Transit Areas
The type of growth outlined in Chapter 2 – Project Description would likely not change the visual character or quality in the HFTAs. The HFTAs are urbanized areas that already contain primarily urban uses and are relatively compact. The additional housing units and jobs would increase the amount of infill development in the areas and increase the density in certain areas as well. However, local jurisdictions in the plan area of the proposed MTP/SCS require that development projects comply with existing zoning and other applicable regulations including those governing scenic quality before issuing permits and approvals. As such, it is expected that land use development and redevelopment projects would not conflict with applicable zoning and other regulations governing scenic quality.

Therefore, conflicts with applicable zoning and other regulations governing scenic quality are unlikely to occur in the HFTAs as a result of implementation of the projected land use pattern of the proposed MTP/SCS such that impacts are considered less than significant (LS) for Impact AES-3. No mitigation is required.

The HFTAs would see a variety of transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service would include increased frequency on local fixed route buses, but the majority of transit service increases would be commuter service to downtown Sacramento. These projects would be visually consistent with existing aesthetic conditions in the urbanized environment of the HFTAs and are unlikely to conflict with applicable zoning and other regulations governing scenic quality.

Therefore, conflicts with applicable zoning and other regulations governing scenic quality are unlikely to occur in the HFTAs as a result of the transportation improvements of the proposed MTP/SCS so impacts are considered less than significant (LS) for Impact AES-3. No mitigation is required.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measures at a project-level would reduce the impacts to aesthetic resources related to visual character, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AES-4: Design projects to be visually compatible with surrounding areas.

The implementing agency shall require measures that minimize contrasts in scale and massing between the project and surrounding natural forms and developments. Strategies to achieve this include:

- to the extent feasible, avoiding large cuts and fills when the visual environment (natural or urban) would be substantially disrupted;
- siting or designing projects to minimize their intrusion into important viewsheds;
- using contour grading to match surrounding terrain;
- developing transportation systems to be compatible with the surrounding environments (e.g., colors and materials of construction material; scale of improvements);
- avoiding the use of non-native landscaping; if exotic vegetation is used, it should be used as screening and landscaping that blends in and complements the natural landscape;
- protecting or replacing trees in the project area;
- using grading that blends with the adjacent landforms and topography;
- landscaping new slopes and embankments with compatible grasses, shrubs, and trees to soften cuts and edges; and
- designing new structures to be compatible in scale, mass, character, and architecture with existing structures.

SIGNIFICANCE AFTER MITIGATION

As noted in Chapter 1 – Introduction, SB 743 eliminates the need to evaluate aesthetic impacts of a project if it is 1) a residential, mixed-use residential, or employment center project; 2) located on an infill site within a transit priority area.; and 3) does not impact historic or cultural resources. For projects that meet these criteria the impacts to the aesthetic environment would be considered exempt from this analysis.

If the implementing agency adopts this mitigation measure, Impact AES-3 would be reduced to a less than significant (LS) level. Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact AES-3 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT AES-4: CREATE A NEW SOURCE OF SUBSTANTIAL LIGHT OR GLARE WHICH WOULD ADVERSELY AFFECT DAY OR NIGHTTIME VIEWS IN THE AREA.

Regional Impacts

Effects of light or glare would adversely affect day or nighttime views in the area when land use and transportation improvements introduce additional sources or substantial light and glare in areas where they were not prominent before, such as in non-urban areas. Development and

redevelopment projects within urban areas, where sources of substantial light and glare are already prominent, would not typically adversely affect day or nighttime views in the area.

As discussed in Section 2.8.1, the 2040 growth forecast indicates that population in the plan area is expected to grow by 620,520 people, an increase of about 26 percent, between 2016 and 2040. The majority of development under the projected land use pattern would occur as infill development, in accordance with the adopted land use plans and zoning ordinances of the cities and counties in the proposed MTP/SCS area. However, in the majority of development proposed in non-urban areas, new low- to medium-density development would occur on vacant parcels. Changes in land use under the proposed MTP/SCS could add additional sources of glare and light within the region. However, in portions of the region that are already built out, such increases would not introduce additional sources of substantial glare and light to the area because existing sources of glare and light are already a dominant feature of the landscape. In less developed areas of the region, where existing sources of glare and light are not as prevalent, new housing and employment developments could create new sources that add a significant amount of glare and light in an area. This is especially true in areas of the region where development might affect views of the night sky. Additional sources of light would generally be limited to the uses for which they are intended. In addition, many jurisdictions have general plan policies and other relevant regulations relating to the protection of night skies and the prevention of obtrusive lighting.

At the regional level, implementation of the proposed MTP/SCS would result in development beyond the existing urban footprint which could create additional sources of glare and light associated with lighting of structures and surrounding grounds. Because at buildout the projected land use pattern of the proposed MTP/SCS could result in 46,403 acres of new development, the increased amount of glare and light could result in a public hazard or substantially degrade the existing visual/aesthetic character or quality of an area.

Therefore, the impacts of glare and light from implementation of the projected land use pattern of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-4. Mitigation is required. Mitigation Measures AES-5, AES-6, and AES-7 are described below.

The planned improvements to existing roadways and highways would not significantly increase the amount of glare and light in an area, as these improvements would take place on existing facilities that have existing sources of glare and light. The marginal increases in glare and light from additional vehicle headlights, new reflective signage, new streetlights, new intersection control devices, and other improvements are less than significant when considered at the regional level.

Investments in new transportation facilities could increase the amount of glare and light in an area if additional vehicles and additional street lights, intersection control devices, reflective signage, and reflective roadway materials increase the total amount of illumination in an area in such a way as to cause a public hazard or degrade the existing visual character or quality. During the daytime, additional vehicles could increase the amount of glare in an area, and at night additional vehicle headlights could increase the amount of light in an area where previously no sources of transportation glare and light existed. Planned transportation improvements would be aligned with planned developments, which would help to reduce aesthetic impacts. However, planned transportation improvements could potentially introduce glare and light to areas where previously no sources of glare and light existed, resulting in new sources of substantial light and glare that could be considered substantial.

Implementation of the proposed MTP/SCS would result in the construction of 457 additional miles of Class I bicycle facilities and 1,130 miles of Class II bicycle lanes. Class I bicycle facilities are multi-use paths, built on a separate right-of-way, exclusively for bicycle, pedestrian, and other designated uses. These types of projects do not often affect levels of glare and light. There is some possibility that these types of projects could install safety lights that may slightly increase the amount of light in an area, but such increases would be minimal and provide safety enhancements that would not constitute a public hazard and be unlikely to result in degradation of the visual character of the area. Class II bicycle lanes are built within the automobile right-of-way. These types of projects may require additional striping or other distinguishing treatments. Depending on the materials used, such treatments may result in less-than-significant increases in glare and light. However, because these improvements are to be built within existing or future transportation rights-of-way, the roadways would already have existing sources of glare and light. The increases in glare and light from new Class II bicycle lanes would be minimal.

The additional bus and shuttle service described in Chapter 2 – Project Description would increase the number of transit vehicles on the transportation network at a given time and increase the area where buses can be seen on the transportation network. This could result in increased glare due to more reflective surfaces on the roads. However, the increased transit service could potentially reduce the number of single-occupant vehicles on the transportation system, thereby reducing overall glare on the transportation network. With the exception of a handful of rural transit routes, most areas served by transit are urbanized; bus transit runs on existing or future transportation rights-of-way, which contain existing sources of glare and light. The incremental increase in glare and light from additional bus and shuttle service is not expected to differ significantly from existing conditions.

As for light rail, increasing the number of route miles could increase the amount of glare and light in certain areas, especially where new stations are constructed. The proposed alignments for the Green Line light rail extension and Sacramento-West Sacramento transit connection are along urbanized corridors. The incremental increase in the amount of glare and light generated from increases in streetcar and light rail route miles are not expected to differ significantly from existing conditions.

While glare and light impacts associated with planned improvements to existing roadways and transit services would be minimal, the impacts of glare and light from implementation planned transportation improvements of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-4. At buildout the proposed MTP/SCS could result in 11,730 acres of new land converted for new planned transportation improvements, of which 1,323 acres are already addressed as part of the land conversion of the projected land use pattern. Mitigation is required. Mitigation Measures AES-5, AES-6, and AES-7 are described below.

Localized Impacts

Center and Corridor Communities

Development and redevelopment within Center and Corridor Communities could add new sources of glare and light. The compact, infill development planned in the proposed MTP/SCS generally creates higher levels of glare and light than less compact development because there are such a variety of uses in close proximity to one another. However, these areas generally already contain many existing sources of glare and light. The net increase in glare and light added from new, more compact development would be minimal and would not pose a public hazard or substantially

degrade the existing visual/aesthetic character or quality of an area, since glare and light are already a dominant feature of the landscape.

Therefore, the impacts on glare and light from implementation of the projected land use pattern of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AES-4. No mitigation is required.

Because Center and Corridor Communities are already urbanized, the incremental increases in glare and light associated with implementation of planned transportation improvements under the proposed MTP/SCS are considered less than significant when compared with existing sources of glare and light.

Therefore, the impacts on glare and light from implementation of the planned transportation improvements of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AES-4. No mitigation is required.

Established Communities

Development and redevelopment projects within Established Communities could add to existing glare and light in Established Communities but would likely not increase the overall glare and light in a significant way compared to existing conditions. As with Center and Corridor Communities, glare and light are already dominant features of the landscape, and the increase is not likely to cause a public hazard or degrade the visual character or quality of an area.

Therefore, the impacts on glare and light from implementation of the projected land use pattern of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-4. No mitigation is required.

Because Established Communities already contain a significant amount of glare and light associated with urban development within this Community Type, implementation of planned transportation improvements under the proposed MTP/SCS would not increase the amount of glare and light in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the Community Type.

Therefore, the impacts on glare and light from implementation of the planned transportation improvements of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-4. No mitigation is required.

Developing Communities

Development and redevelopment projects within Developing Communities could add to existing glare and light. Implementation of the proposed MTP/SCS could result in the conversion of previously undeveloped land to urban uses in such a way that the additional sources of glare and light would noticeably change the aesthetic environment. Unlike Center and Corridor Communities and Established Communities, where glare and light are already dominant features of the landscape, increased glare and light in Developing Communities could adversely affect day and nighttime views in this Community Type.

Therefore, the impacts on glare and light from implementation of the projected land use pattern of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-4. Mitigation is required. Mitigation Measures AES-5, AES-6 and AES-7 are described below.

Implementation of the proposed MTP/SCS would result in the construction of transportation improvement projects that could increase the amount of glare and light in the area. However, Developing Communities would not necessarily see the same mix of planned transportation improvements as Center and Corridor Communities and Established Communities. Developing Communities would see more road widening projects and newly constructed road projects to serve the new residential and employment developments that would be built by 2040. These areas would see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects would not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service would be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure would be similarly phased in over the life of the MTP/SCS.

Because Developing Communities do not have as much existing transportation infrastructure as other Community Types, the construction of new planned transportation improvements including new transit service would result in noticeable increases in glare and light that could adversely affect day and nighttime views in this Community Type.

Therefore, the impacts on glare and light from implementation of the planned transportation improvements of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-4. Mitigation is required. Mitigation Measures AES-5, AES-6 and AES-7 are described below.

Rural Residential Communities

Increased light and glare in Rural Residential Communities is anticipated to result in greater impacts to daytime and nighttime views than in other Community Types. In urbanized areas, existing sources of glare and light already obscure views of the night sky, but in Rural Residential Communities this is generally not the case.

Although Rural Residential Communities have been allocated the least amount of growth of the Community Types, implementation of the proposed MTP/SCS could result in the conversion of previously undeveloped land to urban uses in such a way that the additional sources of glare and light would noticeably change the aesthetic environment. Unlike Center and Corridor Communities and Established Communities, where glare and light are already dominant features of the landscape, increased glare and light in Rural Residential Communities could substantially degrade the existing visual/aesthetic character or quality of the Community Type, especially with regard to views of the night sky.

Therefore, the impacts on glare and light from implementation of the projected land use pattern of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AES-4. Mitigation is required. Mitigation Measures AES-5, AES-6 and AES-7 are described below.

Existing transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile and farm traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS would result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to

transit service. Implementation of the proposed MTP/SCS could result in new sources of glare and light, such as headlights from increased vehicle traffic and new streetlights and lighted road signs. Planned transportation improvements would be aligned with planned developments, which would help to reduce aesthetic impacts; however, such improvements could potentially introduce glare and light to areas where previously no sources of glare and light existed, which could result in a degradation of the visual environment.

Therefore, the impacts on glare and light from implementation of the planned transportation improvements of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AES-4. Mitigation is required. Mitigation Measures AES-5, AES-6 and AES-7 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040.

Because the proposed MTP/SCS does not forecast any land use development in these areas by 2040, the, impacts on glare and light from implementation of the projected land use pattern of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-4. No mitigation is required.

The focus for planned transportation improvements in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Planned transportation improvements would be aligned with planned developments, which would help to reduce adverse impacts from light and glare; however, such improvements could potentially introduce glare and light to areas where previously no sources of glare and light existed, which could result in adverse effect of day and nighttime views within this Community Type.

Therefore, the impacts on glare and light from implementation of the planned transportation improvements of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AES-4. Mitigation is required. Mitigation Measures AES-5, AES-6 and AES-7 are described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Development and redevelopment within HFTAs could add new sources of glare and light. The compact, infill development planned in the proposed MTP/SCS generally creates higher levels of glare and light than less compact development because there are such a variety of uses in close proximity to one another. However, HFTAs generally already contain many existing sources of glare and light. The net increase in glare and light added from new, more compact development would be minimal and would not pose a public hazard or substantially degrade the existing visual/aesthetic character or quality of an area, since glare and light are already a dominant feature of the landscape. Therefore, the impacts on glare and light from implementation of the projected land use pattern of the proposed MTP/SCS in HFTAs are considered less than significant (LS) for Impact AES-4. No mitigation is required.

Because HFTAs are already urbanized, the incremental increases in glare and light associated with implementation of planned transportation improvements under the proposed MTP/SCS are considered less than significant when compared with existing sources of glare and light. Therefore, the impacts on glare and light from implementation of the planned transportation improvements of the proposed MTP/SCS in HFTAs are considered less than significant (LS) for Impact AES-4. No mitigation is required.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measure(s) at a project level would reduce the impacts to aesthetics resources related to glare and light, and agencies with jurisdiction to adopt these measures should do so (Pub. Resources Code, Section 21081).

Mitigation Measure AES-5: Reduce sun glare resulting from implementation of planned transportation improvements.

The implementing agency shall require measures that would minimize and control glare from planned transportation improvements through the adoption of project design features that reduce glare. These features include:

- planting trees along transportation corridors to reduce glare from the sun;
- creating tree wells in existing sidewalks;
- adding trees in new curb extensions and traffic circles;
- adding trees to public parks and greenways; and
- landscaping off-street parking areas, loading areas, and service areas.

Tree species planted to comply with this measure shall provide significant shade cover when mature. Utilities shall be installed underground along these routes wherever feasible to allow trees to grow and provide shade without need for severe pruning.

Mitigation Measure AES-6: Design structures to avoid or reduce impacts resulting from glare.

The implementing agency shall require measures that would minimize and control glare from implementation of the projected land use pattern and planned transportation improvements through the adoption of project design features that reduce glare. These features include:

- limiting the use of reflective materials, such as metal;
- using non-reflective material, such as paint, vegetative screening, matte finish coatings, and masonry;
- screening parking areas by using vegetation or trees;
- using low-reflective glass; and
- complying with applicable general plan policies or local controls related to glare.

Mitigation Measure AES-7: Design lighting to minimize light trespass and glare.

The implementing agency shall require measures that would impose lighting standards that ensure that minimum safety and security needs are addressed and minimize light trespass and glare. These standards include the following:

- minimizing incidental spillover of light onto adjacent private properties and undeveloped open space;
- directing luminaries away from habitat and open space areas adjacent to the project sites;
- installing luminaries that provide good color rendering and natural light qualities; and
- minimizing the potential for back scatter into the nighttime sky and for incidental spillover of light onto adjacent private properties and undeveloped open space.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts these mitigation measures, Impact AES-4 would be reduced to less than significant (LS). As noted in section 3.3.2 State Regulations above, SB 743 eliminates the need to evaluate aesthetic impacts of a project if it is 1) a residential, mixed-use residential, or employment center project; 2) located on an infill site within a transit priority area; and 3) does not impact historic or cultural resources. For projects that meet these criteria the impacts to the aesthetic environment would be considered exempt from this analysis.

Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Section 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, this impact remains significant and unavoidable (SU).

IMPACT AES-5: CAST SHADOW IN SUCH A WAY AS TO CAUSE A PUBLIC HAZARD OR SUBSTANTIALLY DEGRADE THE EXISTING VISUAL/AESTHETIC CHARACTER OR QUALITY OF A SITE OR PLACE FOR A SUSTAINED PERIOD OF TIME.

Regional Impacts

The projected land use pattern of the proposed MTP/SCS could increase the amount of shadow in an area, especially in areas that would develop more compactly. Compact development is likely to create more shadows than other types of development as a result of the height and spacing of buildings. However, shadow is not necessarily a negative impact of compact development. Shadow has beneficial cooling effects that can be particularly welcome in the Sacramento region where summer temperatures can exceed 100 degrees. Additionally, shadow can mitigate the effects of glare. In city centers and central business district areas, buildings are often constructed with reflective materials that can create glare. A common technique for addressing building glare is to plant trees. In the same way that trees cast a shadow to prevent glare, shadows from tall buildings also reduce glare and light.

Developed areas already have a significant amount of shadow from existing uses. Within these areas, the marginal increases in shadow from new infill development would not cause a public hazard or

substantially degrade the existing visual/aesthetic character or quality of the region. In developing areas of the region, implementation of the projected land use pattern could result in increases in the amount of shadow. However, because buildings in these areas would not be as compact or tall as in developed areas of the region, the increases in shadow would not cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place.

Therefore, the impacts on shadow from implementation of the projected land use pattern of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact AES-5. No mitigation is required.

Some planned transportation improvements, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in the region. However, because these types of projects occur in areas where a significant amount of shadow already exists, the impacts at the regional scale would be less than significant, as the typical views of the region would remain unchanged. Other planned transportation improvements, such as road widenings and routine maintenance, would affect shadow levels during construction (construction impacts are discussed in Impact AES-6) but would not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Bicycle paths built at ground level would not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph.

Increasing the frequency of transit service as described in Chapter 2 – Project Description would not increase the amount of shadow in an area, as such increases only demand more transit vehicles, not transit infrastructure. However, increasing the service area of transit by adding additional bus routes or rail lines could increase the amount of shadow in an area, as new routes would require light rail stations, bus stops, and bus shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow from implementation of the planned transportation improvements of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact AES-5. No mitigation is required.

Localized Impacts

Center and Corridor Communities
Because Center and Corridor Communities are built out, they already have a significant amount of shadow. Shadow is a likely result of compact development because of the size and proximity of buildings. Infill development in Center and Corridor Communities could increase the amount of shadow in these areas, but such increases would not cause a public hazard or substantially degrade the existing visual character. As discussed in the regional analysis, shadow has numerous benefits in dense, downtown areas, which counteracts the effects of glare and light created by reflective surfaces of buildings. Shadow also provides shade for pedestrians and cyclists.

Therefore, the impacts on shadow from implementation of the projected land use pattern of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AES-5. No mitigation is required.

By 2040 a variety of planned transportation improvements would occur in Center and Corridor Communities, including new transit, non-motorized, and roadway projects in addition to ongoing improvements to transit operations and roadway maintenance. Center and Corridor Communities would receive new and expanded bus and rail transit, and complete streets that serve supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points.

Some planned transportation improvements, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in Center and Corridor Communities. However, because these projects occur in areas where there is already a significant amount of shadow from existing uses, the marginal increases from transportation infrastructure would not cause a public hazard or substantially degrade the visual character of the area. Other planned transportation improvements, such as road widenings and routine maintenance, would affect shadow levels during construction (construction impacts are discussed in Impact AES-6) but would not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Bicycle paths built at ground level would not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph. As with roadway projects, the limited number of bicycle or pedestrian bridge projects makes their impact on shadow less than significant.

Increasing the frequency of transit service would not increase the amount of shadow in Center and Corridor Communities, as such increases only demand more transit vehicles, not transit infrastructure. However, increasing the service area of transit by adding additional bus routes or rail lines could increase the amount of shadow in an area, as new routes would require light rail stations, bus stops, and bus shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow from implementation of the planned transportation improvements of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AES-5. No mitigation is required.

Established Communities

The type of growth outlined in Chapter 2 – Project Description could add to existing shadow in the Community Type, but would not increase the overall shadow in a significant way or cause a public hazard. This Community Type would see more compact development as a result of implementation of the proposed MTP/SCS, which could increase the amount of shadow in the Community Type, as discussed above in the Center and Corridor Community analysis. Established Communities already have a significant amount of shadow from existing uses. The relatively modest growth expected in

this Community Type would not likely increase the amount of shadow in such a way as to cause a public hazard or substantially degrade the existing visual character of the Community Type.

Therefore, the impacts on shadow from implementation of the projected land use pattern of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-5. No mitigation is required.

As with Center and Corridor Communities, by 2040 a variety of planned transportation improvements would occur in Established Communities including new transit, non-motorized and roadway projects, and ongoing improvements to transit operations and roadway maintenance.

Some planned transportation improvements, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in Established Communities. However, because these projects occur in areas where there is already a significant amount of shadow from existing uses, the marginal increases from transportation infrastructure would not cause a public hazard or substantially degrade the existing visual character of the area. Other planned transportation improvements, such as road widenings and routine maintenance, could affect shadow levels during construction (construction impacts are discussed in Impact AES-5) but would not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Bicycle paths built at ground level would not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph. As with roadway projects, the limited number of bicycle or pedestrian bridge projects makes their impact on shadow less than significant.

Increasing the frequency of transit service would not increase the amount of shadow in Established Communities, as such increases affect service, not infrastructure. However, increasing the service area of transit by adding additional bus routes or rail lines could increase the amount of shadow in an area, as new routes would require light rail stations, bus stops, and bus shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow from implementation of the planned transportation improvements of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-5. No mitigation is required.

Developing Communities
Implementation of the proposed MTP/SCS would result in the conversion of previously undeveloped land to urban uses in such a way as to cause increases in the amount of shadow in the Community Type. Because this Community Type is not very dense or compact, the shadow created from development would likely be confined to the individual properties and would not create substantial shadow in public spaces or cause a public hazard.

Therefore, the impacts on shadow from implementation of the projected land use pattern of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact AES-5. No mitigation is required.

Implementation of the proposed MTP/SCS would result in the construction of transportation improvement projects that could increase the amount of shadow in the area. However, Developing Communities would not necessarily see the same mix of planned transportation improvements as Center and Corridor Communities and Established Communities. Developing Communities would see more road widening projects and newly constructed road projects to serve the new residential and employment developments that would be built by 2040. These areas would see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects would not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service would be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure would be similarly phased in over the life of the proposed MTP/SCS.

Some planned transportation improvements, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in Developing Communities. However, because Developing Communities are not as dense or compact as other Community Types, the shadow created from such planned transportation improvements is unlikely to affect surrounding land uses in such a way as to cause a public hazard or substantially degrade the existing visual character. Other planned transportation improvements, such as road widenings and routine maintenance, would affect shadow levels during construction (construction impacts are discussed in Impact AES-6) but would not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Bicycle paths built at ground level would not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph. As with roadway projects, the limited number of bicycle or pedestrian bridge projects makes their impact on shadow less than significant.

Developing Communities would begin to see transit service implemented as the population grows to levels that can sustain transit service. Increasing the service area of transit by adding additional bus routes could increase the amount of shadow in an area, as new routes would require bus stops and shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow from implementation of the planned transportation improvements of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact AES-5. No mitigation is required.

Rural Residential Communities
The type of growth outlined in Chapter 2 – Project Description would likely not increase the overall amount of shadow in this Community Type. Development that does occur would be similar to development that already exists. The low-density makeup of Rural Residential Communities generally prevents shadow from spilling onto surrounding uses in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the area.

Therefore, the impacts on shadow from implementation of the projected land use pattern of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AES-5. No mitigation is required.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile and farm traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS would result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service.

Because of the low-density makeup of Rural Residential Communities, shadow created from implementation of the proposed MTP/SCS would be isolated to the project sites and would be less than significant at the Community Type level.

Therefore, the impacts on shadow from implementation of the planned transportation improvements of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AES-5. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040.

Because the proposed MTP/SCS does not forecast any development in these areas, the impacts on shadow from implementation of the projected land use pattern of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-5. No mitigation is required.

The focus for planned transportation improvements in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Because of the low-density makeup of these areas and the limited number of projects being implemented, shadow created from implementation of the proposed MTP/SCS would be isolated to the project sites and would be less than significant at the Community Type level.

Therefore, the impacts on shadow from implementation of the planned transportation improvements of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-5. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County and Yolo County High Frequency Transit Areas
Because the HFTAs are built out, they already have a significant amount of shadow. Shadow is a likely result of compact development because of the size and proximity of buildings. Infill development in the HFTAs could increase the amount of shadow in these areas, but such increases would not cause a public hazard or substantially degrade the existing visual character. As discussed in the regional analysis, shadow has numerous benefits in dense, downtown areas. Shadow counteracts the effects of glare and light created by reflective surfaces of buildings. Shadow also provides shade for pedestrians and cyclists, which is particularly welcome in the Sacramento region, where summer temperatures are often in excess of 100 degrees.

Therefore, the impacts on shadow from implementation of the projected land use pattern of the proposed MTP/SCS in the HFTAs are considered less than significant (LS) for Impact AES-5. No mitigation is required.

By 2040 a variety of planned transportation improvements would occur in the HFTAs including new transit, non-motorized and roadway projects, and ongoing improvements to transit operations and roadway maintenance.

Some planned transportation improvements, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in the HFTAs. However, because these projects occur in areas where there is already a significant amount of shadow from existing uses, the marginal increases from transportation infrastructure would be less than significant when compared to existing levels. Other planned transportation improvements, such as road widenings and routine maintenance, could affect shadow levels during construction (construction impacts are discussed in Impact AES-6) but would not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Bicycle paths built at ground level would not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph. As with roadway projects, the limited number of bicycle or pedestrian bridge projects makes their impact on shadow less than significant.

Increasing the frequency of transit service would not increase the amount of shadow in the HFTAs, as such increases only demand more transit vehicles, not transit infrastructure. However, increasing the service area of transit by adding additional bus routes or rail lines could increase the amount of shadow in an area, as new routes would require light rail stations, bus stops, and bus shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow from implementation of the planned transportation improvements of the proposed MTP/SCS in the HFTAs are considered less than significant (LS) for Impact AES-5. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT AES-6: RESULT IN CONSTRUCTION IMPACTS THAT WOULD SUBSTANTIALLY ADVERSELY AFFECT A SCENIC VISTA, SUBSTANTIALLY DAMAGE SCENIC RESOURCES ALONG A STATE SCENIC HIGHWAY, SUBSTANTIALLY DEGRADE VISUAL CHARACTER OR QUALITY OF PUBLIC VIEWS IN NON-URBAN AREAS OR CONFLICT WITH APPLICABLE ZONING AND OTHER REGULATIONS GOVERNING SCENIC QUALITY IN URBANIZED AREAS, CREATE A NEW SOURCE OF SUBSTANTIAL LIGHT AND GLARE WITH ADVERSE EFFECTS ON VIEWS, OR CAST SHADOWS THAT CAUSE A PUBLIC HAZARD OR SUBSTANTIALLY DEGRADE THE EXISTING VISUAL/AESTHETIC CHARACTER.

Short-term aesthetic impacts could occur during construction of projects included in the proposed MTP/SCS. Construction-related activities could include but are not limited to construction equipment, materials, signage, fencing, barriers, and vehicles that could substantially adversely affect a scenic vista, substantially damage scenic resources along a state scenic highway, substantially degrade visual character or quality of public views in non-urban areas or conflict with applicable zoning and other regulations governing scenic quality in urbanized areas, create a new source of substantial light and glare with adverse effects on views, or cast shadows that cause a public hazard or substantially degrade the existing visual/aesthetic character. After construction activities are completed, construction equipment, leftover materials, vehicles, and other temporary fencing and walls, are routinely required to be removed from the site by local regulations and requirements. The aesthetic impacts associated with the operation of the projected land use pattern and planned transportation improvements, once completed, are covered in Impacts AES-1 through AES-5.

Scenic Vistas and Scenic Resources Along a State Scenic Highway

Regional Impacts

Regional land use development and redevelopment projects, such as housing units and employment centers would include but not be limited to construction equipment, materials, signage, fencing, barriers, and vehicles on and near construction sites that could block views to a scenic vista or scenic resources. For instance, although condensed infill development within an urban area would introduce additional construction materials on site, due to the already developed nature of the existing urban environment aesthetic impacts for short-term associated construction impacts for approved land uses would not be considered significant. However, for projects located within non-urban areas, where development is less dense, the introduction of construction equipment and materials into the generally undeveloped landscape could be visually prominent throughout the existing landscape. As such, if scenic vistas and state scenic highways are located in these areas, potential short-term impacts could occur. As such, although temporary, the construction-related impacts on scenic vistas and scenic resources along a state scenic highway from implementation of the projected land use pattern of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measures AES-8 through AES-12 are described below.

The planned transportation improvements of the proposed MTP/SCS include roadway, highway, bicycle, pedestrian, and transit improvements. Typical improvements include road widenings, freeway HOV lanes, freeway auxiliary lanes, turn pockets, intelligent transportation infrastructure projects, roadway maintenance projects, interchange improvements, new road and interchanges,

Class I, II, and III bicycle facilities, bicycle and pedestrian bridges, complete streets projects, increased frequency on transit, new transit routes, new streetcar and light rail lines, transit facilities, and transit operational improvements. Similar to regional land use impacts, construction of these projects would introduce construction equipment and materials into the visual landscape. For projects located in urban areas, these components would be less visually prominent; thus, potential impacts would be less likely. However, for projects located in non-urban areas, introduction of construction equipment and materials into the generally undeveloped landscape would likely be visually prominent throughout the existing landscape. As such, if scenic vistas and resources are located in these areas, potential impacts could occur. The proposed MTP/SCS contains three projects on officially designated state scenic highways. One project is a bridge replacement and the other two involve road widening and intersection improvements. Thus, construction-related activities could temporarily block scenic resources proximate to a scenic highway.

Therefore, the construction-related impacts on scenic vistas and scenic resources from implementation of the planned transportation improvements of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measures AES-8 through AES-12 are described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities
Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Implementation of the projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities has the potential to result in construction-related impacts that would block views of scenic vistas, or scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings along officially designated state scenic highways.

Therefore, the construction-related impacts on scenic vistas and scenic resources along a state scenic highway from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measures AES-8 through AES-12 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Since the MTP/SCS does not forecast any development in Lands Not Identified for Development, there is no potential to result in land-use-related construction impacts that would block views of scenic vistas or scenic resources.

Therefore, the construction-related impacts on scenic vistas and scenic resources along a state scenic highway related to the land uses changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-6. No mitigation is required.

With respect to planned transportation improvements in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Planned transportation improvements in Lands Not Identified for Development have the potential to result in construction-related impacts that would block views of scenic vistas or scenic resources.

Therefore, the construction-related impacts on scenic vistas and scenic resources along a state scenic highway from implementation of the planned transportation improvements of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measures AES-8 through AES-12 are described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in all of the HFTAs have the potential to result in construction-related impacts that would block views of scenic vistas or scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings along officially designated and eligible state scenic highways.

Therefore, the construction-related impacts on scenic vistas and scenic resources from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS in the HFTAs are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measures AES-8 through AES-12 are described below.

Visual Character and Quality

Regional Impacts

Short-term impacts to visual character and quality could occur during construction activities associated with implementation of the projected land use pattern of the proposed MTP/SCS. Construction of new land development, such as residential units or employment centers, would result in but not be limited to construction equipment and scaffolding, removal of landscaping, temporary route changes, temporary signage, exposed excavation and slope faces with contrasting soil colors, temporary fencing and walls, and construction staging areas.

In non-urbanized areas, where development is less dense, these components could be visually prominent and thus degrade the existing visual character of public views of the site and its surroundings. However, most of these impacts are considered temporary as the associated impacts are limited to the time during which the development is being constructed. After construction is complete, scaffolding, fencing, temporary walls, construction equipment, leftover materials, construction signage, and other related job-site items are removed. However, if landscaping is not restored and slopes are not revegetated after construction, the visual character or quality of the site could be permanently altered. Therefore, in non-urbanized areas, the construction-related impacts on visual character or quality of public views of sites and their surroundings from implementation of the projected land use pattern of the proposed MTP/SCS at the regional level are considered

potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measures AES-8 through AES-12 are described below.

For land development within urbanized areas, construction is less likely to degrade the character with existing visual character and quality of project sites and their surroundings. As described above construction impacts are short-term, and limited in scope and location. In urbanized areas construction impacts associated with implementation of the projected land use pattern of the proposed MTP/SCS would be less-than-significant (LS) at the regional level for Impact AES-6. No mitigation is required.

For projects located within urbanized areas, local jurisdictions in the plan area of the proposed MTP/SCS require that development projects comply with existing zoning and other applicable regulations including those governing scenic quality before issuing permits and other approvals. As such, construction activities associated with implementation of the projected land use pattern of the proposed MTP/SCS would not result in conflicts to applicable zoning and other regulations governing scenic quality.

Thus, because construction activities associated with implementation of the projected land use pattern in urbanized areas would be required to comply with applicable zoning, including regulations governing scenic quality, construction would not degrade the character with existing visual character and quality of project sites and their surroundings. As described above construction impacts are short-term, and limited in scope and location. In urbanized areas construction impacts from implementation of the projected land use pattern of the proposed MTP/SCS would be less-than-significant (LS) at the regional level for Impact AES-6. No mitigation is required.

Planned transportation improvements in the proposed MTP/SCS include road widenings, freeway HOV lanes, freeway auxiliary lanes, turn pockets, intelligent transportation infrastructure projects, roadway maintenance projects, interchange improvements, new road and interchanges, Class I, II, and III bicycle facilities, bicycle and pedestrian bridges, complete streets projects, increased frequency on transit, new transit routes, new streetcar and light rail lines, transit facilities, and transit operational improvements. Similar to regional land use impacts, construction of approved projects in urban areas would be unlikely to adversely affect visual character or quality beyond impacts of the project itself which are addressed earlier in this section. For project located in non-urbanized areas, introduction of construction equipment and materials into the generally undeveloped landscape may be visually prominent throughout the existing landscape. As such, construction-related activities could substantially degrade the existing visual character or quality of public views of sites and their surroundings. Therefore, construction impacts on visual character or quality of public views of sites and their surroundings from implementation of the planned transportation improvements of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measures AES-8 through AES-12 are described below.

For projects located within urbanized areas, local jurisdictions in the plan area of the proposed MTP/SCS require that projects comply with existing zoning and other applicable regulations, including those governing scenic quality before issuing permits and other applicable regulations. As such, construction of planned transportation improvements would not result in conflicts to applicable zoning and other regulations governing scenic quality.

Construction activities associated with planned transportation improvements in urbanized areas could result in short-term changes to the visual environment but because of their finite duration are unlikely to conflict with applicable zoning or other local regulations governing scenic quality. In urbanized areas, construction-related conflicts with applicable zoning and other regulations governing scenic quality related to the planned transportation improvements of the proposed MTP/SCS are unlikely to occur at the regional level so impacts are less than significant (LS) for Impact AES-6. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Specifically, construction-related to land development and transportation improvements would not conflict with applicable zoning and other regulations governing scenic quality within the urbanized Center, Corridor, and Established Communities, but could substantially degrade existing visual character or the quality of public views of sites and their surroundings within Developing and Rural Residential Communities.

Therefore, through compliance with existing zoning, construction-related conflicts with applicable zoning and other regulations governing scenic quality from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS would occur in Center and Corridor Communities and Established Communities. Thus, impacts are less than significant (LS) for Impact AES-6. No mitigation is required.

However, the construction-related impacts on visual character or quality of public views of sites and their surroundings from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS in Developing and Rural Residential Communities are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measures AES-8 through AES-12 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS

Since the MTP/SCS does not forecast any development in non-urbanized Lands Not Identified for Development, there is no potential to result in land-use-related construction impacts that would substantially degrade the existing visual character or quality of public views of sites and their surroundings.

Therefore, the construction-related impacts on visual character or quality of public views of the site and its surroundings related to the land uses changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-6. No mitigation is required.

With respect to planned transportation improvements in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Planned transportation improvements in Lands Not Identified for Development have the potential to result in construction-related impacts that

would substantially degrade the existing visual character or quality of public views of sites and their surroundings.

Therefore, construction-related impacts on visual character or quality of public views of sites and their surroundings from implementation of the planned transportation improvements of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measures AES-8 through AES-12 are described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Construction impacts within HFTAs would be the same as those described for urbanized areas in the regional impacts analysis and Center, Corridor, and Established Communities in the localized impacts analysis. Specifically, construction-related to land development and transportation improvements is unlikely to conflict with applicable zoning and other regulations governing scenic quality within the HFTAs.

Therefore, construction-related conflicts with applicable zoning and other regulations governing scenic quality from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS are unlikely to occur in HFTAs, which are urbanized areas, so impacts are less than significant (LS) for Impact AES-6. No mitigation is required.

Light, Glare, and Shadow

Regional Impacts

Short-term visual impacts could occur during construction activities associated with the projected land use pattern and planned transportation improvements of the proposed MTP/SCS from light introduced from construction equipment. Construction-related activities would require the use of construction equipment, construction materials, construction signage, and construction vehicles, which could increase the amount of glare, light, or shadow in the region. For land development and transportation improvements located in urbanized areas, light, glare, and shadow impacts from construction equipment would not be as prominent as for projects located in non-urban areas. This is because urban areas are already developed with uses that emit light or glare or can create shadows. For projects located within non-urban areas, where development is less dense, the introduction of light, glare, and shadow emissions from construction equipment and would likely be visually prominent throughout the existing landscape, as these sources are less prominent in the existing landscape. After construction activities are completed, all construction equipment, leftover materials, vehicles, and other reflective items are removed from the site. Any impacts associated with the structure itself, once completed, are covered in Impacts AES-1 through AES-5.

Therefore, construction-related impacts of substantial glare, light, and shadow from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measure AES-8 is described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities
Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Implementation of the projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to result in construction-related impacts that would cast substantial glare, light, or shadow in such a way that could adversely affect day or nighttime views.

Therefore, the construction-related impacts on glare, light, and shadow from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measure AES-8 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Since the MTP/SCS does not forecast any development in Lands Not Identified for Development, there is no potential to result in land-use-related construction impacts that would cast substantial glare, light, or shadow in a way that could adversely affect day or nighttime views

Therefore, the construction-related impacts on glare, light, and shadow related to the land uses changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-6. No mitigation is required.

With respect to planned transportation improvements in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Planned transportation improvements in Lands Not Identified for Development have the potential to result in construction-related impacts that would cast substantial glare, light, or shadow in such a way that could adversely affect day or nighttime views

Therefore, the construction-related impacts on glare, light, and shadow from implementation of the planned transportation improvements of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measure AES-8 is described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impacts discussion above. Implementation of the projected land use pattern and planned transportation improvements in all of the HFTAs has the potential to result in construction-related impacts that would cast glare, light, or shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.

Therefore, the construction-related impacts on glare, light, and shadow from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS in the HFTAs are considered potentially significant (PS) for Impact AES-6. Mitigation is required. Mitigation Measure AES-8 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project-level would reduce the impacts from construction-related impacts on scenic vistas and scenic resources along a state scenic highway, visual character or quality of public views of sites and their surroundings, and substantial glare, light, and shadow, and agencies with jurisdiction to adopt these measures should do so (PRC Section 21081).

Mitigation Measure AES-8: Reduce the visibility of construction-related activities.

The implementing agency shall reduce the visibility of construction-related activities by taking the following (or equivalent) actions:

- restricting construction activities to permitted hours in accordance with local jurisdiction regulations;
- locating materials and stationary equipment such as generators, compressors, rock crushers, cement mixers, etc. as far from sensitive receptors as possible;
- locating materials and stationary equipment in such a way as to prevent glare, light, or shadow from adversely impacting surrounding uses and minimize blockage of scenic resources; and
- reducing the visibility of construction staging areas by fencing or screening these areas with low-contrast materials consistent with the surrounding environment.

Mitigation Measure AES-9: Re-vegetate exposed earth surfaces.

The implementing agency shall minimize short-term visual impacts of construction by requiring project sponsors to re-vegetate slopes and exposed earth surfaces at the earliest opportunity during construction.

Mitigation Measure AES-10: Minimize contrasts between the project and surrounding areas.

The implementing agency shall ensure that projects use natural landscaping to minimize contrasts between the projects and surrounding areas. Wherever possible, the implementing agency shall develop interchanges and transit lines at the grade of the surrounding land to limit view blockage. Project designs shall contour the edges of major cut-and-fill slopes to provide a more natural-looking finished profile.

Mitigation Measure AES-11: Replace and renew landscaping along roadway corridors and development sites.

The implementing agency shall ensure that project sponsors replace and renew landscaping to the greatest extent possible along corridors with transportation improvements and at development sites. The implementing agency shall ensure that landscaping is planned in new corridors and developments to respect existing natural and man-made features and to complement the dominant landscaping of surrounding areas.

Mitigation Measure AES-12: Implement Mitigation Measure AES-4

SIGNIFICANCE AFTER MITIGATION

As noted in Chapter 1 – Introduction, SB 743 eliminates the need to evaluate aesthetic impacts of a project if it is 1) a residential, mixed-use residential, or employment center project; 2) located on an infill site within a transit priority area; and 3) does not impact historic or cultural resources. For projects that meet these criteria the impacts to the aesthetic environment would be considered exempt from this analysis.

If the implementing agency adopts these mitigation measures, Impact AES-6 would be reduced to a less than significant (LS) level. Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact AES-6 remains significant and unavoidable (SU) for purposes of this program-level review.

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Chapter 4—Agriculture and Forestry Resources

4.1 Introduction

This chapter describes existing conditions (environmental and regulatory) and assesses the potential agriculture and forestry resources impacts that may result from implementation of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data, analysis, and findings provided in this chapter were considered and prepared at a programmatic level.

This chapter provides a basic summary of the extent, distribution, use, quality, and productivity of agriculture and forest lands in the plan area of the proposed MTP/SCS. This information is informed by SACOG's Rural-Urban Connections Strategy (RUCS), literature, maps and data published by the Natural Resources Conservation Service (NRCS), the California Department of Conservation (DOC), and county agricultural commissioners. Agricultural land and forest land habitat conversion are discussed in Chapter 6 – Biological Resources. Soil quality and conditions are analyzed in EIR Chapter 9 – Geology, Seismicity, Soils and Mineral Resources. Agricultural and forestry resources are also discussed in the proposed MTP/SCS in Chapter 3 and Chapter 4.

In response to the Notice of Preparation (NOP), SACOG received comments related to agriculture from the Sierra Club (Placer County). The commenter expressed that the Draft EIR should consider the following:

- Impacts to agriculture and open space

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines or Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

4.2 Environmental Setting

The SACOG region has a long history of agricultural and forestry activity due to its location, encompassing part of the fertile Central Valley of California and the forested foothills of the Sierra Nevada Mountain Range. There are nearly 1.6 million harvested agricultural acres and 1.1 million acres of forest land in the region, together comprising 67 percent of the plan area of the proposed MTP/SCS (see below for breakdowns of agricultural and forest land by county). The region's

agricultural value fluctuates with commodity markets, but since 2008, international commodity markets have been strong, supporting a farmgate value of more than $2 billion (CDFA 2017). The farmgate value is the value of the commodity when it is harvested. The region has also seen strong growth in market demand for locally grown food. Further, the agricultural industry generates economic activity beyond just the farmgate value of commodities. For example, tens of thousands of people in the region earn a living working in the agricultural industry, and the industry also supports a robust agri-tourism economy. Many of those jobs are in support services such as agricultural suppliers and processors, but also include others such as attorneys, accountants, and insurance sales.

The following paragraphs describe agriculture and forestry resources in each county in the region. The baseline data used are 2016 data, but to the extent more recent information is available, it is provided. The acreages for agricultural land identified in this chapter were confirmed through crop reports and provide more comprehensive and up to date information than solely relying on California Department of Conservation's Farmland Monitoring and Mapping Program (FMMP) data. These values represent active, tillable acres of agriculture and do not encompass acres of agricultural land cover suitable as habitat for special-status species (see Chapter 6 – Biological Resources for a discussion of habitat conversion impacts). Table 4-1 summarizes the existing agricultural and forest lands by County within the plan area of the proposed MTP/SCS.

Table 4-1
Acres of Agricultural and Forest Land in the Plan Area of the Proposed MTP/SCS

County	Agricultural Land	Forest Land	
		Publicly-Owned	Total
El Dorado	238,684	414,354	562,660
Placer	162,620	372,383	455,104
Sacramento	208,525	--	--
Sutter	356,092	--	--
Yolo	328,452	--	--
Yuba	266,899	43,015	67,834
Region	**1,561,272**	**829,752**	**1,085,597**

Sources: El Dorado 2016 Crop Report; Placer County 2017 Crop Report, Sacramento County 2017 Crop Report, Sutter County 2017 Crop Report, Yolo County 2017 Crop Report, Yuba County 2017 Crop Report. US Forest Service Administrative Forest Boundaries, 2019. Placer County, El Dorado County, Yuba County Assessor Ownership Data, 2018.

4.2.1 Current and Historical Agricultural, Forest Land, and Timber Production Uses

EL DORADO COUNTY

In El Dorado County, agricultural lands, including pasture and grazing lands, account for 21 percent of the land area, with 238,684 total harvested acres. In 2017, the county had a gross crop value of approximately $71 million. The overall contribution of agriculture to the county's economy (through employment, sales, tourism, and other related activities) totaled approximately $600 million in 2017 (El Dorado County Department of Agriculture 2017). Lands on the west slope of the county are considered the most valuable for agriculture because of the area's gentler slopes and richer soils. Historically, grazing of cattle and other livestock was the primary economic contributor in El Dorado County. Recently, production of fruit (including wine grapes) and nuts has become a major contributor to the county's agricultural economy (El Dorado County Department of Agriculture 2017).

Forest lands account for 562,660 acres of the land in the county (excluding the Tahoe Basin). Of this acreage, approximately 414,354 acres are publicly-owned (see Table 4-1). Timber production is economically important in the county. In 2017, the gross value of timber production in the county was $10 million (El Dorado County Department of Agriculture 2017).

PLACER COUNTY

There are approximately 162,620 acres of harvested agricultural land, including pasture and grazing lands in Placer County, accounting for 17 percent of the land in the county (excludes Tahoe Basin). The county's primary agricultural products are fruit and nut crops, timber, rice, cattle, poultry, and sheep. In 2017, the total gross value for agricultural products was roughly $58 million (Placer County Department of Agriculture 2017). As in El Dorado County, Placer County's western lands are the most valuable for agriculture because of the flat to gently sloped topography and richer soils. Due to severe weather impacts and land use changes, for the first time in more than a decade rice was supplanted as Placer County's top grossing crop. In its place, Cattle and Calves was the top commodity in 2017. Nursery Stock production rose to rank second, while rice production remained the third crop in 2017. Timber and walnuts are also top commodities in the county. Agricultural returns declined in 2017 by $7,147,000, or 11 percent, compared to 2016's value of $65,206, (Placer County Department of Agriculture 2017).

There are 455,100 acres of forest land in the county, of which 372,383 acres are under public ownership. The US Forest Service controls the largest amount of public lands, controlling over 355,000 acres within Placer County (BLM and USFS 2006). The U.S. Bureau of Reclamation controls a smaller amount of land, about 24,000 acres in central Placer County. Timber harvesting increased by 30 percent from 2016, and had a gross value of approximately $5.9 million in 2017 (Placer County Department of Agriculture 2017).

SACRAMENTO COUNTY

Although it is the most urbanized county in the region, Sacramento County has a long history of agricultural activity. As of 2017, there were 208,525 acres of land in agricultural production including pasture or grazing lands, comprising 33 percent of the county. The majority of agricultural lands and activities are located in the south and east county areas, including the Sacramento River Delta region. In 2017 the county grossed approximately $496 million in agricultural products. Top producing crops in the county include wine grapes, milk, poultry, Bartlett pears, and cattle and calves. Wine grapes continue to top Sacramento County's crop values and should see an increase in the next few years as newly planted vines come into production (Sacramento County Department of Agriculture & Weights and Measures 2017). Sacramento County has no forest land.

SUTTER COUNTY

Agriculture is the primary industry of Sutter County. Including pasture or grazing lands, agricultural land accounts for 356,092 acres, or 92 percent of the county's land area (Sutter County Department of Agriculture 2017). The county's valley floor location between two major rivers has created, over geological time, a broad area of deep, rich agricultural soils with abundant surface and subsurface water. Together with an inland climate that provides for a long growing season, these factors have led to a productive agricultural environment. In 2017, agricultural production grossed approximately $584 million, with rice, walnuts, prunes, peaches, nursery products, and almonds as the leading

commodities. In particular, walnuts, prunes, nursery products, and almonds increased in production and/or value (Sutter County Department of Agriculture 2017). Sutter County has no forest land.

YOLO COUNTY

Like Sutter County, Yolo County's flat valley topography and rich agricultural soils have made agriculture the primary economic development driver of the county. As of 2017 there were 328,452 acres in production, comprising 55 percent of total land in the county. The 2017 gross valuation of agricultural products was approximately $635 million, a decrease of 4.1 percent from 2016. Tomatoes have long been the county's leading commodity; however, almonds have taken the number one spot in 2017. Wine grapes, organic production, and walnuts are other top crops. (Yolo County Department of Agriculture 2017). Yolo County has no forest land.

YUBA COUNTY

Although Yuba County experienced rapid development for several years before the recent recession, agriculture remains a prominent land use in the county, with 266,899 acres, or 68 percent, of the county in agricultural production, including grazing and pasture lands. The gross value for agriculture in Yuba County in 2017 was just over $232 million. Walnuts continue to be the county's leading crop in 2017 followed by rice, prunes, peaches and milk (Yuba County Department of Agriculture 2018).

There are about 67,834 acres of forest land in the county, primarily in the northeastern portion. Of these, about 43,000 acres are under public ownership and managed by the U.S. Forest Service (U.S. Forest Service 2019). The gross value of timber production in 2016 was approximately $1.4 million (California Department of Food and Agriculture 2017).

4.2.2 Farmland Mapping and Monitoring Program Lands

The DOC FMMP is one of several sources used to identify existing agricultural lands. FMMP farmland categories are based on local soil characteristics and irrigation status. Farmlands are classified according to soil factors, including available water holding capacity, temperature regime, acidity, depth to the water table, electrical conductivity, flooding potential, erosion hazard, permeability, rock content, and rooting depth. FMMP's land classification system is outlined in Section 4.3.2. The best quality land is identified as Prime Farmland and Farmland of Statewide Importance.

FMMP data are typically updated every two years and use a minimum mapping unit of 10 acres. The most recent complete and regionally consistent set of data published by the FMMP is for the years 2014–2016. Figure 4-1 depicts areas devoted to Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and farmland of local importance (DOC 2016a). Most of the land located west of the Sierra Nevada foothills and east of the Capay Valley is classified as "Important Farmland" (i.e., either Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or farmland of local importance). Western Yolo County, the eastern third of Sacramento County, the Sutter Buttes region in Sutter County, and the foothill regions of El Dorado, Placer, and Yuba counties are predominantly classified as grazing land.

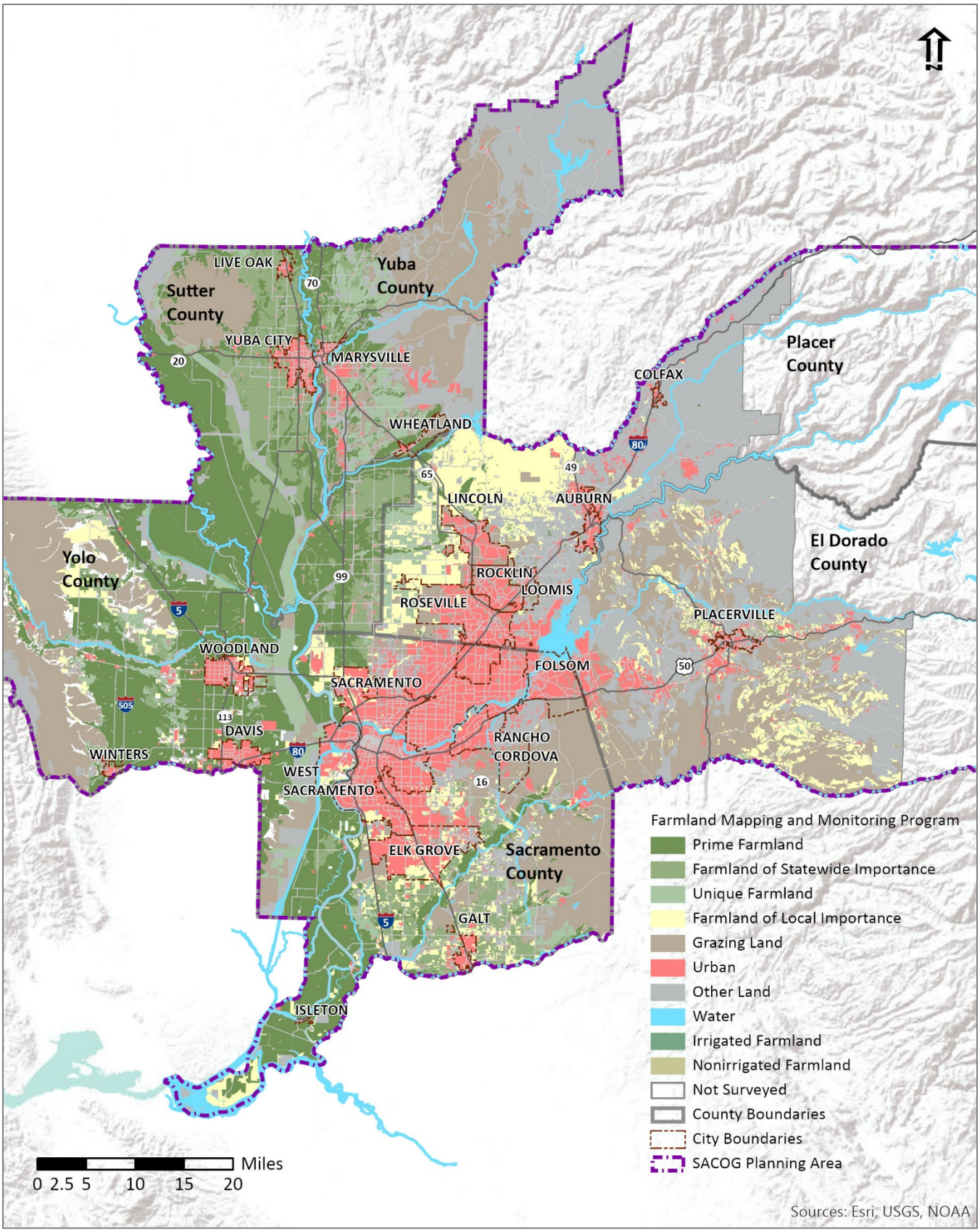


Figure 4-1
Significant Agricultural Lands in the Plan Area of the Proposed MTP/SCS

An acreage summary by FMMP mapping category for the plan area of the proposed MTP/SCS land is presented in Table 4-2. The table shows that Important Farmland is concentrated in the counties of Sacramento, Sutter and Yolo, due to the fertile soils and flat topography of these valley counties. Although El Dorado, Placer, and Yuba counties contain less Important Farmland, these counties contain significant grazing and "Other" land. Almost 62 percent of the region is classified as farmland and only 11 percent is currently urbanized. Urban development pressures affect agricultural lands throughout the region due to high population and employment growth. Agriculture conversion pressure is greatest at the edge of existing urban development.

Table 4-2
FMMP Farmlands Summary by County for the Plan Area of the Proposed MTP/SCS

Farmland Category	El Dorado	Placer	Sacramento	Sutter	Yolo[2]	Yuba	Region
Prime Farmland	697	8,331	92,838	161,159	255,587	45,125	563,738
Farmland of Statewide Importance	1,015	3,963	46,874	103,197	19,127	10,635	184,810
Unique Farmland	3,368	19,211	15,730	16,935	46,192	31,143	132,579
Farmland of Local Importance	59,153	93,948	54,716	0	49,257	0	257,074
Grazing Land	195,881	29,248	149,328	51,059	165,432	136,231	727,179
All Farmland	**260,114**	**154,701**	**359,487**	**332,351**	**535,595**	**223,133**	**1,865,380**
Urban and Built-Up Land	32,190	56,143	152,129	11,258	25,574	13,847	291,141
Other Land	234,705	189,195	70,244	29,256	73,057	162,273	758,730
Water	8,906	1,188	5,985	202	5,891	7,340	29,512
Non-Farmland	**275,801**	**246,526**	**228,358**	**40,717**	**104,522**	**183,461**	**1,079,384**
Total Area Surveyed[1]	**535,915**	**401,227**	**587,845**	**373,067**	**640,116**	**406,594**	**2,944,764**

[1] Approximately 915,000 acres of land within the plan area of the proposed MTP/SCS in eastern Placer and El Dorado counties were not surveyed. The survey area excludes most of the Sierra Nevada, as well as desert and forested parts of California that are less likely to have productive farmland. Some of these locations may be added in the future, while most areas identified as "Local, State, and Federal Owned Land" will not be added. Some small areas of public land are included in the survey area, generally as "Other Land." See California Farmland Conversion Report 2014-2016 (DOC 2016b).

[2] Includes Farmland of Local Potential in Yolo County

Source: DOC 2016b; California Farmland Conversion Report 2014–2016

4.2.3 Williamson Act Contracts

In 1965, the State Legislature passed the California Land Conservation Act (better known as the Williamson Act) in response to agricultural property tax burdens resulting from rapid land value appreciation (see Section 4.3.2 for a more comprehensive description of the Williamson Act). The DOC's Williamson Act data were used to analyze agriculture impacts. These data include any lands that are currently enrolled under a California Land Conservation Act contract in 2016. This analysis does not include lands that are in a non-renewal status. Table 4-3 shows the amount of agricultural lands under Williamson Act contract in each of the counties in the SACOG region as of 2016, the most recent year for which data are available.

As of 2016, the SACOG region contained a total of 655,938 acres of land contracted under the Williamson Act. Of those acres, 394,999 acres were Prime Farmland and 260,938 acres were nonprime. Over 50 percent of both prime and nonprime lands under contract are located in Yolo

County. About 25 percent of all contract lands are located in Sacramento County, with the remainder in El Dorado, Placer, and Sutter counties. Yuba County does not participate in the program. Figure 4-2 shows the location of Williamson Act lands in the SACOG region.

Table 4-3
Williamson Act Lands within the SACOG Region as of 2016

County	Acres of Active Williamson Act Lands			Percent of Total Land Acres in Williamson Act Contracts
	Prime	Nonprime	Total	
El Dorado	7,070	24,734	31,804	5%
Placer	22,443	1,691	24,134	4%
Sacramento	88,809	72,581	161,390	25%
Sutter	48,610	13,617	62,227	9%
Yolo	228,067	148,316	376,383	57%
Yuba[1]	0	0	0	0%
SACOG Region	394,999	260,938	655,938	100%

[1] Yuba County does not participate in the Williamson Act program.
Source: DOC 2016b. The California Land Conservation (Williamson) Act Status Report 2016. Yolo data is from 2013.

4.2.4 General Plan Designations and Zoning for Agriculture and Forestry

General plan data from all six counties were used to analyze lands designated for agriculture and forest uses. These data were collected in 2019 and reflect the currently adopted general plans in El Dorado (2018), Placer (2013), Sacramento (2017), Sutter (2011), Yolo (2009), and Yuba (2011) counties and any amendments that have been captured in the spatial files. Zoning data from all six counties were collected in 2019 and used in this analysis to measure impacts to agriculture and forest zoned uses.

As of 2016, the SACOG region contained 1,623,986 acres of land zoned for agricultural uses, 1,522,371 acres of land designated for agriculture in local general plans, and 655,938 acres of farmland under active Williamson Act contracts (see Table 4-3 above). These categories are not mutually exclusive. That is, lands classified in one category can also be classified in one or both of the other categories. In Placer County, there are general plan and zoning land uses that are categorized as agriculture and/or timber/forest. These acres were accounted for in the forestry acres summary and not doubled counted in the agricultural lands acreage summary here. Although there is agricultural land in Placer County, the majority of the land with the combined "agriculture/timber" designation is forested land.

Further, three of the six county general plans within the plan area of the proposed MTP/SCS establish designations that include forests or timberland for production, though each county does so using a different approach (for more information on forest land as a natural resource and habitat, see Chapter 6 – Biological Resources). Only Placer County establishes generalized designations specifically for "Forestry" and "Timberland," which is further divided into separate designations by minimum parcel acreage (Placer County 2013). Additionally, Placer County has several community plans including similar designations to those of the general plan. When combined, these designations cover 587,427 acres of land within the county.

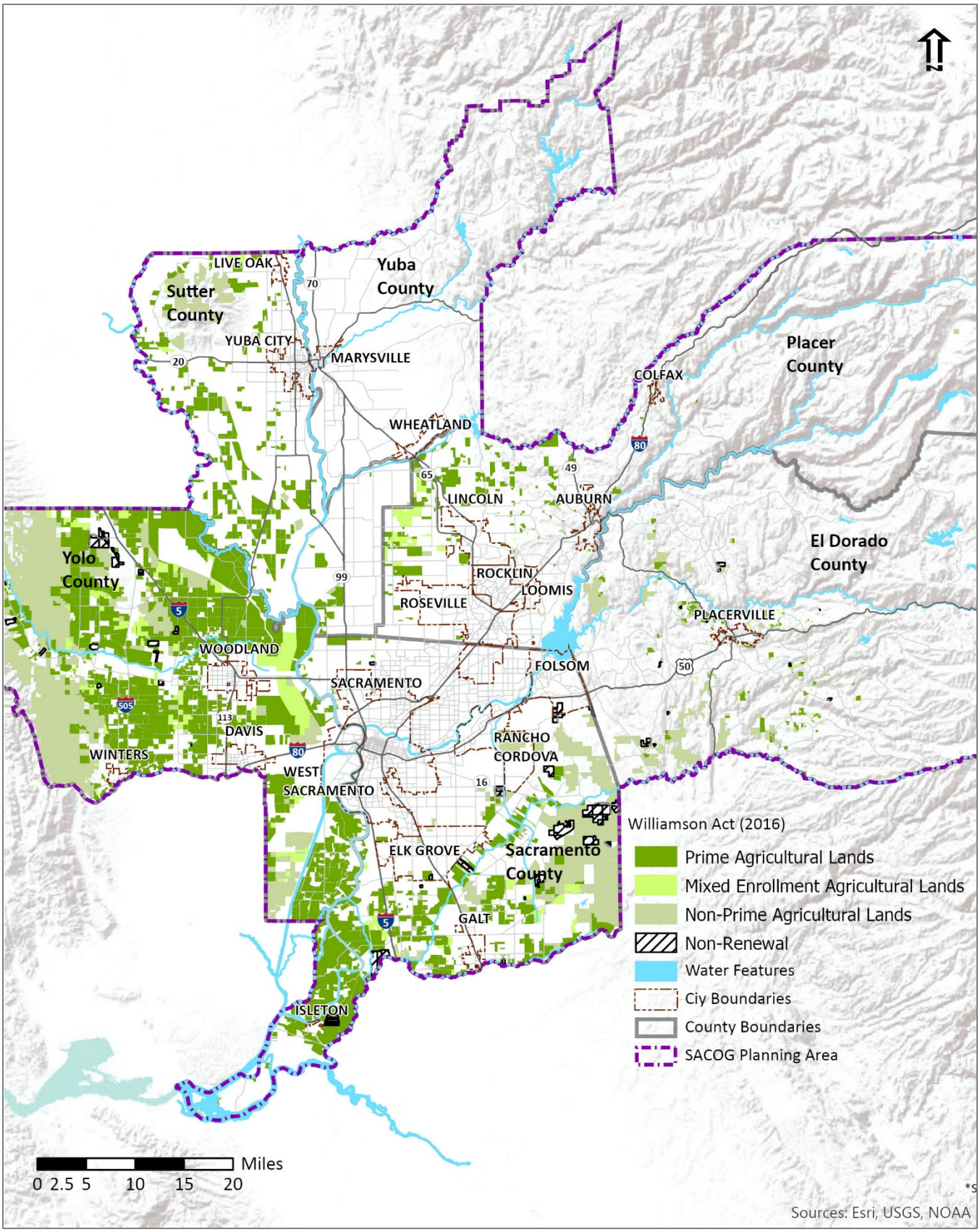


Figure 4-2
Williamson Act Lands in the Plan Area of the Proposed MTP/SCS

El Dorado County includes forest land in the "Natural Resources" designation, along with "mineral resources, important watershed, lakes and ponds, river corridors, grazing lands, and areas where the encroachment of development would compromise these natural resource values" (El Dorado County 2018). This designation covers 636,651 acres of land within the county. Similarly, Yuba County includes agriculture and forest land in the "Natural Resources" designation, created to "conserve and provide natural habitat, watersheds, scenic resources, cultural resources, recreational amenities, agricultural and forest resources, wetlands, woodlands, minerals, and other resources for sustainable use, enjoyment, extraction, and processing" (Yuba County 2011). This designation covers 288,366 acres of land within the county. Sacramento, Sutter, and Yolo counties do not reference forests or timberland in their general plans.

At the time the NOP was issued in April 2019, the SACOG region contained a total of 1,542,444 acres of land designated for forest or timber in the general plan and 1,146,324 acres of land zoned for forest land or timber production, including areas where the forest/timber designation cannot be separated from agricultural or natural resource designations.

4.2.5 California Land Cover Mapping and Monitoring Program

California's vegetation is mapped by the California Department of Forestry and Fire Protection's (CAL FIRE's) Land Cover Mapping and Monitoring Program. Land cover data from the Land Cover Mapping and Monitoring Program were used to analyze forest lands. These data are produced using remote sensing and aerial imagery to create a dataset that includes tree size and tree canopy with a minimum map unit of 2.5 acres. Because the Land Cover Mapping and Monitoring data are remote sensing data created to estimate all tree canopy, in some cases, particularly in urban areas, it is likely these are not actual "forest" areas. No screening for tree canopy density was done in this analysis; however, the data were geographically screened so that only forests that actually exist today were used. These areas are within the Rural Residential Communities and the Lands Not Identified for Development in El Dorado, Placer, and Yuba counties. Forest land cover data are also presented in Chapter 6 – Biological Resources for purposes of understanding the impacts of the proposed MTP/SCS on natural community types, habitat uses and values, and biological resources.

According to data provided for 2018, there are 792,441 acres of conifer forests, 467,441 acres of hardwood forests, and 369,257 acres of mixed conifer/hardwood forests in the plan area of the proposed MTP/SCS.

4.3 Regulatory Setting

4.3.1 Federal Regulations

FARMLAND PROTECTION POLICY ACT OF 1981

The Farmland Protection Policy Act (FPPA) (7 U.S. Code Section 4201, et seq.) is administered by NRCS. NRCS maps soils and farmland to provide comprehensive information necessary for understanding, managing, conserving, and sustaining the nation's limited soil resources. NRCS determines impacts to farmland that could occur due to a proposed project. The determination is made through coordination between the federal agency proposing or supporting the project and NRCS. NRCS makes a determination, using set thresholds, as to whether additional project-specific mitigation is required. The FPPA is intended to minimize the impact federal programs have on the

unnecessary and irreversible conversion of farmland to non-agricultural uses. It assures that federal programs are administered to be compatible with state, local government, and private programs and policies to protect farmland to the extent possible. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. For the purpose of the FPPA, farmland includes Prime Farmland, Unique Farmland, and Land of Statewide or Local Importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

FEDERAL FARM BILL OF 1990 – FEDERAL FOREST LEGACY PROGRAM

The federal Forest Legacy Program (FLP) (16 U.S. Code Section 2103c) was part of the 1990 Federal Farm Bill. The purpose of the FLP is to protect environmentally-important forest land under private ownership from conversion to non-forest uses, such as residential or commercial development. The FLP promotes the use of voluntary conservation easements on these properties. Landowners who wish to participate may sell or transfer particular rights, such as the right to develop the property or to allow public access, while retaining ownership of the property and the right to use it in any way consistent with the terms of the easement. The agency or organization holding the easement is responsible for managing the rights it acquires and for monitoring compliance by the landowner. Forest management activities, including timber harvesting, hunting, fishing, and hiking are encouraged, provided they are consistent with the program's purpose.

4.3.2 State Regulations

FARMLAND MAPPING AND MONITORING PROGRAM

In 1982, the State of California created the FMMP within DOC to carry on the mapping activity from NRCS. The FMMP is a non-regulatory program that provides consistent and impartial analysis of agricultural land use and land use changes throughout California for use by decision-makers in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources. The FMMP produces Important Farmland Maps, which are a hybrid of resource quality (soils) and land use information. Information from the FMMP was used to identify agricultural resources within the SACOG region. The FMMP is the primary system by which the extent, distribution, and quality of farmland is evaluated and monitored. Maps of Important Farmland are prepared periodically (approximately every two years) by the FMMP for most of the state's agricultural regions, based on soil survey information and land inventory and monitoring criteria developed by NRCS.

The classification system employed by FMMP consists of eight mapping categories: five categories of agricultural lands and three categories of nonagricultural lands. The characteristics of these eight categories are summarized below.

- **Prime Farmland.** Prime farmlands are lands with the combination of physical and chemical features best able to sustain long-term production of agricultural crops. The land must be supported by a developed water supply that is dependable and of adequate quality during the growing season. It must also have been used for the production of irrigated crops at some time during the four years before the mapping data were collected.

- **Farmland of Statewide Importance.** Farmland of statewide importance are lands with agricultural land use characteristics, irrigation water supplies, and physical characteristics similar to Prime Farmland but with minor shortcomings, such as steeper slopes or less ability to hold and store moisture.
- **Unique Farmland.** Unique farmlands are lands with lesser quality soils used for the production of California's leading agricultural cash crops. These lands are usually irrigated but may include non-irrigated orchards or vineyards as found in some of the state's climatic zones.
- **Farmland of Local Importance.** Farmlands of local importance are important to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee. In Yolo County, this category includes Farmlands of Local Potential, which are Prime or Statewide soils which are presently not irrigated or cultivated.
- **Grazing Land.** Grazing lands are lands on which the existing vegetation is suited to the grazing of livestock.
- **Urban and Built-Up Land.** This category describes land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **Other Land.** This category encompasses land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; vacant and nonagricultural land surrounded on all sides by urban development; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres.
- **Water.** This category describes perennial bodies of water with an extent of at least 40 acres.

THE CALIFORNIA LAND CONSERVATION ACT (WILLIAMSON ACT) OF 1965

The Williamson Act (Gov. Code Section 51200–51207) was enacted by the California State Legislature in 1965 to encourage the preservation of agricultural lands. The Williamson Act program permits property tax adjustments for landowners who contract with a city or county to keep their land in agricultural production or approved open space uses for at least 10 years. Lands covered by Williamson Act contracts are assessed on the basis of their agricultural value instead of their potential market value under nonagricultural uses. In return for the preferential tax rate, the landowner is required to contractually agree to not develop the land for a period of at least ten years.

Williamson Act contracts historically had a term of 10 years or more with renewal occurring automatically each year. Sacramento and Sutter County participate in Williamson Act contracts. The Farmland Security Zone (FSZ) program added to the Williamson Act in 1998 offers landowners greater property tax reduction in return for an initial contract term of 20 years, with renewal occurring automatically each year. El Dorado, Placer, and Yolo County participate in the FSZ contracts. Yuba County does not participate in the Williamson Act program. Assembly Bill (AB) 1265, discussed below, decreased the duration of the Land Conservation Act and FSZ contracts by one and two years, respectively.

The Williamson Act requires contracts to be renewed annually for 8 to 9 years unless a party to the contract files for non-renewal. The filing of a non-renewal application by a landowner ends the automatic annual extension of a contract and starts a nine-year phase-out of the contract. During the phase-out period, the land remains restricted to agricultural and open-space uses, but property taxes gradually return to levels associated with the market value of the land. At the end of the nine-year non-renewal process, the contract expires, and the owner's uses of the land are restricted only by applicable local zoning. In 2012 and 2013, 25,874 acres entered into non-renewal (DOC 2015). Though state subventions to backfill lost property tax revenue were eliminated in 2009, the program is still ongoing in the region and remains an important part of farmland conservation strategies.

The Williamson Act defines compatible use of contracted lands as any use determined by the county or city administering the preserve to be compatible with the agricultural, recreational, or open-space use of land within the preserve and subject to contract (Gov. Code Section 51202[e]). However, uses deemed compatible by a county or city government must be consistent with the principles of compatibility set forth in Government Code Sections 51231, 51238, or 51238.1.

REINSTATED PORTIONS OF THE WILLIAMSON ACT, REVENUE & TAX CODE, AND OPEN SPACE AND SUBVENTION ACT (2011)

AB 1265 (Chapter 90, Statutes of 2011) was approved by the Governor in Summer 2011 and essentially reinstated portions of the Williamson Act, Revenue & Tax Code, and Open Space and Subvention Act that allowed eligible counties to recapture 10 percent of the property tax benefits provided to their owners of Williamson Act lands by decreasing the duration of the Land Conservation Act and FSZ contracts by one and two years, respectively. Senate Bill (SB) 1353 (Chapter 322, Statutes of 2014), approved by the Governor on September 15, 2014, eliminates the January 1, 2016 sunset clause and makes the option for participating counties to recapture portions of foregone tax revenue permanent (AgAlert 2011). In the plan area of the proposed MTP/SCS, Sutter and Yolo counties take advantage of this legislation, but do not offer any new Williamson Act contracts without funding for the subvention program.

OPEN SPACE SUBVENTION ACT OF 1972

The Open Space Subvention Act (Gov. Code Section 16140 et seq.) was enacted on January 1, 1972 to provide for the partial replacement of local property tax revenue foregone as a result of participation in the Williamson Act program and other enforceable open space restriction programs. Participating local governments receive annual payment on the basis of the quantity (number of acres), quality (soil type and agricultural productivity), and, for Farmland Security Zone contracts, location (proximity to a city) of land enrolled under eligible, enforceable open space restrictions. With implementation of AB 1265, discussed above, counties that receive less than half of their foregone general fund property tax revenue from the Open Space Subvention Act Program the prior year, are eligible to implement a new provision of the Williamson Act to allow both Williamson Act and FMZ contracts to be amended from 10 to 20 years to 9 and 18 years, respectively.

Z'BERG-NEJEDLY FOREST PRACTICE ACT OF 1973

The Z'berg-Nejedly Forest Practice Act (Forest Practice Act) (Public Resource Code [PRC], div. 4, ch. 8) established a nine-member Board of Forestry whose mandate is to assure the best economic and environmental practices in timber production in California. The Board requires that a Registered

Professional Forester prepare a Timber Harvest Plan (THP) before harvesting timber on most non-federal forestland. The goal of the THP is to assure that the continual productivity of timberlands is sustained and enhanced by the timber harvesting that takes place on the site, and that related resources are protected to the extent feasible, including watersheds, fisheries, wildlife, recreation, aesthetics, and employment in the region.

Z'berg-Warren-Keene-Collier Forest Taxation Reform Act of 1976 – Timberland Production Zones

Under the Forest Taxation Reform Act (Gov. Code Section 51110-51119.5), counties must provide for the zoning of land used for growing and harvesting timber as Timberland Preserve Zones (TPZ). A TPZ is a 10-year restriction on the use of timberland, similar to the Williamson Act for agricultural lands. Land use under a TPZ is restricted to growing and harvesting timber or to compatible uses. In return, taxation of timberland under a TPZ will be based only on such restrictions in use.

The Right to Farm Act of 1981

The Right to Farm Act (Civ. Code Section 3482.5) is designed to protect commercial agricultural operations from nuisance complaints that may arise when an agricultural operation is conducting business in a "manner consistent with proper and accepted customs." The code specifies that established operations that have been in business for three or more years that were not nuisances at the time they began shall not be considered a nuisance as a result of new land use.

California Timberland Productivity Act of 1982

The California Timberland Productivity Act (CTPA) (Gov. Code Sections 51100-51104) describes the powers and duties of local government in protecting timberlands. The law is designed to maintain an optimum amount of timberland, ensuring its current and continued availability by establishing TPZs on all qualifying timberland, which restrict land use to growing and harvesting timber and other compatible uses. The act discourages premature or unnecessary conversion of timberland to urban or other uses and expansion of urban services into timberland, and encourages investment in timberlands based on reasonable expectation of harvest. The CTPA also provides that timber operations conducted in accordance with California forest practice rules shall not be restricted or prohibited due to land uses in or around the location of the timber operations.

Delta Protection Act of 1992– Delta Protection Commission

The Delta Protection Act of 1992 (PRC Section 29760 et seq.) recognized the Sacramento-San Joaquin Delta as a natural resource of statewide, national and international significance, containing irreplaceable resources. The act created the policy to recognize, preserve and protect those resources, designated Primary and Secondary Zones within the legal Delta, and established the Delta Protection Commission (DPC). DPC was charged with creating the Land Use and Resources Management Plan (LURMP) for the Primary Zone, which was adopted in 1995. The LURMP provides direction for local jurisdictions in the Delta region on land use decisions.

The southernmost portions of Sacramento and Yolo counties within the plan area of the proposed MTP/SCS are located within the Delta Primary Zone. Isleton and a portion of West Sacramento are located within the Delta Secondary Zone. Additionally, the city of Sacramento is located

directly adjacent to the Secondary Zone. DPC has the authority to evaluate all plans, projects, and programs adopted by local governments within the Primary Zone for consistency. DPC requires these plans, projects, and programs to direct development within the existing city limits and designate other areas within the Delta for agricultural use. Local jurisdictions with lands in the Primary Zone have amended their general plans to incorporate the management plan (Sacramento County 2018; Yolo County 2019).

In 2010, DPC amended the LURMP to reflect changes since adoption, such as newly identified endangered species, effects of climate change, flood control issues, increased recreational use, water quality changes, habitat loss, road and utility construction, and urbanization. The amendment adds specific overview, goals, and policies subsections and a glossary of terms to address components of the Delta system, such as: natural resources, utilities, infrastructure, land use, agriculture, water, recreation, and levees. Regarding agriculture, the LURMP sets goals to support the long-term viability of agriculture in the Delta and discourage the inappropriate development of agricultural lands to urban lands. The LURMP directs new non-agricultural development toward existing towns and encourages growth in farms and other agriculturally-related businesses. Policies aim to enhance the economic viability of the Delta's agriculture through education and legacy programs, land use policies such as parcel size maximization, and acquisition of agricultural conservation easements (DPC 2010). The DPC has initiated an update to the LURMP, and a draft LURMP is currently available for public review. For a discussion of the consistency of the proposed MTP/SCS with the LURMP, see Chapter 12 – Land Use Planning.

THE CORTESE-KNOX-HERTZBERG LOCAL GOVERNMENT REORGANIZATION ACT OF 2000

The Cortese-Knox-Hertzberg Local Government Reorganization Act (Gov. Code Section 56000 et seq.) established procedures for local government changes of organization, including city incorporations, annexations to a city or special district, and city and special district consolidations. This act requires that development or use of land for other than open space shall be guided away from existing prime agricultural lands in open space use toward areas containing nonprime agricultural lands, unless that action would not promote the planned, orderly, efficient development of an area.

OAK WOODLANDS CONSERVATION ACT OF 2004

The Oak Woodlands Conservation Act of 2004 (SB 1334) PRC Section 21083.4) provides funding for the conservation and protection of California's oak woodlands. It requires counties, in determining whether CEQA requires an environmental impact report, negative declaration, or mitigated negative declaration, to determine whether a project in its jurisdiction that may result in a conversion of oak woodlands poses a significant effect on the environment. If a potentially significant effect is identified, the Act requires implementation of one or more specified mitigation alternatives to mitigate the conversion of oak woodlands. By imposing new duties on local governments with respect to oak woodlands mitigation, the bill imposes a state-mandated local program.

CALIFORNIA FOREST LEGACY ACT OF 2007

Similar to the Federal Forest Legacy Program, the California Forest Legacy Act (PRC Section 12220(G)) is a program of CAL FIRE to promote conservation easements in environmentally-sensitive forest areas. Money to fund the Program is obtained from gifts, donations, federal grants

and loans, other appropriate funding sources, and from the sale of bonds pursuant to Proposition 12, the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act (The Villaraigosa-Kelley Act) of 2000 (PRC div. 5, ch. 1.692).

This act defines "forest land" as "land that can support ten-percent native tree cover of any species, including hardwoods, under natural conditions and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits" (California Legislative Information 2019).

California Department of Forestry and Fire Protection's Fire and Resource Assessment Program

CAL FIRE's Fire and Resource Assessment Program assesses the amount and extent of California's forest and rangelands. The program analyzes their condition and identifies alternative management and policy guidelines. The assessment links together state requirements for natural resource inventories and strategies and the federal government's desire to rely more heavily on these state programs in determining priorities for funding (CAL FIRE 2012).

Sacramento-San Joaquin Delta Reform Act of 2009

In November 2009, the Sacramento-San Joaquin Delta Reform Act (Delta Reform Act) (Wat. Code, Section 10610 et seq.), also known as SB 1 (Stats. 2009, 7th Ex. Sess., ch. 5), was enacted as one of several bills related to water supply reliability, ecosystem health, and the Delta. The Delta Reform Act created the Delta Stewardship Council (DSC). DSC is made up of seven members that are advised by a 10-member board of scientists. DSC adopted the Delta Plan – a comprehensive, long-term management plan for the Delta– in May 2013. The Plan creates new rules and recommendations to address DSC's coequal goals for the Delta of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. According to the Delta Reform Act and the Delta Plan, the coequal goals are to be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. DSC regulates covered actions, as statutorily defined, to address the coequal goals (for more information on what constitutes a covered action, see Chapter 12 – Land Use and Planning). The coequal goals pertaining to agriculture include: 1) maintain Delta agriculture as a primary land use, a food source, a key economic sector, and a way of life; and 2) sustain a vital Delta economy that includes a mix of agriculture, tourism, recreation, related industries and business, and vital components of state and regional infrastructure (DSC 2013).

California Farmland Conservancy Program Act of 2010

The California Farmland Conservancy Program Act (PRC Section 10200 et seq.), also known as SB 1142 (Stats. 2010, ch. 323), established the California Farmland Conservancy Program (CFCP), which provides grants for agricultural conservation easements. An agricultural conservation easement aims to maintain agricultural land in active production by preventing development on the subject parcel and prohibiting practices that would damage or interfere with the agricultural use of the land. Because the easement is a restriction on the deed of the property, the easement remains in effect even when the land changes ownership. While other benefits may accrue because the land is not developed (scenic and habitat values, for example), the primary use of the land is agricultural. Easements funded by the CFCP must be of a size and nature suitable for viable commercial agriculture.

THE FARM AND RANCH LAND PROTECTION PROGRAM

The Farm and Ranch Land Program provides matching funds to help purchase development rights to keep productive farm and ranchland in agricultural uses. Working through existing programs, the U.S. Department of Agriculture (USDA) partners with state, tribal, or local governments and nongovernmental organizations to acquire conservation easements or other interests in land from landowners. USDA provides up to 50 percent of the fair market easement value of the conservation easement. To qualify, farmland must be part of a pending offer from a state, tribe, or local farmland protection program; be privately owned; have a conservation plan for highly erodible land; be large enough to sustain agricultural production; be accessible to markets for what the land produces; have adequate infrastructure and agricultural support services; and have surrounding parcels of land that can support long-term agricultural production. The USDA Natural Resources Conservation Service manages the program.

SUSTAINABLE AGRICULTURAL LANDS CONSERVATION PROGRAM

The Sustainable Agricultural Lands Conservation Program (SALCP) is a component of the Affordable Housing and Sustainable Communities Program (AHSC), developed and implemented under the Greenhouse Gas Reduction Fund within the California Budget Act of 2014. The goal of the AHSC is to "reduce greenhouse gas emissions through projects that implement land use, housing, transportation, and agricultural land preservation practices to support infill and compact development…" (Strategic Growth Council 2018). It defines eligible projects to include "the acquisition of easements or other approaches or tools that protect agricultural lands that are under pressure of being converted to nonagricultural uses, particularly those adjacent to areas most at risk of urban or suburban sprawl…" (Strategic Growth Council 2018).

Within the AHSC, the SALCP aims to prevent increases in GHG emissions by "limiting opportunities for expansive, vehicle dependent forms of development in favor of more focused, compact, and transit-oriented development within discrete growth boundaries." In the future, SALCP will also fund programs that promote on-farm conservation strategies that reduce GHG emissions. Furthermore, the SALCP intends to leverage past and current agricultural land conservation programs, such as the California Farmland Conservancy Program, the Farmland Mapping and Monitoring Program, the Williamson Act, Revenue and Taxation Code sections 421-430.5, and Public Resources Code Division 9.

The most recent guidelines for the SALCP grant program were approved by the Strategic Growth Council in December 2018 and applications will be accepted in Fall 2019. The guidelines divided project applications into two categories—Sustainable Agricultural Lands Conservation Planning and Agricultural Conservation Easements (Strategic Growth Council 2018).

DELTA VISION BLUE RIBBON TASK FORCE

California Executive Order S-17-06 created the Delta Vision Blue Ribbon Task Force and directed the task force to develop a vision statement for sustainable management of the Delta and a strategic plan for the long-term restoration and maintenance of identified functions and values that are determined to be important to the environmental quality of the Delta and the economic and social well-being of the people of California. The Blue Ribbon Task Force released the Delta Vision Strategic Plan in October 2008, a document that describes specific steps and policies to realize the

Delta Vision. It outlined the following goal for agriculture: recognize and enhance the unique cultural, recreational, and agricultural values of the California Delta as an evolving place, an action critical to achieving the co-equal goals (Governor's Delta Vision Blue Ribbon Task Force 2008).

4.3.3 Local Regulations

GENERAL PLANS

The most comprehensive land use planning for the SACOG region is provided by city and county general plans, which local governments are required by state law to prepare as a guide for future development. The general plans of each city and county contain goals and policies concerning topics that are mandated by state law (i.e., land use, circulation, housing, conservation, open space, noise, safety) or which the jurisdiction has chosen to include (e.g., natural resources, parks and recreation, agricultural). The land use diagram generally illustrates designations that provide general locations for where policies will be implemented by land use type (e.g., residential, commercial, industrial, public, open space), including those pertaining to agricultural resources.

In general, local planning policies related to agriculture and forestry resources are established to conserve and preserve agricultural land; protect natural resources; enhance Delta agriculture; and support, sustain, reinvent, and diversify the agricultural economy. In addition to these general policies, jurisdictions may have more specific policies regarding agricultural lands in the Farmland Mapping and Monitoring Program, Williamson Act lands, local preference, and/or agribusiness.

Within the six counties comprising the plan area of the proposed MTP/SCS, most agriculture and forestry resources are located within unincorporated county areas. Policies related to agriculture and forestry are established in the following elements of general plans within the region: Agriculture and Forestry (El Dorado County), Agricultural and Forestry Resources (Placer County), Agricultural (Sacramento County), Agricultural Resources (Sutter County), and Agriculture and Economic Development (Yolo County). Yuba County includes these policies in the Farmland and Forests Section of the Natural Resources Element.

Lastly, local planning policies addressing biological resources are also established in each jurisdiction's general plan. These policies addressing biological resources, also address the protection of forest lands. For more information on forest land as a natural resource and habitat, refer to Chapter 6 – Biological Resources.

ZONING

The city or county zoning code or ordinance is the set of detailed requirements that implement the general plan policies at the level of the individual parcel. The zoning code establishes separate districts or zones (e.g., residential, commercial, industrial, public, open space), presents standards for development in different districts, and identifies which uses are allowed in the various zoning districts to ensure neighboring land uses are compatible with one another. State law requires the city or county zoning code to be consistent with the jurisdiction's general plan.

The zoning code usually establishes specific districts for agriculture and/or forestry resources to protect farmland and farming activities from incompatible nonfarm uses and vice versa. Agricultural zoning can specify many factors, such as the farm uses allowed, minimum farm size, the number of

nonfarm dwellings allowed, or the size of a buffer separating farm and nonfarm properties. All six counties in the plan area of the proposed MTP/SCS have agricultural zoning districts, including:

- **El Dorado County:** Limited Agricultural, Planned Agricultural (e.g., 20/30/40-acre), Agricultural Grazing, Timber Production, Forest Resource, Rural Lands
- **Placer County:** Agricultural Exclusive, Farm, Forestry, and Timberland Production;
- **Sacramento County:** Permanent Agriculture (e.g., 20/40/80/160-acre) and Interim Agricultural (e.g., 10/20/40-acre);
- **Sutter County:** Agricultural Education and Entertainment, Agricultural Homestays, Agricultural Manufacturing, Agricultural Processing, Agricultural Product Sales, Agricultural Supplies and Services, Agricultural Truck Yards, Agriculture, Animal Processing and Intensive Animal Operations;
- **Yolo County:** Agricultural Intensive, Agricultural Extensive, Clarksburg Agricultural District Overlay Zone; and
- **Yuba County:** Exclusive Agricultural.

Additionally, some counties include agricultural residential designations, with various minimum parcel requirements, as well as agricultural commercial or industrial processing zones.

Community and Specific Plans

A city or county may also provide land use planning by community or specific plans for smaller, more specific areas within their jurisdiction. These more localized plans provide for focused guidance for developing a specific area, with development standards tailored to the area, as well as systematic implementation of the general plan. Like the general plan, a specific or community plan may include a designated land use for the preservation of agriculture or forestry resources.

Public Ownership, Purchase of Development Rights, and Open Space Acquisition

Local governments and special districts, either on their own or working with land trusts and conservancies, can acquire fee title to agricultural and open space lands or purchase development rights to preserve rural and agricultural areas, watersheds, or critical habitat, or to create public parks and recreational areas.

Oak Woodland Management Plans

As discussed above under State Regulations, SB 1334 of 2004, the Oak Woodlands Conservation Act, requires all counties in California to adopt oak woodland management plans and ordinances that require a discretionary permit for oak woodland conversions. It also requires all counties to set minimum mitigation standards. Five of the six counties within the plan area of the proposed MTP/SCS have adopted Oak Woodland Management Plans. Additionally, Sacramento County addresses the protection of oak woodlands in the Conservation Element of the 2011 General Plan.

RURAL-URBAN CONNECTIONS STRATEGY

The RUCS was launched at the conclusion of the 2008 MTP in an effort to provide policy and technical approaches to addressing or avoiding impacts to rural resources in the Sacramento region. The RUCS program is an economic and environmental sustainability strategy for rural areas and thus an integral piece of a regional strategy for the region's economic and environmental sustainability and viability. The innovative program supports an in-depth understanding of rural land and agricultural and forestry resources in the region through the application of spatial analysis tools, data collection and monitoring, dissemination of information, coordination with subject-area experts, facilitation of inter-agency collaboration, and technical assistance to member jurisdictions. The program has focused analysis and research on five main study areas:

- Land Use and Conservation: policies and plans that shape rural areas,
- The Infrastructure of Agriculture: challenges to the production process,
- Economic Opportunities: new ways to grow revenue,
- Forest Management: growing economic and environmental value, and
- Regulations: navigating federal and state environmental guidelines.

RUCS has developed tools and supporting data to support policy understanding about the influence of the rural and urban economies on each other. One example is the agricultural cost-and-return tool that the RUCS team created using information about crop data, pesticide use, economic data, and per-acre agricultural cost and return data to assess agricultural production in the region. This toolkit integrates with Geographic Information System (GIS)-based parcel-level crop data that tracks agricultural production and trends over time in the plan area. The model can also test a range of scenarios from simple sensitivities analyses of production input variables- including input demands such as water or labor needs and returns on investment- to large-scale land use changes, to assess possible economic and environmental outcomes at the regional scale. This set of tools provides the capacity to evaluate both urban and rural land use changes when combined with the land use model. These efforts are intended to broaden the region's understanding of how land use and transportation investments affect rural areas and illustrate the benefit of agriculturally-supportive policies at the local level. The RUCS program monitors change over time in acreage and farmgate value for a comprehensive range of agricultural products, including livestock and timber, in El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba Counties, as well as changes to rural land patterns and natural resources, such as forest resources and cropping patterns through monitoring of publicly available spatial datasets.

The RUCS program is ongoing, with the ultimate goal of bridging the urban and rural planning needs in the region. In addition to continuing to gather and assess information on agricultural production in the region, other recent RUCS projects include the Food System Multipliers for Specialty Crops in the Sacramento Region study and the Delta Protection Commission Case Study.

The Food System Multipliers project was work conducted through the RUCS to provide updated data, modeling and tools to better demonstrate the important role agriculture and food plays in the Sacramento regional economy. By linking crop production on the farm to a larger food system—aggregation, processing, and distribution—the project developed a series of economic multipliers showing the ripple effect of agricultural industries on the greater regional economy.

In SACOG's Local Food System Assessment for Yolo and Sacramento County Delta Communities, also referred to as the "Delta Case Study," SACOG and DPC partnered in deploying the RUCS modeling and analysis tools to help answer questions about how to stimulate agricultural-based economic development in the Delta's rural communities in a manner that aligns with a shared vision of the Delta: "the ideal synthesis of cultural, ecological, and agricultural values in a sustainable, healthy, and celebrated way of life." This project provided an assessment of the agricultural systems in Delta communities of Yolo and Sacramento counties, evaluating how the current agricultural system is affected by internal and external changes, and envisioning strategies to preserve and enhance the long-term viability of agriculture in the Delta.

4.4 Impacts and Mitigation Measures

4.4.1 Methods and Assumptions

This program-level analysis generally evaluates the potential loss of agricultural and forest resources from implementation of the proposed MTP/SCS based on the projected land use pattern and planned transportation improvements relative to the known distribution of agricultural and forest resources throughout the plan area of the proposed MTP/SCS.

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 as the baseline year because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS. Exceptions to the 2016 baseline include the following:

- With the exception of the El Dorado Crop Report, prepared in 2016, the most recent year for the crop reports prepared for counties within the plan area of the proposed MTP/SCS is 2017.
- Because more updated data is unavailable, Williamson Act Contract data for Yolo County is from 2013 (other Williamson Act Contract data are from 2016). As such, the impact analysis for Yolo County Williamson Act Contracts is based on 2013 data.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

The footprints of the projected land use pattern and planned transportation improvements anticipated in the proposed MTP/SCS were overlaid with various farmland and forestry data. Road widenings, new roads, and new or expanded interchanges were analyzed by calculating a 100-foot buffer area around the center line of the proposed projects and measuring the area overlapping various farmland and forestry data because details about the planned transportation improvements identified in the proposed MTP/SCS, such as precise alignment, width, and location in relation

agricultural and forestry resources, are not known at this time. Only road widenings, new roads, and new or expanded interchanges were spatially analyzed this way, and the analysis overestimates potential impacts because many planned transportation improvements, such as road widenings, would not use the entire buffer area. Planned transportation improvements that would be constructed within the footprint of existing roadways (e.g. re-paving; new transit service; bicycle lanes added within existing developed right-of-way) and projects without physical characteristics (e.g. programs) are not analyzed because they would not contribute to adverse effects. New transit infrastructure, Class II (bike lanes) and Class III (bike routes) bicycle projects were included in the roadway buffer analysis because such projects are part of the roadway right-of-way. A buffer analysis was not performed for Class I (separate, multi-use trails) projects. Because Class I trails are much narrower than roadways, performing a programmatic buffer analysis with meaningful results is not feasible, as even small shifts in alignment can result in varying outcomes. However, a majority of new Class I trails in the plan area of the MTP/SCS run parallel to new, expanded, or existing roadways or along waterways and levees. Class I trails that run parallel to new or expanded roadways would be captured by the 100-foot buffer around new or expanded roadway and light rail projects that was used to calculate potential impacts on agricultural lands. Class I trails not covered by the 100-foot buffer are addressed qualitatively in the impact analysis.

For descriptions of the agriculture and forestry environment, 2016 was also used as the baseline in most instances, but to the extent more recent data was available, it is provided. Five data sources were used to analyze the agriculture and forestry environment: the FMMP, the DOC's Williamson Act, general plans (from all six counties), zoning codes (from all six counties), and CAL FIRE's Land Cover Mapping and Monitoring Program. In addition, the acreages for agricultural land identified in this chapter were confirmed through county crop reports for all six counties. Using this combination of multiple data sources plus individual county review is more accurate than solely relying on FMMP data, which does not capture information about farms that are less than 10 acres in size or that have been newly put into production during the last 20 years. The method used for this analysis captures all designated farmland in the region.

First, the FMMP data were used to analyze impacts to agricultural resources. These data classify agricultural resources into a number of categories. For purposes of this analysis Prime Farmland, Unique Farmland, and Farmland of Statewide Importance were considered. FMMP data are typically updated every two years and use a minimum mapping unit of 10 acres. The most recent complete and regionally consistent set of data published by the FMMP is for the years 2014-2016. Because these data do not account for land use change that has converted these lands to non-agricultural since publication of that data set and the April 2019 publication of the NOP for this Draft EIR, it is possible that farmlands identified as impact areas under the proposed MTP/SCS have already been converted or approved for conversion to non-agricultural use.

Second, Williamson Act data were used to analyze agriculture impacts. These data include any lands that are currently enrolled under a California Land Conservation Act contract in 2014 (with the exception of 2013 data used for Yolo County, which are described above). This analysis does not include lands that are in a non-renewal status. Third, general plan data from all six counties were used to analyze lands designated for agriculture and forest uses. These data were collected in 2019 and reflects the currently adopted general plans in El Dorado (2004), Placer (2013), Sacramento (2011), Sutter (2011), Yolo (2009), and Yuba (2011) and any amendments that have been adopted and mapped. Fourth, zoning data from all six counties were collected in 2019 and used in this analysis to measure impacts to agriculture and forest zoned uses.

Lastly, land cover data from the Land Cover Mapping and Monitoring Program were used to analyze forest lands. These data are produced using remote sensing and aerial imagery to create a dataset that includes tree size and tree canopy with a minimum map unit of 2.5 acres. Because the Land Cover Mapping and Monitoring data are remote sensing data created to estimate all tree canopy, in some cases, particularly in urban areas, it is likely these are not actual "forest" areas. No screening for tree canopy density was done in this analysis; however, the data were geographically screened so that only forests that actually exist today were used. These areas include the Rural Residential Communities and the Lands Not Identified for Development in El Dorado County, Placer County, and Yuba County.

The analysis assumes implementing agencies would ensure agricultural and forestry resources are treated in accordance with applicable federal, state and local laws and regulations as part of project planning, design and engineering.

4.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

AG-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP of the DOC, to non-agricultural use.

AG-2 Conflict with existing zoning or general plan land use designations for agricultural use, or with a Williamson Act contract.

AG-3 Conflict with existing zoning or land use designation for, or cause rezoning of, forest land (as defined in PRC Section 12220(G)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Gov. Code Section 51104(G)).

AG-4 Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland to non-agricultural use.

AG-5 Result in the loss of "Forest Land" as defined in the California Forest Legacy Act of 2007 (PRC Section 12220(G)) or conversion of Forest Land into non-forest use.

AG-6 Result in construction impacts that would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses; conflict with existing zoning or land use designation for agricultural use or a Williamson Act contract; conflict with existing zoning or land use designations for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use; or result in the loss of Forest Land or conversion of Forest Land into non-forest use.

4.4.3 Impacts and Mitigation Measures

IMPACT AG-1: CONVERT PRIME FARMLAND, UNIQUE FARMLAND, OR FARMLAND OF STATEWIDE IMPORTANCE, AS SHOWN ON THE MAPS PREPARED PURSUANT TO THE FMMP OF THE DOC, TO NON-AGRICULTURAL USE.

Regional Impacts

As of 2016, the SACOG region contained 563,738 acres of Prime Farmland, 132,579 acres of Unique Farmland, and 184,810 acres of Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP (see Table 4-2 and Figure 4-1). For this analysis, any acre of Prime Farmland, Unique Farmland or Farmland of Statewide Importance that overlaps with the projected land use pattern and planned transportation improvements of the proposed MTP/SCS is considered a potentially significant impact. Forecasted transportation growth along the urban/rural edge is addressed under Impact TRN-5- Transportation. The potential overlap of the proposed MTP/SCS projected land use pattern and planned transportation improvements with FMMP-designated farmland is shown below in Table 4-4.

Table 4-4
Proposed MTP/SCS Land Use and Transportation Overlap with FMMP Farmland

Community Type	Acres of Impact			
	Prime Farmland	Unique Farmland	Farmland of Statewide Importance	Total Acres of Impact
Projected Land Use Pattern				
Center and Corridor Communities	57	44	0	100
Established Communities	349	0	439	789
Developing Communities	330	292	511	1,133
Rural Residential Communities	68	44	28	140
Lands Not Identified for Development in the MTP/SCS Planning Period	0	0	0	0
Transportation Projects				
Center and Corridor Communities	1	1	1	2
Established Communities	19	9	29	58
Developing Communities	109	64	86	258
Rural Residential Communities	0	14	27	40
Lands Not Identified for Development in the MTP/SCS Planning Period	195	67	115	376
Regional Totals				
Projected Land Use Pattern Total	**804**	**380**	**979**	**2,163**
Transportation Projects Total	**323**	**154**	**257**	**735**
Land Use and Transportation Combined Total	**1,127**	**534**	**1,236**	**2,897**

Note: FMMP = Farmland Mapping and Monitoring Program
Numbers may not total due to rounding.
Source: DOC 2016a

By focusing on providing small-lot and attached housing, maximizing infill and redevelopment opportunities, and planning for communities with a mix of uses, the proposed MTP/SCS creates a compact land use pattern, which produces a smaller overall urban footprint that maximizes the land available. By 2040, the projected land use pattern of the proposed MTP/SCS has the potential to impact 804 acres of Prime Farmland, 380 acres of Unique Farmland, and 979 acres of Farmland of Statewide Importance for a total potential impact of approximately 2,163 acres. Planned transportation improvements were analyzed by calculating a 100-foot buffer area around the center line of the planned improvements and measuring the area overlapping FMMP-designated farmland. This analysis indicated that 323 acres of Prime Farmland, 154 acres of Unique Farmland, and 257 acres of Farmland of Statewide Importance could potentially be impacted by proposed MTP/SCS planned transportation improvements, for a total impact of approximately 735 acres.

Together, the projected land use pattern and planned transportation improvements have the potential to impact 1,127 acres of Prime Farmland, 534 acres of Unique Farmland, and 1,236 acres of Farmland of Statewide Importance for a combined potential impact to 2,897 acres of FMMP-designated farmland. The 2,897 acres of FMMP-designated farmland that may be impacted represents approximately 5 percent of the total 56,810 acres of new development land anticipated under the proposed MTP/SCS by 2040. In total, this impact amount of 2,897 acres represents approximately 0.1 percent of all existing FMMP-designated farmland in the region.

While these impacts appear relatively small from a regional perspective, due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Localized Impacts

Center and Corridor Communities
Within Center and Corridor Communities, the projected land use pattern of the proposed MTP/SCS has the potential to impact 57 acres of Prime Farmland, 44 acres of Unique Farmland, and 0 acres of Farmland of Statewide Importance for a total potential impact of approximately 100 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, localized impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Planned transportation improvements implemented as part of the proposed MTP/SCS in Center and Corridor Communities have the potential to impact 1 acre of Prime Farmland, 1 acre of Unique Farmland, and 1 acre of Farmland of Statewide Importance for a total potential impact of approximately three acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Center and

Corridor Communities are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Established Communities
Within Established Communities, the projected land use pattern of the proposed MTP/SCS has the potential to impact 349 acres of Prime Farmland, 0 acres of Unique Farmland, and 439 acres of Farmland of Statewide Importance for a total potential impact of approximately 789 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, localized impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Planned transportation improvements implemented as part of the proposed MTP/SCS have the potential to impact 19 acres of Prime Farmland, 9 acres of Unique Farmland, and 29 acres of Farmland of Statewide Importance for a total potential impact of approximately 58 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Developing Communities
Within Developing Communities, the projected land use pattern of the proposed MTP/SCS has the potential to impact 330 acres of Prime Farmland, 292 acres of Unique Farmland, and 511 acres of Farmland of Statewide Importance for a total potential impact of approximately 1,133 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, localized impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Planned transportation improvements implemented as part of the proposed MTP/SCS within Developing Communities have the potential to impact 109 acres of Prime Farmland, 64 acres of Unique Farmland, and 86 acres of Farmland of Statewide Importance for a total potential impact of approximately 258 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Rural Residential Communities
Within Rural Residential Communities, the projected land use pattern of the proposed MTP/SCS has the potential to impact 68 acres of Prime Farmland, 44 acres of Unique Farmland, and 28 acres of Farmland of Statewide Importance for a total potential impact of approximately 140 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, localized impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-1. Mitigation is required Mitigation Measure AG-1 is described below.

Planned transportation improvements implemented as part of the proposed MTP/SCS within Rural Residential Communities have the potential to impact 0 acres of Prime Farmland, 14 acres of Unique Farmland and 27 acres of Farmland of Statewide Importance for a total potential impact of approximately 40 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Because the growth in these areas would support agricultural uses, such development would not result in the conversion of FMMP-designated lands to other uses.

Therefore, the localized impacts on FMMP-designated farmland related to the projected land use pattern from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-1. No mitigation is required.

The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Planned transportation improvements implemented as part of the proposed MTP/SCS have the potential to impact 195 acres of Prime Farmland, 67 acres of Unique Farmland, and 115 acres of Farmland of Statewide Importance for a total potential impact of approximately 376 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

High Frequency Transit Area Impacts

Impacts to Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, as defined by the FMMP, within HFTAs are described in Table 4-5.

Table 4-5
Proposed MTP/SCS Land Use and Transportation Overlap with Farmland Mapping and Monitoring Program Farmland in High Frequency Transit Areas

High Frequency Transit Area	Acres of Impact			
	Prime Farmland	Unique Farmland	Farmland of Statewide Importance	Total Farmland
Projected Land Use Pattern				
Placer County HFTAs	4	0	9	12
Sacramento County HFTAs	0	0	44	44
Yolo County HFTAs	57	11	0	67
Transportation Projects				
Placer County HFTAs	5	3	11	19
Sacramento County HFTAs	0	1	2	3
Yolo County HFTAs	17	0	0	17
Regional Totals				
Projected Land Use Pattern Total	**60**	**11**	**52**	**123**
Transportation Projects Total	**22**	**5**	**13**	**40**
Land Use and Transportation Combined Total	**82**	**15**	**66**	**163**

Note: FMMP = Farmland Mapping and Monitoring Program
Numbers may not total due to rounding.
Source: DOC 2016a

Placer County High Frequency Transit Areas
Within Placer County HFTAs, the projected land use pattern of the proposed MTP/SCS has the potential to impact 4 acres of Prime Farmland, 0 acres of Unique Farmland, and 9 acres of Farmland of Statewide Importance for a total potential impact of approximately 12 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in the Placer County HFTAs are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Planned transportation improvements implemented as part of the proposed MTP/SCS have the potential to impact 5 acres of Prime Farmland, 3 acres of Unique Farmland, and 11 acres of Farmland of Statewide Importance for a total potential impact of approximately 19 acres within Placer County.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in the Placer County HFTAs are

considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Sacramento County High Frequency Transit Areas
Within Sacramento County HFTAs, the projected land use pattern of the proposed MTP/SCS has the potential to impact 0 acres of Prime Farmland, 0 acres of Unique Farmland, and 44 acres of Farmland of Statewide Importance for a total potential impact of approximately 44 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in the Sacramento County HFTAs are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Planned transportation improvements implemented as part of the proposed MTP/SCS have the potential to impact 0 acres of Prime Farmland, one acre of Unique Farmland, and two acres of Farmland of Statewide Importance for a total potential impact of approximately three acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County HFTAs are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Yolo County High Frequency Transit Areas
Within Yolo County's HFTAs, the projected land use pattern of the proposed MTP/SCS has the potential to impact 57 acres of Prime Farmland, 11 acres of Unique Farmland, and 0 acres of Farmland of Statewide Importance for a total potential impact of approximately 67 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in the Yolo County HFTAs are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Planned transportation improvements implemented as part of the proposed MTP/SCS have the potential to impact 17 acres of Prime Farmland, 0 acres of Unique Farmland, and 0 acres of Farmland of Statewide Importance for a total potential impact of approximately 17 acres.

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered potentially significant. Therefore, impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in the Yolo County HFTAs are considered potentially significant (PS) for Impact AG-1. Mitigation is required. Mitigation Measure AG-1 is described below.

Mitigation Measures

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another

public agency. However, implementation of the following mitigation measure(s) at a project-level would reduce the impacts to FMMP farmland, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AG-1: Mitigate for loss of farmland.

The implementing agency shall mitigate for loss of farmland by adopting measures that include but are not limited to the following:

- provide permanent protection of in-kind farmland at a minimum 1:1 ratio of comparable quality land, in the form of easements, fees, or elimination of development rights/potential;
- if feasible, locate the easement within or in close proximity to the same city or community in which the conversion occurs; and
- integrate SACOG RUCS tools and strategies—such as application of spatial analysis tools, dissemination of information, coordination with subject-area experts, facilitation of inter-agency collaboration, and technical assistance to member jurisdictions—generally, and on a project-specific basis where applicable, to improve the economic and environmental sustainability of resources lands including agricultural land.

SIGNIFICANCE AFTER MITIGATION

Due to the importance of the region's agricultural resources, these impacts on FMMP-designated farmland are considered significant and unavoidable (SU). If the implementing agency adopts this mitigation measure, Impact AG-1 may be reduced, but not to a less than significant level, because net loss of agricultural land would still occur. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant. Additionally, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact AG-1 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT AG-2: CONFLICT WITH EXISTING ZONING OR GENERAL PLAN LAND USE DESIGNATIONS FOR AGRICULTURAL USE, OR WITH A WILLIAMSON ACT CONTRACT.

Regional Impacts

For this analysis, any acre of an existing zoning or general plan land use designation for agricultural use, or with a Williamson Act Contract that overlaps with the proposed MTP/SCS is considered a potentially significant impact. Forecasted transportation growth along the urban/rural edge is addressed under Impact TRN-5- Transportation. The potential overlap of the proposed MTP/SCS projected land use pattern and planned transportation improvements with these lands is shown in Table 4-6 below.

Table 4-6
Proposed MTP/SCS Land Use and Transportation Overlap with Agricultural Zoning, Agricultural General Plan Designations, and Williamson Act Lands

Community Type	Acres of Impact		
	Zoning	General Plans	Williamson Act Lands[1]
Projected Land Use Pattern			
Center and Corridor Communities	50	571	495
Established Communities	259	76	40
Developing Communities	1,394	2,089	3,492
Rural Residential Communities	2,126	144	102
Lands Not Identified for Development in the MTP/SCS Planning Period	0	0	0
Planned Transportation Improvements			
Center and Corridor Communities	6	40	0
Established Communities	146	28	24
Developing Communities	504	185	298
Rural Residential Communities	90	29	13
Lands Not Identified for Development in the MTP/SCS Planning Period	632	712	57
Regional Totals			
Projected Land Use Pattern Total	**3,828**	**2,879**	**4,130**
Transportation Projects Total	**1,378**	**994**	**392**
Land Use and Transportation Combined Total	**5,206**	**3,873**	**4,522**

[1] Overlap with Williamson Act lands does not include lands that are currently in non-renewal.
Note: Zoned agricultural lands, agricultural lands designated in general plans, and Williamson Act lands cannot be "totaled," as some lands may fit in more than one category. Therefore, totaling the three categories would overestimate the actual amount of agricultural land.
Note: Numbers may not total due to rounding.
Source: DOC 2018. The California Land Conservation (Williamson) Act Status Report, 2018. Zoning and general plan designations were collected from local jurisdiction data sources.

By focusing on providing small-lot and attached housing, maximizing infill and redevelopment opportunities, and planning for communities with a mix of uses, the proposed MTP/SCS creates a compact land use pattern, which produces a smaller overall urban footprint that maximizes the land available. The projected land use pattern of the proposed MTP/SCS has the potential to impact 3,828 acres of agricultural zoning, 2,879 acres of agricultural general plan designations, and 4,130 acres of farmland under active Williamson Act contracts. Planned transportation improvements were analyzed by calculating a 100-foot buffer area around the center line of the proposed projects and measuring the area overlapping agricultural zoning, agricultural general plan designations, and farmland under active Williamson Act contracts. This analysis indicated that 1,378 acres of agricultural zoning, 994 acres of agricultural general plan designations, and 394 acres of farmland under active Williamson Act contracts could potentially be impacted by proposed MTP/SCS planned transportation improvements. Together, the projected land use pattern and planned transportation improvements have the potential to impact 5,206 acres of agricultural zoning, 3,873 acres of agricultural general plan designations, and 4,522 acres of Williamson Act contracted lands. As a total of all agricultural land within the region, agricultural land that has the potential to be impacted by the projected land use pattern and planned transportation improvements associated

with implementation of the proposed MTP/SCS includes approximately 0.3 percent of land with an agricultural zoning designation, 0.3 percent of land designated as agricultural in an applicable general plan, and 0.87 percent of land currently under a Williamson Act contract.

While these impacts appear relatively small from a regional perspective, due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands and Williamson Act lands are considered potentially significant. Therefore, impacts related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Localized Impacts

Center and Corridor Communities
Within Center and Corridor Communities, the projected land use pattern of the proposed MTP/SCS has the potential to impact 50 acres of agricultural zoning, 571 acres of agricultural general plan designations, and 495 acres of Williamson Act lands.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands are considered potentially significant. Therefore, localized impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Planned transportation improvements within Center and Corridor Communities implemented as part of the proposed MTP/SCS have the potential to impact 6 acres of agricultural zoning, 40 acres of general plan designations, and 0 acres of Williamson Act lands.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Established Communities
Within Established Communities, the projected land use pattern of the proposed MTP/SCS has the potential to impact 259 acres of agricultural zoning, 76 acres of general plan designations and 40 acres of farmland under active Williamson Act contracts.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands and Williamson Act lands are considered potentially significant. Therefore, localized impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Planned transportation improvements within Established Communities implemented as part of the proposed MTP/SCS have the potential to impact 146 acres of agricultural zoning, 28 acres of general plan designations, and 24 acres of farmland under active Williamson Act contracts.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands and Williamson Act lands are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Developing Communities
Within Developing Communities, the projected land use pattern of the proposed MTP/SCS has the potential to impact 1,394 acres of agricultural zoning, 2,089 acres of agricultural general plan designations, and 3,492 acres of farmland under active Williamson Act contracts.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands and Williamson Act lands are considered potentially significant. Therefore, localized impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Planned transportation improvements within Developing Communities implemented as part of the proposed MTP/SCS have the potential to impact 504 acres of agricultural zoning, 185 acres of agricultural general plan designations, and 298 acres of farmland under active Williamson Act contracts.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands and Williamson Act lands are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Rural Residential Communities
Within Rural Residential Communities, the projected land use pattern of the proposed MTP/SCS has the potential to impact 2,126 acres of agricultural zoning, 144 acres of agricultural general plan designations, and 102 acres of farmland under active Williamson Act contracts.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands and Williamson Act lands are considered potentially significant. Therefore, localized impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Planned transportation improvements within Rural Residential Communities implemented as part of the proposed MTP/SCS have the potential to impact 90 acres of agricultural zoning, 29 acres of agricultural general plan designations, and 13 acres of farmland under active Williamson Act contracts.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands and Williamson Act lands are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the proposed MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Because the growth in these areas would support agricultural uses, such development would not result in the conversion of zoned or general plan designated agricultural lands and Williamson Act lands to other uses.

Because development related to projected land use pattern in Lands Not Identified for Development in the MTP/SCS would not impact any farmland, the localized impacts on zoned or general plan designated lands or Williamson Act lands related to the projected land use pattern from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-2. No mitigation is required.

The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Planned transportation improvements within Lands Not Identified for Development in the MTP/SCS implemented as part of the proposed MTP/SCS have the potential to impact 632 acres of agricultural zoning, 712 acres of agricultural general plan designations, and 57 acres of farmland under active Williamson Act contracts. In addition to the direct effects identified here, indirect effects could also occur if proposed transportation improvements or the traffic associated with those improvements resulted in impediments to the ability to move agricultural vehicles and equipment from one location to another.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands and Williamson Act lands are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS on Lands Not Identified for Development in the MTP/SCS are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

High Frequency Transit Area Impacts

Impacts to agricultural zoning, agricultural general plan designations, and farmland under active Williamson Act contract in HFTAs are shown below in Table 4-7.

Table 4-7
Proposed MTP/SCS Land Use and Transportation Overlap with Agricultural Zoning, Agricultural General Plan Designations, and Williamson Act Lands in High Frequency Transit Areas

Community Type	Acres of Impact		
	Zoning	General Plans	Williamson Act
Projected Land Use Pattern			
Placer County HFTAs	0	104	0
Sacramento County HFTAs	0	0	0
Yolo County HFTAs	50	50	0
Transportation Projects			
Placer County HFTAs	110	60	0
Sacramento County HFTAs	15	18	3

Community Type	Acres of Impact		
	Zoning	General Plans	Williamson Act
Yolo County HFTAs	16	16	0
Regional Totals			
Projected Land Use Pattern Total	**50**	**154**	**0**
Transportation Projects Total	**141**	**94**	**3**
Land Use and Transportation Combined Total	**191**	**247**	**3**

Note: Numbers may not total due to rounding.
Zoning and general plan designation data were collected from local jurisdiction data sources 2019.
Source: DOC 2018. The California Land Conservation (Williamson) Act Status Report, 2018.

Placer County High Frequency Transit Areas
The projected land use pattern does not overlap with agricultural zoning or farmland under active Williamson Act contracts in the Placer County HFTAs. As such, within the Placer County HFTAs, the projected land use pattern of the proposed MTP/SCS would not result in impacts to agricultural zoning, or Williamson Act contracts. Nonetheless, the project has the potential to impact 104 acres of general plan designated agricultural land.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands are considered potentially significant. Therefore, impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in the Placer County HFTAs are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Planned transportation improvements within the Placer County HFTAs implemented as part of the proposed MTP/SCS have the potential to impact 110 acres of agricultural zoning, 60 acres of agricultural general plan designations, and 0 acres of farmland under active Williamson Act contracts.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands are considered potentially significant. Therefore, impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in the Placer County HFTAs are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Sacramento County High Frequency Transit Areas
The projected land use pattern does not overlap with agricultural zoning, agricultural general plan designations, or farmland under active Williamson Act contracts in the Sacramento County HFTAs.

Because development related to land use within the Sacramento County HFTAs would not impact any farmland, the impacts on zoned or general plan designated agricultural lands and Williamson Act land related to the projected land use pattern from implementation of the proposed MTP/SCS in the Sacramento HFTAs are considered less than significant (LS) for Impact AG-2. No mitigation is required.

Planned transportation improvements within the Sacramento County HFTAs implemented as part of the proposed MTP/SCS have the potential to impact 15 acres of agricultural zoning, 18 acres of agricultural general plan designations, and three acres of Williamson Act contracts.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands or Williamson Act contract lands are considered potentially significant. Therefore, impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County HFTAs are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Yolo County High Frequency Transit Areas
Within the Yolo County HFTAs, the projected land use pattern of the proposed MTP/SCS has the potential to impact 50 acres of agricultural zoning, 50 acres of agricultural general plan designations, and 0 acres of farmland under active Williamson Act contracts.

Due to the importance of the region's agricultural resources, these impacts on zoned agricultural lands are considered potentially significant. Therefore, impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in the Yolo County HFTAs are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

Planned transportation improvements within the Yolo County HFTAs implemented as part of the proposed MTP/SCS have the potential to impact 16 acres of agricultural zoning, 16 acres of agricultural general plan designations, and 0 acres of farmland under active Williamson Act contracts.

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands are considered potentially significant. Therefore, impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in the Yolo County HFTAs are considered potentially significant (PS) for Impact AG-2. Mitigation is required. Mitigation Measures AG-2 and AG-3 are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measures at a project-level would reduce the impacts to zoned, general plan designated, or Williamson Act, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AG-2: Implement Mitigation Measure AG-1

Mitigation Measure AG-3: Design proposed projects to avoid or minimize, to the greatest extent feasible, conflicts and inconsistencies with land protected by agricultural zoning or a Williamson Act contract, taking into account the terms of the applicable zoning and/or contract.

The implementing agency shall mitigate for impacts to land protected by agricultural zoning or a Williamson Act contract by adopting measures that include but are not limited to the following:

- align corridors, incorporate buffer zones and setbacks, and integrate berms and fencing to avoid agricultural lands and to reduce conflicts with agricultural lands;
- minimize severance and fragmentation of agricultural land by constructing underpasses and overpasses at reasonable intervals to provide property access;

- provide buffers, berms, setbacks, fencing, or other project design measures to protect surrounding agriculture, and to reduce conflict with farming that could result from implementation of transportation improvements and/or projected land use pattern included as a part of the MTP/SCS; and
- implement other feasible conservation tools, such as those recommended by the California Department of Conservation Division of Land Resource Protection and the SACOG RUCS Strategy.

SIGNIFICANCE AFTER MITIGATION

Due to the importance of the region's agricultural resources, these impacts on zoned or general plan designated agricultural lands and Williamson Act lands are considered significant and unavoidable (SU). If the implementing agency adopts Mitigation Measures AG-1 and AG-2, Impact AG-2 may be reduced, but not to a less than significant level, because net loss of agricultural land would still occur. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant. Additionally, because SACOG cannot require the implementing agency to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact AG-2 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT AG-3: CONFLICT WITH EXISTING ZONING OR LAND USE DESIGNATION FOR, OR CAUSE REZONING OF, FOREST LAND, TIMBERLAND, OR TIMBERLAND ZONED TIMBERLAND PRODUCTION.

Regional Impacts

For this analysis, any land designated by an existing zoning ordinance or general plan for forest land, timberland, or timberland zoned timberland production that overlaps with the proposed MTP/SCS is considered a potentially significant impact. The potential overlap of the proposed MTP/SCS projected land use pattern and planned transportation improvements with these lands is shown below in Table 4-8.

By focusing on providing small-lot and attached housing, maximizing infill and redevelopment opportunities, and planning for communities with a mix of uses, the proposed MTP/SCS creates a compact land use pattern, which produces a smaller overall urban footprint that maximizes the land available. As shown in Table 4-8, the projected land use pattern of the proposed MTP/SCS does not overlap with any land designated by an existing zoning ordinance or general plan for forest land, timberland or timberland zoned timberland production. Therefore, regional impacts related to the projected land use pattern from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact AG-3. No mitigation is required.

Table 4-8
Proposed MTP/SCS Land Use and Transportation Overlap with Timberland/ Forest Zoning and General Plan Designations

Community Type	Acres of Impact	
	Forest Land, Timberland, or Timberland Production Zoning Designation	Forest Land, Timberland, or Timberland Production General Plan Designation
Projected Land Use Pattern		
Center and Corridor Communities	0	0
Established Communities	0	0
Developing Communities	0	0
Rural Residential Communities	0	0
Lands Not Identified for Development in the MTP/SCS Planning Period	0	0
Transportation Projects		
Center and Corridor Communities	0	0
Established Communities	0	7
Developing Communities	0	176
Rural Residential Communities	0	50
Lands Not Identified for Development in the MTP/SCS Planning Period	0	26
Regional Totals		
Projected Land Use Pattern Total	**0**	**0**
Transportation Projects Total	**0**	**259**
Land Use and Transportation Combined Total	**0**	**259**

Note: Sacramento, Sutter, and Yolo counties do not have forest or timberland general plan designations. Numbers may not total due to rounding.
Source: Yuba County 2019; El Dorado County 2019; Placer County 2019

Planned transportation improvements were analyzed by calculating a 100-foot buffer area around the center line of the proposed projects and measuring the area overlapping forest land, timberland, and timberland zoned timberland production zoning and general plan designations. As shown in Table 4-8, the planned transportation improvements of the proposed MTP/SCS would potentially conflict with or cause general plan land use amendments for approximately 259 acres of land designated forest land, timberland, or timberland zoned for timberland production. No timberlands or forest lands designated within zoning would be affected by the planned transportation improvements of the proposed MTP/SCS. Therefore, the regional impacts related to the planned transportation improvements of the proposed MTP/SCS are considered potentially significant (PS) for Impact AG-3. Mitigation is required. Mitigation Measure AG-4 is described below.

Localized Impacts

Center, Corridor, Established, and Developing Communities, and Lands Not Identified for Development in the Proposed MTP/SCS

As shown in Table 4-8, the projected land use pattern of the proposed MTP/SCS does not overlap with any land designated by an existing zoning ordinance or general plan for forest land, timberland, or timberland zoned timberland production. Therefore, localized impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Center, Corridor, Established,

and Developing Communities, and Lands Not Identified for Development in the proposed MTP/SCS are considered less than significant (LS) for Impact AG-3. No mitigation is required.

As shown in Table 4-8, no timberlands or forest lands designated in zoning would be affected by the planned transportation improvements of the proposed MTP/SCS; however the planned transportation improvements of the proposed MTP/SCS would potentially conflict with or cause general plan amendments for land designated forest land, timberland, or timberland as follows: 0 acres in Center and Corridor Communities, 7 acres in Established Communities, 176 acres in Developing Communities, 50 acres in Rural Residential Communities; and 26 acres in Lands Not Identified for Development.

Therefore, the localized impacts related to the planned transportation improvements of the proposed MTP/SCS in Established, Developing, and Rural Residential Communities, and Lands Not Identified for Development are considered potentially significant (PS) for Impact AG-3. Mitigation is required. Mitigation Measure AG-4 is described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The HFTAs do not contain any land designated by an existing zoning ordinance or general plan for forest land, timberland, or timberland zoned timberland production. Therefore, the impacts on zoned or general plan designated forest land/timberland related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in the HFTAs are considered less than significant (LS) for Impact AG-3. No mitigation is required.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measure at a project-level may reduce the impacts to zoned or general plan designated forest land/timberland, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AG-4: Mitigate for loss of forest land or timberland.

The implementing agency shall mitigate for loss of forestland or timberland by adopting measures that include but are not limited to:

- provide permanent protection of in-kind forestland or timberland at a minimum 1:1 ratio of comparable quality land, in the form of easements, fees, or elimination of development rights/potential;
- if feasible, the easement should be located within or in close proximity to the same city or community in which the conversion occurs; and
- integrate SACOG RUCS tools and strategies—such as application of spatial analysis tools, dissemination of information, coordination with subject-area experts, facilitation of inter-agency collaboration, and technical assistance to member jurisdictions—generally, and on a project-specific basis where applicable, to improve the economic and environmental sustainability of resources lands including forested lands.

SIGNIFICANCE AFTER MITIGATION

Due to the importance of the region's timberland and forestry resources, these impacts on land zoned or designated in a general plan for forest land, timberland, and timberland zoned timberland production are considered significant and unavoidable. If the implementing agency adopts this mitigation measure, Impact AG-3 may be reduced, but not to a less than significant level, because net loss of forest land or timberland would still occur. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant. Additionally, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact AG-3 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT AG-4: INVOLVE OTHER CHANGES IN THE EXISTING ENVIRONMENT, WHICH, DUE TO THEIR LOCATION OR NATURE, COULD RESULT IN CONVERSION OF FARMLAND TO NON-AGRICULTURAL USE.

Regional Impacts

The projected population and housing unit growth indicate that implementation of the proposed MTP/SCS would result in more compact development than existing conditions. By developing more compactly, the proposed MTP/SCS directs more growth to areas that are already urbanized and prevents undeveloped land from being converted to urban uses. Keeping growth contained to areas that are already developed limits the amount of growth that takes place at the urban edge, adjacent to agricultural areas.

However, as discussed in Impact AG-1 and AG-2, implementation of the proposed MTP/SCS would result in the conversion of 2,897 acres of farmland, 5,206 acres of zoned agricultural land, 3,873 acres of general plan designated agricultural land, and 4,522 acres of land under Williamson Act contracts. Lands that remain agricultural lands, but are located near to lands that would be converted to urban uses, may feel pressure to develop, as nearby land values increase or as nuisances from urban development spread to agricultural lands.

While much of the planned transportation improvements in the proposed MTP/SCS would serve urban uses in urbanized areas of the region, it is likely that implementation of planned transportation improvements at the urban edge could increase urban traffic patterns on roads that serve urban development and agricultural lands. Frequently, these increased traffic volumes are indirectly the result of spillover from congested roads near the exterior of urbanized areas. Increased urban traffic on transitional roads can lead to increased conflict between urban and agricultural uses. Forecasted transportation growth along the urban/rural edge is addressed under Impact TRN-5-Transportation.

As discussed above, the proposed MTP/SCS would result in more compact development than existing conditions. The proposed MTP/SCS is designed to improve transportation options and increase capacity within urbanized areas. Owners of agricultural lands nearest to these urbanized areas may feel pressure to develop as planned transportation improvements within proximity of these lands are rehabilitated or further developed. Such pressure would also increase as land uses surrounding these properties continue to urbanize. Nonetheless, because the proposed MTP/SCS

would result in conversion of farmland to non-agricultural use, impacts on conversion of farmland to non-agricultural use related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AG-4. Mitigation is required. Mitigation Measures AG-5 and AG-6 are described below.

Localized Impacts

Center and Corridor Communities
Center and Corridor Communities are already urbanized and are typically surrounded by other urban land uses like Established Communities or Developing Communities. As discussed in Impact AG-1 and Impact AG-2, implementation of the proposed MTP/SCS would result in the conversion of agricultural land to urban uses, but that amount is anticipated to be less than six percent of the total amount of agricultural land impacted by development in all Community Types. Similarly, because Center and Corridor communities elsewhere in the region are surrounded by urban uses, development in those areas would be unlikely to result in the conversion of additional farmland to urban uses.

Therefore, the localized impacts on conversion of farmland to non-agricultural use related to the projected land use pattern from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AG-4. No mitigation is required.

On the transportation side, Center and Corridor Communities would see a variety of planned transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. These planned transportation improvements would primarily serve urban uses. However, such projects would serve existing and future urban developments and would not likely have impacts that would result in the conversion of additional agricultural land to transportation uses.

Therefore, the impacts on conversion of farmland to non-agricultural use related to planned transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AG-4. No mitigation is required.

Established Communities
Like Center and Corridor Communities, Established Communities already have a significant amount of urban development, but these areas are generally not as dense as Center and Corridor Communities. The projected land use pattern would primarily occur through building out existing subdivisions and filling in empty lots. For the most part, these areas are located in the interior portions of incorporated cities or unincorporated communities. However, as stated in Impact AG-1 and Impact AG-2, implementation of the proposed MTP/SCS would result in the conversion of farmland to urban uses in Established Communities. Lands that remain agricultural lands, but are located near lands that would be converted to urban uses, may feel pressure to develop, as nearby land values increase or as nuisances from urban development spread to agricultural lands.

Therefore, the localized impacts on conversion of farmland to non-agricultural use related to the projected land use pattern from implementation of the proposed MTP/SCS in Established

Communities are considered potentially significant (PS) for Impact AG-4. Mitigation is required. Mitigation Measures AG-5 and AG-6 are described below.

On the transportation side, Established Communities would experience planned transportation improvements similar to those found in Center and Corridor Communities. Planned transportation improvements may include new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. These projects would serve existing and new development in Established Communities.

It is likely that implementation of planned transportation improvements in Established Communities could increase urban traffic patterns on roads that serve urban development and agricultural lands. Frequently, these increased traffic volumes are indirectly the result of spillover from congested roads near the exterior of urbanized areas. Increased urban traffic on transitional roads can lead to increased conflict between urban and agricultural uses.

Therefore, the localized impacts on conversion of farmland to non-agricultural use related to planned transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact AG-4. Mitigation is required. Mitigation Measures AG-5 and AG-6 are described below.

Developing Communities

Developing Communities are communities that are just starting to develop or would begin to develop during the planning period and are often located at or near the edge of the existing urbanized area of the region. In many cases, the current zoning in these areas is agriculture and they have been proposed to rezone for residential, commercial, or industrial development. As stated in Impact AG-1 and Impact AG-2, implementation of the proposed MTP/SCS would result in the conversion of farmland to urban uses in Developing Communities. Lands that remain agricultural lands, but are located near to lands that would be converted to urban uses, may be subject to development pressures, as nearby land values increase or as nuisances from urban development spread to agricultural lands.

Therefore, the localized impacts on farmland related to the projected land use pattern from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-4. Mitigation is required. Mitigation Measures AG-5 and AG-6 are described below.

On the transportation side, Developing Communities experience more road widening projects and newly constructed road projects to serve the new residential and employment developments. These areas would see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects would not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service would be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure would be similarly phased in over the life of the proposed MTP/SCS.

It is likely that implementation of planned transportation improvements in Developing Communities could increase urban traffic patterns on roads that serve urban development and

agricultural lands. Frequently, these increased traffic volumes are indirectly the result of spillover from congested roads near the exterior of urbanized areas. Increased urban traffic on transitional roads can lead to increased conflict between urban and agricultural uses.

Therefore, the localized impacts on farmland related to planned transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-4. Mitigation is required. Mitigation Measures AG-5 and AG-6 are described below.

Rural Residential Communities
Rural Residential Communities are predominantly residential with some small-scale hobby or commercial farming. The predominant form of development anticipated by the proposed MTP/SCS in these areas would be incremental development on large parcels, typically one unit or parcel at a time. The projected land use pattern in these areas would be largely isolated from urban areas. As stated in Impact AG-1 and AG-2, implementation of the proposed MTP/SCS in this Community Type would result in the conversion of farmland to urban uses.

This Community Type includes residential uses that coexist with agricultural uses. This Community Type generally includes a land use pattern consisting of large homes on large lots (typically consisting of more than one acre) with some smaller scale agricultural operations scattered throughout the area. The proposed MTP/SCS assumes additional units within these areas as they are already designated for rural residential uses at the local level. The proposed MTP/SCS growth footprint does not assume the rezoning of any land from agriculture to rural residential uses. Conflicts that already exist between uses would continue with implementation of the proposed MTP/SCS, and because relatively few new homes are added to this area that is predominately already rural residential it is unlikely to exacerbate these existing nuisances in such a way as to cause additional secondary conversion of farmland. Also, these homes are situated on very large lots, resulting in space between the residents of the homes and potential nearby small scale or hobby farming, which serves to buffer and further minimize the potential for conflicts.

Therefore, the impacts on farmland related to the projected land use pattern from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AG-4. No mitigation is required.

Planned transportation improvements in Rural Residential Communities consists primarily of roads serving automobile traffic with very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS would result in the construction of roadway improvements including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service.

Rural residential developments and agricultural lands already coexist on existing roadway infrastructure. As noted in Impact AG-1 and Impact AG-2, implementation of the proposed MTP/SCS would result in the conversion of farmland to transportation uses. However, the amount of land converted is expected to be small and would be unlikely to cause conflict or development pressure that would result in the additional secondary conversion of additional farmland.

Therefore, the impacts on farmland related to planned transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered

potentially significant (PS) for Impact AG-4. Mitigation is required. Mitigation Measures AG-5 and AG-6 are discussed below.

Lands Not Identified for Development in the Proposed MTP/SCS
The land use forecast does not overlap with farmlands, agricultural zoning, agricultural general plan designations, or farmland under active Williamson Act contracts in Lands Not Identified for Development in the MTP/SCS. Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Conflicts that already exist between uses are likely to continue with implementation of the proposed MTP/SCS, but because the increment of growth is minor, and is not directly related to any land use actions taken in the proposed MTP/SCS, it is unlikely to exacerbate these existing nuisances in such a way as to cause additional secondary conversion of farmland. Because no projected land use pattern is proposed for this Community Type, no further conversions of farmland would occur beyond what is already occurring under baseline conditions.

Therefore, the impacts on farmland related to the projected land use pattern from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-4. No mitigation is required.

The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. As noted in Impact AG-1 and Impact AG-2, implementation of the proposed MTP/SCS would result in the conversion of farmland to transportation uses. It is likely that implementation of planned transportation improvements in Lands Not Identified for Development could increase urban traffic patterns on roads that serve agricultural lands. Frequently, these increased traffic volumes are indirectly the result of spillover from congested roads near the exterior of urbanized areas. Increased urban traffic on transitional roads can lead to increased conflict between urban and agricultural uses.

Therefore, the localized impacts on farmland related to planned transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AG-4. Mitigation is required. Mitigation Measures AG-5 and AG-6 are described below.

High Frequency Transit Area Impacts

Placer County High Frequency Transit Areas
The projected land use pattern overlaps with agricultural general plan designations in the Placer County HFTAs. Additionally, the planned transportation improvements 100-foot buffer also overlaps with farmlands, agricultural zoning, and agricultural general plan designations in the Placer County HFTAs. Therefore, the localized impacts on farmland related to planned projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in Placer County HFTAs are considered potentially significant (PS) for Impact AG-4. Mitigation is required. Mitigation Measures AG-5 and AG-6 are described below.

Sacramento County High Frequency Transit Areas
The Sacramento County HFTAs are already urbanized and are typically surrounded by other urban land uses like Established or Developing Communities. As discussed in Impact AG-1 and Impact AG-2, implementation of the proposed MTP/SCS would result in the conversion of agricultural land to urban uses. However, because the Sacramento County HFTAs are surrounded by urban uses, development in those areas would be unlikely to result in the conversion of additional farmland to urban uses. Therefore, the impacts on farmland related to the projected land use pattern from implementation of the proposed MTP/SCS in the Sacramento County HFTAs are considered less than significant (LS) for Impact AG-4. No mitigation is required.

On the transportation side, the Sacramento County HFTAs would see a variety of planned transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. These planned transportation improvements would primarily serve urban uses. Planned transportation improvements would likely result in the conversion of agricultural lands to transportation uses. However, such projects would serve existing and future urban developments and would not likely have impact that would result in the conversion of additional agricultural lands to transportation uses. Therefore, the impacts on farmland related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County HFTAs are considered less than significant (LS) for Impact AG-4. No mitigation is required.

Yolo County High Frequency Transit Areas
The projected land use pattern does overlap with agricultural general plan designations in the Yolo County HFTAs. Additionally, planned transportation improvements 100-foot buffer also overlaps with farmlands, agricultural zoning, and agricultural general plan designations in the Yolo County HFTAs. Therefore, the localized impacts on farmland related to planned projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in Yolo County HFTAs are considered potentially significant (PS) for Impact AG-4. Mitigation is required. Mitigation Measures AG-5 and AG-6 are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measures at a project-level would reduce the potential conversion of farmland to nonfarm uses, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AG-5: Minimize conversion of farmland to non-agricultural use.

Implementing agencies shall require project proponents to adopt measures that include but are not limited to:

- design proposed projects to minimize, to the greatest extent feasible, the loss of the highest valued agricultural land;
- redesign project features to minimize fragmenting or isolating farmland. Where a project involves acquiring land or easements, ensure that the remaining farmland is of a size sufficient to allow economically viable farming operations. The project proponents shall be

responsible for acquiring easements, making lot line adjustments, and merging affected land parcels into units suitable for continued commercial agricultural management;

- reconnect utilities or infrastructure that serve agricultural uses if these are disturbed by project construction. If a project temporarily or permanently cuts off roadway access or removes utility lines, irrigation features, or other infrastructure, the project proponents shall be responsible for restoring access as necessary to ensure that economically viable farming operations are not interrupted; and
- manage project operations to minimize the introduction of invasive species or weeds that may affect agricultural production on adjacent agricultural land. Where a project has the potential to introduce sensitive species or habitats or have other spill-over effects on nearby agricultural lands, the project proponents shall be responsible for acquiring easements on nearby agricultural land and/or financially compensating for indirect effects on nearby agricultural land. Easements (e.g., flowage easements) shall be required for temporary or intermittent interruption in farming activities (e.g., because of seasonal flooding or groundwater seepage). Acquisition or compensation would be required for permanent or significant loss of economically viable operations.

Mitigation Measure AG-6: Inventory innovative ideas and best practices from the RUCS toolkit, EPA, and USDA Supporting Sustainable Rural Communities publication, and other sources and implement a locally appropriate strategy to manage growth issues at the rural-urban interface to support the long-term viability of agriculture in the SACOG region.

The implementing agency shall avoid or minimize general pressure to convert agriculture land at the urban edge to non-agricultural uses by adopting regulations that enforce the innovations and best practices identified to minimize conversion pressures on farmland. Examples of this might include but are not limited to:

- **Agriculture Buffers:** Buffers, generally imposed on new development, can assist in reducing urban land use conflicts with farming operations. Invest in urban edge agricultural operations that reinforce the effectiveness and permanence of buffers, create education and training opportunities, and generate a revenue stream that supports buffer acquisition and maintenance.
- **Right-to-Farm Ordinances:** These ordinances require project applicants to agree to provide real estate disclosures explaining farmers' rights to purchasers or lessees as a condition of project approval for projects located in active farming areas. The intent of such an ordinance is to protect farmers from nuisance complaints and enforcement actions.
- **Infill and Redevelopment Policies:** These policies, which are supportive of infill and redevelopment and consistent with the policy objectives of the proposed MTP/SCS and SB 375, would direct population growth to urban communities, or in established rural communities, thereby reducing pressure to convert agricultural land to development.

SIGNIFICANCE AFTER MITIGATION

Due to the importance of the region's agricultural resources, these impacts on farmland are considered significant and unavoidable (SU). If the implementing agency adopts this mitigation measure, Impact AG-4 may be reduced, but not necessarily to a less than significant level, because net loss of farmland would still occur. For projects proposing to streamline environmental review,

lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant. Additionally, because SACOG cannot require implementing agencies to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation. Therefore, Impact AG-4 remains significant and unavoidable (SU).

IMPACT AG-5: RESULT IN THE LOSS OF "FOREST LAND" AS DEFINED IN THE CALIFORNIA FOREST LEGACY ACT OF 2007 (PRC SECTION 12220(G)) OR CONVERSION OF FOREST LAND TO NON-FOREST USE.

Regional Impacts

The California Forest Legacy Act of 2007 defines "forest land" as "land that can support ten-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." For purposes of analysis, it is assumed that lands mapped as conifer forest, hardwood, or mixed forest by the California Land Cover Mapping and Monitoring Program fall under the definition of "forest land." The overlap between projected land use pattern and planned transportation improvements anticipated in the proposed MTP/SCS with the region's forest land is shown in Table 4-9.

Table 4-9
Proposed MTP/SCS Land Use and Transportation Overlap with State-Designated Forest Land

Community Type	Acres of Impact			
	Conifer Forest	Hardwood Forest	Mixed Forest	Total Forest Overlap
Projected Land Use Pattern				
Center and Corridor Communities	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Established Communities	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Developing Communities	0	1,090	17	1,107
Rural Residential Communities	231	3,841	1,856	5,927
Lands Not Identified for Development in the MTP/SCS Planning Period	0	0	0	0
Transportation Projects				
Center and Corridor Communities	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Established Communities	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Developing Communities	0	50	2	53
Rural Residential Communities	0	28	2	30
Lands Not Identified for Development in the MTP/SCS Planning Period	0	3	0	3
Regional Totals				
Projected Land Use Pattern Total	**231**	**4,931**	**1,873**	**7,034**
Transportation Projects Total	**1**	**81**	**4**	**86**
Land Use and Transportation Combined Total	**232**	**5,012**	**1,877**	**7,120**

[1] Because the Land Cover Mapping and Monitoring data are remote sensing data created to estimate all tree canopy, in some cases, particularly in urban areas, it is likely these are not actual "forest" areas. No screening for tree canopy density was done in this analysis; however, the data were geographically screened so that only forests

that actually exist today were used. Therefore, tree canopy in Center and Corridor and Established Communities were not analyzed as forested areas.

Note: This analysis includes all overlapping and non-overlapping vegetation cover in conifer, hardwood, and mixed forests. Source: SACOG, MTP/SCS Preferred Scenario Land Use Forecast, June 2019; California Land Cover Mapping and Monitoring Program 2018

By focusing on providing small-lot and attached housing, maximizing infill and redevelopment opportunities, and planning for communities with a mix of uses, the proposed MTP/SCS creates a compact land use pattern, which produces a smaller overall urban footprint that maximizes the land available. The projected land use pattern of the proposed MTP/SCS has the potential to impact 231 acres of conifer forest, 4,931 acres of hardwood forest, and 1,873 acres of mixed forest, for a total forest overlap of 7,034 acres. Planned transportation improvements implemented as part of the proposed MTP/SCS have the potential to impact 1 acre of conifer forest, 81 acres of hardwood forest, and 4 acres of mixed forest for a total potential impact of 86 acres.

Together, the projected land use pattern and planned transportation improvements have the potential to impact 232 acres of conifer forest 5,012 acres of hardwood forest, and 1,877 acres of mixed forest for a total of 7,120 acres. As a total of all state-designated forest land within the region, forest land that has the potential to be impacted by the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS includes approximately 0.03 percent of conifer forest, 1 percent of hardwood forest, and 0.5 percent of mixed forest in the plan area of the proposed MTP/SCS.

While these impacts appear relatively small from a regional perspective, due to the importance of the region's forestry resources, these impacts on forest land are considered potentially significant. Therefore, impacts related to the projected land use pattern and planned transportation improvements at the regional level are considered potentially significant (PS) for Impact AG-5. Mitigation Measure AG-7 is described below.

Localized Impacts

Center and Corridor Communities and Established Communities
Because there were no forest lands identified in Center and Corridor Communities and Established Communities, forest lands are not impacted by implementation of the proposed MTP/SCS. Therefore, the impacts on forest land related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities and Established Communities are considered less than significant (LS) for Impact AG-5. No mitigation is required.

Developing Communities
Within Developing Communities, the projected land use pattern of the proposed MTP/SCS has the potential to impact 1,090 acres of hardwood forest and 17 acres of mixed forest, for a total impact of 1,107 acres.

Due to the importance of the region's forestry resources, these impacts on forest land are considered potentially significant. Therefore, localized impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-5. Mitigation is required. Mitigation Measure AG-7 is described below.

Planned transportation improvements implemented as part of the proposed MTP/SCS have the potential to impact 1 acres of conifer forest, 50 acres of hardwood forest, and 2 acres of mixed forest for a total potential impact of 53 acres.

Due to the importance of the region's forestry resources, these impacts on forest land are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-5. Mitigation is required. Mitigation Measure AG-7 is described below.

Rural Residential Communities
Within Rural Residential Communities, the projected land use pattern of the proposed MTP/SCS has the potential to impact 231 acres of conifer forest, 3,841 acres of hardwood forest, and 1,856 acres of mixed forest for a total impact of 5,927 acres.

Due to the importance of the region's forestry resources, these impacts on forest land are considered potentially significant. Therefore, impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-5. Mitigation is required. Mitigation Measure AG-7 is described below.

Planned transportation improvements implemented as part of the proposed MTP/SCS have the potential to impact 0 acres of conifer forest, 28 acres of hardwood forest, and 2 acres of mixed forest for a total potential impact of 30 acres.

Due to the importance of the region's forestry resources, these impacts on forest land are considered potentially significant. Therefore, localized impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-5. Mitigation is required. Mitigation Measure AG-7 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, would occur in this Community Type within the proposed MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Thus, the projected land use pattern of the proposed MTP/SCS does not overlap with any hardwood or mixed forest.

Therefore, the localized impacts on forest land related to the projected land use pattern from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-5. No mitigation is required.

The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Planned transportation improvements implemented as part of the proposed MTP/SCS have the potential to impact 0 acres of conifer forest, 3 acres of hardwood forest, and 0 acres of mixed forest for a total potential impact of three acres.

Due to the importance of the region's forestry resources, these impacts on forest land are considered potentially significant. Therefore, localized impacts related to planned transportation

improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AG-5. Mitigation is required. Mitigation Measure AG-7 is described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The projected land use pattern and planned transportation improvements 100-foot buffer do not overlap forest land in the HFTAs. Therefore, the impacts on forest land related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in the HFTAs are considered less than significant (LS) for Impact AG-5. No mitigation is required.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measure at a project level would reduce the impacts to forest land, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AG-7: Implement Mitigation Measure AG-4.

SIGNIFICANCE AFTER MITIGATION

Due to the importance of the region's forestry resources, these impacts on forest land are considered significant and unavoidable (SU). If the implementing agency adopts this mitigation measure, Impact AG-5 may be reduced but not to a less than significant level, because net loss of forest land would still occur. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant. Additionally, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact AG-5 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT AG-6: RESULT IN CONSTRUCTION IMPACTS THAT WOULD CONVERT PRIME FARMLAND, UNIQUE FARMLAND, OR FARMLAND OF STATEWIDE IMPORTANCE; CONFLICT WITH EXISTING ZONING OR LAND USE DESIGNATION FOR AGRICULTURAL USE OR A WILLIAMSON ACT CONTRACT; CONFLICT WITH EXISTING ZONING OR LAND USE DESIGNATIONS FOR, OR CAUSE REZONING OF, FOREST LAND, TIMBERLAND, OR TIMBERLAND ZONED TIMBERLAND PRODUCTION; INVOLVE OTHER CHANGES IN THE EXISTING ENVIRONMENT WHICH, DUE TO THEIR LOCATION OR NATURE, COULD RESULT IN CONVERSION OF FARMLAND TO NON-AGRICULTURAL USE; OR RESULT IN THE LOSS OF FOREST LAND OR CONVERSION OF FOREST LAND INTO NON-FOREST USE.

Regional Impacts

By focusing on providing small-lot and attached housing, maximizing infill and redevelopment opportunities, and planning for communities with a mix of uses, the proposed MTP/SCS creates a

compact land use pattern, which produces a smaller overall urban footprint that maximizes the land available. However, implementation of the proposed MTP/SCS would never-the-less result in the conversion of agricultural land and forest land to other uses. The projected land use pattern would convert 2,163 acres of farmland (Prime Farmland, Unique Farmland, and Farmland of Statewide Importance); 3,828 acres of zoned agricultural land; 1,335 acres of general plan designated agricultural land; 4,130 acres of Williamson Act lands; and 7,034 acres of state-designated forest land. Note, these impacts are not additive – each category includes overlapping acres.

Planned transportation improvements would convert 735 acres of farmland (Prime Farmland, Unique Farmland, and Farmland of Statewide Importance); 1,378 acres of zoned agricultural land; 994 acres of general plan designated agricultural land; 392 acres of Williamson Act lands; 86 acres of state-designated forest land; and 259 acres of general plan designated timberland or forest land. These impacts are not additive – each category includes overlapping acres.

There would be impacts to agricultural land and forest land during the construction of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS. Forecasted transportation growth along the urban/rural edge is addressed under Impact TRN-5-Transportation. Permanent conflicts with or conversions of agricultural lands and forestry resources are considered part of implementation of the proposed MTP/SCS and are analyzed under Impacts AG-1 through AG-5 and mitigation is recommended where appropriate. Construction impacts would include effects from grading, paving, clearing, landscaping, staging, access routing, excavation, earthmoving, and other related construction activities. If construction activities and staging occurs on agricultural land, forest land, and timberland these activities would result in temporary short-term impacts by using these lands for other uses or causing conflict with typical operations. Depending on locations of staging areas, construction-related impacts to agriculture and forestry resources could occur outside of the footprints proposed for development and analyzed in Impact AG-1 through AG-5 for both the projected land use pattern and planned transportation improvements.

Construction-related impacts are typically short-term and can be mitigated through actions of the implementing agency. However, it is not possible to reasonably estimate the size, location, magnitude, or length of construction period associated with the projected land use pattern and planned transportation improvements that would occur under the proposed MTP/SCS.

Due to the importance of the region's agricultural and forestry resources, construction impacts to these resources are considered potentially significant. Therefore, construction-related impacts on agricultural and forestry resources related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AG-6. Mitigation is required. Mitigation Measure AG-8 is described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities

The localized impacts associated with implementation of the projected land use pattern assumed as part of the proposed MTP/SCS would be the same in each of the Community Types as described in the regional impacts discussion above. These activities could temporarily impact agricultural lands and forestry resources by converting agricultural land and forestry resources for other uses or

causing conflict between uses. Permanent conflicts with or conversions of agricultural lands and forestry resources are considered part of implementation of the proposed MTP/SCS and are analyzed under Impacts AG-1 through AG-5.

Due to the importance of the region's agricultural and forest resources, these impacts on agricultural and forestry resources are considered potentially significant. Therefore, the localized construction-related impacts on agricultural and forestry resources related to the projected land use pattern from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact AG-6. Mitigation is required. Mitigation Measure AG-8 is described below.

The construction of planned transportation improvements could result in construction-related impacts could require use of staging areas outside of the proposed development footprint. If these additional areas are located within agricultural or forest land, temporarily and/or short-term impacts could occur resulting from using agricultural land and forestry resources for other uses or causing conflict between uses. Permanent conflicts with or conversions of agricultural lands and forestry resources are considered part of implementation of the proposed MTP/SCS and are analyzed under Impacts AG-1 through AG-5.

Due to the importance of the region's agricultural and forestry resources, these impacts on agricultural and forestry resources are considered potentially significant. Therefore, the construction-related impacts on agricultural and forestry resources related to planned transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact AG-6. Mitigation is required. Mitigation Measure AG-8 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS

Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast development in these areas by 2040. As a result, there is no potential to result in land-use-related construction impacts that would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; conflict with existing zoning or land use designation for agricultural use or a Williamson Act contract; conflict with existing zoning or land use designations for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; involve other changes in the existing environment which, due to their location of nature, could result in conversion of farmland to non-agricultural use; or result in the loss of Forest Land or conversion of Forest Land into non-forest use.

Therefore, the construction-related impacts on agricultural and forestry resources related to the projected land use pattern from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-6. No mitigation is required.

The proposed MTP/SCS would make a number of planned transportation improvements in this Community Type by 2040, including road maintenance, road widenings and safety enhancements, and other roadway improvements. The construction of planned transportation improvements in Lands

Not Identified for Development in the MTP/SCS could require use of staging areas outside of the proposed development footprint. If these additional areas are located on agricultural or forest land, these activities could result in temporarily impacts resulting from using agricultural land and forestry resources for other uses or causing conflict between uses. Permanent conflicts with or conversions of agricultural lands and forestry resources are analyzed under Impacts AG-1 through AG-5.

Due to the importance of the region's agricultural and forestry resources, these impacts on agricultural and forestry resources are considered potentially significant. Therefore, the construction-related impacts on agricultural and forestry resources related to planned transportation improvements assumed as part of the proposed MTP/SCS in Lands Not Identified for Development in the MTP/SCS are considered potentially significant (PS) for Impact AG-6. Mitigation is required. Mitigation Measure AG-8 is described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the localized impact discussion above. Additional impacts to agriculture and forestry resources compared to what was analyzed in Impacts AG-1 through AG-5 could occur if construction and staging areas for future land and transportation development projects within HFTAs are located on agricultural or forest land. These activities could temporarily impact these resources by using the land for other uses or causing conflict between uses in HFTAs, and would have the potential to result in temporary or short-term construction impacts that could convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; conflict with existing zoning or land use designation for agricultural use or a Williamson Act contract; conflict with existing zoning or land use designations for, or cause rezoning of, forest land, timberland, or timberland zoned timberland production; involve other changes in the existing environment which, due to their location of nature, could result in conversion of farmland to non-agricultural use; or result in the loss of forest land or conversion of forest land into non-forest use.

Therefore, the construction-related impacts on agricultural and forestry resources related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in HFTAs are considered potentially significant (PS) for Impact AG-6. Mitigation is required. Mitigation Measure AG-8 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measure at a project level would reduce the impacts to agricultural land, forest land, and timberland, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AG-8: Minimize construction-related impacts to agricultural and forestry resources.

The implementing agency shall require project proponents to mitigate for construction-related impacts by adopting measures that include but are not limited to:

- restrict construction activities to permitted hours in accordance with local jurisdiction regulations;
- locate materials and stationary equipment (e.g., generators, compressors, rock crushers, cement mixers) as far from conflicting uses as possible;
- locate materials and stationary equipment in such a way as to prevent conflict with agricultural and forestry resources; and
- minimize conflict between construction vehicles and agricultural operations on roads that facilitate agricultural operations.

SIGNIFICANCE AFTER MITIGATION

Due to the importance of the region's agricultural and forestry resources, these impacts on agricultural and forestry resources are considered significant and unavoidable (SU). If the implementing agency adopts these mitigation measures, Impact AG-6 may be reduced, but not to a less than significant level, because net loss of agricultural and forest land would still occur. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant. Additionally, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact AG-6 remains significant and unavoidable (SU) for purposes of this program-level review.

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Chapter 5—Air Quality

5.1 Introduction

This chapter describes the existing conditions (environmental and regulatory) and assesses the potential air quality impacts of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data, analysis and findings provided in this chapter were considered and prepared at a programmatic level. Chapter 8 – Energy and Global Climate Change provides information on the related topic of greenhouse gases and potential climate change effects.

In response to the Notice of Preparation (NOP), SACOG received comments related to air quality from the Sacramento Metropolitan Air Quality Management District (SMAQMD). The commenter expressed that the Draft EIR should consider the following:

- construction emissions and applicable standard district mitigation measures, and
- health impacts from toxic emissions and related guidance from the California Air Resources Board (CARB).

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

5.2 Environmental Setting

The plan area of the proposed MTP/SCS is characterized by several urban centers that would continue to have population and urban growth. Air quality can be directly affected by the type and density of land use change and population growth in urban and rural areas. Air quality conditions are characterized by the concentrations of various pollutants in that area. The concentration of a given pollutant in the atmosphere is determined by the amount of the pollutant released and the atmosphere's ability to transport and dilute. Air pollution transport and dilution are mostly determined by wind, atmospheric stability, terrain, and insolation (i.e., solar energy).

The plan area of the proposed MTP/SCS consists of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties, excluding the portions of El Dorado and Placer counties located in the Tahoe Basin. When determining regional conformity pursuant to the federal Clean Air Act of 1970 (CAA) requirements as outlined in the Transportation Conformity Rule (EPA 2017), the eastern portion of Solano County is analyzed as part of the emissions analysis. However, for purposes of this EIR, impacts are limited to the plan area, which does not include Solano County. Figure 5-1 shows the federal air quality planning boundaries within the area of the proposed MTP/SCS.

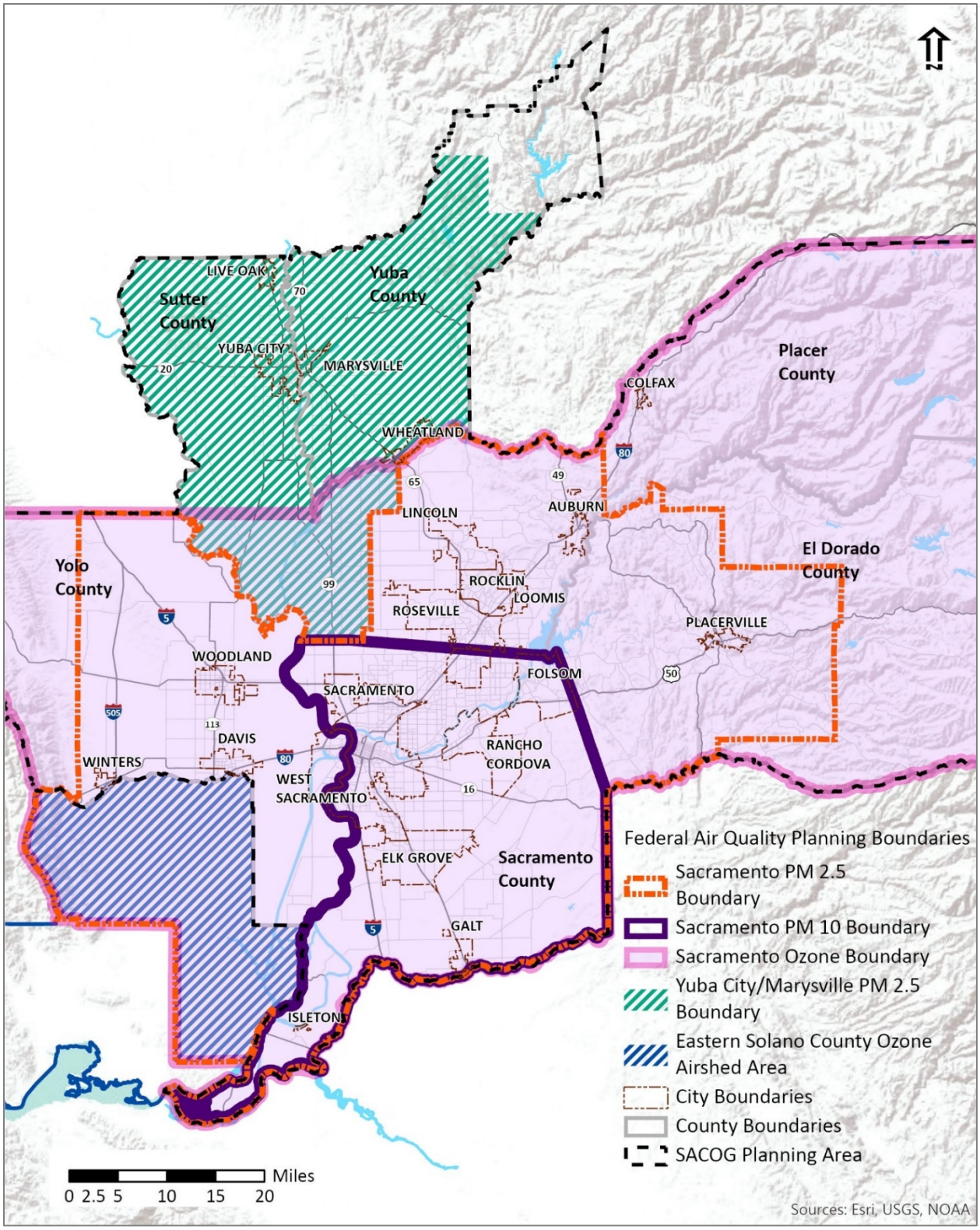


Figure 5-1
Federal Air Quality Planning Boundaries

The plan area of the proposed MTP/SCS is located within the Sacramento Valley Air Basin (SVAB), which spans from Shasta County in the north to Sacramento County in the south, and encompasses the western portion of Placer County as well as Sacramento, Sutter, Yolo, and Yuba counties. The eastern portion of Placer County, excluding the section within the Tahoe Basin, and the western portion of El Dorado also excluding the eastern section within the Tahoe Basin, are located within the Mountain Counties Air Basin (MCAB), which extends from Plumas County down to Mariposa County. Air quality conditions in the plan area are regulated by the U.S. Environmental Protection Agency (EPA), CARB, and the five local air districts with jurisdiction over portions of the plan area of the proposed MTP/SCS (i.e., El Dorado County Air Quality Management District [EDCAQMD], Feather River Air Quality Management District [FRAQMD], Placer County Air Pollution Control District [PCAPCD], Sacramento Metropolitan Air Quality Management District [SMAQMD], and Yolo-Solano Air Quality Management District [YSAQMD]).

5.2.1 Climate and Topography

The majority of the plan area of the proposed MTP/SCS is located in the SVAB, a basin bounded by the Sierra Nevada Mountain Range to the east and the Coastal Mountain Ranges to the west. Topography in the Sacramento Valley is generally flat, with elevations anywhere from slightly below sea level near the Sacramento/San Joaquin Delta to over 2,150 feet above sea level at the Sutter Buttes.

Hot dry summers and mild rainy winters characterize the Mediterranean-type climate of the plan area of the proposed MTP/SCS. The temperature may range during the year from around 20 to 115 degrees Fahrenheit, with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 15 inches, about 75 percent of which occur during the rainy season generally from November through March. Light and infrequent thunderstorms may occur at any time of year, typically whenever cool, moist air moves in to break a prolonged hot spell. Humidity levels vary within the region, often dropping below 10 percent in the warm season, while increasing during colder months to form shallow layers of ground fog (i.e., tule fog) in the valley. The prevailing winds are moderate in strength, primarily from the south or southeast (WRCC 2002).

The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants when certain meteorological conditions exist. The highest frequency of air stagnation occurs between mid-November and mid-January when large high-pressure cells lie over the SVAB. The lack of surface wind during these periods, and the reduced vertical flow caused by less surface heating, reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke or when temperature inversions trap cool air, fog and pollutants near the ground. The ozone season (May through October) in the SVAB is characterized by stagnant morning air or light winds, with the Delta sea breeze arriving in the afternoon out of the southwest. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between reactive organic gases (ROG) and oxides of nitrogen (NO_X), which result in ozone formation.

As an air basin, air quality in the SVAB is impacted not only by pollutants generated within the region, but also by pollutants generated in the San Francisco Bay and the San Joaquin Valley. The delta breeze travels in from the ocean and through the Carquinez Strait then turns northward, carrying air pollution from the Bay Area and San Joaquin Valley across the South border of the SVAB; similarly, air pollution can travel back to the San Joaquin Valley when the wind blows out of the north through the SVAB. The effect of pollutants on the SVAB transported from the San

Francisco Bay or from the San Joaquin Valley can vary from substantial to inconsequential on any given day, largely determined by accompanying meteorological conditions. Thus, the success of the SVAB in attaining better air quality is partially contingent on the achievement of better air quality in nearby areas that affect Sacramento's air quality; however, air pollution from within the basin is typically the most important. Air quality in the MCAB is impacted by locally-generated emissions from vehicle traffic, as well as the transport of pollutants generated in the SVAB, the San Francisco Bay, and the San Joaquin Valley by eastward winds.

5.2.2 Criteria Air Pollutants and Sources

EPA uses six criteria air pollutants as indicators of air quality and has established for each a maximum concentration above which adverse effects on human health may occur: ozone; carbon monoxide (CO); particulate matter (PM), which is further broken down into two categories according to the size of the PM: respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}) and fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$); nitrogen dioxide (NO_2); sulfur dioxide (SO_2); and lead. When an area does not meet the air quality standard for one of the criteria air pollutants, it may be subject to the formal rule-making process, which designates it as nonattainment. Similarly, CARB is responsible for setting standards and adopting regulations to achieve the maximum degree of emissions reduction possible from vehicular and other mobile sources at the state level.

CAA further classifies ozone, CO, and some particulate matter nonattainment areas based on the magnitude of the problem in a given area (42 U.S. Code Section 7401 et seq.). Nonattainment classifications may be used to specify what air pollution reduction measures an area must adopt and when the area must reach attainment. The technical details underlying these classifications are described in the Code of Federal Regulations (CFR) "Protection of Environment" (40 CFR Section 81). The maximum concentrations for the national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS) are provided in Table 5-1.

EPA has established primary and secondary NAAQS for criteria air pollutants. The primary standards are concentrations developed by EPA through review of extensive scientific research and are intended to be protective against human health impacts. The secondary standards were developed to protect elements of human welfare vulnerable to degraded air quality such as visibility of air, agriculture, buildings, infrastructure, and livestock.

Adverse health impacts associated with exposure to air pollution have varying degrees of severity depending on the receptor exposed. For example, infants, children, the elderly, and those with preexisting cardiovascular and respiratory disease (e.g., asthma) experience more severe symptoms in response to acute and chronic exposure. However, EPA has concluded that the current NAAQS protect the public health, including the at-risk populations of older adults, children, and people with asthma, with an adequate margin of safety.

Air pollutants come from various sources, both anthropogenic (i.e., vehicle exhaust, power generation, natural gas generation, and the operation of certain equipment in construction and industry) and biogenic (i.e., vegetation, animals, and even the earth itself). Exhaust emissions from vehicles vary according to driving speed, type of engine (e.g., gasoline or diesel), length of use, and available power. Emissions from stationary sources occur at off-site power plants and emissions are estimated by the amount of natural gas and electricity consumption. Construction and industrial

equipment generate pollutant emissions that are highly variable by type and technology of specific equipment. Vegetation emits large quantities of volatile organic compounds (VOCs) which are ozone precursors.

Table 5-1
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards Concentration[1,2]	National Standards Primary[3]	National Standards Secondary[3]
Ozone	1 Hour	0.09 ppm	-	-
	8 Hour	0.070 ppm	0.075 ppm	0.075 ppm
PM_{10}	24 Hour	50 µg/m^3	150 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	-	-
$PM_{2.5}$	24 Hour	No Separate Standard	35 µg/m^3	35 µg/m^3
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	15 µg/m^3
CO	8 Hour	9.0 ppm	9 ppm	-
	1 Hour	20 ppm	35 ppm	-
NO_2	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	0.053 ppb
	1 Hour	0.18 ppm	100 ppb	-
SO_2	24 Hour	0.04 ppm	0.14 ppm	-
	3 Hour	-	-	0.5 ppm (1300 µg/m^3)
	1 Hour	0.25 ppm	75 ppb	-
Lead[4]	30 Day Average	1.5 µg/m^3	-	-
	Calendar Quarter	-	1.5 µg/m^3	1.5 µg/m^3
	Rolling 3-Month Average[5]	-	0.15 µg/m^3	0.15 µg/m^3

Notes:
[1] µg/m^3 = micrograms per cubic meter; ppm=parts per million; ppb=parts per billion
[2] CAAQS for ozone, CO, SO_2, NO_2, PM_{10}, $PM_{2.5}$, and visibility reducing particles are values not to be exceeded. All others are not to be equaled or exceeded.
[3] NAAQS, other than ozone, PM, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
[4] CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
[5] NAAQS for lead, rolling 3-month average: final rule signed October 15, 2008.
Source: CARB 2016

The major types of air pollution in the plan area of the proposed MTP/SCS are ozone, PM_{10}, and $PM_{2.5}$. The following discussion provides a description, including the potential adverse health outcomes of exposure to high concentrations, of the six criteria air pollutants identified by EPA.

OZONE

Ozone is a nearly colorless, odorless gas that irritates the lungs and damages materials and vegetation. Surface-level ozone pollution is created by chemicals that come from many sources,

including mobile sources such as automobiles, buses, heavy duty trucks, light trucks, trains, construction vehicles, farm vehicles, airplanes, motorcycles, boats, and dirt bikes. Ozone is a major component of smog in the plan area of the proposed MTP/SCS, and results from the photochemical reaction of ozone precursors, hydrocarbons – or ROG – and NO_X in the presence of sunlight and heat. Although ozone is the air contaminant for which standards are set, ROG and NO_X are the pollutants that will be evaluated in this analysis.

Ozone interferes with the photosynthesis process necessary for plant growth, reducing forest and crop growth. Thus, ozone pollution poses a danger to agricultural economies that depend on stable conditions. In addition to the effect on economies reliant on natural resources and crops, ozone deteriorates the appearance of local, state, and national parks in the plan area of the proposed MTP/SCS by damaging vegetation. EPA has established both primary and secondary NAAQS for ozone. The primary NAAQS serves to reduce human health impacts from acute (short-term) and chronic (long-term) exposure to ozone. The effects of ozone on health have also been studied by researchers who have found that acute (short-term) and chronic (long-term) exposure to ozone can result in the following health impacts: difficulty breathing deeply and vigorously, shortness of breath and/or pain when taking a deep breath, coughing and/or sore or scratchy throat, inflamed and damaged airways, aggravation of existing lung diseases (e.g., asthma, emphysema, and chronic bronchitis), increased frequency of asthma attacks, lungs that are more susceptible to infection, and continued damage to the lungs, even when symptoms have disappeared. These effects may lead to increased school absences, medication use, visits to doctors and emergency rooms, and hospital admissions. Research also indicates that long-term ozone exposure may increase the risk of premature death from heart or lung disease (EPA 2018).

CARBON MONOXIDE

CO is a highly toxic, odorless, colorless gas which is primarily produced by the incomplete combustion of carbon-containing fuels (vehicular exhaust from tailpipes). CO is a local pollutant that creates individual hot spots, or small areas where CO concentrations are high. CO is mostly a wintertime problem in the Sacramento urbanized area (as shown in Figure 5-1 above), which is currently in attainment of the CO standard. Acute exposure to high concentrations of CO affects human health by binding to hemoglobin in the bloodstream in the place of oxygen molecules. By reducing the oxygen-carrying potential of blood, CO causes heart difficulties in people with chronic diseases, reduces lung capacity, impairs mental functioning by interfering with the transfer of oxygen to the brain, and may aggravate arteriosclerosis. People with several types of heart disease already have a reduced capacity for pumping oxygenated blood to the heart, which can cause them to experience myocardial ischemia (reduced oxygen to the heart), often accompanied by chest pain (angina), when exercising or under increased stress. For these people, short-term CO exposure further affects their body's already compromised ability to respond to the increased oxygen demands of exercise or exertion. CO air contamination can result in death if quantities are extremely high (i.e., above 100 parts per million, on average) (EPA 2018).

NITROGEN DIOXIDE

NO_2 is one of a group of highly reactive gasses known as NO_X, which are created by a variety of sources that burn fossil fuels, such as motor vehicles. Other NO_X include nitrous acid and nitric acid. NO_X reacts with ammonia, moisture, and other compounds to form small particles. These small particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory

disease, such as emphysema and bronchitis, and can aggravate existing heart disease, leading to increased hospital admissions and premature death. While EPA's NAAQS (described under Regional Attainment Status) covers this entire group of NO_X. NO_2 is the indicator for the larger group of NO_X. NO_X is also a key component of ozone, as discussed above, and contributes to smog formation and the brown haze seen on cold mornings. NO_2 pollution is most severe close to roadways and in vehicles. Consequently, area-wide pollution monitors often show a considerably lower reading of NO_2 pollution than readings collected beside active roadways. Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Acute NO_2 exposure may also cause headache, vomiting, eye irritation, cyanosis, and in severe cases, death. Studies also show a connection between breathing elevated short-term NO_2 concentrations, and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma. Children, the elderly, people suffering from respiratory conditions, and people who exert energy through working or exercising outside are most sensitive to the effects of NO_2 pollution (EPA 2016a).

Emissions that lead to the formation of NO_2 generally also lead to the formation of other NO_X, thus emissions control measures leading to reductions in NO_2 can generally be expected to reduce population exposures to all gaseous NO_X. As a component of ozone, these reductions indirectly have the important co-benefit of reducing the formation of ozone and fine particles both of which pose significant public health threats.

SULFUR DIOXIDE

SO_2 is a colorless gas that can irritate the respiratory system and may cause severe inflammation. It comes from industrial processes and contributes to the formation of smog and acid rain. It is important to note that the conditions which create SO_2 often also create sulfur oxides (SO_X), which can react with other compounds to form particles that deeply infiltrate the lungs and cause or aggravate respiratory illness. Exposure to air contaminated with SO_2 for periods of time as short as five minutes can result in adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. Studies also show a connection between short-term exposure and increased visits to emergency departments and hospital admissions for respiratory illnesses, particularly in at-risk populations including children, the elderly, and people suffering from respiratory conditions such as asthma. Unlike other criteria pollutants discussed in this chapter, there is insufficient evidence to link SO_X exposure to chronic health impact; however, SO_X can react with other compounds in the atmosphere to form small particles. These particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory disease, such as emphysema and bronchitis, and can aggravate existing heart disease, leading to increased hospital admissions and premature death. EPA's NAAQS for SO_2 are designed to provide protection against these health effects (EPA 2019a). Additionally, SO_2 combines with NO_X to form acid rain, which is highly damaging to infrastructure, forests, and aquatic ecosystems (EPA 2019b).

LEAD

Lead is a metal found in the natural environment, as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. In the past, mobile sources were the main contributor to ambient lead concentrations in the air. With the phase-out of lead in gasoline, other stationary sources, such as metal processing, are currently the primary source of

lead emissions—the highest air concentrations of lead are usually found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers. Lead is also present in some aviation fuels, paint in homes built before 1978 or products sourced from outside the U.S., water pumped through leaded pipes, and certain consumer products such as makeup and jewelry.

Ecosystems can suffer from exposure to lead, resulting in retarded growth and reproduction of plants and animals, as well as losses in biodiversity and extinction of native populations. Human exposure to lead can result in adverse effects to the nervous, renal, immune, cardiovascular, and reproductive systems. Additionally, the effects of lead exposure cannot be corrected. For example, children introduced to lead suffer deficits associated with lead build up causing permanent cognitive and physical impairment. Lead that is introduced to the body by ingestion or inhalation is distributed throughout the entire body by the circulatory system and can accumulate in the bones. Some lead can leave bones and re-enter blood and organs under certain circumstances, such as during pregnancy and periods of breastfeeding, or after a bone is broken (ATSDR 2019).

PARTICULATE MATTER

PM refers to finely divided solids or liquids such as soot, dust, aerosols, and mists. PM is largely the result of human activities, such as smoke and soot from residential fuel combustion, grading and excavation activities, agriculture (e.g., soil preparation activities, fertilizer and pesticide spraying, weed burning, and animal husbandry), and from motor vehicles, particularly diesel-powered vehicles. Suspended particulates aggravate chronic heart and lung disease problems, produce respiratory problems, and often transport toxic elements (e.g., lead, cadmium, antimony, arsenic, nickel, vinyl chloride, asbestos, and benzene compounds). Suspended particulates also absorb sunlight, producing haze and reducing visibility.

PM_{10}

PM_{10} consists of small particles, less than 10 microns in diameter, of dust, smoke, or droplets of liquid, which penetrate the human respiratory system and cause irritation by themselves or in combination with other gases. In rural and urban locations within the western U.S., sources of PM_{10} include the following:

- motor vehicles;
- wood burning stoves and fireplaces;
- dust from construction, landfills, and agriculture;
- wildfires and brush or waste burning;
- industrial sources; and
- windblown dust from open lands.

PM_{10} pollution can result in damage to vegetation and is often responsible for much of the haze regarded as smog, but the focus is generally placed on the adverse effects of PM on human health. PM_{10} causes a greater health risk than larger particles, since these fine particles are too small for the natural filtering process of the human body and can more easily penetrate the defenses of the human respiratory system (CARB 2017a).

Controlled human exposure studies have shown that exposure to elevated levels of PM_{10} causes adverse health effects, especially related to the inhibition of lung functions and an increase in respiratory and cardiovascular afflictions, as well as cancer risks. Individuals with preexisting respiratory or cardiovascular disease are especially susceptible to the adverse effects of PM_{10} exposure, as are asthmatic children and the elderly. Children exposed to high concentrations of PM for prolonged periods exhibit decrease immune function as well. Additionally, associations between long-term exposure to PM and adverse cognitive effects, such as faster cognitive decline, including memory and attention span loss, are being further examined by health researchers (CARB 2017a).

$PM_{2.5}$

$PM_{2.5}$ consists of small particles, which are less than 2.5 microns in size. Similar to PM_{10}, these particles are primarily the result of combustion in motor vehicles, particularly diesel engines, as well as from industrial sources and residential and agricultural activities such as burning. $PM_{2.5}$ is also formed through the reaction of other pollutants. Like PM_{10}, $PM_{2.5}$ contributes to the environmental haze creating visibility impairment, and, when combined with water, contributes to acid rain formation (EPA 2019b).

As $PM_{2.5}$ is smaller than PM_{10}, it can more deeply penetrate the human body through inhalation, allowing many chemicals harmful to human health to be carried to internal organs. Long-term exposure to these particulates can increase the chance of chronic respiratory disease and cause lung damage and irregular heartbeat. Research has also linked long-term $PM_{2.5}$ exposure and increased mortality from cardiovascular disease and well as impaired respiratory and immune function (Ostro et al. 2014). Short-term exposure can aggravate respiratory illnesses such as bronchitis and asthma and cause heart attacks and arrhythmias in people with heart disease. Additionally, an estimated 9,000 people die prematurely each year in California as a result of $PM_{2.5}$ exposure (CARB 2010). A safe threshold for $PM_{2.5}$ has not been established and research indicated that health effects still exist at low concentrations. In addition, EPA has concluded that there is suggestive relationship between long-term exposure to $PM_{2.5}$ and cancer, mutagenicity, genotoxicity, and reproductive and developmental health impacts (SMAQMD 2018a:4)

5.2.3 Toxic Air Contaminants

TACs, referred to at the federal level as hazardous air pollutants (HAPs), are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

TACs can cause long-term health effects such as cancer, birth defects, neurological damage, and genetic damage; or short-term acute effects such as eye watering, respiratory irritation, rhinitis, throat pain, and headaches. TACs can be separated into carcinogens and non-carcinogens, based on the nature of the physiological degradation associated with exposure. For regulatory purposes, carcinogens are assumed to have no safe threshold and cancer risk is expressed as excess cancer cases per one million exposed individuals. These levels are determined on a pollutant-by-pollutant basis. Acute and chronic exposure to non-carcinogens is expressed using a Hazard Index, which is the ratio of unexpected exposure levels to acceptable health exposure levels (CAPCOA 2009). The

specific health effects of each particular TAC as identified by the Office of Environmental Health Hazard Assessment (OEHHA) and CARB are listed in the Consolidated Table of OEHHA/CARB Approved Risk Assessment Health Values (CARB 2018a).

The dose to which sensitive receptors (see definition and discussion below) are exposed to a TAC is the primary factor used to determine health risk. Dose is a function of the concentration of a substance in the environment and the duration of exposure. Dose is positively correlated with concentration of the TAC, which generally disperses with distance from the source under normal meteorological conditions. Dose is also positively correlated with time, meaning that a longer exposure results in a higher risk to exposed individuals.

In addition, naturally occurring asbestos (NOA), which was identified as a TAC in 1986 by CARB, is located in many parts of California, including the SVAB. The California Geological Survey (CGS) has prepared reports on the relative likelihood for the presence of NOA in California. See Chapter 10 – Hazards and Hazardous Materials for additional information and impact analyses regarding NOA.

The majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being diesel particulate matter (DPM). DPM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, and lubricating oil, and whether an emission control system is present. Unlike the other TACs, no ambient monitoring data are available for DPM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on the tracer species method for estimating PM exposure, which consists of a simple variation of receptor modeling using measurements of ambient chemical concentrations of NO_X to infer source contributions for DPM. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies on chemical speciation to estimate concentrations of DPM. In addition to DPM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene are the TACs that pose the greatest existing ambient risk in California for which data are available (CARB 1998b).

DPM poses the greatest health risk among the 10 TACs mentioned above. In fact, CARB estimates that 79 percent of the known statewide cancer risk from the top 10 outdoor TACs is attributable to DPM. Based on receptor modeling techniques, CARB estimated the average health risk in the SVAB from DPM to be 750, 480, and 360 excess cancer cases per million exposed individuals for 1990, 1996, and 2000, respectively. From 1990 to 2000, the health risk associated with DPM was reduced by approximately 52 percent. Current DPM levels are being reviewed by CARB. Overall, levels of most TACs, except for para-dichlorobenzene and formaldehyde, have gone down since 1990 (CARB 2009).

It is also important to note that living near freeways and major roadways is associated with cancer and non-cancer acute and chronic health effects (SMAQMD 2018b). These are primarily associated with DPM, but also benzene and 1.3-butadiene. The pollutants causing adverse respiratory effects in children are less known; while $PM_{2.5}$, PM_{10}, and DPM have been considered, NO_2, NO_X, and elemental carbon have also been identified as possible causes.

Many scientific studies have linked $PM_{2.5}$ and traffic-related air pollution to respiratory illness (Vineis et al. 2007; Liu et al. 2017) and premature mortality (Jerrett et al. 2005; Cao et al. 2018). Accordingly, reductions in emissions were associated with improvements in life expectancy, especially in urban areas (Correia et al. 2013). Traffic-related air pollution is a complex mix of chemical compounds, often spatially correlated with other stressors, such as noise and poverty (Wheeler and Ben-Shlomo 2005). While such correlations can be difficult to disentangle, strong evidence for adverse health effects of $PM_{2.5}$ has been developed for regulatory applications in a study by EPA. A recent study found that overall mortality related to cardiopulmonary disease as well as lung cancer increased by 4 percent, 6 percent, and 8 percent, respectively, from exposure to every 10 micrograms cubed increased of $PM_{2.5}$ exposure (Xing et. al 2016).

As described in CARB's 2005 *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB Handbook), the link between health risk and exposure is a growing area of study with continued collective evidence of an existing relationship. The CARB Handbook guidelines were developed as a means to share important public health information and highlight the potential health impacts associated with proximity to air pollution sources. As stated in the CARB Handbook, however, "with careful evaluation, infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level." The scientific research on health risk and exposure is ongoing. Recent studies have confirmed earlier findings, and identified additional potential risks, such as autism and neurodevelopmental psychiatric disorders such as Attention Deficit Hyperactivity Disorder (Volk et al. 2011; Perera et al. 2014; Guxens et al. 2016; Myhre et al. 2018).

Ultrafine Particulate Matter

Ultrafine particulate matter (UFP) refers to a subfraction of currently regulated $PM_{2.5}$ and PM_{10} size particles. UFP is most often defined as particles with an aerodynamic diameter of 0.1 microns or smaller (Health Effects Institute 2013; CARB 2006; Kleeman et al. 2007).

Although UFP contribute only a small amount to total PM mass they have a large surface area and often very high number concentrations. Because of its small size, a given mass of UFP contains thousands to tens of thousands more particles, with a correspondingly larger surface area, than an equivalent mass of $PM_{2.5}$ or PM_{10}. This means that a given mass of UFP can impact a larger surface area of lung tissue than equal mass of $PM_{2.5}$ or PM_{10}, thus increasing exposure (Delfino et al. 2005; Knibbs et al. 2011). UFP behaves much like a gas and may be inhaled more deeply into the lung than larger particles (Oberdörster, 2001).

The predominant source of UFP is combustion by on-road vehicles, off-road vehicles, and stationary sources (Health Effects Institute 2013; CARB 2006; Kleeman et al. 2007). Concentrations of UFP have been found to be substantially higher at locations proximate to and downwind of high-volume roadways, particularly roadways travelled by diesel-powered vehicles (Health Effects Institute 2013; Hagler et al. 2009; Ham and Kleeman 2011; Zhu et al. 2002). Studies have also shown that commuters using non-automobile travel (e.g., bicycles) have a higher risk of exposure and adverse health impacts if commuting is performed along roadways (Panis et al. 2010; Knibbs et al. 2011). Moreover, evidence suggests that UFP can penetrate the microclimate within vehicles causing increasingly more exposure to UFP among those with long commutes (Bigazzi and Figliozzi 2012).

Concentrations of UFP often do not correlate well with concentrations of $PM_{2.5}$ and PM_{10} (CARB 2003). Because of its smaller size UFP has different dispersion properties than $PM_{2.5}$ and PM_{10}. As aerosols, UFP does not undergo gravitational settling like $PM_{2.5}$ and PM_{10}. Because of coagulation processes wherein individual UFP particles collide with one another and adhere to form larger particles, there will be a continuous decrease in number concentration coupled with an increase in particle size. Thus, the combination of coagulation and dilution experienced by UFP results in a rapid decrease in concentration with downwind distance (Zhou and Levy 2007; Zhu et al. 2002). For these reasons, the concentration of UFP at a particular location is more a function of the proximity to a local source, and less a function of background levels, than is the case for $PM_{2.5}$ and PM_{10} (Zhou and Levy 2007). UFP concentration measured at 300 meters (984 feet) downwind from the freeway was indistinguishable from upwind background concentration (Zhu et al. 2002a; Zhou and Levy 2007).

Relatively low temperature and high humidity are associated with higher rates of new particle formation and slower atmospheric dispersion, indicating that UFP concentrations will generally be higher in the winter than in the summer (Sioutas et al. 2005; Cahill et al. 2011; Cahill et al. 2014). Numerous field studies indicate that both DPM and UFP concentrations are substantially higher near heavily travelled roadways (Health Effects Institute 2013).

5.2.4 Odors

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. Odor sources commonly associated with negative human response include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, food packaging plants, and cannabis. Several of these sources are located within the plan area of the proposed MTP/SCS.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air, which is impacted by the dispersion of the odor. One way that odor dispersion is affected is by the area's meteorology: high winds would help disperse an odor rapidly, while an inversion would disperse an odor less quickly. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the odor is quite difficult to detect or recognize. At some point during dilution, the concentration of the odor reaches a detection

threshold. When an odorant concentration is below the detection threshold, the concentration in the air is not detectable by the average human. Local air districts in the SVAB have identified types of facilities that commonly produce odors, including wastewater treatment facilities, chemical manufacturing plants, painting and coating operations, feed lots and dairies, composting facilities, landfills, coffee roasters, rendering plants, asphalt batch plants, cannabis, and transfer stations.

Two situations increase the potential for odor problems. The first occurs when a new odor source is located near existing sensitive receptors. The second occurs when new sensitive receptors are developed near existing sources of odors. In the first situation, the local air districts recommend operational changes, add-on controls, process changes, or buffer zones, where feasible to address odor complaints. In the second situation, the potential conflict is considered significant if the project area is at least as close as any other site that has already experienced significant odor problems related to the odor source. For projects being developed near a source of odors where there is no nearby development that may have filed complaints, and for odor sources being developed near existing sensitive receptors, the local air districts recommend that the determination of potential conflict be based on the distance and frequency at which odor complaints from the public have occurred in the vicinity of a similar facility except in cases where sources of odor (e.g., agricultural operations, rending plants) are covered by the "Right to Farm Act," which preserves agricultural activities previously sited in rural area from nuisance rules enforced by a local air district (California Civil Code Section 3482.5)

5.2.5 Regional Attainment Status

Federal and state governments, specifically EPA and CARB, each establish ambient air quality standards for several criteria air pollutants (NAAQS and CAAQS, as previously shown in Table 5-1). Ambient air quality standards are established to address the health impacts (discussed above) of the exposure of people, especially sensitive populations, to hazardous concentrations of criteria air pollutants, and are periodically updated by assessing newly available scientific information on a given criteria air pollutant. The primary standards have been set to protect public health (e.g., avoidance of developing illnesses) while the secondary standards are protective of public welfare (e.g., protection of crops, protection of materials, or avoidance of nuisance conditions). For some pollutants, multiple standards have been set, some for different periods of time (averaging times). Measured air pollutant concentrations measured in various locations within an air basin are compared to the NAAQS and CAAQS to determine the attainment status of that air basin. Attainment status is a classification of regional air quality that describes whether an air basin is meeting the standards (attainment) or not (nonattainment).

California is divided into 15 air basins characterized by similar meteorological and geographic conditions. Air pollutant concentrations in these air basins are monitored at stations throughout the state. The plan area of the proposed MTP/SCS includes five air districts in the southern portion of the SVAB and the mid-northern portion of the MCAB. Various portions within these basins have been classified as either attainment or nonattainment for NAAQS and CAAQS. Ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, and lead are monitored in the plan area of the proposed MTP/SCS. Portions of the plan area of the proposed MTP/SCS are in nonattainment status for ozone, and $PM_{2.5}$, attainment for PM_{10}, and classified as a maintenance area for CO.

OZONE

The nonattainment area for ozone is comprised of Sacramento County, Yolo County, the southern portion of Sutter County, the eastern portion of Solano County, and the portions of El Dorado and Placer counties west of the Tahoe Basin (within the plan area). There are multiple, current, designations for this portion of the plan area; severe-15 nonattainment area for the 2008 8-hour NAAQS for ozone and a moderate nonattainment area for the 2015 8-hour NAAQS for ozone; additionally, the Sutter Buttes area is classified as a marginal nonattainment area for the 2015 standard (as shown in Figure 5-1). The 2008 Ozone NAAQS classifying the Sacramento non-attainment area as severe-15 became effective on May 21, 2012. On April 6, 2015, the EPA revoked the 1997 8-hour ozone standard. However, on February 16, 2018 the DC Circuit Court of Appeals vacated portions of the EPA's 2008 Ozone Implementation Rule. This ruling vacated the revocation of Air Quality Conformity for Transportation (Conformity) requirements for the 1997 ozone standard, noting a need for areas to continue demonstration to the standard in specific circumstance. The region's designation status through the 2015 NAAQS for ground-level ozone became effective August 3, 2018. EPA has not yet revoked the previous 2008 standard. (See Table 5-2 for the designation values of each nonattainment classification for the 2008 NAAQS.)

Table 5-2
Nonattainment Designations for the 2015 NAAQS

Classification	Description
Extreme	Area has a concentration of 0.163 ppm and above.
Severe 17	Area has a concentration of 0.111 up to but not including 0.175 ppm.
Severe 15	Area has a concentration of 0.105 up to but not including 0.119 ppm.
Serious	Area has a concentration of 0.093 up to but not including 0.113 ppm.
Moderate	Area has a concentration of 0.081 up to but not including 0.100ppm.
Marginal	Area has a concentration of 0.071 up to but not including 0.086ppm.

Source: EPA 2019c

Tables 5-3 and 5-4 show the average number of days that the NAAQS and CAAQS were exceeded from 2007 through 2018, the last year for which data are currently available.

PM_{10}

EPA designated Sacramento County as a moderate nonattainment area for PM_{10} in 1994. The area monitored for PM_{10} consists solely of Sacramento County, though the four remaining air districts in the plan area of the proposed MTP/SCS are designated nonattainment for the CAAQS and unclassified or attainment areas for the NAAQS. Sacramento County attained the PM_{10} NAAQS by the attainment deadline of 2000 and has been demonstrating maintenance since then. EPA approved the *PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County* effective October 28, 2013, showing the 1987 standard for PM_{10} was attained and establishing the strategy for maintaining the standard through 2022. The area is now designated as attainment for PM_{10}. Tables 5-5 and 5-6 show the average number of days that the NAAQS and CAAQS for PM_{10} were exceeded from 2007 through 2018, the last year for which data are currently available.

Table 5-3
Number of Days above the NAAQS 8-Hour Standard[1] for Ozone

Monitoring Sites	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
El Dorado County												
Cool-Highway 193	29	29	21	6	24	8	4	10	13	19	28	26
Echo Summit	3	5	0	0	0	1	0	0	*	2	1	10
Placerville-Gold Nugget Way	9	36	20	8	5	20	11	12	19	41	18	28
Placer County												
Auburn-11645 Atwood Road	*	*	*	*	15	13	1	6	15	27	28	35
Colfax-City Hall	10	16	3	3	2	7	1	2	12	14	14	30
Lincoln-1445 1st St.	*	*	*	*	*	0	0	1	4	11	11	*
Lincoln-2885 Moore Road	*	*	*	*	*	*	*	*	*	*	*	0
Roseville-N Sunrise Blvd	8	22	19	15	15	13	0	10	6	20	9	11
Sacramento County												
Elk Grove-Bruceville Road	5	7	5	2	1	5	0	0	2	1	3	2
Folsom-Natoma Street	21	50	35	19	33	38	6	14	11	23	17	18
North Highlands-Blackfoot Way	2	2	7	3	9	11	0	3	8	7	5	10
Sacramento-Del Paso Manor	10	18	15	5	3	12	3	1	8	10	5	6
Sacramento-Goldenland Court	*	0	5	1	1	4	0	1	4	8	0	*
Sacramento-T Street	2	9	4	0	1	4	0	0	4	3	3	1
Sloughhouse	10	19	24	8	19	18	2	5	14	17	6	4
Sutter County												
Sutter Buttes-S Butte	7	12	2	0	3	7	1	3	7	30	0	18
Yuba City-Almond Street	3	1	1	0	0	0	0	1	1	0	2	1
Yolo County												
Davis-UCD Campus	3	5	1	0	1	1	0	0	1	1	1	1
Woodland-Gibson Road	2	4	3	0	0	2	0	0	3	4	2	2

Note: NAAQS = national ambient air quality standards

**There was insufficient (or no) data available to determine the value.*

[1] *Following the adoption of the 2015 8-Hour Ozone Standard, years 2015 through 2018 are measured against the 2015 8-Hour Ozone Standard.*

Source: CARB 2019a

Table 5-4
Number of Days Per Year CAAQS 8-Hour Standard for Ozone

Monitoring Sites	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
El Dorado County												
Cool-Highway 193	44	40	35	18	41	16	10	35	13	20	28	26
Echo Summit	9	9	1	3	1	11	1	2	*	3	1	10
Placerville-Gold Nugget Way	20	52	32	19	16	50	21	36	23	45	21	31
Placer County												
Auburn-11645 Atwood Road	*	*	*	*	25	34	6	17	16	27	30	36
Colfax-City Hall	24	29	12	11	13	16	5	6	13	17	16	33
Lincoln-1445 1st St.	*	*	*	*	*	0	2	4	5	12	11	*
Lincoln-2885 Moore Road	*	*	*	*	*	*	*	*	*	*	*	0
Roseville-N Sunrise Blvd	20	38	32	21	23	28	8	21	6	21	10	11
Sacramento County												
Elk Grove-Bruceville Road	13	13	12	6	6	11	0	2	2	1	3	2
Folsom-Natoma Street	34	65	47	26	46	57	17	35	11	24	19	19
North Highlands-Blackfoot Way	4	4	18	10	20	21	6	13	8	17	9	10
Sacramento-Del Paso Manor	16	23	32	7	9	21	7	18	8	11	5	7
Sacramento-Goldenland Court	*	0	11	2	2	7	2	4	6	8	0	*
Sacramento-T Street	7	18	13	1	5	9	0	4	4	3	3	1
Sloughhouse	17	37	34	13	27	25	5	10	14	17	7	4
Sutter County												
Sutter Buttes-S Butte	19	27	7	3	8	16	5	9	7	33	0	19
Yuba City-Almond Street	6	2	1	1	0	2	0	3	1	0	2	1
Yolo County												
Davis-UCD Campus	4	10	7	3	2	4	0	0	1	1	1	1
Woodland-Gibson Road	5	12	11	0	2	9	0	1	4	4	2	2

Note: CAAQS = California ambient air quality standards
**There was insufficient (or no) data available to determine the value.*
Source: CARB 2019a

Table 5-5
Estimated Number of Days Above the NAAQS 24-Hour Standard for PM_{10}

Monitoring Sites	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
El Dorado County												
Placerville-Gold Nugget Way	**0**	**0**	*	*	*	*	*	*	*	*	*	*
Placer County												
Lincoln-L Street	*	*	*	*	*	*	*	*	*	*	*	*
Roseville-N Sunrise Blvd	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	*	**0**	**0**	**2**
Sacramento County												
North Highlands-Blackfoot Way	**0**	*	**0**	**0**	**0**	**0**	**0**	**0**	*	**0**	**0**	**12.3**
Sacramento-3801 Airport Road	**0**	*	*	*	*	*	*	*	*	*	*	*
Sacramento-Branch Center Rd #2	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6.1**
Sacramento-Del Paso Manor	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12.3**
Sacramento-Goldenland Court	*	*	**0**	*	*	*	*	**0**	**0**	**0**	*	*
Sacramento-Health Dept.- Stockton Blvd.	**0**	**0**	**0**	*	**0**	*	**0**	**0**	**0**	*	*	*
Sacramento-T Street	**0**	**0**	**0**	**0**	**0**	**0**	*	**0**	**0**	**0**	**0**	**6**
Sutter County												
Yuba City-Almond Street	**0**	**0**	**0**	**0**	**0**	**0**	**0**	*	**0**	**0**	**0**	**8**
Yolo County												
West Sacramento-15th Street	**0**	**0**	**0**	**0**	**0**	0	**0**	**0**	**0**	**0**	**0**	**12.3**
Woodland-Gibson Road	**0**	**6.1**	**0**	**0**	**0**	0	**0**	**0**	**0**	**0**	**0**	**6.1**

*Note: *There was insufficient (or no) data available to determine the value. Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored, which can result in fractions of a day.*
Source: CARB 2019a

Table 5-6
Estimated Number of Days Above the CAAQS 24-Hour Standard for PM_{10}

Monitoring Sites	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
El Dorado County												
Big Hill Lookout Road	*	*	*	*	*	*	*	*	*	*	*	*
Echo Summit	*	*	*	*	*	*	*	*	*	*	*	*
Placerville-Gold Nugget Way	**0**	**6.1**	*	*	*	*	*	*	*	*	*	*
Placer County												
Rocklin-Rocklin Road	*	*	*	*	*	*	*	*	*	*	*	*
Colfax – City Hall	*	*	*	*	*	0	12.2	6.5	*	*	*	*
Lincoln – L Street	*	*	*	*	*	*	*	*	*	*	*	*
Auburn-Dewitt-C Avenue	*	*	*	*	*	0	6.5	6.1	*	*	*	*
Roseville-N Sunrise Blvd	**0**	**6.0**	**0**	**0**	**6.1**	**0**	*	**0**	*	*	*	*
Sacramento County												
North Highlands-Blackfoot Way	**13**	*	**0**	**0**	**6.1**	**0**	**0**	*	*	0	18.8	12.2
Sacramento-3801 Airport Road	**36.4**	*	*	*	*	*	*	*	*	0	*	*
Sacramento-Branch Center Rd	*	*	*	*	*	*	*	*	*	*	*	*
Sacramento-Branch Center Rd #2	**30.2**	**68.7**	**12.2**	**12.2**	**12.2**	**17.8**	**6.1**	**0**	**0**	0	18.4	24.1
Sacramento-Del Paso Manor	**30.2**	**12.1**	**0**	**0**	**12.2**	**0**	**12.3**	**0**	**0**	0	18.6	12.2
Sacramento-Goldenland Court	*	*	**0**	**0**	**6.1**	**0**	**6.0**	**0**	**6.1**	0	*	*
Sacramento-Health Dept.-Stockton Blvd.	**25.1**	**13**	**0**	**0**	**6.1**	**0**	**0**	**0**	**0**	*	*	*
Sacramento- T Street	**30.2**	**17.8**	**6.0**	**6.1**	**0**	**0**	*	*	*	*	*	22.2
Sutter County												
Yuba City-Almond Street	*	*	**0**	**0**	**13.1**	**6.1**	*	*	**6**	**1**	19.3	*
Yolo County												
West Sacramento-15th Street	**32.4**	**31.6**	**12.1**	**6.1**	**12.2**	**6.5**	**23.0**	**0**	**6.1**	0	*	12.2
Woodland-Gibson Road	**18.7**	**48.9**	**12.2**	**6.5**	**6.1**	**6.1**	**23.3**	**0**	**12.2**	12.2	18.4	24.5

*Note: *There was insufficient (or no) data available to determine the value. Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored, which can result in fractions of a day.*
Source: CARB 2019a

$PM_{2.5}$

EPA changed the 24-hour standard for $PM_{2.5}$ from 65µg/m^3 to 35µg/m^3 in 2006 and two areas within the area of the proposed MTP/SCS were consequently designated as $PM_{2.5}$ nonattainment areas in 2009. Since the new standards were implemented, EPA approved the *Yuba City-Marysville $PM_{2.5}$ Nonattainment Area Redesignation Request and Maintenance Plan* on December 9, 2014. The area is now designated attainment, effective January 8, 2015. Until 2017, Sacramento County was in nonattainment for the standard. Following the development of the $PM_{2.5}$ Implementation/Maintenance Plan and Redesignation Request for the Sacramento $PM_{2.5}$ Nonattainment Area, EPA declared Sacramento County as attainment on May 10, 2017.

Table 5-7 shows the average number of days that the NAAQS for $PM_{2.5}$ was exceeded from 2007 through 2017, the last year for which data are currently available.

CO

The area monitored for CO levels was redesignated as a maintenance area in the *1996 Carbon Monoxide Maintenance Plan for 10 Federal Planning Areas* prepared by CARB (see Figure 5-1 above). The maintenance area for CO includes the urbanized portions of Placer, Yolo, and Sacramento counties. The area has reduced emissions to acceptable amounts in accordance with the proposed budget of CO emissions as included in the *2004 Amendment to the California State Implementation Plan for Carbon Monoxide*. For purposes of Conformity, CO is no longer an analyzed pollutant as of June 1, 2018 when the 20-year conformity obligation period ended. (EPA 2012).

5.2.6 Air Pollution Monitoring

CARB maintains air quality monitoring stations throughout the state in conjunction with local air districts. Data collected at these stations are used by CARB to classify air basins as attainment or nonattainment for both the NAAQS and CAAQS with respect to each criteria pollutant, and to monitor progress in attaining the NAAQS and CAAQS.

Table 5-8 lists the currently operating and retired air quality monitoring sites within the plan area of the proposed MTP/SCS, which reported data from 2007 to 2018, and Figure 5-2 depicts the locations of these sites.

Table 5-7
Estimated Number of Days Above NAAQS 24-Hour Standard for $PM_{2.5}$

Monitoring Sites	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Placer County												
Auburn-11645 Atwood Road	*	*	*	*	*	2.0	**7.2**	**4**	**1**	**0**	**0**	**11.6**
Colfax-City Hall	*	*	*	*	*	*	*	*	*	*	*	*
Lincoln-1445 1st Street	*	*	*	*	*	*	*	*	*	*	*	*
Lincoln-2885 Moore Road	*	*	*	*	*	*	*	*	*	*	*	*
Roseville-N Sunrise Blvd	**0**	**6.5**	**0**	**0**	**6.1**	**0**	**0**	**0**	**0**	**0**	**0**	**17.3**
Sacramento County												
Elk Grove-Bruceville Road	*	*	*	*	*	*	*	*	*	*	*	*
Folsom-Natoma Street	*	*	*	*	*	*	*	**0**	**1.1**	**0**	**0**	**9**
Sacramento-Bercut Drive	*	*	*	*	*	*	*	*	*	*	**5.9**	**6.8**
Sacramento - Del Paso Manor	**26.1**	**24.1**	**8.9**	**0**	**9.5**	**0**	**13.0**	**0**	**8.7**	**3.3**	**6.2**	**10.6**
Sacramento-Health Dept.- Stockton Blvd.	**23.1**	**21.5**	**3.1**	**0**	**12.3**	**0**	**10.2**	**0**	**3.5**	*	*	*
Sacramento-T Street	**27.6**	**15.4**	**3.0**	**0**	**18.4**	**0**	**6.1**	**0**	**3**	**0**	**6.1**	*
												*
Sutter County												
Yuba City-Almond Street	**8.1**	**9.7**	**2.1**	**1.1**	**8.6**	**1.0**	**0**	*	**1.1**	**1**	**2.4**	**8.4**
Yolo County												
Davis-UCD Campus	*	*	*	*	*	*	*	*	*	*	*	*
Woodland-Gibson Road	**15.1**	*	**0**	**0**	**6.6**	**0**	**0**	**0**	**0**	**0**	**12.3**	**12.3**

Note: The Big Hill Lookout Road, Colfax-City Hall, Lincoln-1445 1st Street, Lincoln-L Street, Auburn-11645 Atwood Road, Elk Grove-Bruceville Road, Folsom-Natoma Street, Sloughhouse, and Davis-UCD Campus monitoring sites do not measure $PM_{2.5}$.
**There was insufficient (or no) data available to determine the value. Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored, which can result in fractions of a day.*
Source: CARB 2019a

Table 5-8
Open and Closed Air Quality Monitoring Sites

Monitoring Sites	Operating Agency	Address	Status
El Dorado County			
Cool - Highway 193 (seasonal)	CARB	1400 American River Trail	Open
Echo Summit (seasonal)	CARB	U.S. 50 Echo Summit	Open
Placerville - Gold Nugget Way (seasonal)	CARB	3111 Gold Nugget Way	Open
Placer County			
Auburn - Dewitt-C Avenue	PCAPCD	11484 B Ave DeWitt Cen.	Closed
Auburn - Atwood Rd	PCAPCD	11645 Atwood Rd.	Open
Colfax - City Hall	PCAPCD	10 West Church Street	Open
Lincoln - 1445 1st St.	PCAPCD	1445 1st St.	Closed
Lincoln - 204 L St.	PCAPCD	204 L St.	Closed
Lincoln - 2885 Moore Road	PCAPCD	2885 Moore Road	Open
Roseville Railyard - Denio	PCAPCD	Shed 600 feet from Atkins Ave.	Closed
Roseville Railyard - Pool	PCAPCD	311 Vernon St	Closed
Roseville Railyard - Vernon	PCAPCD	Alley north of Vernon St	Closed
Roseville - N Sunrise Blvd	CARB	151 North Sunrise	Open
Sacramento County			
Elk Grove - Bruceville Road	SMAQMD	12490 Bruceville Road	Open
Folsom - Natoma Street	SMAQMD	15 Natoma Street	Open
North Highlands - Blackfoot Way	SMAQMD	7823 Blackfoot Way	Open
Sacramento - 3801 Airport Road	SMAQMD	3801 Airport Road	Closed
Sacramento - Bercut Drive	SMAQMD	100 Bercut Drive	Open
Sacramento - Branch Center #2	SMAQMD	3847 Branch Center Rd.	Open
Sacramento - Del Paso Manor	SMAQMD	2701 Avalon Street	Open
Sacramento - El Camino	SMAQMD	El Camino & Watt Ave	Closed
Sacramento - Goldenland Court	SMAQMD	68 Goldenland Ct	Closed
Sacramento - Health Department	SMAQMD	2221 Stockton Blvd.	Closed
Sacramento - T Street	CARB	1309 T Street	Open
Sloughhouse	SMAQMD	7520 Sloughhouse Road	Open
Sutter County			
Sutter Buttes (seasonal)	CARB	Top of South Butte	Open
Yuba City - Almond Street	CARB	773 Almond St	Open
Yolo County			
Davis - UCD Campus	CARB	U.C. Davis Ag. Station, Campbell Rd	Open
West Sacramento - 15th Street	YSAQMD	132 W. 15th St	Open
Woodland - Gibson Road	YSAQMD	17 W. Main Street	Open

Notes: CARB- California Air Resources Board, PCAPCD-Placer County Air Pollution Control District, SMAQMD-Sacramento Metropolitan Air Quality Management District, YSAQMD- Yolo Solano Air Quality Management District, EDAQMD- El Dorado County Air Quality Management District
Source: CARB 2019, Quality Assurance Air Monitoring Site Information http://www.arb.ca.gov/qaweb/basinselect.php?b_airs_code=08.

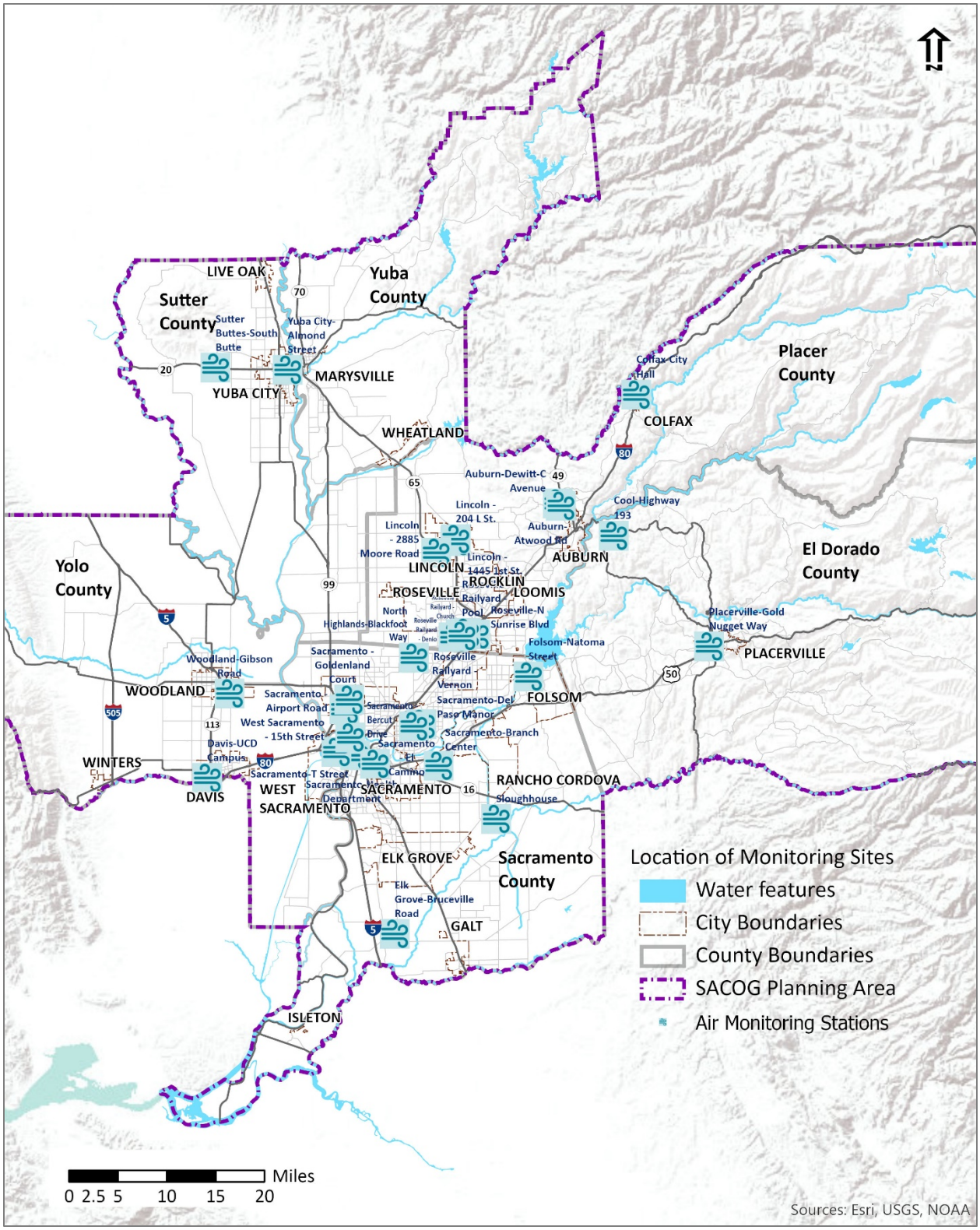


Figure 5-2
Location of Monitoring Sites

5.2.7 Sources of Air Pollution

Release of air pollutants comes from almost all human activities, including industrial facilities, dry cleaners, automobiles, auto body shops, trucks, trains, lawn mowers, bakeries, farm equipment, paints, paving, printing, airplanes, construction equipment, refining, and agricultural activities. Some sources emit large amounts of the pollutants that cause ozone (e.g., NO_X), but only small amounts of CO or PM, while others emit large amounts of all three.

Emissions are normally grouped into four main categories: stationary, area-wide, mobile, and natural sources. Generally, stationary- and area-wide sources are those attached to the ground, while mobile sources, as the name implies, are those involved in the movement of people and goods. Natural emission sources refer to emissions that are non-anthropogenic (non-human-caused) sources. Each of these categories is usually further divided into major source categories and then summary categories. The sections below provide a brief description of these four main categories.

STATIONARY EMISSION SOURCES

Stationary source emissions, also referred to as point-source emissions, are emissions from major industrial, manufacturing, and processing plants. This category also includes emissions from electric utilities; waste burning; solvent use; petroleum processing, storage, and transfer; and industrial processes.

AREA-WIDE EMISSION SOURCES

Area-wide sources are those that individually emit small quantities, but collectively result in substantial emissions when aggregated over a larger area. Emissions result from landscaping; natural gas consumption; small industrial engines; solvent use in dry cleaning; auto repair, auto body, and paints; wood burning; industrial coatings; consumer products; printing; bakeries and restaurants; asphalt paving; and fugitive dust.

MOBILE EMISSION SOURCES

There are two major categories under mobile emissions:

- *On-Road Mobile Sources:* This major source category accounts for the emissions from all types of vehicles licensed to travel on public roads and highways. This includes passenger cars, light- and medium-duty trucks, heavy-duty gas and diesel trucks, heavy-duty urban diesel buses, and motorcycles.
- *Off-Road Mobile Sources*: This major category accounts for vehicular emissions from construction equipment, farm tractors, off-road recreational vehicles, trains, ships, aircraft, mobile equipment, utility equipment, and lawn mowers.

SENSITIVE RECEPTORS

Poor air quality adversely affects the health of all humans, but some groups are considered to be more vulnerable to its effects. In relation to air quality, sensitive receptors include infants and children, the elderly, people with illnesses, or others who are especially sensitive to the adverse health effects of air pollutants (discussed previously). Hospitals, schools, convalescent facilities, and

residential housing are examples of land uses with populations who are sensitive to air quality impacts.

GREENHOUSE GASES

Chapter 8 – Energy and Global Climate Change evaluates potential greenhouse gas emissions from implementation of the proposed MTP/SCS and their contribution to global climate change.

CONSTRUCTION-RELATED EMISSIONS

Construction-related emissions are produced by two main sources: construction equipment and fugitive dust generated by excavation and grading. Construction impacts are an on-going source of emissions in the plan area of the proposed MTP/SCS located within the SVAB and MCAB. SMAQMD adopted the 2015 Triennial Report and Air Quality Plan Revision with the goal of an estimated 0.27 ton per day reduction in NO_X from the Construction and Mining Sector in Sacramento County (SMAQMD 2015). Emissions of ozone precursors are associated primarily with exhaust from off-road construction equipment. Worker commute trips and other construction-related activities also contribute to short-term increases in ozone precursors. Emissions of fugitive PM dust (i.e., PM_{10} and $PM_{2.5}$) are associated primarily with ground disturbance activities during site preparation (e.g., excavation, grading, and clearing) and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and VMT on- and off-site. Exhaust emissions from diesel equipment and worker commute trips also contribute to short-term increases in PM_{10} and DPM.

5.3 Regulatory Setting

5.3.1 Federal Regulations

CLEAN AIR ACT OF 1970 AND AMENDMENTS

The CAA was developed to protect public health and welfare from different types of air pollution caused by a diverse array of pollution sources. Amendments in 1977 (Pub.L. No. 95-95 [Aug. 7, 1977], 91 Stat. 685) and 1990 (Pub.L. No. 101-549 [Nov. 15, 1990], 104 Stat. 2399) were intended to improve the effectiveness of regulations and target air pollution problems not recognized at the time of its original passage. To achieve the purposes of Section 109 of the CAA, the CAA requires EPA to set NAAQS for air pollutants that pose a threat to human health and welfare. The NAAQS are categorized as primary standards and secondary standards. The national primary standards are meant to protect public health, including protecting the health of air quality "sensitive" receptors or populations such as asthmatics, infants and children, and the elderly. The national secondary standards are meant to protect the public welfare from any known or anticipated adverse effects of the pollutant, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings (EPA 2016b).

As required by the CAA, EPA must:

- identify those air pollutants that pose a threat to human health;

- publish criteria for these air pollutant compounds based on the most recent scientific knowledge about the compounds, their interactions, and their effects on human health;
- include measures and control techniques for these pollutants; and
- identify NAAQS for each criteria air pollutant in order to protect public health and welfare.

EPA initiated an Ozone NAAQS Review Process in 2009, which included a planning phase to gather input on policy-relevant science issues that have arisen since the last update; a science assessment to evaluate and integrate the policy-relevant science; a risk/exposure assessment to develop quantitative estimates of the risks and exposures for health and/or welfare impacts associated with different exposures to the criteria pollutant in question; and a policy assessment and rulemaking phase to prepare an analysis of the scientific basis for alternative policy options for consideration prior to the issuance of proposed and final rules (EPA 2011). Based on this review, EPA proposed revisions to the primary and secondary NAAQS for ozone in order to better protect public health and welfare in light of new information. Both the primary and secondary standards were revised to 0.070 ppm in 2015.

The NAAQS consist of two parts: the allowable concentration of a criteria air pollutant and the average time period during which the pollutant is to be measured. The concentration standard for the pollutant is based on studies of the effect of the pollutant on human health, crops, vegetation, and in some cases materials (e.g., paint). The average time period is typically based on the adverse effect caused by exposure to that pollutant. Damage from the pollutant is evaluated based on exposure to a high concentration over a short period of time (e.g., one hour) or to a low concentration during a longer period (e.g., eight hours or 24 hours). Some pollutants are evaluated for both time periods due to their effects over the short and long term.

EPA makes national area designations – nonattainment, maintenance, attainment – for ozone, particulate matter (PM_{10} and $PM_{2.5}$), CO, NO_2, SO_2, and lead (40 CFR Section 81.305). Once designated, the CAA then requires each area to develop a State Implementation Plan (SIP) which identifies how nonattainment areas will attain and/or maintain the NAAQS for each pollutant. EPA is the federal agency responsible for reviewing each plan and any plan revisions and approving each plan or plan revisions if it is determined to be consistent with the CAA. Key elements of a SIP include emission inventories, emission control strategies and rules, air quality data analyses, modeling, air quality progress and attainment or maintenance demonstrations. Under the CAA, CARB is responsible for submitting the SIP to EPA.

If an area does not meet NAAQS, CAA planning requirements specify that states develop and adopt SIPs, which are air quality plans showing how air quality standards will be attained. In California, CARB has the authority to prepare SIPs, and the agency has delegated that authority to individual air districts. SIPs must be prepared by each state and are submitted to EPA for review and approval.

The CCA also requires EPA to set emissions standards for a range of pollution sources. Specifically, EPA and the National Highway Traffic Safety Administration (NHTSA) regulate emissions from on-road vehicles. EPA and the National Highway Traffic Safety Administration (NHTSA) also regulate emissions from on-road vehicles. In 2012, EPA and NHTSA, issued final rules to further reduce emissions and improve corporate average fuel economy (CAFE) standards for light-duty vehicles for model years 2017 and beyond (77 Federal Register [FR] 62624). These rules would increase fuel economy to the equivalent of 54.5 miles per gallon (77 FR 62630). Transportation plans, such as this, rely on steadily cleaner tailpipe emissions from motor vehicles to achieve federal

clean air standards (e.g., Conformity). However, on April 2, 2018, EPA administrator announced a final determination that the current standards should be revised. On August 2, 2018, the U.S. Department of Transportation (DOT) and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule), which would amend existing CAFE standards for passenger cars and light trucks, and retaining the current model year 2020 standards through model year 2026 (NHTSA 2018), establish new standards covering model years 2021 through 2026. Vehicles operating within the plan area of the proposed MTP/SCS would be subject to the CAFE standards. However, at the time of writing this Draft EIR, the SAFE Rule has not been formally adopted by EPA, and 17 states—including California—have filed a lawsuit against EPA. The timing for ultimate approval of the SAFE Rule and the outcome of any pending or potential lawsuits (and how such could delay or affect its implementation) are unknown at this time. The SAFE Rule's impact on future motor vehicle emissions is also unknown.

Further, though the U.S. Congress preempted states from issuing any standard relating to the control of emissions from new motor vehicles, an exception was made for California in recognition of California's policy leadership and its particular problems with smog caused by vehicles. Congress included a carve-out for California that is still enshrined in the CAA today. This special exemption allows California to issue its own vehicle emission standards if it seeks a federal preemption "waiver" from EPA. As long as California's vehicle emission standards protect public health and welfare at least as strictly as federal law and are necessary to meet compelling and extraordinary conditions, the law requires EPA to grant California's request for a preemption waiver. Each time California adopts new vehicle emission standards, the state applies to EPA for a preemption waiver for those standards (e.g., over 100 have been approved). However, EPA is also proposing, in addition to the SAFE Rule but as a separate action, to revoke California's waiver that would allow the state to keep the 2021-2025 standards in place. Again, the ultimate revocation of California's waiver and the outcome of any related lawsuits (and how such could delay or affects its implementation) is unknown at this time alongside on how future motor vehicle emissions could be affected. However, if less strict standards for model years 2021 through 2026 were actually implemented, emissions could increase.

Air Quality Conformity for Transportation Analysis

CAA requires that federally-funded or approved transportation plans, programs, and projects in nonattainment or maintenance areas conform to the SIP for meeting NAAQS. Conformity must be assessed for all nonattainment area transportation-related pollutants classified as regional pollutants. This process involves forecasting future air pollutant emissions to determine whether the amount of pollution expected to result from the plan, program, or project would be within the allowable limit for motor vehicle emissions. Transportation projects also generate CO, PM_{10}, and $PM_{2.5}$ which are considered localized pollutants. CO, PM_{10}, and $PM_{2.5}$ micro-scale analyses are required in CO, PM_{10}, and $PM_{2.5}$ nonattainment areas, respectively, to determine whether a transportation project would cause or contribute to localized violations of the NAAQS for CO, PM_{10}, or $PM_{2.5}$.

Typically, conformity for a federally-funded transportation project is assessed by evaluating whether the project is included in a conforming RTP and transportation improvement program (TIP). If the air pollutant emissions associated with an RTP and TIP are within the allowable motor vehicle emissions budgets defined by a SIP or can meet non-budget test criteria, then no further assessment of the project or plan's contribution to regional emissions levels is needed. A regional conformity analysis is typically conducted by SACOG at least once every two years, always accompanying the

adoption of a new RTP or an amendment to the existing RTP, such as the adoption of a new TIP. The NAAQS attainment plans to be used for the Conformity Analysis are listed in Table 5-9. The Conformity Analysis prepared for the proposed MTP/SCS is included as Appendix I to the proposed MTP/SCS.

Table 5-9
EPA Approved NAAQS State Implementation Plans within the Plan Area of the Proposed MTP/SCS

Criteria Pollutant	Relevant Attainment Plan
CO	2004 Revision to the California State Implementation Plan for Carbon Monoxide
Ozone	2013 Revisions to the 2009 8-Hour Ozone Attainment and Reasonable Further Progress Plan for 1997 standards.
PM_{10}	2010 PM_{10} Implementation/Maintenance Plan (PM_{10} Plan) and Redesignation Request for Sacramento County
$PM_{2.5}$	2014 Yuba City-Marysville $PM_{2.5}$ Redesignation Request and Maintenance Plan

Source: CARB 2019b

Transportation Control Measures

One particular aspect of the SIP development process is the consideration of potential control measures as a part of making progress towards clean air goals. While most SIP control measures are aimed at reducing emissions from stationary sources, some address mobile or transportation sources. These are known as transportation control measures (TCMs). The Transportation Conformity Rule, which establishes conformity criteria and procedures necessary to meet the requirements of CAA Section 176(c) (EPA 2012), identifies TCMs as strategies designed to reduce VMT and trips, or vehicle idling and associated air pollution. These goals are achieved by reducing vehicle use or improving traffic flow. SACOG has committed to one TCM as part of the 8-Hour Ozone SIP, which is pending EPA approval (SACOG 2018). The Conformity Analysis for the 2020 Metropolitan Transportation Plan and Sustainable Communities Strategy (Conformity Analysis) provided in Appendix I of the proposed MTP/SCS includes a detailed listing of the TCMs and their implementation status in Appendix D.

Toxic Air Contaminants

The 1990 CAA amendments identified 188 TACs and addressed the need to control toxic emissions from transportation sources. EPA in 2001 issued its first Mobile Source Air Toxics Rule (66 FR 17230 [March 29, 2001]), which identified 21 mobile source air toxic (MSAT) compounds as being hazardous air pollutants requiring regulation. A subset of six of these MSAT compounds were identified as having the greatest influence on health and included benzene, 1,3-butadiene, formaldehyde, acrolein, acetaldehyde, and DPM. Also, in 2001, EPA adopted a rule to reduce emissions standards for heavy-duty diesel engines in 2007 and subsequent model years (66 FR 5001 [January 18, 2001]). These emissions standards represent a 90 percent reduction in NO_X emissions, 72 percent reduction of non-methane ROG emissions, and 90 percent reduction of PM emissions in comparison to the emissions standards for the 2004 model year. In December 2004, CARB adopted a fourth phase of emission standards (Tier 4) in the Clean Air Non-Road Diesel Rule (69 FR 38958 [June 29, 2004]) that are nearly identical to those finalized by EPA on May 11, 2004. As such, since 2011 engine manufacturers have been required to meet after-treatment-based exhaust standards for

NO_X and PM that are more than 90 percent lower than 2004 levels, putting emissions from off-road engines virtually on par with those from on-road heavy-duty diesel engines.

In February 2007, EPA issued a second MSAT Rule which generally supported the findings in the first rule and provided additional recommendations of compounds having the greatest impact on health (72 FR 8427 [February 26, 2007]).

5.3.2 State Regulations

MULFORD-CARRELL ACT OF 1967

CARB was established when the California Legislature passed the Mulford-Carrell Act in 1967 (Health & Safety Code Sections 39011, 39301), which combined two bureaus within the Department of Health: the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board. The state is responsible for developing programs and strategies to reduce the emission of smog-forming pollutants and toxics by mobile sources. CARB develops air quality regulations at the state level, which mirror federal regulations by establishing industry-specific pollution controls for criteria, toxic, and nuisance pollutants. CARB is responsible for setting standards and adopting regulations to achieve the maximum degree of emissions reduction possible from vehicular and other mobile sources. Motor vehicle emissions are responsible for greater than half of air pollution emissions statewide. California also requires areas to develop plans and strategies for attaining the CAAQS as set forth in the CCAA. As noted above, though the U.S. Congress preempted states from issuing any standard relating to the control of emissions from new motor vehicles, an exception was made for California that allows issuance of the state's own more stringent vehicle emission standards if it seeks a federal preemption "waiver" from EPA.

Also, as discussed above, EPA has proposed the SAFE Rule to amend the existing federal CAFE standards and, as a separate action, to revoke California's waiver that would allow the state to keep the 2021-2025 standards in place. At the time of writing this Draft EIR, EPA has not adopted the SAFE Rule and California (along with 16 other states) has filed a lawsuit against EPA; however, if such action were taken, CARB could continue to enforce California's stricter vehicle emissions standards through the aforementioned waiver. If, under future conditions, EPA also denies California the waiver for setting its own more stringent motor vehicle emission standards, resulting in less stringent fuel economy standards for California, then ambient air quality could degrade throughout the state, particularly in portions that support high population, development, and mobile-source emissions, including in the plan area of the proposed MTP/SCS.

However, as discussed above, the ultimate approval of the SAFE Rule or revocation of California's waiver and the outcome of any related lawsuits (and how such could delay or affect implementation) is unknown at this time, as is how future motor vehicle emissions could be affected. Consequently, the implications of such future potential regulatory actions are speculative at this time. For example, a potential revocation of California's waiver could lead to legal action that could affect the SAFE Rule's applicability to fuel standards within the state. It is also possible that market forces could impact the SAFE Rule's efficacy in California (i.e., market demand for motor vehicle fuel efficiency in California could exceed the minimum fuel economy standards established by the SAFE Rule). Thus, this Draft EIR does not attempt to characterize or predict how SAFE Rule adoption or revocation of California's waiver would effect ambient air quality within the state or the plan area of

the proposed MTP/SCS as such would be speculative and this Draft EIR reflects the baseline conditions at the time the NOP was released.

CARB's responsibility in the implementation and development of standards for greenhouse gas emissions is described in Chapter 8 – Energy and Global Climate Change. The SAFE Rule and revocation of California's waiver are also relevant to the GHG analysis.

TAC Regulations

Assembly Bill (AB) 1807 (Stats. 1983, Ch. 1047) (Health & Safety Code Section 39650 et seq.; Food & Ag. Code Section 14021 et seq.) sets forth a procedure for the identification and control of TACs in California. The Air Toxics Hot Spots Information and Assessment Act, also known as AB 2588 (Stats. 1987, ch. 1257), supplements the AB 1807 program, by requiring a statewide TAC inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks; Senate Bill (SB) 1731 amends the aforementioned "Hot Spots" Program and requires OEHHA to adopt risk assessment guidelines for the program. The *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments* (Guidance Manual) was last completed in February 2015 using a full public review process.

The Guidance Manual was revised to address new information related to conducting effective and reliable health risk assessments (HRAs) for TACs. The revisions were based on three studies regarding the scientific basis for determining risks, including for non-cancer risk assessment, cancer potency factors, and methods for exposure assessment. The Guidance Manual now includes the use of age-sensitivity factors for estimating cancer risk, breathing rates, and the fraction of time residents spend at home; changes to the duration of exposure for residents and workers; and the incorporation of uncertainty factors into reference exposure levels. The update also included the release of the Hot Spots Analysis and Reporting Program, Version 2 (HARP 2) software package which includes the AERMOD air pollutant dispersion model approved by EPA. As a result, emission sources can indicate a substantially higher health risk for residential uses and other sensitive receptors under the new assessment methods.

SB 352 (SB 352; Stats. 2003, ch. 668) (Education Code Section 17213; PRC Section 21151.8) expands on previous requirements for the review of TAC sources near school sites by requiring that any school site located within 500 feet of the edge of the closest travel lane of a freeway or other busy traffic corridor be reviewed for potential short-term and long-term health risks. Other research and development led and encouraged by the state continues to help and promote new programs, plans and activities around the reduction of exposure to TACs.

As discussed above in the environmental setting, there is a considerable body of data linking adverse health effects with traffic-generated TACs. These studies have resulted in the publication of guidelines relative to the location of certain land uses near freeways and major roadways with high volumes of traffic and other sources of TACs not regulated through the permitting process. For example, the CARB *Air Quality and Land Use Handbook* was published to provide guidance on land use compatibility with sources of TACs (CARB 2005). The CARB Handbook is not a law or adopted policy, but offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to provide buffers for children and other sensitive populations. In 2017, CARB released the *Strategies to Reduce Air Pollution*

Exposure Near High-Volume Roadways Technical Advisory document as a supplement to the 2005 Handbook. The Advisory includes strategies to reduce emissions from transportation activities (e.g., use of roundabouts) as well as methods to reduce the impact of such emissions (e.g., planting of vegetation, building of physical barriers) (CARB 2017b).

Table 5-10 outlines the CARB Handbook's advisory guidance on siting various sources, which recommends buffer zones in order to achieve a decrease in harmful levels of exposure to TACs by 80 percent. These recommendations do not account for site-specific design improvements (e.g., planting of vegetation, use of physical barriers) that could decrease the amount of air pollution exposure.

Table 5-10
CARB Handbook Recommendations on Siting New Sensitive Land Uses
Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	▪ Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.
Distribution Centers	▪ Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). ▪ Account for the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	▪ Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. ▪ Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	▪ Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or CARB on the status of pending analyses of health risks.
Refineries	▪ Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	▪ Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	▪ Avoid siting new sensitive land uses within 300 feet of any dry-cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. ▪ Avoid siting new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	▪ Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

Source: CARB 2005

CALIFORNIA CLEAN AIR ACT OF 1988

The CCAA (AB 2595; Stats. 1988, ch. 1568), established the framework for addressing air quality issues in the state. CCAA created air quality goals, planning mechanisms, regulatory policies, and specific strategies.

The state has adopted CAAQS, which are standards specific to California for most of the federal criteria air pollutants under the CCAA. Similar to the NAAQS, CAAQS have been designed to protect the most sensitive persons from illness or discomfort with a margin of safety. In most cases, the CAAQS are more stringent than the NAAQS. For those districts that are in violation of the CAAQS for ozone, CO, SO_2, or NO_2, individual special attainment plans are required.

CARB makes state area designations for ten criteria air pollutants: ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, sulfates, lead, hydrogen sulfide, and visibility reducing particles. Each year, CARB reviews the area designations and updates them as appropriate, based on the three most recent complete and validated calendar years of air quality data (CARB 2018b). SIPs that are developed and provided to EPA for review and approval are limited to the six criteria air pollutants stated above.

With regard to on-road mobile-source control measures, CARB establishes emission standards for on-road motor vehicles sold in California, which, under provisions of the CAA, are allowably more stringent than the federal standards through CARB's acquisition of a federal waiver through EPA. At the time of writing this Draft EIR, EPA has indicated that it may revoke California's waiver; however, no formal action has been taken. See the discussion under Mulford-Carrell Act of 1967 for a more detailed discussion.

CARB also has adopted emission standards for off-road mobile sources. With respect to stationary- and area-wide emission source control measures, CARB works closely with air districts in the development of model stationary- and area-wide emission source rules for possible adoption by individual air districts. In addition, CARB works closely with air districts in controlling pollution from agricultural and prescribed burning, with the primary role to determine permissible burn days and fund research toward alternatives to or reducing agricultural and prescribed burning.

5.3.3 Local Regulations

AIR DISTRICTS

Local air districts attain and maintain air quality conditions in the plan area of the proposed MTP/SCS through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean-air strategy of the local air districts includes preparing plans for the attainment of the NAAQS and CAAQS (often across district boundaries for criteria pollutants with nonattainment areas of large geographies), adopting and enforcing rules and regulations concerning sources of air pollution, and issuing permits for stationary sources of air pollution. Air districts also inspect stationary sources of air pollution and respond to citizen complaints, monitor ambient air quality and meteorological conditions, and implement programs and regulations required by the CAA and CCAA. As noted previously, air districts have primary responsibility for the preparation, adoption, and implementation of stationary- and area-emission control measures, and for the preparation and amendment of SIPs. As part of the development of and revisions of SIPs, local air districts must achieve required reductions in emissions through the development and implementation of rules (Health & Safety Code Section 40702).

The CCAA requires air districts to endeavor to attain and maintain CAAQS by the earliest practicable date and develop plans for attaining the CAAQS. The 1994 federal plans satisfy state planning obligations, because all of the federal plans are also regional plans. As shown in Table 5-11, local air districts within the plan area of the proposed MTP/SCS have generally adopted separate plans for attaining the CAAQS. Air districts are also provided the option of developing CEQA guidance for projects that undergo environmental review within their jurisdiction. Typically, the significance of a project's air quality impacts is evaluated against a numerical, mass emissions threshold expressed in either tons per year (tpy) or pounds per day (lb/day) for criteria pollutants and ozone precursors (i.e., ROG and NO_X). A significance conclusion may also be determined through consistency with an applicable air quality plan.

For the purposes of this EIR, SMAQMD is used as an example to describe the information that is generally included within each type of plan. This results from their role as the air district charged with regulating emissions in SVAB's most populated county (i.e., Sacramento County). They also serve as a regional coordinator providing guidance to others in the plan area of the proposed MTP/SCS.

SMAQMD prepared and submitted to CARB the 1991 Air Quality Attainment Plan (AQAP) in compliance with the requirements set forth in the CCAA, which specifically addressed the nonattainment status for ozone and, to a lesser extent, CO, and PM_{10}. In 2010, SMAQMD prepared the *PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County* to fulfill the requirements for EPA to redesignate Sacramento County from nonattainment to attainment/maintenance for the PM_{10} NAAQS. To demonstrate attainment, SMAQMD had to prepare the following elements related to PM_{10}: documenting the extent, determining the emission inventory sources, identifying control measures achieving attainment of NAAQS, demonstrating maintenance, and requesting formal redesignation. EPA approved SMAQMD's request through FR Vol. 78, No. 187 in 2013.

Similarly, in 2013 SMAQMD prepared the *$PM_{2.5}$ Implementation/Maintenance Plan and Redesignation Request* to fulfill the requirements for EPA to redesignate Sacramento County from nonattainment to attainment/maintenance for the $PM_{2.5}$ NAAQS, including similar elements to the PM_{10} report. In January 2017, EPA recognized Sacramento County as in attainment for the NAAQS (SMAQMD 2017a).

Additionally, SMAQMD completed a staff report, *SB 656 Assessment and Control Measure Evaluation*, describing recommended measures by CARB to fulfill the requirements of SB 656 (Statutes of 2003), which required CARB to develop a list of available, feasible, and cost-effective PM_{10} and $PM_{2.5}$ control measures for air districts' use in nonattainment areas, and SMAQMD's schedule for implementing those measures. EDCAQMD, FRAQMD, PCAPCD, and YSAQMD completed similar staff reports as shown in Table 15-11.

The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plan must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. As mentioned above, the 1994 federal plans satisfy state planning obligations, because all of the federal plans are also regional plans. On behalf of itself and other impacted air districts, SMAQMD fulfilled the requirement of the CCAA for a first triennial progress report and revision of the 1991 AQAP with the preparation and adoption of the 1994

Ozone Attainment Plan (OAP). The OAP stresses attainment of ozone standards and focuses on strategies for reducing ROG and NO_X. It promotes active public involvement, enforcement of rules and regulations, public education in the public and private sectors, development and promotion of transportation and land use programs designed to reduce VMT in the region, and implementation of control measures for stationary and mobile sources. The OAP became part of the SIP in accordance with the requirements of the 1990 CAA amendments and amended the 1991 AQAP. However, at that time, the region could not show that the 1-hour ozone NAAQS would be met by 1999. In exchange for moving the deadline to 2005, the region accepted a designation of "severe nonattainment" coupled with additional emissions requirements on stationary sources at that time. SMAQMD prepared additional triennial reports in 1997, 2000, 2003, 2009, 2015, and 2017. The most recent 2016 annual progress report was prepared in 2017 in compliance with the CCAA and undergoes incremental updates. The OAP incorporates revisions up to 2017 (SMAQMD 2017b).

Table 5-11
Applicable Air Quality Plans for the Plan Area of the Proposed MTP/SCS

Pollutant	Ambient Air Quality Standard	Applicable Air Quality Plan
Ozone	NAAQS 8-hour	1997 (2013 Revisions) Sacramento Regional 8-Hour Ozone Attainment and Reasonable further Progress Plan (EDCAQMD, FRAQMD, PCAPCD, SMAQMD, YSAQMD) 2008 (2017 Revisions) Sacramento Regional 8-hour Ozone Attainment Plan and Reasonable Further Progress Plan (EDCAQMD, FRAQMD, PCAPCD, SMAQMD, YSAQMD)
	CAAQS 1-hour and 8-hour	2003 Triennial Assessment and Plan Update (EDCAQMD) 2012 Triennial AQAP (FRAQMD) 2012 Triennial Progress Report (PCAPCD) 2015 Triennial Report and Air Quality Plan Revision (SMAQMD) 2012 Triennial Assessment and Plan Update (YSAQMD)
PM_{10}	NAAQS	2010 PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County (SMAQMD)
	CAAQS	Staff Report – Implementation Schedule for SB 656[1] Measures to Reduce Particulate Matter (EDCAQMD) Staff Report – SB 656[1] Particulate Matter Emission Reduction Implementation Schedule (FRAQMD) Staff Report – Implementation Schedule for SB 656[1] Measures to Reduce Particulate Matter (PCAPCD) Final Staff Report – SB 656 Assessment and Control Measure Evaluation (SMAQMD) Staff Report – Implementation of SB 656[1] (YSAQMD)
$PM_{2.5}$	NAAQS	$PM_{2.5}$2014 Yuba City-Marysville $PM_{2.5}$ Nonattainment Area Redesignation Request and Maintenance Plan (FRAQMD)
	CAAQS	Staff Report – Implementation Schedule for SB 656[1] Measures to Reduce Particulate Matter (EDCAQMD) Staff Report – SB 656[1] Particulate Matter Emission Reduction Implementation Schedule (FRAQMD) Staff Report – Implementation Schedule for SB 656[1] Measures to Reduce Particulate Matter (PCAPCD) Final Staff Report – SB 656[1] Assessment and Control Measure Evaluation (SMAQMD) Staff Report – Implementation of SB 656[1] (YSAQMD)

Notes: NAAQS = national ambient air quality standards, CAAQS = California ambient air quality standards, EDCAQMD = El Dorado County Air Quality Management District, FRAQMD = Feather River Air Quality Management District, PCAPCD = Placer County Air Quality Management District, SMAQMD = Sacramento Metropolitan Air Quality Management District, YSAQMD = Yolo-Solano Air Quality Management District, SB = Senate Bill, PM_{10} = respirable particulate matter, $PM_{2.5}$ = fine particulate matter, CARB = California Air Resources Board
[1] SB 656 (Statutes of 2003) required that CARB developed an approved list of readily available, feasible, and cost-effective control measures that may be employed by air districts to reduce PM_{10} and $PM_{2.5}$ emissions within an air basin.
Sources: CARB 2019b

In its CEQA guidance for a plan-level analysis, which would apply to this environmental review of the proposed MTP/SCS, SMAQMD recommends that CEQA lead agencies evaluate consistency with the OAP, which is required specifically for compliance with the CCAA and associated CAAQS, through consideration of the following:

- the plan's consistency with both the OAP and MTP population growth projections;
- the relationship between the plan's projected VMT and population growth (i.e., whether the two projections are proportional, or whether the VMT increases at a slower rate than population, indicating a mode sift); and
- the extent to which the plan implements OAP transportation control measures.

Though the above refers specifically to SMAQMD's CEQA Guide for plan-level analysis, these consistency considerations are generally applicable in all the air districts within the area of the proposed MTP/SCS. Additionally, EDCAQMD, FRAQMD, PCAPCD, and YSAQMD prepared separate triennial reports as described in Table 15-11 above.

Air District Rules and Regulations

All proposed MTP/SCS projects in the region are subject to adopted air district rules and regulations in effect at the time of construction. Specific rules applicable to the construction of proposed MTP/SCS projects may include, but are not limited to those listed in Table 5-12.

Table 5-12
Local Air District Rules and Regulations Applicable to MTP/SCS Projects

Rule or Regulation	EDCAQMD	FRAQMD	PCAPCD	SMAQMD	YSAQMD
Visible Emissions	Rule 202	Rule 3-0	Rule 202	Rule 401	Rule 2-3
Cutback and Emulsified Asphalt Paving Materials	Rule 224	-	Rule 217	Rule 453	Rule 2-28
Application of Architectural Coatings	Rule 215	Rule 3-15	Rule 218	Rule 442	Rule 2-14
Fugitive Dust	Rule 223	Rule 3-16	Rule 228	Rule 403	-
General Permit Requirements	Rule 501	Rule 4-0	Rule 501	Rule 201	Rule 3-1
Nuisance	Rule 205	Rule 2.0.F.2	Rule 205	Rule 402	Rule 2-5
Wood-Burning Appliances	—	Rule 3-17	Rule 225	Rule 417	Rule 2-40

Source: EDCAQMD 2019a; FRAQMD 2019a; PCAPCD 2019a; SMAQMD 2019c; YSAQMD 2019a

Air District Permits

Local air districts address stationary sources of pollution through the issuance of permits. Rules and processes (e.g., permit requirements) vary by district. Individual districts can, and have, implemented recommended protocols for addressing TACs within their regions.

Facilities with stationary equipment that may emit air pollution, or equipment used for controlling air pollution, are required to obtain permits to operate. Air districts grant two types of permits: Authority to Construct and Permit to Operate. An Authority to Construct permit is obtained prior to the building or installation of a new emissions unit and is required to modify an existing emissions unit. Following the construction, installation, or modification of the emissions unit, air district staff conduct an inspection to determine if the project was completed in accordance with the application submitted for the Authority to Construct permit. If the project is determined to comply with all applicable rules, regulations, and conditions, a Permit to Operate will be issued. In order to maintain the Permit to Operate, regular inspections are conducted by air district staff.

Air District Thresholds of Significance for Construction and Operational Criteria Air Pollutants

Local air districts have direct and indirect regulatory authority over sources of air pollution in the area of the proposed MTP/SCS. CEQA requires that public agencies consider the potential adverse environmental impacts of any project that a public agency proposes to carry out, fund or approve. In determining whether a project may have a significant effect on the environment, CEQA Guidelines Section 15064.7 provides that lead agencies may adopt and/or apply "thresholds of significance." Consequently, the local air districts, as part of their responsibility to attain and maintain air quality standards in the area of the proposed MTP/SCS, recommend that lead agencies use the applicable district-recommended thresholds of significance when considering the air quality impacts of projects under their consideration (Table 5-13).

In addition to developing thresholds of significance, the local air districts in the area of the proposed MTP/SCS have developed guidance for the purposes of CEQA compliance, which include analysis methods and mitigation strategies. CEQA thresholds of significance developed by air districts are tied to achieving or maintaining an attainment designation under the NAAQS and CAAQS, which are scientifically substantiated, numerical concentrations of criteria air pollutants considered to be protective or human health. Air districts use other federal guidance such as New Source Review to inform the development of thresholds. Air district–specific thresholds are typically numerical and apply to construction and operational emissions. Emissions shown to be above the thresholds would indicate that a project's discrete emission would result in a cumulative, regional contribution (i.e., significant) to the baseline attainment or nonattainment designation of an air basin. Air basins in nonattainment support ambient air conditions that, due to the exceedance of the NAAQS and CAAQS, could cause adverse health impacts to those residing in the basin.

SMAQMD has developed a construction mitigation protocol that states when the air quality analysis demonstrates that a proposed project's construction emissions may exceed their threshold of significance, all feasible mitigation shall be applied as required by CEQA. SMAQMD defines all feasible mitigation measures with on- and off-site recommendations. SMAQMD requires enhanced exhaust controls for on-site, and payment of a mitigation fee for off-site emissions, to reduce particulate matter, NO_X, and greenhouse gas emissions (for the discussion of the SMAQMD Greenhouse Gas Emissions Thresholds of Significance (last updated May 2018), see Chapter 8 on Energy and Global Climate Change).

Table 5-13
Thresholds of Significance for Criteria Air Pollutants of Concern in the Plan Area of the Proposed MTP/SCS

Pollutant	EDCAQMD	FRAQMD	PCAPCD	SMAQMD	YSAQMD
Construction					
NO_X	82 lb/day	25 lb/day multiplied by the project length, not to exceed 4.5 tons/year*	82 lb/day	85 lb/day	10 tons/year
ROG	82 lb/day	25 lb/day multiplied by the project length, not to exceed 4.5 tons/year*	82 lb/day	None	10 tons/year
PM_{10}	A project is considered to have a significant impact on air quality if it will cause or contribute significantly to a violation of NAAQS or CAAQS	80 lb/day	82 lb/day	80 lb/day and 14.6 tons/year if all feasible BACT and BMPs are applied	80 lb/day
$PM_{2.5}$	-	Not Yet Established	-	82 lb/day and 15 tons/year if all feasible BACT and BMPs are applied	-
CO	A project is considered to have a significant impact on air quality if it will cause or contribute significantly to a violation of NAAQS or CAAQS	-	-	20 ppm (1-hr std) 9 ppm (8-hr std)	Violation of CAAQS for CO
Operation					
NO_X	82 lb/day	25 lb/day	55lb/day	65 lb/day	10 tons/year
ROG	82 lb/day	25 lb/day	55 lb/day	65 lb/day	10 tons/year
PM_{10}	A project is considered to have a significant impact on air quality if it will cause or contribute significantly to a violation of NAAQS or CAAQS	80 lb/day	82 lb/day	80 lb/day and 14.6 tons/year if all feasible BACT and BMPs are applied	80 lb/day
$PM_{2.5}$	-	Not Yet Established	-	82 lb/day and 15 tons/year if all feasible BACT and BMPs are applied	-
CO	A project is considered to have a significant impact on air quality if it will cause or contribute significantly to a violation of NAAQS or CAAQS	-	-	20 ppm (1-hr std) 9 ppm (8-hr std)	Violation of CAAQS for CO

Source: EDCAQMD 2019a; FRAQMD 2019a; PCAPCD 2019a; SMAQMD 2019c; YSAQMD 2019a

SMAQMD has also developed a long-term operational mitigation protocol that requires the development of an air quality mitigation plan that reduces operational emissions of NO_X and ROG by a minimum of 15 percent for projects identified in the SIP and 35 percent for projects not identified in the SIP. The other local air districts in the plan area of the proposed MTP/SCS have developed thresholds of significance and general CEQA guidance that contains recommended mitigation measures, but not to the extent of SMAQMD in terms of specific protocols.

In response to the California Supreme Court case *Sierra Club v. County of Fresno* (2018) 6 Cal.App.5th 502, SMAQMD released interim guidance to assist lead agencies and practitioners in complying with the Court's ruling requiring that an EIR "relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible at the time of drafting to provide such an analysis." SMAQMD does not currently (September 2019) have a methodology that would correlate the expected ozone precursor emissions of projects to the likely health consequences of the increased emissions. However, SMAQMD has provided guidance in the interim. This Draft EIR and the analysis contained herein were prepared consistent with SMAQMD's recommended interim guidance (SMAQMD 2019a). SMAQMD has not yet developed a dispersion model for project-level evaluation of resulting concentrations of criteria air pollutants within the Sacramento region. It is foreseeable that such a model could be developed to assess a project's contribution to the nonattainment of an air basin; however, at the time of writing this Draft EIR, SMAQMD has not developed a model nor is there an existing model that SMAQMD recommends. Furthermore, given the uncertainty surrounding the age, existing health, genetic sensitivity, and numbers of receptors in a region, dispersion modeling cannot quantitatively assess potential human health impacts. At the time of writing this Draft EIR, SMAQMD is in the process of developing a county-wide model and intends to release it to the public in late fall 2019.

Air Districts and TACs

Local air districts may adopt and enforce CARB control measures for TACs. Under Toxic New Source Review rules (e.g., Rule 523 for EDCAQMD), all new and modified stationary sources that possess the potential to emit TACs must obtain permits from the applicable local air district, as mentioned briefly above under the air district permit section. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new-source review standards and TAC control measures. Local air districts in the plan area of the proposed MTP/SCS limit emissions and public exposure to TACs through a number of programs. The air districts prioritize TAC-emitting stationary sources based on the potency, quantity, and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

Sources that require a permit are analyzed by air districts (e.g., through a health risk assessment [HRA] or screening analysis) based on their potential to emit toxics. The algorithms, recommended exposure variates, cancer and noncancer health values, and the air modeling protocols needed to perform an HRA were recently revised by OEHHA, as designated by CARB. OEHHA adopted the Guidance Manual in February 2015 and local programs are currently being transitioned to reflect new guidance according to the practices described below.

Generally, conducting an HRA is a method of determining the exposure of sensitive receptors to TAC emissions based on a 70- or 30-year exposure period. There are four steps involved in the risk assessment process: 1) hazard identification, 2) exposure assessment, 3) dose-response assessment, and 4) risk characterization. Once emissions hazards have been identified pursuant to CARB's

Emission Inventory Criteria and Guidelines Regulations, the next step is estimating exposures for those emitted substances for potential cancer risk or non-cancer health hazards for acute, repeated 8-hour, and chronic exposures. This involves emission quantification, modeling of environmental transport, evaluation of environmental fate, identification of exposure routes, identification of exposed populations, and estimation of exposure levels. Then a dose-response assessment is needed to characterize the relationship between exposure to an agent and incidence of an adverse health effect in exposed populations. This relationship is expressed in terms of a potency slope that is used to calculate the probability or risk of cancer associated with an estimated exposure or in terms of acute, 8-hour, and chronic exposure levels above which minimal adverse non-cancer health effects are anticipated in sensitive members of the general population.

The final step is risk characterization, where the results of the exposure assessment are combined with the results of the dose-response assessment in order to quantify both individual and population-wide health impacts through inhalation, dermal absorption, and ingestion. This may be done in one of two ways, either using the point estimate approach or the stochastic exposure assessment approach. The point estimate approach utilizes a combination of the average and high-end point estimates to more realistically estimate exposure in multi-pathway risk assessments and present cancer risk evaluations at individual receptors for 9, 30, and 70-year exposure durations. The stochastic exposure assessment utilizes distributions for exposure variates, such as breathing rate and water consumption rate, rather than a single point estimate, resulting in a range of risks that at least partially characterizes variability in exposure. OEHHA recommends using a tiered approach using the Tier 1 standards within the *Technical Support Document for Exposure Assessment and Stochastic Analysis* and using Tier 2 site-specific information where available.

If it is determined that the project would emit toxics in excess of the applicable threshold of significance for TACs (e.g., 10 in one million), sources have to implement the best available control technology for TACs (T-BACT) to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after T-BACT has been implemented, the local air district would deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs. It is important to note that the air quality permitting process applies only to stationary sources; properties that may be exposed to elevated levels of TACs from mobile sources (e.g., vehicles) and the mobile sources themselves are not subject to this process, or to requirements for T-BACT implementation. Rather, emissions controls on mobile sources are subject to regulations implemented on the state and federal levels.

However, as discussed above in the environmental setting and under state TAC regulations, there has been a considerable body of data developed in the past ten years linking adverse health effects with traffic-generated TACs. These studies have resulted in the publication of guidelines not only at the state level (e.g., CARB Handbook and Technical Advisory, Guidance Manual), but also at the local level relative to the location of certain land uses near freeways and major roadways with high volumes of traffic and other sources of TACs not regulated through the permitting process.

For example,, in July 2009, the California Air Pollution Control Officers Association (CAPCOA), building on the CARB Handbook, released the *Health Risk Assessments for Proposed Land Use Projects Guidance Document* (CAPCOA Guide) to assist lead agencies in complying with the requirements of CEQA. The CAPCOA Guide outlines the recommended procedures to identify when a project should undergo further risk evaluation, how to conduct an HRA, and what mitigation measure may

be appropriate for various land use projects (CAPCOA 2009). In addition, because CARB recommendations have major implications for land development projects, local air districts within the plan area of the proposed MTP/SCS often adopt their own protocols for assessing health risk issues. For the purposes of this EIR, as the air district charged with regulating emissions in SVAB's most populated county (i.e., Sacramento County) as well as developing thresholds of significance based on substantial evidence, SMAQMD is used as an example to describe the information that is generally included within these protocols.

SMAQMD developed the Mobile Sources Air Toxics Protocol (MSAT Protocol) in April 2019 (SMAQMD 2019b). The MSAT Protocol provides guidance to local land use jurisdictions on assessing and disclosing potential cancer risk and PM2.5 concentrations from major roadways and railways. SMAQMD's Board of Directors approved the MSAT Protocol on January 25, 2018. The MSAT Protocol replaces the Recommended Protocol for the Evaluation of Sensitive Receptors Adjacent to Major Roadways.

The MSAT Protocol includes a risk mapping tool, a guidance document, a detailed methodology document, and is complemented by guidance on exposure reduction measures. Notably, the risk mapping tool applies only to Sacramento County.

The mapping tool does not reflect existing features on or adjacent to the location of interest that may reduce reported risk such as barriers, tree plantings, or enhanced indoor air filtration. The presence or planning of those features should be accounted for by a jurisdiction's analysis when using the mapping tool.

SMAQMD also highly recommends incorporating best practices to reduce pollutant exposure for all projects contemplated within 500 feet of a freeway or major roadway. Studies indicate that in some situations roadway pollutant dispersion extends further than 500 feet, while still presenting an elevated risk for exposure. However, this extended dispersion area is dependent on specific local factors such as the area's meteorology (Choi 2012) or the presence or absence of sound and vegetative barriers (Steffans 2013). Therefore, the 500 feet buffer is used as the general standard, based on the state's current set-back requirement for schools (Pub. Resources Code, 21151.8) and CARB's recommendations on siting for housing and sensitive land uses as well as its recent Technical Advisory (CARB 2005 and 2017). During the NOP public review period, SMAQMD submitted a written comment recommending that SACOG encourage its member agencies to use existing guidance to asses and reduce toxic impacts from MTP project through use of design strategies found in CARB's 2017 Strategies to Reduce Air Pollution Near High-Volume Roadways coupled with the maps produced in the MSAT Protocol (SACOG 2019). The discussion under IMPACT AIR-2 was performed in consideration of the MSAT Protocol consistent with guidance provided from SMAQMD.

Odors

Air districts typically recommend that operational odor impacts be evaluated under CEQA. In its CEQA Guidance, SMAQMD, for example, provides recommended odor screening distances (Table 5-14) to evaluate odor impacts when siting new sensitive land uses. Other districts recommend that odor impacts be deemed significance if a certain number of confirmed complaints (e.g., 5 or more) in a new source area per year averaged over 3 years.

Table 5-14
SMAQMD Recommended Odor Screening Distances

Land Use/Type of Operation	Project Screening Distance
Wastewater Treatment Plant	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	2 miles
Petroleum Refinery	2 miles
Asphalt Batch Plant	2 miles
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rendering Plant	4 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	2 miles
Metal Smelting Plants	1 mile

Note: Odor Screening distances should not be used as absolute thresholds of significance for an odor significance determination.
Source: SMAQMD 2016

GENERAL PLANS

The most comprehensive land use planning for the SACOG region is provided by city and county general plans, which local governments are required by state law to prepare as a guide for future development. The general plans of each city and county contain goals and policies concerning topics that are mandated by state law (i.e., land use, circulation, housing, conservation, open space, noise, safety) or which the jurisdiction has chosen to include (e.g., natural resources, parks and recreation, agricultural, air quality).

Jurisdictions may choose to adopt an optional air quality element or include policies related to air quality in other general plan elements. In general, local planning policies related to air quality are established to reduce exposure to air pollutants and safeguard public health, and may address density; compact development; alternative transportation modes; energy conservation; cleaner-fuel vehicles; reductions for particulate emissions from roads, construction sites, and fireplaces; and public education programs.

5.4 Impacts and Mitigation Measures

5.4.1 Methods and Assumptions

This program-level analysis generally evaluates adverse air quality impacts from implementation of the proposed MTP/SCS based on the projected land use pattern and planned transportation network relative to existing sources of air pollution within the plan area of the proposed MTP/SCS.

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS. Exceptions to the 2016 baseline in this chapter include the following:

- monitoring data collected throughout the plan area of the proposed MTP/SCS, which is representative of 2018 concentrations of criteria air pollutants and is the most recent data available, and
- the attainment designation of counties within the plan area of the proposed MTP/SCS are representative of 2018 ambient air quality within those counties based on the most recent data available.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

Generally, with respect to air quality impacts, a change from existing conditions could prove beneficial if idling time is reduced, a project results in a mode shift, or clean technology is used. However, a change from existing conditions can have a negative impact if a project results in increased levels of congestion due to increased idling times, a decrease in transit ridership, or an increase in local truck traffic. Therefore, the general approach in this impacts analysis is to determine how implementation of the proposed MTP/SCS would change the air quality environment from existing conditions, and whether that change would have a positive or negative effect on the region, the five community types, and the three HFTAs.

For NAAQS, projecting the future air quality environment, and how well the proposed MTP/SCS fits within existing air quality plans and their projected maintenance or attainment strategies, can be evaluated through an existing federal process. Conformity is established under the CAA to ensure that transportation planning, transportation improvement programs, and projects are consistent with plans to achieve and maintain NAAQS.

To meet its Conformity Requirements, SACOG estimates emissions using the most recent population, employment, travel, and congestion forecasts, using 2016 as the baseline. Through the SACSIM19 model (described in Chapter 1), estimated daily VMT and trips were generated for each milestone year (i.e., 2027, 2035, and 2040). The emissions of criteria air pollutants were then modeled using CARB's EMFAC2014 model, which was the most recent, EPA-approved version at the time SACOG released the Conformity Assumptions for this analysis (i.e., EMFAC2017 had not yet been approved). Additionally, EMFAC2017 had not yet been approved at the time of releasing the NOP for the proposed MTP/SCS in April 2019. On August 15, 2019, EPA approved

EMFAC2017 for use; however, EPA provided a two-year grace period in which SACOG is not required to use EMFAC2017. The grace period runs through August 16, 2021.

The EMFAC model represents CARB's most up-to-date understanding of motor vehicle activities and their associated emissions levels and is subject to periodic update. Daily VMT and total trips from each milestone year are used as inputs to the vehicle-emissions forecasting model to develop emission forecasts. A determination of conformity, or conformance with the SIP, is realized when the forecasted emissions are within budgets identified in the SIP or pass the interim emissions test.

For the CAAQS, the evaluation is based on consistency with the parameters used by the local air districts in their planning processes. As noted above in the Regulatory Setting section, the CCAA requires air districts to endeavor to attain and maintain the CAAQS by the earliest practicable date and develop plans for attaining the CAAQS. Air districts develop SIPs to demonstrate a path forward to attainment and in those SIPs, emissions budgets and reductions are identified.

Air districts develop thresholds of significance for CEQA evaluation in consideration of attainment designation under the NAAQS and CAAQS for the area they oversee. Typically, these thresholds are tied to an air district in nonattainment's SIP for criteria air pollutants within a cumulative context. For example, SMAQMD has developed project-level operational thresholds for ROG and NO_X of 65 lb/day to ultimately achieve an annual 0.49 tpy and 0.45 tpy reduction in ROG and NO_X, respectively. These reductions have been identified by SMAQMD as appropriate to further Sacramento County's goal of reaching attainment for the NAAQS and CAAQS, which, if in attainment, would indicate that the area supports concentrations of ozone that would not be hazardous to human health.

As discussed previously, the NAAQS and CAAQS represent concentrations of criteria air pollutants protective of human health and are substantiated by extensive scientific evidence. EPA and CARB recognize that ambient air quality below these concentrations would not cause adverse health impacts to exposed receptors. In connecting an air district's (e.g., SMAQMD) thresholds of significance to its anticipated date of attainment, projects that demonstrate levels of construction and/or operational emissions below the applicable thresholds would not result in cumulatively considerable emissions that would cause an adverse health impact related to exposure to criteria air pollutants in elevated concentrations.

Similarly, projects that demonstrate emissions levels in exceedance of an applicable threshold could contribute to the continued nonattainment designation of a region or potentially degrade a region from attainment to nonattainment. Resulting acute or chronic respiratory and cardiovascular illness could occur, with symptoms including coughing, difficulty breathing, chest pain, eye and throat irritation and, in extreme cases, death, caused by exacerbation of existing respiratory and cardiovascular disease, cancer, impaired immune and lung function.

However, the exact location and magnitude of health impacts that could occur as a result of project construction or operation is infeasible to model with a high degree of accuracy. Localized impacts of directly emitted PM do not always equate to local PM concentrations due to the transport of emissions. The secondary formation of PM is similar to the complexity of ozone formation. Ozone is a secondary pollutant formed from the oxidation of ROG and NO_X in the presence of sunlight. Rates of ozone formation are a function of a variety of complex physical factors, including topography, building influences on air flow (e.g., downwash), ROG and NO_X concentration ratios,

multiple meteorological conditions, and sunlight exposure (Seinfeld and Pandis 1996:298). For example, rates of ozone formation are highest in elevated temperatures and when the ratio of ROG to NO_X is 5.5:1. When temperatures are lower and this ratio shifts, rates of ozone formation are stunted (Seinfeld and Pandis 1996:299–300). In addition, ROG emissions are composed of many compounds that have different levels of reactivity leading to ozone formation. Methane, for instance, is the most common ROG compound, yet it has one of the lowest reactivity potentials (Seinfeld and Pandis 1996:309, 312). Moreover, some groups may develop more severe health impacts than others. For instance, infants, children, the elderly, and individuals with preexisting medical conditions are more susceptible to developing illnesses from exposure to air pollutants.

SMAQMD has not yet developed a dispersion model for project-level evaluation of resulting concentrations of ozone precursors within the Sacramento region. It is foreseeable that such a model could be developed to assess a project's contribution to the nonattainment of an air basin; however, at the time of writing this Draft EIR, SMAQMD has not developed a model nor is there an existing model that SMAQMD recommends. Furthermore, given the uncertainty surrounding the age, existing health, genetic sensitivity, and numbers of receptors in a region, dispersion modeling cannot quantitatively assess potential human health impacts. However, at the time of writing this Draft EIR, SMAQMD is in the process of developing a county-wide model and intends to release it to the public in late fall 2019.

Additionally, the timing and location of air pollution is speculative at the programmatic level. As a result, attempting to predict the locations of human health impacts from implementation of the proposed MTP/SCS would not be meaningful. Nonetheless, this analysis makes a good faith effort to disclose foreseeable operational emissions from the projected land use pattern proposed under the proposed MTP/SCS. Thus, human health impacts are discussed qualitatively.

For long-term operational emissions of criteria air pollutants, the California Emissions Estimator Model, Version 2016.3.2, computer program (CalEEMod) was used to calculate the regional area source emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ associated with the operation of the proposed MTP/SCS. CalEEMod is designed to estimate potential emissions associated with both construction and operations from a variety of land use development projects, including both direct (e.g., vehicle use) and indirect emissions (e.g., energy use, solid waste disposal, vegetation planting and/or removal, and water use).

The results of the CalEEMod modeling were compared with local air district thresholds, which are developed in consideration of SIPs and attainment status under the NAAQS and CAAQS. Long-term stationary-source emissions were qualitatively assessed in accordance with air district-recommended methodologies that rely on compliance with associated rules and regulations (e.g., permitting process) for which compliance is required by law. Modeled long-term operational emissions were compared with applicable air district thresholds for determination of significance.

Long-term exposure of sensitive receptors to operational emissions of TACs were assessed qualitatively using a number of tools and publications. The analysis examines the guidance contained in the CARB Handbook, which includes recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, dry cleaners, gasoline stations, and industrial facilities (CARB 2005) (SQAQMD 2019d). The analysis of health risk exposure also explores the MSAT Protocol and the OEHHA Guidance Manual.

Although this impact is addressed qualitatively, the guidance parameters provided by these sources is acknowledged. Ultimately, the impact conclusion is based on whether the project would develop sensitive receptors in locations where they would be exposed to substantial levels of TAC-related health risk. Other important facets to this analysis are how the estimated health risk exposure levels at proposed sensitive receptors compare to baseline risk levels in the plan area of the proposed MTP/SCS, and the necessity to disclose an accurate understanding of the potential risk levels so they can be considered in the planning process. Health risk associated with airport-generated emissions of TACs is also discussed qualitatively based on the limited and recent research on the topic. A literature review is also provided on the risk exposure levels associated with development near freeways and major roadways.

Long-term stationary-source emissions were qualitatively assessed in accordance with air district-recommended methodologies that rely on compliance with associated rules and regulations (e.g., permitting process) for which compliance is required by law. It is important to note that the MSAT Protocol focuses on assessing cancer risk from DPM, due to its greater cancer risk from exposure from roadways when compared to the other mobile source air toxics. However, the MSAT Protocol also addresses other MSATs.

Construction-related emissions of criteria air pollutants (e.g., $PM_{2.5}$ and PM_{10})[1] and precursors (ROG and NO_X) were assessed qualitatively, as specific construction details are not available at this time at this programmatic level. This assessment was based on general information provided in the project description and typical construction practices for the proposed land use types and transportation projects in regard to a potential exceedance of applicable thresholds of significance. Similarly, project-generated, construction-related emissions of TACs were assessed qualitatively as specific construction details are not available at this time at this programmatic level.

Additionally, odors were assessed qualitatively in regard to the potential for the proposed MTP/SCS to result in the exposure of sensitive receptors to objectionable odors.

The analysis assumes implementing agencies would ensure air quality resources are treated in accordance with applicable federal, state and local laws and regulations as part of project planning, design and engineering.

See Appendix AQ/GHG – 1 for additional information regarding methodology, calculations, and assumptions.

5.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

AIR-1 Conflict with or obstruct implementation of an applicable air quality plan;

[1] Construction- and operational-related emissions of $PM_{2.5}$, by definition, are a subset of PM_{10} emissions. Thus, local air district-recommended methodologies and mitigation measures for PM_{10} would also apply to emissions of $PM_{2.5}$.

AIR-2 Expose sensitive receptors to substantial TAC concentrations, including those from construction and operational emissions;

AIR-3 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people; and/or

AIR-4 Be inconsistent with or exceed applicable thresholds of significance established by the local air district for:

4a. long-term operational criteria air pollutant emissions.

4b. short-term construction criteria air pollutant emissions.

5.4.3 Impacts and Mitigation Measures

IMPACT AIR-1: CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF AN APPLICABLE AIR QUALITY PLAN.

Regional Impacts

Applicable air quality plans that may be affected by the proposed MTP/SCS are as follows: 2004 Amendment to the California SIP for CO, the federal maintenance plan for CO; 2013 8-Hour Ozone Attainment and Reasonable Further Progress Plan, the plan to meet the federal 8-hour ozone standard, and the corresponding state SIPs; and PM_{10} Implementation/ Maintenance Plan and Redesignation Request for Sacramento County (October 28, 2010), the federal maintenance plan for PM_{10}; and all other local air district plans prepared in compliance with the CCAA to attain and maintain the CAAQS. The relationship between federal Conformity and local air district attainment and maintenance plans, budgets, and the associated fulfillment of attaining and maintaining the NAAQS and CAAQS, is discussed above under the Environmental Setting, Regulatory Setting, and Methods and Assumptions sections. Under Impact AIR-1, the proposed MTP/SCS would have a significant air quality impact if the projected emissions of nonattainment and maintenance air pollutants would conflict with, or obstruct, implementation of any of the foregoing plans.

In general, projecting the future air quality environment and how well the proposed MTP/SCS fits within existing air quality attainment plans, and their projected maintenance or attainment strategies, is evaluated through existing federal, state, and local air district processes. A determination of conformity, or conformance with the plans, is realized when: the forecasted emissions are within budgets identified in the plans or pass the interim emissions test, the latest planning assumptions and emission models are used, the plan and program are financially constrained, and the timely implementation of transportation control measures can be demonstrated. Conformity analyzes the impacts of land use and transportation in combination at the regional level. It quantitatively measures how selected land use and transportation planning principles in combination would affect the future air quality environment. As established in the proposed MTP/SCS, behavioral changes in choice of travel directly impacts mobile source emission generation projections, and reduced VMT and trip numbers result in lower emissions.

As described above, the CAA requires that federally-funded or approved transportation plans, programs, and projects in nonattainment or maintenance areas conform to the SIP for meeting the NAAQS. Conformity must be assessed for all nonattainment area transportation-related pollutants classified as regional pollutants. The proposed MTP/SCS was analyzed for Conformity according to

the process described in the methods and assumptions section. Because this analysis provides the foundation for determining if the proposed MTP/SCS conflicts with or obstructs implementation of an applicable air quality plan (specifically in regard to the NAAQS), the Conformity Analysis is incorporated into this EIR by reference. The conformity analysis findings for the identified geographies and milestone years are listed below or can be found in Appendix C of the Conformity Analysis for 2020 Metropolitan Transportation Plan and Sustainable Communities Strategy and associated Metropolitan Transportation Improvement Program Amendment (Conformity Analysis), which is also included as Appendix F-1 of the proposed MTP/SCS:

Ozone: The Conformity Analysis determined that the implementation of the proposed MTP/SCS would result in less total regional on-road, vehicle-related emissions (ROG and NO_X) than the approved emissions budgets established in *2009 8-Hour Ozone Attainment and Reasonable Further Progress Plan, 2013 SIP Revisions*.

PM_{10}: The Conformity Analysis determined that the implementation of the proposed MTP/SCS would result in less total regional on-road, vehicle-related emissions than the approved emissions budgets established in the *PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County* (October 28, 2010).

$PM_{2.5}$: The Conformity Analysis determined that the total regional on-road, vehicle-related emissions associated with implementation of the proposed MTP/SCS for the analysis years are projected to be less than or equal to the emissions for the baseline scenario, satisfying the test established in *Interim Transportation Conformity Guidance for 2006 $PM_{2.5}$ NAAQS Nonattainment Areas in Sacramento*. Additionally, the Conformity Analysis determined that the total regional on-road, vehicle-related emissions associated with implementation of the proposed MTP/SCS would result in less total regional on-road vehicle-related emissions than the approved emissions budgets in the established *2014 Yuba City-Marysville $PM_{2.5}$ Nonattainment Area Redesignation Request and Maintenance Plan*.

The forecasted emissions for ozone and PM_{10} associated with the proposed MTP/SCS are within the conformity budgets identified within the existing plans for each milestone year. Similarly, the forecasted emissions for $PM_{2.5}$ associated with the proposed MTP/SCS pass all interim emissions tests for all milestone years. Conformity provides the link between air quality and land use/transportation planning by linking the SIP and the proposed MTP/SCS. More prescriptively, the SIPs in the plan area of the proposed MTP/SCS provide the strategies that would be used to attain and maintain the NAAQS. Through conformity, the proposed MTP/SCS demonstrates that the region's land use and transportation system implement this strategy.

For the CAAQS, the evaluation is based on consistency with the parameters used by the local air districts in their planning processes. As noted above in the Regulatory Setting section, the CCAA requires air districts to endeavor to attain and maintain the CAAQS by the earliest practicable date and develop plans for the CAAQS.

The proposed MTP/SCS accommodates the expected population growth and accompanying demand for transportation in the region through a multi-modal approach. The local air districts report actual progress toward meeting CAAQS by reporting recent historic trends in exceedances of CAAQS through their district monitoring programs. The proposed MTP/SCS supports continued reduction in criteria air pollutant emissions from on-road mobile sources. The local air districts also report progress in implementing specific programs intended to reduce criteria emissions from on-

road sources. The proposed MTP/SCS does not conflict with local air district programs, and includes programs and strategies that complement and support the local air district programs. Thus, the proposed MTP/SCS continues to facilitate local air quality planning efforts as part of the implementation of the applicable air quality plans.

In addition, SACOG has committed to one TCM as part of the 8-Hour Ozone State Implementation Plan. Appendix D of the Conformity Analysis tracks the implementation of this TCM.

As a result, the proposed MTP/SCS would not conflict with or obstruct the implementation of any applicable air quality plan for CAAQS or NAAQS. The combined impacts related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact AIR-1. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The federal Conformity process for showing consistency with local air district plans is conducted at the regional level and; therefore, localized impacts at the Community Type level are not discussed separately for this impact.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The federal Conformity process for showing consistency with local air district plans is conducted at the regional level and; therefore, localized impacts at the HFTA level are not discussed separately for this impact.

MITIGATION MEASURES

No mitigation is required.

IMPACT AIR-2: EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL TAC CONCENTRATIONS, INCLUDING THOSE FROM CONSTRUCTION OR OPERATIONAL EMISSIONS.

Regional Impacts

The impact of TACs (as described in the Environmental Setting) is analyzed here based on the relationship between sensitive receptors and the sources of TACs. The CARB Handbook identifies residences, schools, day care centers, playgrounds, and medical facilities as sensitive land uses (CARB 2005). The CARB Technical Advisory also includes strategies to reduce exposure to air pollution exposure near high-volume roadways. Additionally, SMAQMD's MSAT Protocol mapping tool provides estimates of $PM_{2.5}$ concentrations and cancer risk at high-volume roadways (100,000 vehicles of travel daily on average) within Sacramento County (SMAQMD 2019a). For purposes of this impact analysis, individuals associated with these land use types would be referred to as sensitive receptors, with special attention to infant and children subpopulations. The sources of TACs are divided into land use and transportation sources. Land use TAC sources include chrome plating

facilities, dry cleaners using perchloroethylene, high-volume gas stations, distribution centers, ports, and rail yards. Transportation TAC sources are mobile vehicle sources; major roadways and freeways are used as a proxy for measurement.

The California Supreme Court decision *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 addressed the scope of analysis required in EIRs for potential impacts resulting from existing environmental conditions within the vicinity of a proposed project site. The Court held (page 378):

> In light of CEQA's text, statutory structure, and purpose, we conclude that agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users.

The court stated that CEQA does not routinely require in all circumstances the consideration of the effects of existing environmental conditions on the future occupants or users of a project site. However, if implementing the project might exacerbate an existing environmental condition, the lead agency must then analyze the exposure of future residents and users on the project site/in a plan area to the environmental condition.

Because of the unique nature of TACs (i.e., highly dispersive causing localized impacts rather than regional impacts) and their interface with land use and transportation, this impact uses the levels of analysis below, instead of the level of analysis applied in other impacts (i.e., regional, localized, and HFTA).

A. New Sensitive Receptors Close to TAC Sources
B. New Stationary TAC Sources Close to Sensitive Receptors
C. New Mobile TAC Sources Close to Sensitive Receptors

Impact area A includes areas where new sensitive receptors may be sited in proximity to any TAC sources (either stationary or mobile). Impact area B includes areas where stationary TAC sources may be sited in proximity sensitive receptors. Impact area C includes areas where only mobile TAC sources (freeways and major roadways) may be sited in proximity to sensitive receptors.

Each level of analysis also discusses permitted and non-permitted sources. To some extent, permitting would mitigate some of the impacts of TACs, but it may not fully mitigate to a less-than-significant level. Similarly, local jurisdictions may take actions that mitigate the impacts of non-permitted sources as part of their land use approval process, but these actions may not fully mitigate to a less-than-significant level. Each level of analysis provides additional detail on the potential impacts of the proposed MTP/SCS. The potential impact of TACs is defined in the CARB Handbook based on TAC source. The recommended distances for siting new sensitive receptors are outlined under the Regulatory Setting and in Table 5-8 above. CAPCOA and SMAQMD provide additional guidance, as discussed in the Regulatory Setting.

Impact Area A: New Sensitive Receptors Close to TAC Sources

Overview
Though exact future locations cannot be known at this time, the proposed MTP/SCS would result in new sensitive receptors close (within the distance buffers identified by CARB) to TAC sources, potentially resulting in exposure to substantial TAC concentrations. The siting of new sensitive receptors would be subject to an individual jurisdiction's land use approval processes.

The following discussion summarizes the recommendations of the CARB Handbook on specific distances from TAC sources (also see Table 5-8 above). Additional considerations relevant to the siting of new sensitive receptors in proximity to TAC sources also are listed. Where available, the general location of TAC sources is identified by community type. Figure 5-3 shows the existing stationary TACs sources known to SACOG in the plan area of the proposed MTP/SCS.

Table 5-15 summarizes the number of existing sources by Community Type, described in more detail below.

Table 5-15
Identified TAC Sources

Source	Region	Center/ Corridor	Established	Developing	Rural Residential	Lands Not Identified	Placer HFTA	Sacramento HFTA	Yolo HFTA
Non-Permitted									
Distribution Centers	58	7	49	1	0	1	0	10	6
Rail Yards[1]	1	0	1	0	0	0	0	0	0
Permitted									
Ports[1]	1	0	1	0	0	0	0	0	1
Refineries	0	0	0	0	0	0	0	0	0
Chrome Plating Facilities	4	1	2	0	0	1	0	2	0
Dry Cleaners using perchloroethylene[2]	4	1	3	0	0	0	0	1	0
Large gas dispensing facilities[3]	54	15	38	0	0	1	2	19	1

[1] No HRAs pending around this location
[2] Phased out by 2023.
[3] SMAQMD is currently about 60 percent through a comprehensive review of gas dispensing facilities. The information provided is current as of August 2019.
Source: EDCAQMD 2019b; FRAQMD 2019b; PCAPCD 2019b; SMAQMD 2019d; YSAQMD 2019b

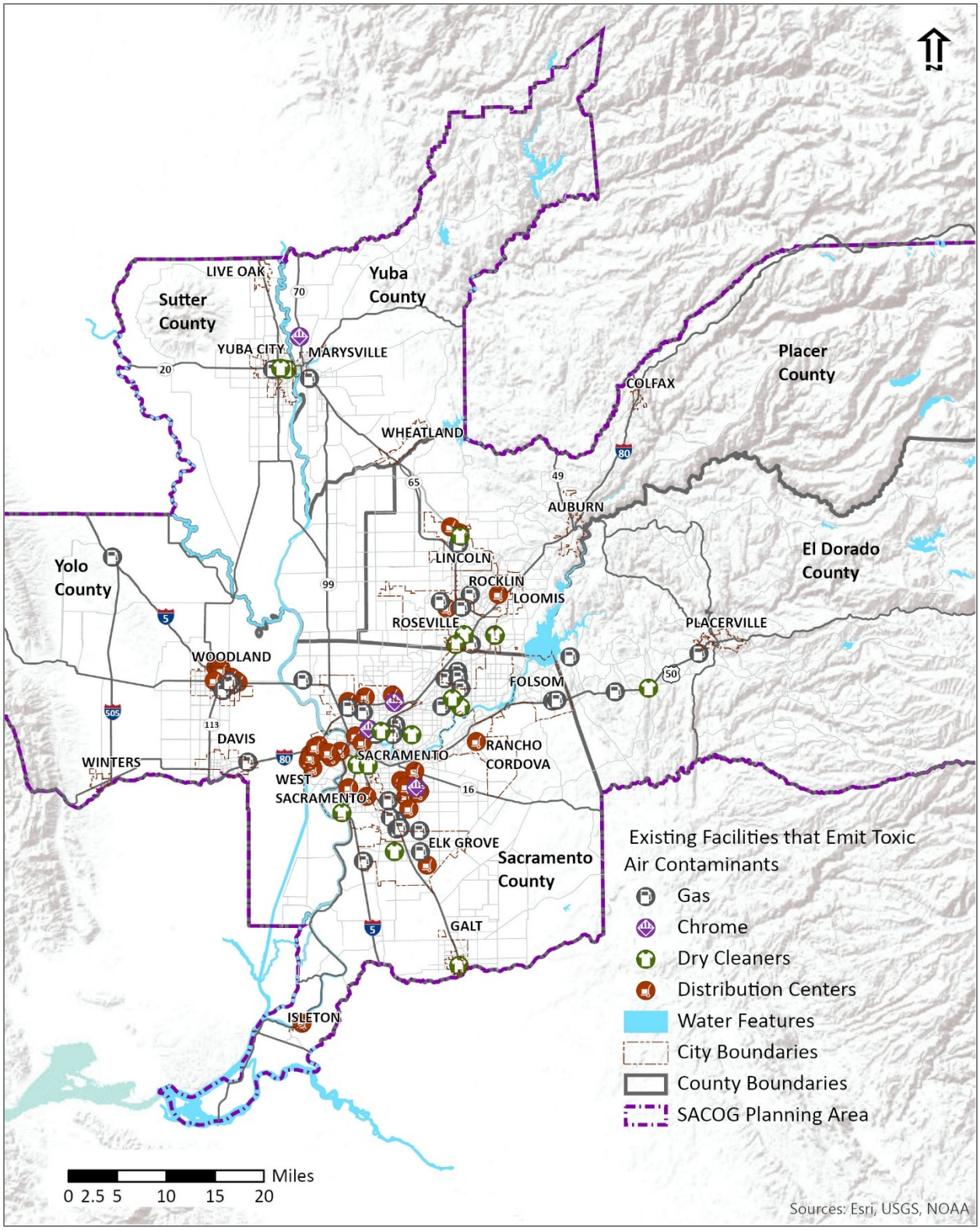


Figure 5-3
Existing Facilities That Emit Toxic Air Contaminants

Non-Permitted Sources

- **Distribution Centers:** Avoid siting new sensitive receptors within 1,000 feet of a distribution center that accommodates more than 100 trucks per day, more than 40 trucks with operating TRUs per day, or where TRU unit operations exceed 300 hours per week. Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.

  There are currently 58 distribution centers in the proposed plan area (Table 5-15). Because these sources are not subject to the permitting process of the air districts, it is not known at this time where future distributions centers will be located. It is also not known how many future distributions centers may be sited in the plan area. These sources would, however, be subject to air district rules.

- **Rail yards:** Avoid siting new sensitive receptors within 1,000 feet of a major service and maintenance rail yard. If a proposed receptor is within one mile of a rail yard, consider possible siting limitations and mitigation approaches.

  There is one rail yard in the proposed plan area that meets this definition, the J.R. Davis Rail Yard located in the city of Roseville.

- **Freeways and Major roadways:** Avoid siting new sensitive receptors within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. Figure 5-4 shows the freeways, urban roads with a current or 2036 projected capacity of 100,000 vehicles per day, and rural roads with a current or 2036 projected capacity of 50,000 vehicles per day located within the region.

- Table 5-16 shows the population living within 500 feet of freeways and roadways that meet these capacities in 2016 and 2040.

Permitted Sources

- **Ports:** Avoid siting new sensitive receptors immediately downwind of ports where maximum concentrations of TAC emissions would likely occur as a result of windblown dispersal.

  There is one port in the plan area of the proposed MTP/SCS that meets this definition, the Port of West Sacramento located in the City of West Sacramento. No additional ports are proposed in the plan area of the proposed MTP/SCS.

- **Refineries:** Avoid siting new sensitive receptors immediately downwind of petroleum refineries.

  There are no refineries located in the plan area of the proposed MTP/SCS (EDCAQMD 2019b; FRAQMD 2019b; PCAPCD 2019b; SMAQMD 2019d; YSAQMD 2019b). No new refineries are proposed in the plan area of the proposed MTP/SCS.

- **Chrome plating facilities:** Avoid siting new sensitive receptors within 1,000 feet of a chrome plating facility.

  There are four facilities in the plan area of the proposed MTP/SCS; three are located in the City of Sacramento and one is located in the City of Marysville. (EDCAQMD 2019b; FRAQMD 2019b; PCAPCD 2019b; SMAQMD 2019d; YSAQMD 2019b).

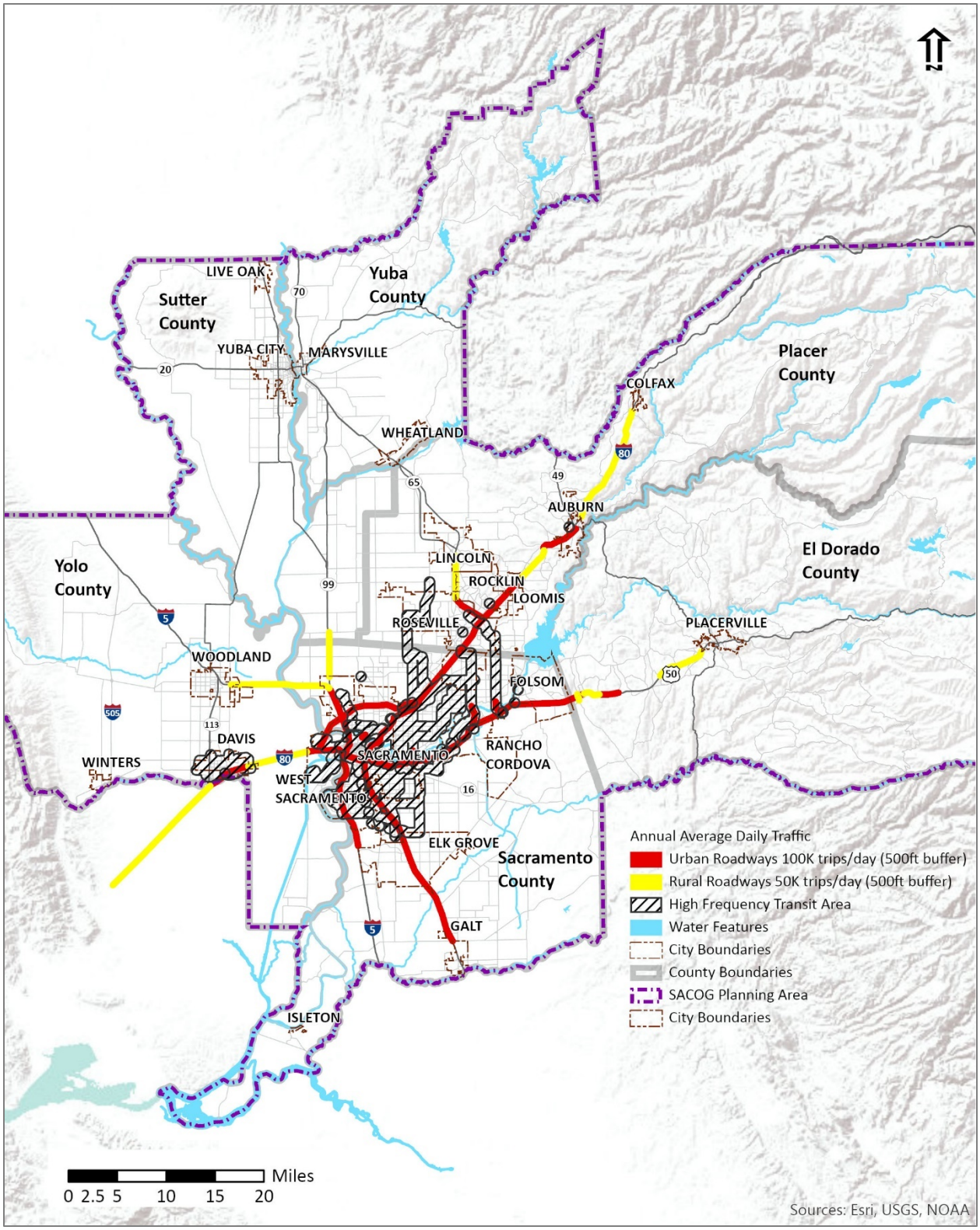


Figure 5-4
Locations of Mobile-Source Toxic Air Contaminants

- **Dry cleaners using perchloroethylene:** Avoid siting new sensitive receptors within 300 feet of any dry-cleaning operation using perchloroethylene, a solvent used in dry cleaning. For operations with two or more machines, provide 500 feet.

  There are four of these facilities in the plan area of the proposed MTP/SCS (EDCAQMD 2019b; FRAQMD 2019b; PCAPCD 2019b; SMAQMD 2019d; YSAQMD 2019b). A regulation passed by CARB in January 2007 will phase out perchloroethylene by 2023, to be replaced with safer alternatives already available on the market (CARB 2007). Because this regulation prohibits the installation of new perchloroethylene dry cleaning machines as of 2008, and requires all perchloroethylene machines to be replaced when they are 15 years old, this TAC source will not exist after 2023.

- **Large gas dispensing facilities:** Avoid siting new sensitive receptors within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

  There are 54 facilities located in the plan area of the proposed MTP/SCS with a permit for this level of throughput (EDCAQMD 2019b; FRAQMD 2019b; PCAPCD 2019b; SMAQMD 2019d; YSAQMD 2019b). Not all facilities with this permit actually dispense this amount or greater. For purposes of this analysis, any facility with this type of permit was included as an identified TAC source. It is important to note that the permitted facilities could also include non-permitted sources (e.g., heavy-duty truck travel), and vice versa. However, such non-permitted sources would be subject to other regulations enforced by CARB.

While the CARB Handbook does not include siting distance recommendations for sensitive receptors near airports, there has been heightened scientific awareness and public debate over potential impacts that may result from the exposure of sensitive receptors to TACs generated by aircraft and ground support operations at and near airports. Sources of airport-related TACs include aircraft (e.g., air carriers, commuter and cargo aircraft, and general aviation), ground service equipment, and fuel storage and handling. TACs released by these sources include, but are not limited to, VOCs (acetaldehyde, formaldehyde, benzene, and 1,3-butadiene), chromium, dioxins, lead, PAHs, tetrachloroethylene, nickel, and toluene. Several studies and analyses have been performed in an effort to evaluate the risk posed from airport operations. Overall, the data and analyses from these studies provide an inadequate foundation to perform airport-related health studies.

In an effort to improve available data, a multiagency aircraft particle emissions experiment (APEX) was established in 2006 with participants from EPA, National Aeronautics and Space Administration (NASA), Federal Aviation Administration (FAA), the aviation industry (GE and Boeing), and the research community (Massachusetts Institute of Technology [MIT]). The main focus of APEX is to test aircraft engines for TACs. Recently, EPA adopted emission standards for aircraft gas turbine engines with rated thrusts greater than 26.7 kilonewtons, primarily used on commercial passenger and freight aircraft. EPA has also established a timeline for addressing greenhouse gas emissions from aircraft under CAA. EPA intends to propose findings from a comprehensive study in late April 2015, with final determinations expected in spring 2016. This study, along with further monitoring around airports and validation of modeling results, will allow the compilation of more accurate emissions data into EPA models and identification of the proper characterization methods. There are 22 public or public-serving airports in addition to the many private airports in the SACOG region.

There are five HRAs underway around the identified TAC sources (EDCAQMD 2019b; FRAQMD 2019b; PCAPCD 2019b; SMAQMD 2019d; YSAQMD 2019b). SB 1731 amended the aforementioned "Hot Spots" Program and required OEHHA to prepare *The Air Toxics Hot Spots Program Guidance Manual* (February 2015) to address new information related to conducting effective and reliable health risk assessments for TACs. As a result, air districts reevaluated all facilities following the update to their own risk management guidelines. In 2018, SMAQMD published its *2016 Report on the Air Toxics "Hot Spots" Information & Assessment Act* in January 2018 (SMAQMD 2018b).

Based on the above discussion, because the proposed MTP/SCS could result in new sensitive receptors being located near these types of operations, it has the potential to expose sensitive receptors to TACs. Thus, impacts related to exposing new sensitive receptors to stationary sources of TACs and associated human health impacts related to the land use change and planned transportation improvements under the proposed MTP/SCS would be potentially significant (PS) for Impact AIR-2. Mitigation is required. Mitigation Measures AIR-1and AIR-2 are discussed below.

The Interface of Land Use and Transportation, and TACs

The location and pattern of the proposed MTP/SCS growth is important, because it impacts travel behavior and provides a means to determine the impact of future vehicle emissions in the plan area of the proposed MTP/SCS. A compact growth pattern served by an efficient and diverse transportation system provides the foundation to reduce automotive travel and increase walking, bicycling, and transit use—all of which reduce individual vehicle trips and associated VMT. Reduced VMT and vehicle trips are directly linked to reduced regional criteria air pollutant emissions and TAC emissions from mobile sources.

It is important to note that a variety of other factors contribute to the declines over existing conditions, including vehicle technology, cleaner fuels, and fleet turnover. For example, $PM_{2.5}$ emission rates (grams per mile traveled) from large diesel trucks decreases by about 93 percent from 2016 to 2035, and 97 percent from 2016 to 2040. The primary reason for the improvement is the turnover of the engine inventory to newer engine standards already adopted by CARB (CARB 2013). However, in order to achieve the greatest VMT reductions from a compact growth pattern, development also must necessarily be in close proximity to public transit and freeway and major roadway corridors. While it is important that TAC emissions are reduced regionally, exposure is primarily based on local parameters (e.g., average daily traffic [ADT] on local roadway segment, wind direction in relation to source and receptor). Mobile-source emissions will decrease substantially over the planning period (2016 compared to 2040). ROG would experience 64 percent reduction, NO_X a 73 percent reduction, CO a 70 percent reduction, and $PM_{2.5}$ an 8 percent reduction. PM_{10} would increase by 5 percent due to higher emissions rate and VMT, which may correlate directly with a decrease in local exposure to TACs because of the corresponding decrease in total VMT associated with the substantial growth forecast for the region. However, compact development can also result in the close proximity of new sensitive receptors to localized sources of TACs.

While new permitted sources can mitigate TACs though air district processes (e.g., permit requirements), the placement of new sensitive receptors close to TAC sources could result in the exposure in excess of this threshold. Therefore, the potential to expose sensitive receptors to substantial TAC concentrations from implementation of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS is considered potentially significant (PS)

for Impact AIR-2. Mitigation is required. Mitigation Measures AIR-1 and AIR-2 are described below.

New Stationary TAC Sources Close to Sensitive Receptors

The projected land use pattern of the proposed MTP/SCS could allow for new stationary TAC sources, such as those identified in Table 5-15, to be sited in close proximity to sensitive receptors. The proposed MTP/SCS does not directly propose the siting of any stationary TAC sources (i.e., new distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, large gasoline dispensing facilities, or other land uses that may accommodate major sources of TACs). However, the local jurisdictions' land use plans that form the basis of the projected land use pattern of the proposed MTP/SCS could allow for the siting of permitted and non-permitted TAC sources. There would be potential for new TAC-emitting land uses to be sited near sensitive receptors throughout the region. As noted above, CARB, CAPCOA, and SMAQMD provide guidance on siting of new sources. A full discussion is provided in the Regulatory Setting. A summary of land use and transportation changes for the region as a result of the proposed MTP/SCS is provided above.

Long-term operation of industrial and commercial uses that could be developed under the proposed MTP/SCS would likely include the installation of new stationary sources of TACs, such as dry-cleaning establishments and gasoline-dispensing facilities. As is the case with existing industrial facilities, these types of stationary sources, in addition to any other stationary sources that may emit TACs (except for non-permitted sources), would be subject to air district rules and regulations, including: general requirements, new source review, T-BACT requirements, Title V federal operating permit requirements, and federal HAP requirements (NESHAPS). Thus, the applicable air district would analyze such sources based on their potential to emit TACs. If it were determined that the sources would emit TACs in excess of an air district's applicable threshold of significance, T-BACT would be implemented to reduce emissions. If the implementation of T-BACT would not reduce the risk below the applicable threshold, an air district would deny the required permit (or deny the renewal of existing permits). Even if multiple permitted TAC sources located in close proximity to each other generated a combined incremental increase in health risk in excess of the applicable air district standards (e.g., 10.0 in one million for excess cancer risk and/or a hazard index of 1.0 for non-cancer risk at the maximally exposed individual), these standards are incremental increase thresholds (e.g., increase over background) that inherently account for the possibility of sensitive receptors being exposed to risk from multiple TAC sources in addition to background risk levels. In other words, as incremental increase standards, they address the cumulative contribution of each individual stationary source of TACs. As a result, given compliance with applicable rules and regulations, operation of any stationary sources would not be expected to result in the exposure of sensitive receptors to TACs at levels exceeding an air district's significance threshold.

As described above, the projected land use pattern of the proposed MTP/SCS could potentially allow for the siting of new stationary TAC sources close to sensitive receptors. Additionally, the implementation of the projected land use pattern of the proposed MTP/SCS could indirectly result in new stationary TAC sources being placed close to sensitive receptors. While new permitted sources can mitigate TACs through local air district processes (e.g., permit requirements), as noted above, some stationary TAC sources do not require permitting by the applicable air district and some permitted facilities may include non-permitted sources (e.g., heavy-duty truck travel) that are not controlled by compliance with existing processes. Therefore, the potential that TAC sources could result in the substantial exposure of sensitive receptors to TAC concentrations and associated

human health impacts from implementation of the land use and transportation changes in the proposed MTP/SCS is considered potentially significant (PS) for Impact AIR-2. Mitigation is required. Mitigation Measures AIR-1 and AIR-2 are described below.

New Mobile TAC Sources (Freeways and Major Roadways) Close to Sensitive Receptors

Mobile sources are the primary source of TACs within the transportation footprint of the proposed MTP/SCS. The proposed MTP/SCS would place new freeways and major roadways (and increase traffic on existing roadways), a source of TACs, close to sensitive receptors as defined by the CARB Handbook and described in the general discussion of this impact (CARB 2005).

Improvements to existing facilities (e.g., road widenings, intersection or interchange improvements, intelligent transportation system upgrades, turn pockets, high-occupancy vehicle lanes, and auxiliary and transition lanes) all have the potential to increase the amount of locally-generated TAC emissions in an area where the transportation infrastructure capacity is increased. Some roadway improvements would be intended to ease congestion and reduce idling, while others would be intended to improve physical roadway conditions. The improvements may prove beneficial on a regional scale, associated with the provision of more non-vehicle travel options, but also may result in more localized air quality impacts. It is important to note that site-specific data would be required to conduct an HRA (e.g., hourly traffic volumes, exact location of receptor with respect to the source in terms of distance and direction [upwind vs. downwind]). While it is important that TAC emissions are reduced regionally, as noted above, exposure is primarily based on local parameters (e.g., ADT on local roadway segment, wind direction in relation to source and receptor). Thus, even though mobile source emissions will decrease over the planning period, there may still be increases in localized exposure to TACs.

Investments in new transportation facilities could increase, redirect, or reduce the amount of vehicle travel in an area. In areas where new transportation infrastructure is proposed, there would be additional vehicle travel and associated vehicle-generated TACs. Investment in new facilities is expected to align with growth patterns, so that new roadway and highway investments serve planned housing and employment centers and would be compatible with surrounding land uses. More specifically, the design and expansion of the system paired with land use choices is intended to reduce VMT by offering an array of mode choices and reduced trip travel, while biking, walking, and transit options are enhanced. By design, new facilities may redirect traffic off of congested routes or upgrade the facilities to better-accommodate existing vehicle travel in an area. As noted, a variety of other factors also contribute to the declines of VMT over existing conditions, including vehicle technology, cleaner fuels, and fleet turnover.

Implementation of the proposed MTP/SCS would result in the construction of additional miles of bicycle facilities, including bicycle and pedestrian bridges or overpasses, which have the potential to facilitate change in travel choices by making non-vehicle travel safer and more convenient, which reduces vehicle-generated emissions. The proposed MTP/SCS also includes additional daily vehicle service hours for all modes of transit, bus and shuttle route miles, and light rail and streetcar route miles. Increasing the availability and frequency of transit service is expected to result in fewer vehicle trips per capita. The proposed MTP/SCS would include construction of, or modifications to, transportation infrastructure within 500 feet of freeways and urban roads with 100,000 vehicles per day, and rural roads with 50,000 vehicles per day. In addition, growth in the region would continue to contribute traffic to existing roadways within 500 feet of sensitive receptors.

As described in the Regulatory Setting section, the CARB Handbook recommends avoiding siting new sensitive land uses within 500 feet of certain roadways because the exposure to TACs is generally higher within that proximity. This 500-foot screening distance serves as a generally applicable buffer or screening distance. However, risk is site-specific, as the height of freeways, prevailing winds, and other factors can make a significant difference in whether an individual area is exposed to elevated risks. In addition, project design may be sufficient to reduce exposure to a level of 10.0 in one million, despite distance from a freeway.

As Table 5-16 shows, 2.08 percent of the population currently lives within 500 feet of a roadway with existing or projected levels of traffic that exceed the screening level traffic volumes. In 2040, it is projected that 2.65 percent of the population will live within this proximity. While the proposed MTP/SCS is placing new and existing sensitive receptors close to existing and proposed heavily traveled corridors, the actual number and proportion is small, less than half a percent (0.6 percent). This growth, over the planning period of 2016 to 2040, shows that 3,537 persons are added in total by 2040. In addition, though there is a larger percent of the population within 500 feet of freeways and major roadways under 2040 conditions, existing sensitive receptors could experience a decrease in localized emissions even with an increase in traffic volumes, depending on the percent increase in traffic versus the amount of reduction achieved from improved vehicle technology, cleaner fuels, and fleet turnover. As noted above, $PM_{2.5}$ emission rates from large diesel trucks decrease by 93 percent by 2035, with additional improvement (97 percent) by 2040 (SACOG 2019). However, the population shown in Table 5-16 would include new sensitive receptors and the exact exposure at existing sensitive receptors would vary depending on specific local parameters that are not available at this time at the program level.

Table 5-16
Percent of Population Living within 500' of an Identified Toxic Air Contaminant Roadway in 2016 and 2040

County	Within 500' Buffer - 2016 % of total population	Within 500' Buffer – 2040 % of total population
El Dorado	0.38%	0.67%
Placer	1.04%	1.02%
Sacramento	2.86%	3.55%
Sutter	0.00%	0.16%
Yolo	1.30%	2.96%
Yuba	0.00%	0.00%
Region Total	**2.08%**	**2.65%**

Source: Data compiled by SACOG in 2019

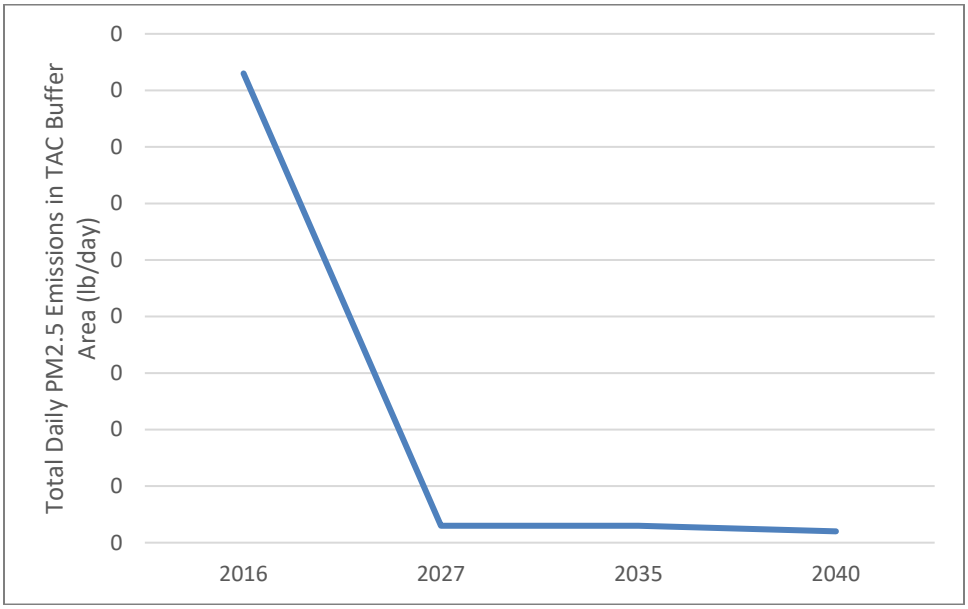
DPM emissions are also an important indicator in evaluating mobile source TACs because they are small enough to be inhaled deep into the lungs and, therefore, pose unique risks (CARB 1998a). As shown in Table 5-17 and Figure 5-5 below, PM_{10} and $PM_{2.5}$ from on-road diesel vehicles are expected to decrease substantially in the plan area of the proposed MTP/SCS. A first approximation can be made of the impact in the TAC buffer areas using the population changes, the VMT changes from diesel-powered vehicles, and the declining $PM_{2.5}$ emission rates through the plan period. This analysis was performed using EMFAC2014, which is an EPA-approved emissions model (EPA has approved EMFAC2017 for use with a grace period for continued use). EMFAC 2014 is representative of CARB's best understanding of motor vehicle travel activities and their associated

emissions levels at the time of releasing the NOP for this Draft EIR as compared to previous editions such as EMFAC2011 and EMFAC2007.

Table 5-17
Change in Emissions from On-Road Diesel Vehicles between 2016 and 2040

Year	(Tons/Day)	
	$PM_{2.5}$	PM_{10}
2016	0.57	0.93
2040	0.29	0.70
Percent Change	-49%	-24%

Source: Data compiled by SACOG in 2019



Source: Data compiled by SACOG in 2019

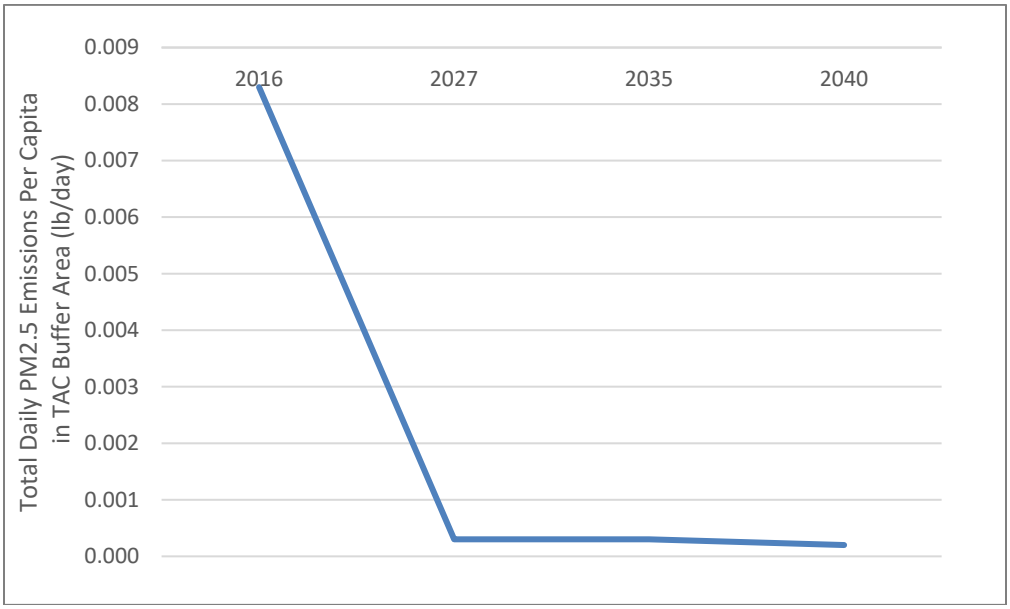
Figure 5-5
Total Daily $PM_{2.5}$ Emissions in TAC Buffer Areas

A first approximation can be made of the impact in the CARB buffer areas for TACs using the population changes, the VMT changes from diesel powered vehicles and the declining $PM_{2.5}$ emission rates through the plan period. Table 5-18 summarizes these data for 2016, 2027, 2035, and 2040, to estimate the average $PM_{2.5}$ exposure per person. The population within the buffer areas are from the land use allocation. The total VMT is from all roads within the buffer areas, including freeways and surface streets. The percent of VMT from diesel vehicles is the Sacramento County average from the CARB emissions model. The $PM_{2.5}$ emission rates are the weighted average CARB rates for all diesel vehicles in each year assuming the Sacramento County fleet mix. The change from 2016 to 2027 is a 96 percent decrease per person, the change from 2016 to 2035 is a 97 percent decrease per person, and the change from 2016 to 2040 is a 97 percent decrease per person (as shown in Figure 5-6). While detailed study is needed for any particular area, this analysis indicates the general direction and magnitude that would be expected.

Table 5-18
Average Daily $PM_{2.5}$ Exposure 2016, 2027, and 2040

Year	Population	VMT		$PM_{2.5}$		Avg. exposure (lb/day)
		% diesel	Total	rate g/mi	lbs.	
2016	49,332	6.10%	27,433,176	0.111	410.44	0.0083
2027	63,158	6.40%	29,503,889	0.005	20.08	0.0003
2035	73,213	6.50%	31,009,863	0.004	18.46	0.0003
2040	79,497	6.50%	31,951,096	0.004	18.01	0.0002

Source: Data compiled by SACOG in 2019



Source: Data compiled by SACOG in 2019

Figure 5-6
Daily $PM_{2.5}$ Emissions Per Capita in TAC Buffer Areas

As discussed above, site-specific source and receptor data are necessary to conduct an HRA. While it is important TAC emissions are reduced regionally, exposure must nevertheless be considered and should be assessed in consideration of local parameters and site-specific dispersion modeling. Localized and site-specific inputs are important because many features of the environmental setting, for both the source (e.g., roadway height, urban/rural, road speed and configuration, traffic volumes) and the receptor (e.g., housing orientation, climatic conditions, vegetation) differ from site to site and location to location. In other words, the buffer distances, and the corresponding population, shown in Table 5-16 above, are general guidance for determining the level of risk and exposure. Project design may be sufficient to reduce exposure to a level of 10.0 in a million, despite distance from a freeway. Additionally, when assessing the public health impact of TACs, it should be noted that a risk analysis is based upon 70- or 30-year exposure (OEHHA 2015). The population impacts shown in Table 5-16 do not account for the duration of exposure.

In addition, though health risk, in particular for roadways, focuses on DPM, there is also research discussing non-cancer risks and risks specifically from UFP, a component of $PM_{2.5}$. SMAQMD's MSAT Protocol mapping tool would be used to evaluate a future location of potential UFP and $PM_{2.5}$ exposure for land uses located on high-volume roadways. As noted, studies suggest that living or

going to school near roadways with heavy traffic volumes is associated with a number of adverse effects, including increased respiratory symptoms, increased risk of heart and lung disease, and elevated mortality rates (CARB 2005 and 2017b). Generally, infants and children are more vulnerable to air pollutants because of higher inhalation rates, narrower airways, and less mature immune systems. Therefore, particular attention is applied to the effects of pollutants on infants and children.

In these studies, and other proximity studies cited in the Environmental Setting section, the distance from the roadway and truck traffic densities were key factors affecting the strength of the association with adverse health effects. The association of traffic-related emissions with adverse health effects was seen within 1,000 feet and was strongest within 300 feet.

Therefore, because of the potential risks, and because the site-specific TAC source conditions and the sensitive receptor conditions are unknown at this time, impacts related to the projected land use pattern and planned transportation improvement from implementation of the proposed MTP/SCS have the potential to expose sensitive receptors to substantial TAC concentrations and are considered potentially significant (PS) for Impact AIR-2. Mitigation is required. Mitigation Measures AIR-1 and AIR-2 are described below.

Construction and Operations TAC Sources Close to Sensitive Receptors

Construction-related activities associated with implementation of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS would result in short-term emissions of DPM from the exhaust of off-road heavy-duty diesel equipment for site preparation (e.g., excavation, grading, and clearing), paving, application of architectural coatings, and other miscellaneous activities. DPM was identified as a TAC by CARB in 1998 due to its potential to increase cancer risk when inhaled over long periods of time.

The dose to which receptors are exposed is the primary factor used to determine health risk. Dose and associated risks are estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. Because the use of off-road heavy-duty diesel equipment would be temporary and intermittent, and would combine with the highly dispersive properties of DPM (Zhu et al. 2002), TAC emissions would not expose sensitive receptors to emissions of TACs over extended periods. Though sensitive receptors would only be exposed to TACs for limited amounts of time during construction, substantial emissions of TACs could be released in that time if the proper mitigation is not applied.

Therefore, at the regional level, the potential to expose sensitive receptors to substantial TAC concentrations from construction as a result of implementation of the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS is potentially significant (PS) for impact AIR-2. Mitigation is required. Mitigation Measures AIR-1 and AIR-2 are described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the regional impacts discussion above. Because the site-specific TAC source conditions and the sensitive receptor conditions are unknown at this time and construction-related activities could expose sensitive receptors to TACs if mitigation measures are not applied or as a temporary condition from off-road heavy duty diesel, implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities has the potential to be inconsistent with or exceed the significance criteria established by applicable air districts for TACs or expose sensitive receptors to substantial TAC concentrations from construction.

Therefore, the localized impacts related to the potential to expose sensitive receptors to substantial TAC concentrations from implementation of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities is considered potentially significant (PS) for Impact AIR-2. Mitigation is required. Mitigation Measures AIR-1 and AIR-2 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS

Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Since no land use development is proposed in this Community Type, there is no potential to be inconsistent with or exceed the significance criteria established by applicable air districts for TACs or expose sensitive receptors to substantial TAC concentrations from construction.

With respect to planned transportation improvements in Lands Not Identified for Development, the proposed MTP/SCS will make a limited number of transportation investments in this Community Type by 2040. The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. The localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. However, the limited number of construction projects that may occur in Lands Not Identified for Development in the proposed MTP/SCS are not likely to be inconsistent with or exceed the significance criteria established by applicable air districts for TACs or expose sensitive receptors to substantial TAC concentrations from construction.

Therefore, the localized impacts related to the potential to expose sensitive receptors to substantial TAC concentrations from implementation of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS in Lands Not Identified for Development in the proposed MTP/SCS is considered less than significant (LS) for Impact AIR-2. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The localized impacts associated with implementation of the proposed MTP/SCS are the same for all HFTAs as described in the regional impacts discussion above. Because the site-specific TAC source conditions and the sensitive receptor conditions are unknown at this time and construction-related activities could expose sensitive receptors to TACs if mitigation measures are not applied or as a temporary condition from off-road heavy duty diesel, implementation of the proposed MTP/SCS in HFTAs has the potential to be inconsistent with or exceed the significance criteria established by applicable air districts for TACs or expose sensitive receptors to substantial TAC concentrations from construction.

Therefore, the potential to expose sensitive receptors to substantial TAC concentrations from implementation of the proposed MTP/SCS in HFTAs is considered potentially significant (PS) for Impact AIR-2. Mitigation is required. Mitigation Measures AIR-1 and AIR-2 are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measures at a project-level would reduce the impacts from potential exposure of sensitive receptors to substantial TAC concentrations and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AIR-1: Adhere to CARB Handbook siting guidance to the maximum extent possible and implement best management practices identified by CARB, SMAQMD in the MSAT Protocol Guidance Document and in the Landscaping Guidance for Improving Air Quality near Roadways, and in EPA's Recommendation for Constructing Roadside Vegetation Barriers to Improve Near-Road Air Quality

Where sensitive land uses or TAC sources would be sited within the minimum CARB-recommended distances, a screening-level HRA, and, if warranted, a site-specific HRA shall be conducted to determine, based on site-specific and project-specific characteristics, all feasible mitigation and best practices. Identified feasible mitigations and best practices shall be implemented. The HRA protocols of the applicable local air districts shall be followed or, where a district/office does not have adopted protocols, the protocol of SMAQMD or CAPCOA shall be followed. Note that the MSAT Protocol only applies to Sacramento County; however, many of the recommendations still apply in other areas. In addition, the MSAT Protocol addresses DPM and other MSATs. Best practices shall be applied as recommended and applicable, to reduce the impact to a less-than-significant level where feasible. The HRA should give particular attention to the nature of the receptor, recognizing that some receptors are particularly sensitive (e.g., schools, day care centers, assisted living and senior centers, and hospitals) and may require special measures. Examples of best practices that studies have suggested to be effective include:

- install, operate, and maintain in good working order a central heating, ventilation, and air conditioning (HVAC) system or other air intake system in the building, or in each individual unit, that meets or exceeds a minimum efficiency reporting value (MERV) of 13, a Micro-Particle Performance Rating (MPR) of at least 1500, or Filter Performance Rating (FPR) of

at least 10 (which is equivalent to an MPR of 1500), and includes either high efficiency particulate air (HEPA) filters or American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) certified 85 percent or higher;

- install passive (drop-in) electrostatic filtering systems, especially those with low air velocities (i.e., 1 mile per hour [MPH]), as a part of the HVAC project HVAC system(s);
- maintain, repair, and/or replace the HVAC system on an ongoing and as needed basis or shall prepare an operation and maintenance manual for the HVAC system and the filter, for inclusion in the Covenants, Conditions and Restrictions (CC&Rs) for residential projects and a separate homeowners manual;
- orient air intakes away from TAC sources or provide shields or buffers to the maximum extent possible; maintain a vegetative barrier between new residential units consisting of tree species with year-round foliage and a porosity of 20 or 40 percent wherever feasible; and
- use tiered tree planting between roadways and sensitive receptors wherever feasible, using native, needled (coniferous) species, ensure a permanent irrigation source, and provide permanent funding to maintain and care for the trees.

Additionally, implementing agencies should contact SMAQMD and/or CAPCOA for the most current list of applicable best practices for limiting exposure of sensitive receptors to substantial TAC concentrations consistent with the CARB Handbook and MSAT Protocol Guidance Document (CARB 2005, CARB 2017b, EPA 2016c, SMAQMD 2017d, and SMAQMD 2019a).

Mitigation Measure AIR-2: Implement the strategies contained in the CARB Technical Advisory.

The implementing agency shall implement the strategies identified in the CARB Technical Advisory to reduce air pollution exposure near high-volume roadways to less-than-significant levels, where feasible. Examples of effective strategies include (CARB 2017b):

- use of speed reduction mechanisms such as roundabouts to reduce the frequency of stop-and-go driving common among streets that support stop signs;
- use of traffic signal management to limit the frequency of stop-and-go driving and vehicle idling;
- enforcement and establishment of speed limit reductions of high-speed roadways;
- use of design elements that promote air flow and pollutant dispersion along street corridors to optimize air flow, building downwash, and pollution dispersal;
- incorporate bike lanes and sidewalks to promote alternative, zero-pollution modes of transportation; and
- construct solid barriers directly adjacent to high-volume roadways such as sound walls to improve downwash.

SIGNIFICANCE AFTER MITIGATION

Use of air filtering systems, orientation of HVAC air intakes, tiered tree and vegetation planting, and decreased stop-and-go traffic and idling can substantially reduce TAC concentrations (CARB 2017b). Field research studies, wind tunnel studies, and dispersion modeling exercises indicate that roadside concentrations of DPM and UFP would be reduced because of the implementation of a

vegetative barrier (Baldauf et al. 2013; Breathe California 2008; Steffens et al. 2012; Steffens et al. 2013; Hagler et al. 2012; Islam et al. 2012; Bowker et al. 2007). Wind tunnel studies of redwood, deodar, and Live Oak tree species indicate that vegetation can reduce concentrations of very fine particles (i.e., 0.25 microns or smaller, a size range representative of most DPM) by 30 to 80 percent at wind velocities of 1.0 meter per second (2.2 miles per hour) and generally more removal occurs at lower wind speeds, particularly for UFPs (Breathe California 2008). Other field studies found the presence of tree canopy throughout a roadside area to be effective in reducing concentrations of diesel PM and UFP emitted on a nearby freeway (Dadvand et al. 2015). However, this same body of literature also indicates that the extent of the reduction from vegetation varies according to multiple factors, including species selection (e.g., the drag coefficient of the selected species, leaf area density, porosity), barrier width and height, barrier layout, meteorological conditions, highway geometry, road properties, and vehicle fleet characteristics.

In addition to requiring UFP filtration systems with a minimal removal rate of 95 percent to reduce indoor concentrations of UFP would also result in a substantial reduction to indoor concentrations of DPM. The vehicle speed reduction measures listed under Mitigation Measure AIR-2 result in reduced stop-and-go driving and hard accelerations thereby reducing emissions rates. Also, according to recent studies, the optimal speed range for fuel consumption and lowest emissions rates is achieved within the range of 35 to 55 miles per hour.

While Mitigation Measures AIR-1 and AIR-2 are expected to result in substantial reductions to exposure levels of UFPs and DPM, the level of effectiveness cannot be quantified at this time. Due to uncertainty in individual project conditions (e.g., location of receptor in relation to source [upwind versus downwind], the effectiveness of filtering systems depending on the TACs present) the extent to which this measure would reduce emissions is unknown at this time as such details are not available at the plan level. Additionally, construction is a significant source of TACs (e.g., DPM exhaust, NOA), although standard construction mitigation measures eliminate, avoid, or minimize the risk of adverse health effects from exposure from TACs.

If an implementing agency adopts this mitigation measure, Impact AIR-2 may be reduced, but not to a less-than-significant (LS) level. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant. However, SACOG cannot require the implementing agency to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation. Therefore, Impact AIR-2 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT AIR-3: RESULT IN OTHER EMISSIONS (SUCH AS THOSE LEADING TO ODORS) ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE

Regional Impacts

The proposed MTP/SCS has the potential to result in odor impacts related to: the development of new odor-producing facilities in areas where they do not currently exist, which could affect existing sensitive receptors; and/or the development of new sensitive receptors near existing odor sources (e.g., wastewater treatment plants, landfills, and composting operations).

The proposed MTP/SCS does not specifically identify odor-producing facilities, as it does not forecast land use to that level of specificity. The local air districts have confirmed that they are not aware of planned non-agricultural facilities or operations with the potential to emit odors. However, operation-related activities at the new facilities (e.g., industrial and/or commercial uses) could create odors, exposing existing sensitive receptors that are not currently affected under existing conditions. Specific uses are not yet known, and detailed site and grading plans have not yet been developed. However, these types of uses could entail composting or recycling operations, manufacturing, painting/coating operations (e.g., auto body shops), and coffee roasters located in close proximity to existing receptors. Because odors are subjective, new fast-food restaurants and bakeries may also be considered odorous sources. Most, but not all, of these source types would likely be subject to local air district permitting processes. However, the main function of the permitting process is to control the quantity of criteria air pollutants and TACs along with associated exposure of sensitive receptors. Odors issues are not typically addressed through the permitting process; they are however subject to various applicable air district rules. Permits may establish a performance threshold of condition that a source cannot create a nuisance, but generally potential odor issues and the recommendation of specific controls are addressed through established applicable air district rules, and/or the project-level CEQA analysis is one is conducted. In addition, there are some uses (e.g., agriculture-related operations) that are exempt from the local air districts odor nuisance authority due to the "Right to Farm Act" (California Civil Code Section 3482.5). Thus, new facilities could result in the exposure of existing sensitive receptors to odor sources.

Construction activities associated with land use improvements in the proposed MTP/SCS may result in minor sources of odors. The predominant source of power for construction equipment is diesel engines. Exhaust odors from diesel engines, as well as emissions associated with asphalt paving and the application of architectural coatings may be considered offensive to some individuals. However, because odors associated with diesel fumes would be temporary and would disperse rapidly with distance from the source, construction-generated and mobile-source odors would not result in the frequent exposure of on-site receptors to objectionable odor emissions.

Implementation of the proposed MTP/SCS could also result in the development of new sensitive receptors near existing odor sources. The potential conflict is considered significant if the proposed development is at least as close as any other site that has already experienced significant odor problems related to the odor source. The local air districts may recommend operational changes, add-on controls, process changes, or buffer zones where feasible to address odor complaints. When this occurs, the mitigation options are more limited and consist primarily of modifications to the proposed new structures to minimize exposure to odors (e.g., HVAC filters and other construction treatments) and notification to incoming property owners regarding the existence of pre-existing odor-emitting facilities and operations (e.g., similar to aviation easements for noise). Specific uses are not yet known, and detailed site and grading plans have not yet been developed. Therefore, the local parameters that affect odor exposure are also not known (e.g., wind direction), meaning that new sensitive receptors could be exposed to existing odor sources.

Therefore, at the regional level, the potential to create objectionable odors affecting a substantial number of people related to the projected land use pattern from implementation of the proposed MTP/SCS is considered potentially significant (PS) for Impact AIR-3. Mitigation is required. Mitigation Measure AIR-3 is described below.

The majority of proposed MTP/SCS roadway investments would occur in urbanized areas, where roadway improvements would not have an impact on the number of people exposed to objectionable odors at the regional level. Transportation projects do emit DPM, which has an odor, but the odor dissipates quickly and within a small dispersion area. Additionally, DPM is not considered to be a major odor source and thus not considered to be a public nuisance. Therefore, the transportation element of the proposed MTP/SCS is not considered a source of objectionable odor.

Therefore, at the regional level, the potential to create objectionable odors affecting a substantial number of people related to the planned transportation improvements from implementation of the proposed MTP/SCS is considered less than significant (LS) for impact AIR-3. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, and Developing Communities
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the Regional Impacts discussion above. Land use projects in Center and Corridor Communities, Established Communities, and Developing Communities have the potential to create objectionable odors affecting a substantial number of people. Therefore, the localized impacts from the creation of objectionable odors affecting a substantial number of people related to the projected land use pattern from implementation of the proposed MTP/SCS in the Center and Corridor Communities, Established Communities, and Developing Communities Community Types are considered potentially significant (PS) for Impact AIR-3. Mitigation is required. Mitigation Measure AIR-3 is discussed below.

Similarly, as established above, planned transportation improvements do not have the potential to create such objectionable odors. Therefore, the localized impacts from the creation of objectionable odors affecting a substantial number of people related to transportation changes from implementation of the proposed MTP/SCS in the Center and Corridor Communities, Established Communities, and Developing Communities Community Types are considered less than significant (LS) for Impact AIR-3. No mitigation is required.

Rural Residential Communities and Lands Not Identified for Development in the Proposed MTP/SCS
By contrast, Rural Residential Communities would house a very small portion of the total population and employment in the region. While it is possible that odor-emitting facilities would be built in these Community Types, there would not be much density or intensifying of land uses proximate and/or adjacent to those facilities/operations. Of the employment-related land uses forecast as part of the proposed MTP/SCS, industrial land uses are the most probable generators of odors. Rural Residential Communities would have only a two percent increase of their industrial acreage over the life of the plan. Any future development included as part of the proposed MTP/SCS would be subject to the mitigation requirements enacted by local air districts where project-level review is required in the respective regions of development. Potential new land uses within these areas would be very low density and unlikely to bring substantial numbers of people into contact with odor-emitting facilities.

Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast

any development in these areas by 2040. Therefore, the projected land use pattern in the Rural Residential Communities and Lands Not Identified for Development do not have the potential to create objectionable odors affecting a substantial number of people.

The combined impacts from the creation of objectionable odors affecting a substantial number of people related to land use change and planned transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities and in Lands Not Identified for Development Community Types are considered less than significant (LS) for Impact AIR-3. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the Regional Impacts discussion above. Land use projects in all of the HFTAs have the potential to create objectionable odors affecting a substantial number of people. Therefore, the impacts from the creation of objectionable odors affecting a substantial number of people related to the projected land use pattern from implementation of the proposed MTP/SCS in these areas are considered potentially significant (PS) for Impact AIR-3. Mitigation is required. Mitigation Measure AIR-3 is provided below.

Similarly, as established above, planned transportation improvements in the HFTAs do not have the potential to create such objectionable odors. Therefore, the impacts from the creation of objectionable odors affecting a substantial number of people related to the projected land use pattern from implementation of the proposed MTP/SCS in HFTAs are considered less than significant (LS). No mitigation is required.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project-level would reduce the impacts from objectionable odors with the potential to affect a substantial number of people, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AIR-3: Implementing agencies shall require assessment of new and existing odor sources for individual land use projects to determine whether sensitive receptors would be exposed to objectionable odors and apply recommended applicable mitigation measures as defined by the applicable local air district and best practices.

Implementing agencies shall require assessment of new and existing odor sources for individual non-agricultural land use projects to determine whether sensitive receptors would be exposed to objectionable odors and apply recommended applicable mitigation measures as defined by the applicable local air district and best practices.

Examples of mitigation measures that may be applied where feasible and necessary to address site-specific impacts, include but are not limited to:

- Proposed industrial, commercial, or convenience land uses (e.g., fast-food restaurants, painting operations) that have the potential to emit objectionable odors shall be located as far away as feasibly possible from existing and proposed sensitive receptors and oriented where possible to place buildings or other obstructions between the odor source and downwind receptors.
- The odor-producing potential of land uses shall be considered when the type of facility that would occupy industrial, commercial, or convenience areas is considered.
- If an odor-emitting facility is to occupy space in the industrial, commercial, or convenience area, the odor-producing potential of the source and potential control devices shall be determined in coordination with the local air district and shall be based on the number of complaints associated with existing sources of the same nature. Odor-control devices (e.g., wet chemical scrubbers, HVAC filters, activated carbon scrubbers, biologically active filters, enclosures) shall be identified in the improvement plans before the approval of building permits. The odor-control devices shall be installed before the issuance of certificates of occupancy for the potentially odor-producing use.
- Require notification to incoming property owners (e.g., real estate disclosures) regarding the existence of pre-existing odor-emitting facilities or operations (e.g., similar to avigation easements for noise).

Also, see specifically SMAQMD's Guide to Air Quality Assessment in Sacramento County (SMAQMD 2014). Chapter 7 of the SMAQMD guide provides an extensive list of technology- and design-based odor reduction measures in its Technology- and Design-Based Odor Reduction Measures appendix.

SIGNIFICANCE AFTER MITIGATION

While this mitigation measure would not eliminate sources of odor, implementation of Mitigation Measure AIR-3 would help to mitigate and reduce exposure to odors as a result of implementation of the proposed MTP/SCS and ensure disclosure of pre-existing conditions. If an implementing agency adopts this mitigation measure, Impact AIR-3 would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation. Therefore, Impact AIR-3 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT AIR-4A: BE INCONSISTENT WITH OR EXCEED APPLICABLE THRESHOLDS OF SIGNIFICANCE ESTABLISHED BY THE LOCAL AIR DISTRICT FOR LONG-TERM OPERATIONAL CRITERIA AIR POLLUTANT EMISSIONS.

Regional Impacts

Implementation of the proposed MTP/SCS would result in long-term operational (regional) emissions of ROG, NO_X, $PM_{2.5}$, and PM_{10} associated with area sources, such as natural gas emissions, landscaping, applications of architectural coatings, and use of consumer products, in addition to operational vehicle exhaust emissions, which is discussed separately below. However, long-term operational emissions are a function of project level design. The land use and

transportation proposed by the MTP/SCS provides only the foundation for future development and transportation patterns. The design standards within these patterns are set by individual jurisdictions and local reviewing bodies. Whether or not individual projects would result in substantial area source emissions would depend of various parameters (e.g., project size, design, energy efficiency) that are not known at this time and; therefore, cannot be quantified on an individual basis.

However, area-source emissions associated with implementation of the entire proposed MTP/SCS have been generally calculated for informational purposes. These calculations of area source emissions, as described below, represent a general assumption of the net increase in emissions that could result from implementation of the entire proposed MTP/SCS. Specifically, Table 5-19 summarizes the net change in area-source criteria air pollutants between 2016 and 2040 (with the proposed MTP/SCS) based on the use of CalEEMod. As shown in Table 5-19, operational activities associated with the proposed MTP/SCS would result in substantial net increases and decreases in annual emissions from area sources. As mentioned above, this modeling is general in nature and is meant to provide information about the magnitude of increased area source emissions that could occur from implementation of the entire proposed MTP/SCS. It is important to note that as the proposed MTP/SCS is implemented, project-level analysis of area sources would be required as appropriate by the CEQA lead agency. Because of the programmatic nature of the MTP/SCS, individual land uses and associated emissions may be different than what was projected at the plan level, which is an accumulation of all analyzed parcels.

Table 5-19
Net Change in Area Source Emissions in Plan Area of the Proposed MTP/SCS 2016-2040 (lb/day)

Years	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2027	-5,052	-253	3,899	-2	11	11
2035	-1,584	296	11,054	2	88	88
2040	200	567	13,304	3	124	124

Source: CalEEMod 2019

These values are representative of the projected land use pattern of the proposed MTP/SCS as a whole. However, CEQA thresholds of significance apply at the project level. Therefore, while the values shown above in Table 5-19 exceed applicable mass emissions thresholds, set by the air district within the plan area of the proposed MTP/SCS, such thresholds were developed to be applied to project level emissions. Operational emissions from project operation under the proposed MTP/SCS would be evaluated prior to approval to ensure proper CEQA clearance and implementation of applicable reduction controls and/or mitigation measures. It is unknown at the time of writing this Draft EIR, however, which projects would have operational emissions of such quantities.

In addition to area source emissions, the land uses in the proposed MTP/SCS could also accommodate stationary sources of pollutants that would be required to obtain permits to operate in compliance with local air district rules. These sources could include, but are not limited to, the following: diesel engine or gas turbine generators for emergency power generation; central heating boilers for commercial, industrial, or large residential buildings; process equipment for light industrial uses; kitchen equipment at restaurants and schools; service station equipment; and dry-cleaning equipment. The permit process would ensure that these sources would be equipped with

the required emission controls, and that individually these sources would not produce substantial emissions.

With respect to stationary source emissions, levels can vary greatly depending on the exact operations and processes involved. Specific information is not available for this program level analysis to reliably estimate these emissions. Nonetheless, the emissions from these sources would be additive to the estimated area source emissions described above.

Based on the area source modeling conducted, and the potential emissions from stationary sources, operational activities could result in emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ in excess of existing conditions and/or that exceed applicable air district thresholds. However, as stated previously, mass emissions thresholds are developed for project-level use. The emissions shown in Table 5-19 constitute plan-level emissions, and would not be subject to project-level thresholds of significance. It is unknown at the time of writing this EIR which individual land use projects associated with implementation of the proposed MTP/SCS would exceed or not exceed the daily thresholds for long-term operational criteria air pollutant emissions in each air district described in Table 5-10 above.

Projects that emit criteria air pollutants in exceedance of appropriate thresholds would contribute to the regional degradation of air quality within the plan area of the proposed MTP/SCS, which could result in adverse human health impacts. Acute exposure to criteria air pollutants can cause coughing, chest pain, shortness of breath, eye and throat irritation, lung scarring, and may aggravate preexisting cardiovascular and respiratory illness (e.g., asthma). Chronic exposure to criteria pollutants may result in permanent lung and heart impairment, chronic coughing, cancer, decreased immune function in children, and premature death.

As discussed previously in Section 5.4.1 – Methodology and Assumptions, determining the exact location of where such impacts would occur from project level emissions is infeasible as part of this programmatic EIR. Additionally, the specific timing, size, and land use that may characterize a project that exceeds an applicable mass emission threshold is unknown at the time of writing this Draft EIR. Thus, attempting to map or locate where human health impacts may occur from implementation of the proposed MTP/SCS is speculative. However, this EIR takes a conservative approach and assumes that some land uses under the projected land use pattern from implementation of the proposed MTP/SCS would exceed an applied threshold of significance related to exposure to emissions and could cause adverse health outcomes.

Therefore, at the regional level, the potential to be inconsistent with, or exceed, applicable thresholds of significance established by the local air district for long-term operational criteria air pollutant emissions (i.e., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations resulting in adverse human health impacts) as a result of implementation of the projected land use pattern in the proposed MTP/SCS is considered potentially significant (PS) for Impact AIR-4a. Mitigation is required. Mitigation Measures AIR-4 and AIR-5 are described below.

Although the proposed MTP/SCS forecasts that VMT would increase by 16 percent over the planning period, from approximately 42.5 million in 2016 to 49.5 million in 2040 (see Chapter 16 – Transportation for more information about VMT), population over the same period is forecast to

increase by 26 percent, resulting in a decline in total VMT per capita from 17.9 miles in 2016 to 16.5 miles in 2040 (a 7.8 percent reduction).

Lower speeds (5-30 mph) are associated with higher emissions for some criteria and precursor air pollutants than optimal/efficient speeds (35-50 mph). Higher speeds (55-70 mph) are also associated with higher emissions than optimal speeds (CARB 2018c). Moreover, despite the increase in total VMT associated with the substantial growth forecast for the region, Mobile-source emissions would decrease substantially over the planning period (2016 compared to 2040). ROG would experience 64 percent reduction, NO_X a 73 percent reduction, CO a 70 percent reduction, and $PM_{2.5}$ an 8 percent reduction. PM_{10} would increase by 5 percent due to higher emissions rate and VMT. The declines of ROG, NO_X, CO, and $PM_{2.5}$ over existing conditions result from a variety of factors, including vehicle technology, cleaner fuels, fleet turnover, and a more efficient land use and transportation system. However, even though there would be an overall decrease in the region, individual land use projects associated with implementation of the proposed MTP/SCS, depending on their size, may exceed the daily thresholds for long-term operational criteria air pollutant emissions in each air district described in Table 5-10. In addition, even though emissions would decrease regionally, implementation could result in increases in localized pollutants (and associated exposure of sensitive receptors), because they are governed by site-specific parameters. EPA requires monitoring for three mobile source pollutants of localized concern: CO, NO_2, and $PM_{2.5}$. Local mobile source emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Under specific meteorological conditions, mobile source emissions concentrations near roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. Thus, high local mobile source emissions concentrations are considered to have a direct influence on the receptors they affect.

Notably, mobile-source emission estimations are founded on existing expectations regarding incrementally improved fuel economy standards as they are currently projected. As discussed in Sections 5.1 – Environmental Setting and 5.2 – Regulatory Setting, historically, California has been granted a waiver from EPA through provisions of the Clean Air Act to enforce more stringent vehicle emissions standards within the state as compared to the federal CAFE standards; however, at the time of writing this Draft EIR, EPA has proposed the SAFE Rule which would amend the existing federal CAFE standards. EPA has also intimated that it may consider revoking California's waiver under the Clean Air Act.

Though no formal action has been taken, EPA's adoption of the SAFE Rule may affect future passenger vehicle emissions contrary to the emission rates contained in EMFAC2014. However, the precise alterations to these values as they are currently estimated is speculative. As discussed previously, implementation of the SAFE Rule and its applicability to the vehicle emissions standards established by CARB are contingent upon several factors that, at the time of writing this Draft EIR, are uncertain.

It is reasonably foreseeable that EPA's adoption of the SAFE Rule in conjunction with revoking the state's waiver under the CAA could result in adverse air quality impacts. Nonetheless, quantification of such impacts is infeasible at this time due to inherent uncertainties, and any attempt to do so would be speculative, as the ultimate approval of the SAFE Rule and revocation of California's waiver, as well as outcomes of filed and pending lawsuits, are unknown. Therefore, t mobile-source emissions from the projected land use pattern and planned transportation improvements under the

proposed MTP/SCS could be greater than is anticipated, and could contribute to the degradation of ambient air quality within the plan area and/or exceed an applicable threshold.

Thus, at the regional level, the potential to be inconsistent with, or exceed, applicable thresholds of significance established by the local air district for long-term operational criteria air pollutant emissions (e.g., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations resulting in adverse human health impacts) as a result of implementation of the planned transportation improvements in the proposed MTP/SCS is considered potentially significant (PS) for Impact AIR-4a. Mitigation is required. Mitigation Measures AIR-4 and AIR 5are described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities in the Proposed MTP/SCS

The Localized Impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the Regional Impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to generate long-term operational criteria pollutant emissions inconsistent with, or exceeding, the significance criteria established by the applicable air districts. Therefore, the localized impacts associated with operational emissions of criteria air pollutants and adverse human health impacts related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in the Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities Community Types are considered potentially significant (PS) for Impact AIR-4a. Mitigation is required. Mitigation Measures AIR-4 and AIR 5 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS

Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Because the proposed MTP/SCS does not forecast any development in Lands Not Identified, there is no potential to be inconsistent with, or exceed, the significance criteria established by applicable air districts for long-term operational criteria air pollutant emissions. Therefore, the localized impacts associated with operational emissions of criteria air pollutants related to the projected land use pattern from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact 4a. No mitigation is required.

The proposed MTP/SCS would make a limited number of transportation investments in this Community Type by 2040. The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Given the low numbers of existing employment and housing in such areas, and the absence of any growth forecast in the proposed MTP/SCS, there are few destinations to travel to and from. Therefore, there is no anticipated noticeable change in VMT, and no potential to be inconsistent with, or exceed, the

significance criteria established by applicable air districts for long-term operational criteria air pollutant emissions in such areas. Therefore, the localized impacts associated with operational emissions of criteria air pollutants and adverse human health impacts related to planned transportation improvement from implementation of the proposed MTP/SCS in Land Not Identified for Development are considered less than significant (LS) for Impact 4a. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the Regional Impacts discussion above. Land use and transportation projects in all of the HFTAs have the potential to generate long-term operational criteria air pollutant emissions that are inconsistent with, or exceed, applicable thresholds of significance established by the applicable air district. Therefore, the impacts associated with operational emissions of criteria air pollutants and adverse human health impacts related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact 4a. Mitigation is required. Mitigation Measures AIR-4 and AIR 5 are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt mitigation measures, because requiring such changes or alterations are within the responsibility and jurisdiction of another public agency. However, implementation of the following measures at a project-level would reduce the impacts from long-term operational criteria air pollutant emissions that are inconsistent with, or exceed, applicable thresholds of significance established by the applicable air district, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AIR-4: Implementing agencies shall require recommended applicable mitigation measures as defined by the applicable local air district.

Implementing agencies shall require projects that exceed the long-term operational thresholds to mitigate the air quality impacts using applicable and feasible mitigation.

Examples of mitigation measures include, but are not limited to:

- provide for the use of energy-efficient lighting and process systems (e.g., low-NO_X water heaters and boiler units);
- design streets to maximize pedestrian access to transit stops;
- include bus shelters at transit access points where deemed appropriate by local public transit operator in large residential, commercial, and industrial projects;
- contribute to traffic-flow improvements (e.g., right-of-way, capital improvements) that reduce traffic congestion;
- equip residential structures with electric outlets in the front and rear of the structure to facilitate use of electrical lawn and garden equipment;

- provide for, or contribute to, dedication of land for off-site Class I and Class II bicycle trails linking the project to designated bicycle commuting routes in accordance with the regional bikeway master plan;
- contribute to the provision of synchronized traffic signals on roadways affected by the project and as deemed necessary by the local public works department;
- provide transit-enhancing infrastructure that includes bus turnouts or bulbs, passenger benches, street lighting, route signs and displays, and shelters as demand and service routes warrant, subject to review and approval by local transportation planning agencies;
- provide pedestrian-enhancing infrastructure that includes sidewalks and pedestrian paths, direct pedestrian connections, street trees to shade sidewalks, pedestrian safety designs and infrastructure, street furniture and artwork, street lighting, pedestrian signalization and signage, and/or access between bus service and major transportation points within the project;
- include neighborhood park(s) or other recreational options, such as trails, within the development to minimize vehicle travel to off-site recreational and/or commercial uses;
- install solar water heaters;
- incorporate mixed uses, where permitted by local development regulations, to achieve a balance of commercial, employment, and housing options on the project site;
- include neighborhood telecommunications or telework centers;
- contribute to traffic-flow improvements (e.g., right-of-way, capital improvements) that reduce traffic congestion and do not substantially increase roadway capacity;
- provide preferential parking spaces for carpool and vanpool vehicles, implement parking fees for single-occupancy vehicle commuters, and implement parking cash-out program for employees;
- use clean fuel vehicles in the vehicle fleet;
- require all employment centers to include an adequate number of on-site shower/locker facilities for bicycling and pedestrian commuters (typically one shower and three lockers for every 25 employees per shift);
- construct/contribute to bicycle and pedestrian facility improvements;
- provide ancillary services (e.g., cafeterias, health clubs, automatic tellers, and post offices) within walking distance of proposed development (no further than 1,500 feet) as appropriate and in compliance with local development regulations;
- provide park-and-ride lots as deemed feasible and appropriate by transportation planning agencies;
- employment centers that exceed a designated size, as measured by the number of employees, shall provide on-site child care and after-school facilities or contribute to off-site construction of such facilities within walking distance of employment land uses (for employment centers on or adjacent to industrial land uses, on-site child daycare centers shall be provided only if supported by the findings of a comprehensive HRA performed in consultation with the local air district);

- provide on-site pedestrian facility enhancements, such as walkways, benches, proper lighting, vending machines, and building access that are physically separated from parking lot traffic;
- offer alternative work schedules, where practical, that allow for work hours that are compressed into fewer than 5 days (e.g., 9/80, 4/40, or 3/36 schedules), or allow flextime schedules;
- provide transit amenities (e.g., on-site and off-site bus turnouts, passenger benches, or shelters) where deemed appropriate by local transportation planning agencies;
- contribute to the provision of synchronized traffic signals on roadways affected by the proposed project and as deemed necessary by the local public works department;
- provide video conferencing facilities;
- commit to support programs that include guaranteed ride home, subsidized transit passes, and rideshare matching;
- provide transportation (e.g., shuttles) to major transit stations and multimodal centers;
- require each employer employment center (more than 25 employees) to assign a transportation coordinator for the applicable Transportation Management Association (TMA);
- require all employers to install a permanent display in employee common areas of alternate transit information, as determined by the requirements of the TMA;
- require employers or employment centers (more than 25 employees) to implement a guaranteed ride home program;
- require employers or employment centers (more than 25 employees) to implement an incentive program for riding transit, carpooling, vanpooling, biking, and walking instead of driving a single-occupancy vehicle to work, and design and locate buildings to facilitate transit access;
- install Energy Star (or equivalent) cool roofing systems on all buildings;
- design shuttle and transit exits to adjoining streets to reduce time to reenter traffic from the project site;
- increase wall and attic insulation to 20 percent above Title 24 requirements (residential and commercial);
- orient buildings to take advantage of solar heating and natural cooling, and use passive solar designs (residential, commercial, and industrial);
- provide energy-efficient windows (double pane and/or Low-E) and awnings or other shading mechanisms for windows, porches, patios, and walkways;
- consider passive solar cooling and heating designs, ceiling and whole house fans, and programmable thermostats in the design of heating and cooling systems; and
- use day lighting systems, such as skylights, light shelves, and interior transom windows.

See also SMAQMD's most recent version of the *Recommended Guidance for Land Use Emission Reductions*, currently version 4.0 (SMAQMD 2017c).

Mitigation Measure AIR-5: Implement Mitigation Measure TRN-1.

SIGNIFICANCE AFTER MITIGATION

If an implementing agency adopts these mitigation measures, Impact AIR-4a would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation. Therefore, Impact AIR-4a remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT AIR-4B: BE INCONSISTENT WITH OR EXCEED APPLICABLE THRESHOLDS OF SIGNIFICANCE ESTABLISHED BY THE LOCAL AIR DISTRICT FOR SHORT-TERM CONSTRUCTION CRITERIA AIR POLLUTANT EMISSIONS.

Regional Impacts

As individual projects under the projected land use pattern and planned transportation improvements are constructed, the activity at individual construction sites would result in emissions of criteria air pollutants (e.g., $PM_{2.5}$ and PM_{10}) and precursors (e.g., ROG and NO_X) from site preparation (e.g., excavation, grading, and clearing); exhaust from off-road equipment, material delivery vehicles, and worker commute vehicles; vehicle travel on paved and unpaved roads; and other miscellaneous activities (e.g., building construction, asphalt paving, application of architectural coatings, and trenching for utility installation).

Detailed phasing and construction information (e.g., construction equipment type and number requirements, maximum daily acreage disturbed, number of workers, hours of operation) is not available at the regional level of the proposed MTP/SCS. Because of the land use and planned transportation improvements proposed in the MTP/SCS, there is potential for simultaneous construction of multiple sites within the nonattainment areas of the El Dorado County, Feather River, Placer County, Sacramento Metropolitan, and Yolo-Solano air districts. As a result, construction activities could result in emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ in excess of existing conditions that exceed applicable air district thresholds as a whole. Also, individual land use and transportation projects associated with implementation of the proposed MTP/SCS, depending on their size, may exceed the thresholds for short-term construction criteria air pollutant emissions in each air district described in Table 5-10, especially if best management practices are not implemented.

Therefore, at the regional level, the potential to be inconsistent with or exceed applicable thresholds of significance established by the local air district for short-term construction criteria air pollutant emissions (i.e., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations resulting in adverse human health impacts) as a result of implementation of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS is considered potentially significant (PS) for Impact AIR-4b. Mitigation is required. Mitigation Measure AIR-6 is described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities
The Localized Impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the Regional Impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to be inconsistent with or exceed applicable thresholds of significance established by the local air district for short-term construction criteria air pollutant emissions (i.e., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations).

Therefore, the localized impacts associated with construction emissions of criteria air pollutants resulting in adverse human health impacts related to the projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities Community Types in the proposed MTP/SCS are considered potentially significant (PS) for Impact AIR-4b. Mitigation is required. Mitigation Measure AIR-6 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Because the proposed MTP/SCS does not forecast any development in Lands Not Identified for Development, there is no potential to be inconsistent with or exceed applicable thresholds of significance established by the local air district for short-term construction criteria air pollutant emissions (i.e., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations).

The proposed MTP/SCS would make a limited number of transportation investments in this Community Type by 2040. The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. The limited number of construction projects do not have the potential to be inconsistent with or exceed applicable thresholds of significance established by the local air district for short-term construction criteria air pollutant emissions (i.e., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations).

Therefore, the localized impacts associated with construction emissions of criteria air pollutants resulting in adverse human health impacts related to the projected land use pattern and planned transportation investments in Lands Not Identified for Development in the proposed MTP/SCS are considered less than significant (LS) for Impact AIR-4b. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the Localized Impacts discussed above, the High Frequency Transit Area Impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the Regional Impacts discussion above. Land use and transportation projects in all of the HFTAs have the potential to be inconsistent with or exceed applicable thresholds of significance established by the local air district for short-term construction criteria air pollutant emissions (i.e., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations).

Therefore, the impacts associated with construction emissions of criteria air pollutants resulting in adverse human health impacts related to the projected land use pattern and planned transportation improvements in the HFTAs in the proposed MTP/SCS are considered potentially significant (PS) for AIR-4b. Mitigation is required. Mitigation Measure AIR-6 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project-level would reduce the impacts from short-term construction criteria air pollutant emissions that are inconsistent with or exceed applicable thresholds of significance established by the local air district, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure AIR-6: Implementing agencies shall require project applicants to implement applicable, or equivalent, construction mitigation measures as defined by the applicable local air district.

Lead agencies shall require project applicants, prior to construction, to implement construction mitigation measures that, at a minimum, meet the requirements of the applicable air district with jurisdiction over the area in which construction activity would occur if the project is anticipated to exceed thresholds of significance for short-term criteria air pollutant emissions. Projects that exceed these thresholds shall mitigate the air quality impacts using all applicable and feasible mitigation. For construction activity on the project site that is anticipated to exceed thresholds of significance, the project applicant(s) shall require construction contractors to implement both Standard Mitigation Measures and Best Available Mitigation Measures for Construction Activity to reduce emissions to the maximum extent applicable and feasible for all construction activity performed in the plan area of the proposed MTP/SCS.

Examples of mitigation measures could include, but not limited to, the following:

- The applicant shall implement a Fugitive Dust Control Plan.
- All grading operations on a project shall be suspended when winds exceed 20 MPH or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.

- Construction sites shall be watered as directed by the local air district and as necessary to prevent fugitive dust violations.
- An operational water truck shall be on-site at all times. Water shall be applied to control dust as needed to prevent visible emissions violations and off-site dust impacts.
- On-site dirt piles or other stockpiled particulate matter shall be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. The use of approved nontoxic soil stabilizers shall be incorporated according to manufacturers' specifications to all inactive construction areas.
- All transfer processes involving a free fall of soil or other particulate matter shall be operated in such a manner as to minimize the free fall distance and fugitive dust emissions.
- Approved chemical soil stabilizers shall be applied according to the manufacturers' specifications to all inactive construction areas (previously graded areas that remain inactive for 96 hours), including unpaved roads and employee/equipment parking areas.
- To prevent track-out, wheel washers shall be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed before each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks and prevent/diminish track-out.
- Paved streets shall be swept frequently (water sweeper with reclaimed water recommended; wet broom permitted) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
- Temporary traffic control shall be provided as needed during all phases of construction to improve traffic flow, as deemed appropriate by the appropriate department of public works and/or California Department of Transportation (Caltrans), and to reduce vehicle dust emissions. An effective measure is to enforce vehicle traffic speeds at or below 15 MPH.
- Traffic speeds on all unpaved surfaces shall be reduced to 15 MPH or less, and unnecessary vehicle traffic shall be reduced by restricting access. Appropriate training to truck and equipment drivers, on-site enforcement, and signage shall be provided.
- Ground cover shall be reestablished on the construction site as soon as possible and before final occupancy through seeding and watering.
- Open burning shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (e.g., trash, demolition debris) may be conducted at the project site. Vegetative wastes shall be chipped or delivered to waste-to-energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials off-site for disposal by open burning.
- The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained before and for the duration of on-site operation.
- Existing power sources (e.g., power poles) or clean-fuel generators shall be used rather than temporary power generators.
- A traffic plan shall be developed to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public

transportation, and satellite parking areas with a shuttle service. Operations that affect traffic shall be scheduled for off-peak hours. Obstruction of through-traffic lanes shall be minimized. A flag person shall be provided to guide traffic properly and ensure safety at construction sites.

- The project proponent shall assemble a comprehensive initial inventory (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower and greater) that would be used an aggregate of 40 or more hours for the construction project and provide a plan for approval by the local air district demonstrating that the heavy-duty (equal to or greater than 50 horsepower) off-road equipment to be used for construction, including owned, leased, and subcontractor vehicles, shall achieve a project-wide fleet-average 10 percent NO_X reduction compared to the most recent CARB fleet average at the time of construction. These equipment emission reductions can be demonstrated using the most recent version of the Construction Mitigation Calculator developed by the SMAQMD. Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), after-treatment products, voluntary off-site mitigation projects, the provision of funds for air district off-site mitigation projects, and/or other options as they become available. In addition, implementation of these measures would also result in a 5 percent reduction in ROG emissions from heavy-duty diesel equipment. The local air district shall be contacted to discuss alternative measures.

Air districts provide similar recommendations to those listed above. Some air districts in the region (e.g., SMAQMD) also offer the option for paying off-site construction mitigation fees if the recommended actions do not reduce construction emissions to acceptable levels.

SIGNIFICANCE AFTER MITIGATION

If an implementing agency adopts this mitigation measure, Impact AIR-4b would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation. Therefore, Impact AIR-4b remains significant and unavoidable (SU).

Chapter 6—Biological Resources

6.1 Introduction

This chapter describes the existing conditions (environmental and regulatory) and assesses the potential biological resources impacts that may result from implementation of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data, analysis and findings provided in this chapter were considered and prepared at a programmatic level.

In response to the Notice of Preparation (NOP), SACOG received one comment letter regarding biological resources from the Environmental Council of Sacramento. The commenter requested that the EIR should consider the following:

- map anticipated impacts to inform potential adverse effects on habitat connectivity, and
- identify wildlife species in the Delta and local rivers as areas of concern.

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

6.2 Environmental Setting

This environmental setting section contains information on the following existing biological resources:

- land cover types and associated biological habitat uses;
- invasive plants;
- waters of the U.S. and state (including wetlands);
- wildlife movement corridors;
- special-status species; and
- sensitive natural communities.

6.2.1 Land Cover Types and Associated Habitat Uses and Values

Information about the locations and distribution of land cover types in the plan area of the proposed MTP/SCS was compiled using data from the plans and other sources listed below. The years provided below indicate the date of the land cover data.

- South Sacramento HCP (adopted 2019, County of Sacramento et al. 2014, 2019);
- Placer County Conservation Plan (an HCP/NCCP) (in progress, County of Placer 2016);
- Yolo HCP/NCCP (approved 2018, County of Yolo 2015);
- California Vegetation Maps (CALVEG) for the North Sierra (USDA 2014) and Central Valley (USDA 2016) ecological zones;
- California Aquatic Resource Inventory (CARI) version 0.3 (San Francisco Estuary Institute (SFEI) 2017) ";
- Yuba and Sutter County landcover, SACOG, 2012; and
- A Guide to the Wildlife Habitats of California (Mayer and Laudenslayer 1988).

The land cover data obtained from these sources varied from general natural community types to specific vegetation alliances. Therefore, for the purposes of this program-level document, data were grouped into general land cover types within four broad categories: wildlands, agriculture, aquatic, and developed and/or disturbed areas. These general land cover types are shown on Figure 6-1. Accordingly, the land cover type descriptions presented below are intended to provide regional-scale, general information about the plan area of the proposed MTP/SCS.

WILDLAND HABITAT

The wildland habitat group consists of the following cover types: grassland, chaparral, scrub, valley oak woodland/savanna, foothill woodland, montane forest, riparian, barren, mine tailings, rock outcrops/cliffs, and serpentine. Table 6-1 provides the existing acreages of each of these cover types by county and in total.

Grassland

Within the plan area of the proposed MTP/SCS, there are two types of grassland land cover types: annual grassland and perennial grassland. Grassland is one of the most common vegetation communities in the MTP/SCS plan area and is dominated by nonnative annual grasses, and both native and nonnative forbs. Grasslands are found on ridges, hill slopes, and valley floors. Representative species include a mix of dominant nonnative grasses such as soft chess (*Bromus hordaeceus*), red brome (*Bromus madritensis*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), wild oat (*Avena fatua*), and annual fescues (*Festuca* spp.), intermixed with forb species such as clover (*Trifolium* spp.), lupine (*Lupinus* spp.), owl's clover (*Castilleja* spp.), popcornflower (*Cryptantha* spp.), poppy (*Eschscholzia* spp.), and filaree (*Erodium* spp.). Some annual grasslands in the MTP/SCS plan area are subject to frequent disturbance, such as livestock grazing and maintenance activities along roadsides, and in these areas, the habitat is often dominated by introduced nonnative species, such as yellow star-thistle (*Centaurea solstitialis*).

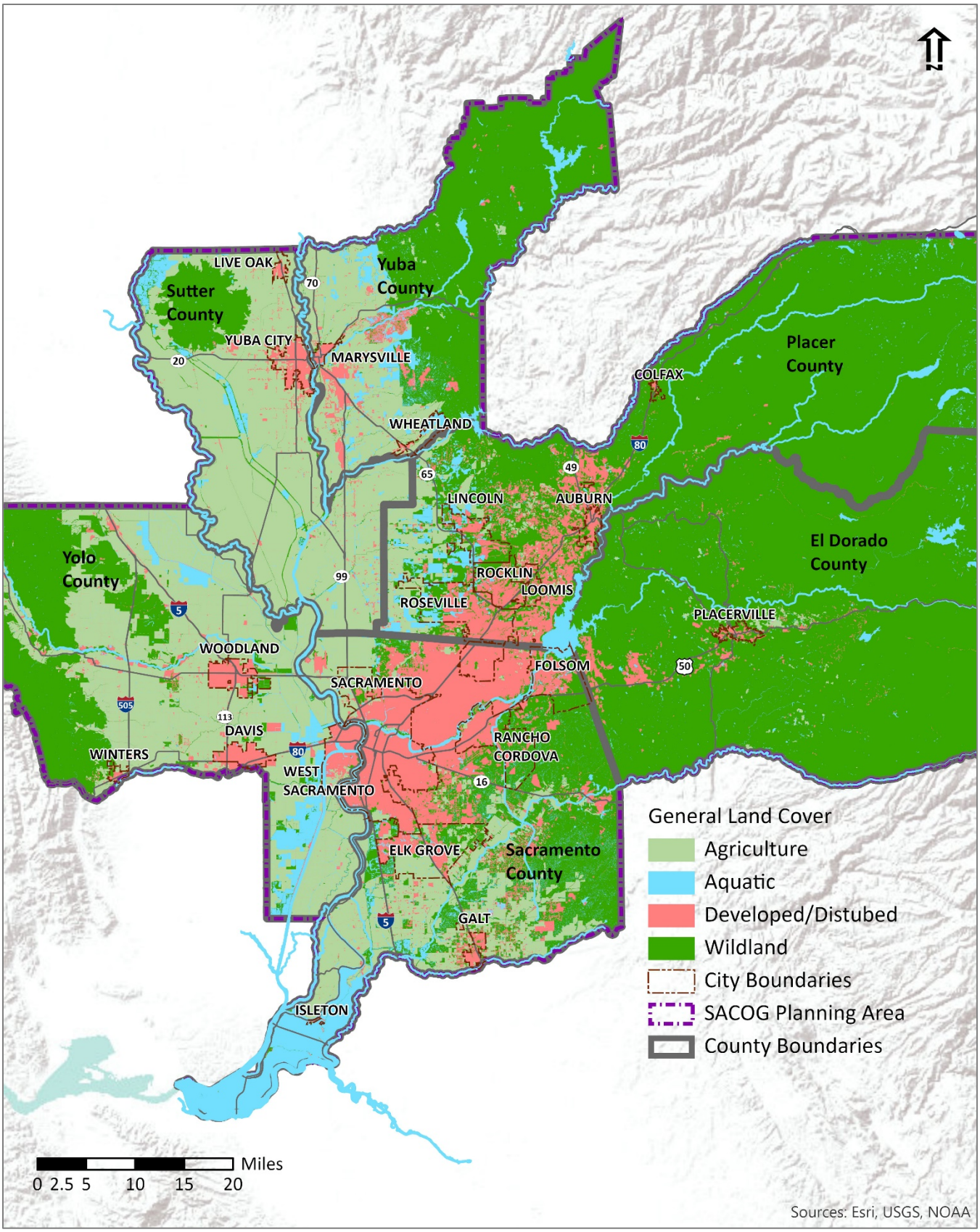


Figure 6-1
General Land Cover in Plan Area

Perennial grassland is dominated by native perennial bunchgrasses that are intermixed with species typical of an annual grassland. Perennial grassland is not common in California and is considered a sensitive natural community by the California Department of Fish and Wildlife (CDFW).

Grasslands in the plan area of the proposed MTP/SCS support insects, amphibians, reptiles, small birds, and small mammals, and in turn support wildlife species that prey on these species, including red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus hudsonius*), American kestrel (*Falco sparverius*), and coyote (*Canis latrans*). Special-status wildlife species that use grassland habitat include American badger (*Taxidea taxus*), burrowing owl, white-tailed kite (*Elanus leucurus*), and Swainson's hawk (*Buteo swainsoni*). Grasslands that support vernal pools or seasonal wetlands also provide habitat for special-status vernal pool invertebrates, western spadefoot (*Spea hammondii*), and California tiger salamander (*Ambystoma californiense*). Special-status plants that could occur in grassland habitat are listed in Appendix BIO-1.

Table 6-1
Land Cover Types and Acreages by County in the Proposed MTP/SCS Plan Area

Land Cover Type	El Dorado	Placer	Sacramento	Sutter	Yolo	Yuba	TOTAL
WILDLAND LAND COVER							
Grasslands	93,838	64,832	174,450	34,277	80,911	55,621	503,929
Chaparral	74,822	58,722	37	0	44,709	2,477	180,767
Scrub	327	2,105	11	0	312	0	2,755
Valley Oak Woodland/ Savanna	3,477	11,430	1,135	5,094	181	1,215	22,532
Foothill Woodland	55,612	50,234	17,370	305	109,667	49,834	283,022
Montane Forest	691,547	476,261	449	0	3,299	131,368	1,302,924
Riparian	1,457	9,399	12,092	14,659	12,565	7,982	58,154
Barren	34,700	18,797	1,564	95	2,346	5,234	62,736
Mine Tailings	0	0	2,465	0	0	0	2,465
Rock Outcrops/Cliffs	0	499	0	0	0	0	499
Serpentine	0	0	0	0	247	0	247
TOTAL WILDLAND	***955,780***	***692,279***	***209,573***	***54,430***	***254,237***	***253,731***	***2,420,030***
AQUATIC LAND COVER							
Wetlands	8,984	30,654	54,167	17,010	26,608	21,785	159,208
Open Water/Lakes and Reservoirs/Rivers	17,037	12,508	23,240	237	13,493	8,543	75,058
TOTAL AQUATIC	***26,021***	***43,162***	***77,407***	***17,247***	***40,101***	***30,328***	***234,266***
AGRICULTURE LAND COVER							
Orchards and Vineyards	694	2,895	35,544	67,319	61,901	34,593	202,946
Pasture	3	7,866	43,180	1,719	141	308	53,217
Rice	0	20,250	8,680	132,497	0	38,135	199,562
Row and Field Crops	4,373	14,431	70,047	97,199	281,263	32,493	499,806
TOTAL AGRICULTURE	***5,070***	***45,442***	***157,451***	***298,734***	***343,305***	***105,529***	***955,531***

Land Cover Type	El Dorado	Placer	Sacramento	Sutter	Yolo	Yuba	TOTAL
DEVELOPED/DISTURBED LAND COVER							
Developed	16,381	80,385	185,275	18,408	45,492	21,997	367,938
Disturbed	0	1,580	7,278	0	0	0	8,858
Nonnative Vegetation	37	61	6	0	369	0	473
TOTAL DEVELOPED/ DISTURBED	***16,418***	***82,026***	***192,559***	***18,408***	***45,861***	***21,997***	***377,269***
TOTAL LAND COVER	**1,003,289**	**862,910**	**636,990**	**388,819**	**683,504**	**411,585**	**3,987,096**

Note: Totals may not sum due to rounding.

Source: Land Cover data was compiled by Ascent in 2019 to create the land cover dataset that was analyzed in this chapter using data from U.S. Forest Service (USDA 2014, 2016), California Aquatic Resources Inventory (SFEI 2017), Placer County Conservation Plan (County of Placer 2016), South Sacramento HCP (County of Sacramento et al. 2014), Sutter-Yuba landcover (SACOG 2012), and Yolo HCP (County of Yolo 2015).

Chaparral

Chaparral communities in the plan area of the proposed MTP/SCS typically occur on the drier slopes of foothills and are characterized by drought-resistant shrubs. Dominant species in chaparral communities of the plan area of the proposed MTP/SCS include manzanita (*Arctostaphylos* spp.), buckbrush (*Ceanothus cuneatus* var. *cuneatus*), coyote brush (*Baccharis pilularis*), scrub oak (*Quercus dumosa*), leather oak (*Quercus durata*), and chamise (*Adenostoma fasciculatum*). The herbaceous understory varies depending on the density of shrub cover, and typically includes native grasses and wildflowers.

Some stands of chaparral may consist of nearly pure stands of chamise or redshank (*Adenostoma sparsifolium*), a mixture of both, and may include other shrubs. Chamise is the dominant shrub of this habitat type throughout northern California. The purest stands of chamise occur on xeric, south-facing slopes. Toyon (*Heteromeles arbutifolia*), poison oak (*Toxicodendron diversilobum*), redberry (*Rhamnus crocea*), and California coffeeberry (*Frangula californica*) are commonly found in drainage channels and on other relatively mesic sites. At upper elevations or on more mesic exposures, chamise mixes with ceanothus (*Ceanothus* spp.), manzanita, and scrub oak.

Mixed chaparral is a floristically rich type that supports approximately 240 species of woody plants. Dominant species in cismontane mixed chaparral include scrub oak, chaparral oak, and several species of ceanothus and manzanita. Individual sites may support pure stands of these shrubs or diverse mixtures of several species. Commonly associated shrubs include chamise, birchleaf mountain mahogany (*Cercocarpus betuloides*), silk-tassel (*Garrya* spp.), toyon, California yerba santa (*Eriodictyon californicum*), California buckeye (*Aesculus california*), poison-oak, California coffeeberry, Montana chaparral-pea (*Pickeringia montana*), and California fremontia (*Fremontodendron californicum*). Leather oak and interior silktassel (*Garrya congdonii*) are widely distributed on cismontane serpentine soils, and chamise and toyon may be abundant on these soils. Incense-cedar (*Calocedrus decurrens),* knobcone pine (*Pinus attenuata*), Coulter pine (*Pinus coulteri*), and foothill pine (*Pinus sabiniana*) frequently are found in mixed chaparral on serpentine soils. In the plan area of the proposed MTP/SCS, this habitat type occurs along middle and lower elevations of the western slope of the Sierra Nevada.

Species composition changes with elevational and geographical range, soil type, and aspect. One or more of the following species usually characterize montane chaparral communities: mountain whitethorn (*Ceanothus cordulatus*), greenleaf manzanita (*Arctostaphylos patula*), pinemat manzanita (*Arctostaphylos nevadensis*), bitter cherry (*Prunus emarginata*), huckleberry oak (*Quercus vacciniifolia*), sierra chinquapin (*Chrysolepis sempervirens*), fremont silktassel (*Garrya fremontii*), mountain mahogany (*Cercocarpus* spp.), toyon, and California coffeeberry.

Chaparral plants provide foraging habitat, nesting habitat, roosting habitat, and cover for a variety of birds, such as California quail (*Callipepla californica*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), hermit thrush (*Catharus guttatus*), spotted towhee (*Pipilo maculatus*), California towhee (*Melozone crissalis*), dark-eyed junco (*Junco hyemalis*), and golden-crowned sparrow (*Zonotrichia atricapilla*). Insectivorous birds, such as orange-crowned warbler (*Oreothlypis celata*), bushtit (*Psaltriparus minimus*), and Bewick's wren (*Thryomanes bewickii*), feed on insects in chaparral foliage. Mammal species, including rodents (e.g., deer mouse [*Peromyscus* spp.]), gray fox (*Urocyon cinereoargenteus*), coyote, rabbits, and mule deer (*Odocoileus hemionus*) make extensive use of chaparral for food and cover. Common reptile species, including western fence lizard (*Sceloporus occidentalis*), Pacific rattlesnake (*Crotalus oreganus*), and Pacific gopher snake (*Pituophis catenifer catenifer*) also use chaparral habitat.

Special-status wildlife species that may occupy chaparral habitat include coast horned lizard (*Phrynosoma blainvillii*) and Marysville California kangaroo rat (*Dipodomys californicus eximius*). Some chaparral communities, especially those found in the lower foothill region of El Dorado County, provide habitat for a variety of special-status plant species including Nissenan manzanita (*Arctostaphylos nissenana*), big scale balsamroot (*Balsamorhiza macrolepis*), Stebbin's morning glory (*Calystegia stebbinsii*), and Mariposa clarkia (*Clarkia biloba*). Additional special-status plants that could occur in this habitat type are included in Appendix BIO-1.

Scrub

Scrub areas within the plan area of the proposed MTP/SCS are characterized by typically low-growing shrubs that have varying canopy density. Although generally dominated by shrubs, small trees and herbaceous annual species may also occur in these scrub areas.

In the plan area of the proposed MTP/SCS, alkali desert scrub stands likely occur on the edges of the Sacramento Valley, where livestock grazing, housing developments, and agricultural development have converted or otherwise altered the extent and composition of this vegetation cover type. Alkali desert scrub is a heterogeneous habitat whose component plant assemblages vary considerably in composition along gradients of moisture, salinity, and microtopography (Mayer and Laudenslayer 1988). Some primary perennial plant species include various species of shrubby saltbushes, especially allscale (*Atriplex polycarpa*), fourwing saltbush (*Atriplex canescens*), big saltbush (*Atriplex lentiformis*), alkali goldenbush (*Isocoma acradenia*), and common snakeweed (*Gutierrezia sarothrae*).

Alpine dwarf-scrub habitats typically include grasses, sedges (*Carex* spp.), and forb communities with a mixture of dwarf-shrubs (often cushion plants). Species composition of alpine dwarf-scrub habitat varies considerably throughout California. The most common shrubs occurring are oceanspray (*Holodiscus discolor*), Greene's goldenweed (*Ericaneria greenei*), and white mountain heather (*Cassiope mertensiana*). These shrubs occur primarily in northern California and the Sierra Nevada. Non-shrub

species that commonly occur in the alpine areas of northern California and the Sierra Nevada include primrose (*Camissonia* spp.), sedges, bluegrass (*Poa* spp.), buckwheat (*Eriogonum* spp.), squirreltail (*Elymus* spp.), rockcress (*Arabis* spp.), pussypaws (*Calyptridium* spp.), and Indian paintbrush (*Castilleja* spp.; Mayer and Laudenslayer 1988).

Low sage scrub habitat may be dominated by low sagebrush, often in association with green rabbitbrush (*Chrysothamnus viscidiflorus*), bitterbrush (*Purshia tridentata*), or big sagebrush (*Artemisia tridentata*).Common grass species include pine bluegrass (*Poa secunda*), bottlebrush squirreltail (*Elymus elymoides*), needlegrass (*Stipa* spp.), and Idaho fescue (*Festuca idahoensis*; Mayer and Laudenslayer 1988).

Sagebrush stands are typically large, open, discontinuous stands of big sagebrush of fairly uniform height. Sagebrush occurs at a wide range of middle and high elevations. Often the habitat is composed of pure stands of big sagebrush, but many stands include other species of sagebrush, rabbitbrush, horsebrush (*Tetradymia* spp.), gooseberry (*Ribes* spp.), western chokecherry (*Prunus virginiana* var. *demissa*), curl leaved mountain mahogany, and bitterbrush. In communities not fully occupied by sagebrush, various amounts of herbaceous understory are found. Idaho fescue, bluebunch wheatgrass, several species of needlegrass, squirreltail, pine bluegrass, and Great Basin wildrye (*Elymus cinereus*) are among the more common grasses found in this habitat (Mayer and Laudenslayer 1988).

At lower elevations and on drier sites, it gives way to such species as saltbush (*Atriplex* spp.), greasewood (*Glossopetalon* spp.), and creosote bush (*Larrea tridentata*). At mid-elevations and on more mesic sites the habitat meets bitterbrush, curl leaved mountain mahogany (*Cercocarpus ledifolius* var. *intermontanus*), and western serviceberry (*Amelanchier pallida*). At high elevations, this habitat type integrates with Ponderosa pine and aspen habitat types.

Scrub habitats provide foraging habitat, nesting habitat, roosting habitat, and cover for a variety of wildlife species such as black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheyi*), deer mouse, several sparrows, and hawks. Special-status species that can occur in this habitat include the western white-tailed jackrabbit (*Lepus townsendii*), and burrowing owl. Special-status plants that could occur in scrub habitat are listed in Appendix BIO-1.

Valley Oak Woodland/Savanna

Valley oak woodlands in the plan area of the proposed MTP/SCS are differentiated from oak savanna by the percent of canopy cover within the community. Valley oak woodland canopy cover ranges from approximately 10 to 60 percent and savanna typically has less than 10 percent oak canopy cover.Valley oak woodlands are dominated by valley oak (*Quercus lobata*), but interior live oak (*Quercus wislizeni*), and coast live oak (*Quercus agrifolia*) are also present. The understory of valley oak woodlands varies from sparse to well-developed, including shrubs such as poison oak, ceanothus, and scrub oak. The herbaceous understory frequently contains plant species found in annual grasslands. Oak savanna typically has an open understory of grassland.

Valley oak woodland and savanna communities provide important breeding, foraging, and cover habitat for several wildlife species common to the region. The upper canopy of the oak trees provides nesting, foraging, and cache sites for many birds, such as Lewis' woodpecker (*Melanerpes lewis*), acorn woodpecker (*Melanerpes formicivorus*), northern flicker (*Colaptes auratus*), oak titmouse (*Baeolophus inornatus*), western bluebird (*Sialia mexicana*), mourning dove (*Zenaida macroura*), and red-

tailed hawk. The understory grassland layer provides nesting and foraging habitat for many common species of birds, small mammals, and reptiles. Special-status wildlife species that could occur in valley oak woodland and savanna communities in the plan area of the proposed MTP/SCS include western spadefoot, western pond turtle, California horned lizard, Swainson's hawk, white-tailed kite, golden eagle, purple martin, Townsend's big-eared bat, and pallid bat. Special-status plants that could occur in valley oak woodlands are listed in Appendix BIO-1.

Foothill Woodland

Foothill woodlands in the plan area of the proposed MTP/SCS occur along the slopes of the Sierra Nevada foothill regions of Placer, El Dorado, and Yuba Counties, and the interior coast ranges of Yolo County. This land cover type includes woodlands dominated by blue oak, canyon live oak (*Quercus chrysolepis*), coast live oak, foothill pine, juniper (*Juniperus* spp.), and knobcone pine. A variety of common wildlife species inhabit foothill woodlands. These areas represent important habitat for nesting birds, roosting habitat for bats that utilize tree cavities or exfoliating bark, wintering habitat for deer, and resident habitat for many common mammals.

Special-status wildlife species that could occur in foothill woodland communities in the plan area of the proposed MTP/SCS include burrowing owl, golden eagle, foothill-yellow legged frog (*Rana boylii*), and western pond turtle. Some of the plant species that could occur include adobe lily (*Fritillaria pluriflora*), parry's horkelia (*Horkelia parryi*), and veiny monardella (*Monardella venosa*). Other special-status plants that could occur in foothill woodlands are listed in Appendix BIO-1.

Montane Forest

Montane forest communities within the plan area of the proposed MTP/SCS occur in the Sierra Nevada foothill and mountainous regions of Placer, El Dorado, and Yuba counties. These forest communities are dominated by a mix of pines (*Pinus* spp.; depending on elevation), black oak (*Quercus kelloggii*), red fir (*Abies magnifica*), white fir (*Abies concolor*), incense-cedar, quaking aspen (*Populus tremuloides*), Douglas-fir (*Psuedotsuga menziesii*), juniper, and Pacific madrone (*Arbutus menziesii*). Pine species that occur in montane forest are ponderosa pine (*Pinus ponderosa*), Jeffrey pine (*Pinus jeffreyi*), sugar pine (*Pinus lambertiana*), and lodgepole pine (*Pinus contorta*). Species composition of the understory of the montane forest communities varies widely with elevation, slope aspect, and fire history of individual stands; however, in most areas, the shrub and herbaceous layers occur primarily at forest edges or in canopy openings, such as rock outcrops and other natural or artificial clearings.

Large mammals frequent montane forest communities, including coyote, black bear (*Ursus americanus*), mountain lion (*Felis concolor*), and bobcat (*Lynx rufus*). A variety of smaller rodents, squirrels, and shrews are found in shrub thickets and open patches within the forest. Amphibians and reptiles that occur in forest communities include Sierra newt (*Taricha sierrae*), southern long-toed salamander (*Ambystoma macrodactylum sigillatum*), Sierran treefrog (*Pseudacris sierra*), California toad (*Anaxyrus boreas halophilus*), western fence lizard, Sierra alligator lizard (*Elgaria coerulea palmeri*), Pacific gopher snake, California kingsnake (*Lampropeltis californiae*), California mountain kingsnake (*Lampropeltis zonata*), valley garter snake (*Thamnophis sirtalis fitchi*), and Pacific rattlesnake.

A variety of flycatchers, vireos, warblers, and many other birds occur in montane forests. Canopy-dwelling species include olive-sided flycatcher (*Contopus cooperi*), golden-crowned kinglet (*Regulus satrapa*), and western tanager (*Piranga ludoviciana*). Large snags and the decaying portions of living

trees offer nesting cavities for pileated woodpecker (*Drycopus pileatus*), western screech owl (*Megascops kennicottii*), and northern flicker. The forest also provides food and habitat for a variety of birds, including white-headed woodpecker (*Dryobates albolarvatus*), white-breasted nuthatch (*Sitta carolinensis*), red-breasted nuthatch (*Sitta canadensis*), chestnut-backed chickadee (*Poecile rufescens*), mountain chickadee (*Poecile gambeli*), dark-eyed junco, spotted towhee, and black-headed grosbeak (*Pheucticus melanocephalus*).

Special-status species that are known to occur in this habitat include western pond turtle, Sierra Nevada yellow-legged frog, northern goshawk (*Accipiter gentilis*), California spotted owl (*Strix occidentalis occidentalis*), great gray owl (*Strix nebulosa*), yellow warbler (*Setophaga petechia*), marten (*Martes caurina*), fisher (*Pekania pennanti*), ringtail (*Bassariscus astutus*), and bats such as Yuma myotis (*Myotis yumanensis*), and pallid bat. Special-status plant species that could occur in this habitat type are listed in Appendix BIO-1. Forest lands are also described in Chapter 4 – Agriculture and Forestry Resources for purposes of understanding the impacts of the proposed MTP/SCS on forest lands.

Riparian

Riparian land cover types in the plan area of the proposed MTP/SCS occur along creeks, rivers, and other water bodies in the plan area of the proposed MTP/SCS. Riparian habitat typically includes willows (*Salix* spp.), Fremont's cottonwood (*Populus fremontii*), valley oak, California sycamore (*Platanus racemosa*), box elder (*Acer negundo*), Oregon ash (*Fraxinus latifolia*), white alder (*Alnus rhombifolia*), and California wild grape (*Vitis californica*). The shrub layer of riparian areas is typically highly variable and can range from sparse to well developed. The herbaceous understory of riparian areas typically contains a mixture of native and introduced species.

Much of the historic riparian habitat in California has been lost due to urbanization, flood control practices, agricultural conversion, and livestock grazing. The remaining riparian forests in the state are used by a large variety of wildlife species. For this reason, and because of the relative scarcity of this habitat in the state, CDFW has designated riparian habitat as an important habitat. Riparian habitat supports abundant aquatic and terrestrial invertebrates that are prey for amphibians and reptiles, such as valley garter snake, western skink (*Plestiodon skiltonianus*), and ringneck snake (*Diadophis punctatus*), as well as insectivorous birds, such as warblers, northern flicker, downy woodpecker (*Dryobates pubescens*), and flycatchers. Small mammals found in riparian habitats include shrews, voles, bats, and mice. Raptors that nest in large riparian trees include great horned owl (*Bubo virginanus*), red-tailed hawk, and American kestrel. Striped skunk (*Mephitis mephitis*), Sacramento Valley red fox (*Vulpes patwin*), gray fox, and badger forage in riparian habitats and use them for cover and travel.

Elderberry shrubs within riparian woodlands in the plan area of the proposed MTP/SCS provide habitat for the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). Similarly, dense areas of the riparian woodland could provide nesting habitat for the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Both species are listed as federally threatened. Riparian woodlands also provide nesting habitat for several special-status raptors, including osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), Cooper's hawk (*Accipiter cooperii*), Swainson's hawk, and white-tailed kite. Cavities or exfoliating bark in riparian trees along waterways in the plan area of the proposed MTP/SCS may be used as roosting sites by some species of special-status bats, such as pallid bat. Special-status plants that could occur in riparian woodlands are listed in Appendix BIO-1.

Barren, Mine Tailings, Rock Outcrops/Cliffs, Serpentine

Barren areas in the plan area of the proposed MTP/SCS include mine tailings, cliffs, rock outcrops, or other areas that support little, if any, vegetative cover. Some barren areas are composed of serpentine soils. Serpentine soils are not abundant in California (approximately one percent of the state's land area); however, where they occur, the complex interaction of plants, soils, and rock makes a striking impact on the landscape. Serpentine rock is composed mainly of iron magnesium silicate, with "impurities" of chromium, nickel, and other toxic metallic elements. Because of this unusual chemical makeup, the soils weathering from serpentinite are infertile or even toxic to most plants.

Some plants are adapted to serpentine soils, and over 200 species, subspecies and varieties of plants are restricted wholly or in large part to serpentine habitat. Counties within the plan area of the proposed MTP/SCS that are known to support serpentine soils include El Dorado, Placer, and Yuba (Van Gosen and Clinkerbeard 2011). Special-status plant species that have adapted to serpentine soils within the plan area of the proposed MTP/SCS include Stebbin's morning-glory, Pine Hill ceanothus (*Ceanothus roderickii*), Pine Hill flannelbush (*Fremontodendron decumbens*), Layne's ragwort (*Packera layneae*), and Keck's checkerbloom (*Sidalcea keckii*).

AQUATIC HABITAT

The aquatic habitat group consists of the following cover types: wetland, open water, and riverine. Table 6-1 provides the acreages of each of these cover types.

Wetlands

The plan area of the proposed MTP/SCS contains a variety of seasonal and perennial wetland communities. Wetlands are ecologically productive habitats that support a rich variety of both plant and animal life. The most common types of wetlands in the plan area of the proposed MTP/SCS area are seasonal wetlands (including vernal pools) and fresh emergent wetlands. Vernal pools are sensitive natural communities that are being lost increasingly as a result of conversion of land to other uses. Priorities of the South Sacramento HCP and Placer County Conservation Plan are to conserve and protect remaining vernal pool complexes.

Wetlands may be subject to state and/or federal regulation. Compliance with regulations for wetlands and other waters in the plan area of the proposed MTP/SCS would be required for projects involving filling of or encroachment into these habitats. The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) define wetlands as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (40 Code of Federal Regulations [CFR] Section 232.2). This definition is referred to as a three-parameter definition because positive indicators of all three wetland criteria (vegetation, soils, and hydrology) must be present. Areas identified as other waters typically lack positive indicators of one or more wetland criteria. Other waters that occur in the plan area of the proposed MTP/SCS include streams, creeks, rivers, irrigation canals, reservoirs, and ponds.

Seasonal wetlands in the plan area of the proposed MTP/SCS are typically shallow depressions that frequently occur in grasslands and are filled during the rainy season. Some maintain water through the spring or early summer. Vernal pools in the plan area of the proposed MTP/SCS are a type of seasonal wetland characterized by the presence of an impermeable hardpan layer, a unique hydrologic cycle, and a plant community that adapted to conditions within vernal pools. Vernal pools provide habitat for numerous plant, vertebrate, and invertebrate species, many of which are endemic to vernal pools.

Seasonal wetlands, including vernal pools and seasonal swales, provide habitat for a variety of wildlife species. During the wet season when seasonal wetlands and vernal pools are ponded, avian species such as killdeer (*Charadrius vociferus*), black-necked stilt (*Himantopus mexicanus*), American avocet (*Recurvirostra americana*), great egret (*Ardea alba*), and greater yellowlegs (*Tringa melanoleuca*) commonly forage on invertebrate and amphibian larvae commonly found in this habitat. Seasonal wetlands are also an important breeding habitat for several amphibian species that depend on these temporary water bodies for successful reproduction.

Vernal pools and other types of seasonal wetlands provide habitat for several special-status wildlife species in the plan area of the proposed MTP/SCS, including vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), Conservancy fairy shrimp (*Branchinecta conservatio*), Delta green ground beetle (*Elaphrus viridis*), California tiger salamander, California red-legged frog (*Rana draytonii*), and western spadefoot. Special-status plants that may occur in these seasonal wetland communities include Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), legenere (*Legenere limosa*), dwarf downingia (*Downingia pusilla*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), Sacramento Orcutt grass (*Orcuttia viscida*), and slender Orcutt grass (*Orcuttia tenuis;* see Appendix BIO-1).

Freshwater emergent wetlands in the plan area of the proposed MTP/SCS is distinguished from deepwater aquatic habitats and other wetlands by the presence of tall, perennial, grass-like plants rooted in soils that are permanently or seasonally flooded or inundated. In the plan area of the proposed MTP/SCS, fresh emergent wetlands are often associated with small artificial ponds, reservoirs, natural drainages, irrigation canals, and roadside ditches. Characteristic plant species include broadleaf cattail (*Typha latifolia*), California bulrush (*Schoenoplectus californicus*), creeping spikerush (*Eleocharis radicans*), Pacific rush (*Juncus effusus*), Baltic rush (*Juncus balticus*), mannagrass (*Glyceria* spp.), water primrose (*Ludwigia* spp.), water plantain (*Alisma* spp.), and water pepper (*Persicaria hydropiperoides*). Many waterbirds nest in emergent wetlands, including Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), cinnamon teal (*Spatula cyanoptera*), gadwall (*Mareca strepera*), Virginia rail (*Rallus limicola*), American coot (*Fulica americana*), common gallinule (*Gallinula galeata*), and Wilson's snipe (*Gallinago delicata*). These species may be joined by migratory and wintering waterfowl such as American wigeon (*Mareca americana*), northern shoveler (*Spatula clypeata*), northern pintail (*Anas actuta*), green-winged teal (*Anas crecca*), ring-necked duck (*Aythya collaris*), bufflehead (*Bucephala albeola*), and ruddy duck (*Oxyura jamaicensis*). Amphibians and reptiles that are found in fresh emergent wetland communities include California toad, Sierran tree frog (*Pseudacris sierra*), valley garter snake, and Sierra garter snake (*Thamnophis couchii*).

Special-status wildlife species in the plan area of the proposed MTP/SCS that may use freshwater emergent wetlands include California tiger salamander, California red-legged frog, western pond turtle, giant garter snake (*Thamnophis gigas*), northern harrier, white-tailed kite, greater sandhill crane (*Antigone canadensis tabida*), California black rail (*Laterallus jamaicensis coturniculus*), saltmarsh common yellowthroat

(*Geothlyis trichas sinuosa*), and tricolored blackbird (*Agelaius tricolor*). There are also a variety of special-status plants that are known to occur in this wetland community (see Appendix BIO-1).

Open Water/Lakes and Reservoirs/Rivers

The plan area of the proposed MTP/SCS contains several lakes, reservoirs, and flood control basins, including Folsom Lake, Rollins Reservoir, Sugar Pine Reservoir, New Bullards Bar Reservoir, Collins Lake, and Camp Far West Reservoir. There are many other small reservoirs, lakes, and ponds throughout each of the counties. Many of these large water bodies support perennial and seasonal wetland and riparian communities along their edges.

These reservoirs provide habitat for a variety of waterfowl, including geese, mallard, cinnamon teal, green-winged teal, American wigeon, northern pintail, northern shoveler, gadwall, ruddy duck, and common merganser, and provide important resting and foraging habitat for many waterfowl species during migration. Vegetation growing along the edges of water bodies also provides nesting habitat for several bird species and foraging and refuge habitat for numerous amphibian, reptile, and mammal species occupying the open water and adjacent grassland, woodland, and forest habitats.

Riverine systems in the plan area of the proposed MTP/SCS comprise permanent, intermittent, and ephemeral drainages. Most of the rivers in the plan area of the proposed MTP/SCS and their tributaries are part of the Sacramento–San Joaquin River watershed. This includes streams and creeks, as well as associated gravel and sand bars. A variety of invertebrate and vertebrate species exist in riverine ecosystems in the plan area of the proposed MTP/SCS. Invertebrates found in rivers and creeks include mayflies, alderflies, stoneflies, dragonflies, damselflies, water striders, and caddis flies.

Fish-eating birds, such as osprey and bald eagle, forage for fish near the surface of pools and shallow waters along the rivers. Belted kingfisher (*Megaceryle alcyon*), double-crested cormorant (*Phalacrocorax auritis*), and common mergansers (*Mergus merganser*) also forage for fish in streams and reservoirs. Many amphibians and reptiles depend on riverine systems; these include California newt, California toad, foothill yellow-legged frog, garter snake (*Thamnophis* spp.), and western pond turtle. Mammals in riverine systems include north American river otter (*Lontra canadensis*), American mink (*Neovison vison*), muskrat (*Ondatra zibethicus*), and north American beaver (*Castor canadensis*). Emerging aquatic insects are a major food source for many bat species that forage over open waters in the plan area of the proposed MTP/SCS.

Low-elevation rivers and large, perennial creeks support runs of Chinook salmon (*Oncorhynchus tshawytscha*) and Central Valley steelhead (*Oncorhynchus mykiss irideus*). Other native fish species include Sacramento hitch (*Lavinia exilicauda exilicauda*), hardhead (*Mylopharodon conocephalus*), Sacramento sucker (*Castostomus occidentalis occidentalis*), riffle sculpin (*Cottus gulosus*), Sacramento pikeminnow (*Ptychocheilus grandis*), and Pacific lamprey (*Entosphenus tridentatus*). Appendix BIO-2c presents a list of special-status fish that are known or have the potential to occur in the plan area of the proposed MTP/SCS.

AGRICULTURE

Agriculture land occurs throughout the valley and lower foothill regions of the plan area of the proposed MTP/SCS. Agriculture land includes orchards and vineyards, irrigated pastures, rice fields,

and row crops. Table 6-1 summarizes the agriculture land cover in the plan area of the proposed MTP/SCS. The environmental setting for agricultural resources is described further in Chapter 4 – Agriculture and Forestry Resources.

Depending on the crop type and the land's proximity to native habitats, agriculture land can provide relatively high-value habitat for wildlife, particularly as foraging habitat. Raptor species use row and grain crop agriculture land for foraging, because several species of common rodents are found in agricultural fields and are accessible as prey. Agricultural habitats also provide foraging and resting habitat for migrating and wintering waterfowl and shorebirds.

Orchards and Vineyards

Areas mapped as orchards and vineyards occur in both the valley and lower foothill regions of the plan area of the proposed MTP/SCS, with the majority of orchards composed of walnut, prunes, or peach trees. This type of agriculture requires active maintenance such as irrigation, pruning, and frequent mowing or herbicide use to discourage vegetation. If present, vegetation typically consists of nonnative, weedy species. The vineyards in the study area contain grape vines, and maintenance is comparable to that in orchards.

Pasture

Areas mapped as pasture occur in both the valley and lower foothill regions of the plan area of the proposed MTP/SCS and consist of actively irrigated fields utilized for grazing purposes. Vegetation in pastures, which is typically grazed or mowed, consists of grasses, rushes, and legumes that form a dense ground cover. Representative species are nonnative clovers, dallis grass (*Paspalum dilatatum*), and Italian ryegrass (*Festuca perennis*). Burrowing owls may be found in pasture lands that support California ground squirrels.

Rice

Areas mapped as rice, primarily in the valley regions of the plan area of the proposed MTP/SCS, include both flooded and fallow rice fields. Rice fields commonly include irrigation features, such as berms, ditches, canals, and water control structures. Rice is grown as a monoculture, using tillage or herbicides to eliminate unwanted vegetation; remaining vegetation is generally confined to the berms, ditches, and canals between and around fields, and is dominated by wetland plants, both native and nonnative. Special-status wildlife species associated with rice fields include giant garter snake, snowy plover, burrowing owl, greater sandhill crane, Swainson's hawk, loggerhead shrike (Lanius ludovicianus), tricolored blackbird, greater sandhill crane, western spadefoot, western pond turtle, coast horned lizard, and numerous bat species.

Row and Field Crops

Agricultural areas mapped as row and field crops are distributed primarily in the valley regions of the plan area of the proposed MTP/SCS. Row and field crops include both active and fallow fields that exhibit indicators of tillage. Row and field crop types mapped in the study area include alfalfa, croplands, grain and hay, irrigated grain crops, irrigated hay field, irrigated row and grain crops, dry land grain crops, and upland crops. Active row and field crops are maintained with irrigation and herbicide application. Alfalfa, hay, and rotating crop farming methods can mean a given piece of

land may be harvested several times during the course of the year. The margins of row and field crops typically support nonnative, ruderal plant species. Swainson's hawks and northern harrier forage in agriculture land types such as alfalfa and grain crops. Greater sandhill cranes overwinter in fallow agriculture land such as rice fields, alfalfa, and grain crops.

DEVELOPED/DISTURBED

Areas in the plan area of the proposed MTP/SCS that are developed, disturbed, landscaped, and dominated by non-native vegetation are summarized in Table 6-1.

Developed

Developed areas within the plan area of the proposed MTP/SCS are characterized by residential, office, retail, industrial, recreational, governmental, and other land uses, including infrastructure and impermeable surfaces. The composition of vegetation within developed areas is variable, but most are ornamental species planted for landscaping or horticulture (e.g., fruit trees) and are actively irrigated. Developed areas also contain weedy plant species, some of which are considered invasive by the California Department of Food and Agriculture (CDFA) and California Invasive Plant Council (Cal-IPC). Representative weed species that occur in these areas are black mustard (*Brassica nigra*), bristly ox-tongue (*Helminthotheca exhioides*), Himalayan blackberry (*Rubus armeniacus*), pampas grass (*Cortaderia selloana*), Bermuda grass (*Cynodon dactylon*), Bermuda buttercup (*Oxalis pes-caprae*), and bigleaf periwinkle (*Vinca major*) (CDFA 2014).

Developed areas in the plan area of the proposed MTP/SCS also contain remnant areas of annual grassland, riparian habitat along streams and rivers, and landscaped areas. In addition to the ornamental landscaping, these habitat types in the developed areas provide nesting and foraging habitat for common bird species, including house sparrow (*Passer domesticus*), northern flicker, California scrub-jay (*Aphelocoma californica*), northern mockingbird, Brewer's blackbird (*Euphagus cyanocephalus*), and European starlings (*Sturnus vulgaris*). California ground squirrels, fox squirrels (*Sciurus niger*), house mice (*Mus musculus*), and striped skunks can also be found using habitats in urban landscapes, such as parks, schools, and vacant lots.

Disturbed

The disturbed portions of the plan area of the proposed MTP/SCS include nonagricultural areas that have been heavily disturbed or graded such as landfills, gravel mines, and mine tailings. The vegetation in disturbed areas varies in density and typically contains a large proportion of nonnative species. Landscaped portions of the plan area of the proposed MTP/SCS include urban parks, golf courses, and urban woodlands, which are frequently located within city limits and are typically surrounded by developed areas. Landscaped areas vary in size, from large areas that may include remnant patches of natural vegetation, to small, heavily landscaped and managed playgrounds and sports fields.

Nonnative Vegetation

The areas of nonnative vegetation that have been identified in the plan area of the proposed MTP/SCS consist of dense, monotypic patches of nonnative trees, shrubs, or herbs, including black locust (*Robinia pseudoacacia*), eucalyptus (*Eucalpytus* spp.), Himalayan blackberry, tamarisk (*Tamarix* spp.), giant reed (*Arundo donax*), and perennial pepperweed (*Lepidum latifolium*).

6.2.2 Invasive Plants

The plan area of the proposed MTP/SCS contains plant species that are considered invasive plants or noxious weeds (e.g., giant reed, yellow star-thistle, pampasgrass) by Cal-IPC and/or CDFA (Cal-IPC 2019 and CDFA 2019). According to the Calflora Database, 183 invasive plant species have been reported in El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties (Calflora 2019). The introduction and spread of invasive plants adversely affect natural vegetation communities by altering ecosystem processes (e.g., fire frequency, hydrological cycles), displacing native plant species, and reducing the quality of habitats that provide shelter and forage for wildlife species (Cal-IPC 2012). Invasive plants also affect the quality of forage on rangelands and cropland productivity. Invasive plant ratings assigned by Cal-IPC and CDFA are based on multiple criteria, including ecological impacts, invasive potential, distribution, the likelihood that eradication or control efforts would be successful, and perceived importance by CDFA and Cal-IPC (Calflora 2019b).

Invasive plants in the plan area of the proposed MTP/SCS were not inventoried for this program-level analysis, because target invasive plants would differ widely from across the plan area, depending on the sensitivity of the site to infestation, the nature of the specific proposed project, and the type of invasive plants in the specific area of impact. Target lists of invasive plants for specific project implementation would include both CDFA and Cal-IPC species, with priority given to CDFA A-rated weed species and species designated as highly or moderately invasive plants by Cal-IPC. Some CDFA B- and C-rated species would be included on project-specific target lists, if the applicable county agricultural commissioner identifies them as target invasive plants.

6.2.3 Wildlife Movement Corridors

The plan area of the proposed MTP/SCS encompasses large areas of wildland that provide habitat for both common and rare plants and animals. Corridors between habitat concentrations serve important ecological functions related to connectivity, such as wildlife movement, species dispersal, genetic exchange, and resilience to habitat effects of climate change. Some of these areas were mapped as Essential Connectivity Areas (ECA) for the California Essential Habitat Connectivity Project, which was commissioned by the California Department of Transportation (Caltrans) and CDFW for the purpose of making transportation and land-use planning more efficient and less costly, while helping reduce dangerous wildlife-vehicle collisions (Spencer et al. 2010). The ECAs were not developed for the purposes of defining areas subject to specific regulations by CDFW or other agencies.

The ECAs are not regulatory delineations and are identified as lands likely important to wildlife movement between large, mostly natural areas at the statewide level. The ECAs form a functional network of wildland that are important to the continued support of California's diverse natural communities. The ECAs were not developed for the needs of particular species but were based primarily on the concept of ecological integrity, which considers the degree of land conversion, residential housing impacts, road impacts, and status of forest structure (for forested areas). In addition, consideration was given to the degree of conservation protection and areas known to support high biological values, such as mapped critical habitat and hotspots of species endemism (Spencer et al. 2010). ECAs are placeholder polygons that can inform land-planning efforts, but that would be improved by more detailed linkage designs, developed at finer resolution at the regional and ultimately local scale based on the needs of particular species and ecological processes. Figure 6-2 shows that ECAs occur within all six of the counties comprising the plan area of the proposed MTP/SCS, and that El Dorado, Placer, and Sacramento counties have the largest blocks of ECAs.

There are 20 ECAs mapped within the plan area of the proposed MTP/SCS totaling approximately 1,032,759 acres, which equals roughly one-quarter (26 percent) of the plan area of the proposed MTP/SCS (Gogol-Prokurat 2014). These areas consist of mostly wildland, but also include certain agricultural areas and certain developed areas (mostly rural residential).

6.2.4 Special-Status Species

CEQA Guidelines Section 15380 defines "endangered, rare or threatened species" as "species or subspecies of animal or plant or variety of plant" listed under the CFR Title 50 Part 17.11 or 17.12 or California Code of Regulations (CCR), Title 14, Sections 670.2 or 670.5, or a species that can otherwise be shown to meet the criteria in CEQA Guidelines Section 15380(b). In this circumstance, "endangered" means "when its survival and reproduction in the wild are at risk from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors" or "rare" meaning "although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Species that fall under the above criteria are typically referred to as "special status species," in environmental review.

For this program EIR, special-status species are defined as those meeting at least one of the following criteria:

- species listed or proposed for listing as threatened or endangered under the federal Environmental Species Act (ESA) (50 CFR Part 17.12) for listed plants, (50 CFR Part 17.11) for listed animals, and various notices in the Federal Register for proposed species);
- species that are candidates for possible future listing as threatened or endangered under the federal ESA (75 CFR Section 69222) (USFWS 2019a);
- species that are listed or candidates for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (14 CCR Section 670.5);
- plants listed as rare under the California Native Plant Protection Act (NPPA) of 1977 (Fish and Game Code Section 1900 et seq.);
- plants considered by CDFW to be "rare, threatened or endangered in California" (California Rare Plant Ranks of 1A, presumed extinct in California and either rare or extinct elsewhere; 1B, considered rare or endangered in California and elsewhere; 2A, presumed extinct in California but common elsewhere; and 2B, considered rare or endangered in California but more common elsewhere). Note, that while these rankings do not afford the same type of legal protection as the ESA or CESA, the uniqueness of these species requires special consideration under Section 15380 of the CEQA Guidelines (California Natural Diversity Database [CNDDB] 2019; California Native Plant Society [CNPS] 2019);
- plants identified by CDFW and CNPS as potentially rare or endangered, but for which more information is needed to determine their status, and plants of limited distribution (Rare Plant Rank 3, and 4, California Department of Fish and Wildlife, 2019a; California Native Plant Society 2019), which may be included as special-status species on the basis of local significance or recent biological information;
- animals fully protected in California (Fish and Game Code section 3511 for birds, section 4700 for mammals, and section 5050 for reptiles and amphibians);

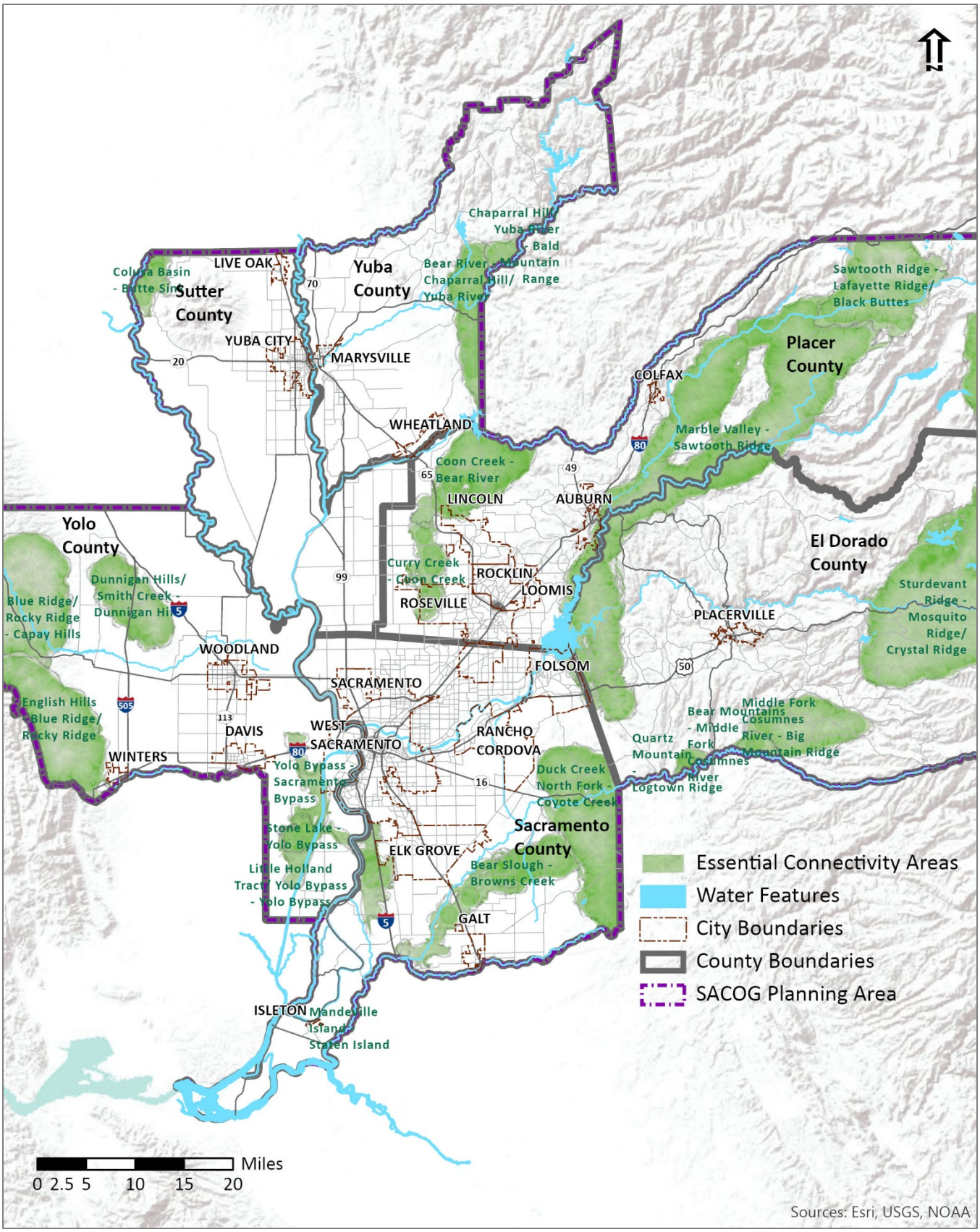


Figure 6-2
Essential Connectivity Areas

- animal species of special concern to CDFW (CDFW 2018a);
- species covered in approved NCCPs and HCPs; or
- any species not included in the above lists but that otherwise meet the criteria in State CEQA Guidelines Section 15380(b);

Special-status plant, fish, and wildlife species that have been documented or have the potential to occur in the plan area of the proposed MTP/SCS are identified in Appendix BIO-1. The list of special-status species with potential to occur in the plan area was compiled from CNDDB (2019), the California Rare Plant Electronic Inventory (CNPS 2019), and USFWS' Information for Planning and Conservation (IPaC, USFWS 2019a), as well as covered species identified in regional HCPs. Each of these species were evaluated for their potential occurrence in the plan area.

Critical habitat for various federally listed species has been designated in each of the counties within the MTP/SCS plan area (Table 6-2). Critical habitat is designated by U.S. Fish and Wildlife Service (USFWS) or U.S. National Oceanic and Atmospheric Administration (NOAA) Fisheries Service as a specific geographic area that contains physical or biological features essential for the conservation of a federally listed species. Federal agencies are required to consult with USFWS or NOAA Fisheries to ensure their actions will not destroy or adversely modify critical habitat. Evaluation of effects on critical habitat is only required for activities that involve a federal action, such as a permit, license, or funding.

Table 6-2
Acreages of Critical Habitat for Federally Listed Species in the Plan Area of the Proposed MTP/SCS

Species	Federal Status	Total
Amphibians		
California red-legged frog (*Rana draytonii*)	Threatened	13,032
California tiger salamander (*Ambystoma californiense*)	Threatened	12,873
Sierra Nevada Yellow-Legged Frog (*Rana sierrae*)	Endangered	117,516
Birds		
Yellow-Billed Cuckoo (*Coccyzus americanus*)	Threatened	1,089
Fish		
Delta smelt (*Hypomesus transpacificus*)	Threatened	211,269
Invertebrates		
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	Threatened	515
Vernal pool fairy shrimp (*Branchinecta lynchi*)	Threatened	40,927
Vernal pool tadpole shrimp (*Lepidurus packardi*)	Endangered	38,787
Plants		
Fleshy owl's-clover (*Castilleja campestris ssp. succulent*)	Threatened	82
Contra Costa wallflower (*Erysimum capitatum var. angustatum*)	Endangered	19
Colusa grass (*Neostapfia colusana*)	Threatened	440
Antioch Dunes evening primrose (*Oenothera deltoides ssp. howellii*)	Endangered	19
Sacramento Orcutt grass (*Orcuttia viscida*)	Endangered	30,751
Slender Orcutt grass (*Orcuttia tenuis*)	Threatened	1,161
Solana grass (*Tuctoria mucronata*)	Endangered	440
TOTAL		**468,921**

Note: Total does not include areas where two or more critical habitat areas overlap.
Source: USFWS 2019b, Critical Habitat Portal, Accessed March 2019

6.2.5 Sensitive Natural Communities

Wildland cover types within the plan area of the proposed MTP/SCS include land cover types that could support sensitive natural communities. Sensitive natural communities are those natural communities identified by CDFW that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of land use changes or projects. Most types of wetlands and riparian communities are considered sensitive natural communities due to their limited distribution in the state. Natural communities provide important habitat for native species and some support special-status plant species or are defined by the dominance or presence of such plant species. The vegetation compositions or groupings are called alliances, which are a category of vegetation classification that describes repeating patterns of plants across a landscape. Each alliance is defined by plant species composition, and reflects the effects of local climate, soil, water, disturbance, and other environmental factors. There are 2,771 vegetation alliances and associations in California. CDFW has identified 1,422 alliances and associations within California as sensitive natural communities (CDFW 2018b). The plan area of the proposed MTP/SCS could support 137 of these sensitive natural communities and are included in Appendix BIO-2.

6.3 Regulatory Setting

6.3.1 Federal Regulations

Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act (MBTA) (16 U.S. Code Section 703, et seq.), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. United States Department of the Interior's Office of the Solicitor issued a legal, revised interpretation (Opinion M-37050) of the MBTA's prohibition on the take of migratory bird species. Opinion M-37050 concludes that "consistent with the text, history, and purpose of the MBTA, the statute's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs." According to the Opinion M-37050, take of a migratory bird, its nest, or eggs that is incidental to another lawful activity does not violate the MBTA, and the MBTA's criminal provisions do not apply to those activities. Opinion M-37050 affects how MBTA is interpreted regarding incidental take (i.e., take that is incidental to otherwise lawful activities), but it does not legally change the regulation itself. The Ninth Circuit Court of Appeals, the controlling federal appellate court for California, has also held that habitat modification which harms migratory birds "does not 'take' them within the meaning of the MBTA." Seattle Audubon Soc. v. Evans, 952 F.2d 297, 303 (1981). The current list of species protected by the MBTA can be found in Title 50 of the CFR, Section 10.13. The list includes nearly all birds native to the US.

Section 4(f) of the U.S. Department of Transportation Act of 1966

Per Section 4(f) of the U.S. Department of Transportation Act (49 U.S. Code Section 303), the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land from a historic site of national, state or local significance as

determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative to the use of such land and such program, and the project includes all possible planning to minimize harm resulting from the use. The policies Section 4(f) engendered are widely referred to as "Section 4(f)" matters.

Construction of recreational improvements in a recreation area, including enhancement done as part of mitigation for a transportation project are not subject to Section 4(f) provided they do not permanently incorporate land into a transportation facility, do not appreciable change the use of the property, and the officials having jurisdiction agree (FHWA Section 4(f) Policy Paper, Response to Question 22, March 1, 2005).

Some of the areas under jurisdiction of Section 4(F) within the MTP/SCS plan area include Sutter Bypass, Daugherty Hill, Spenceville, Feather River, Lake of the Woods State Wildlife Area, Fremont Weir, Sacramento Bypass wildlife areas, Auburn State Recreation Area, Marshall Gold Discovery State Historic Park, Folsom Lake State Recreation Area, Brannan Island State Recreation Area, Stone Lakes National Wildlife Refuge, and Sutter National Wildlife Refuge.

CLEAN WATER ACT OF 1972

The federal Clean Water Act (CWA) (33 U.S. Code Section 1251 et seq.) was enacted as an amendment to the federal Water Pollution Control Act of 1972 (33 U.S. Code Section 1251 et seq.), which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and wetlands.

The CWA empowers EPA to set national water quality standards and effluent limitations and includes programs addressing both point source and nonpoint-source pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure, an excavation site, or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool.

ENDANGERED SPECIES ACT OF 1973

The ESA (16 U.S. Code Section 1531 et seq.) protects fish and wildlife species and their habitats that have been identified by USFWS or NOAA Fisheries as "threatened or endangered." Endangered refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range. "Threatened" refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future. The ESA prohibits "take" of endangered and threatened species without a permit, and defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct" (16 U.S. Code Section 1532(19)). Through regulations, the term "harm" is further defined as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering" (50 CFR Section 222.102).

The ESA is administered by USFWS and NOAA Fisheries. In general, NOAA Fisheries is responsible for protection of the ESA-listed marine species and anadromous fish, whereas terrestrial and inland listed species are under USFWS jurisdiction (including terrestrial and fresh-water aquatic species).

6.3.2 State Laws, Regulations, and Orders

PORTER-COLOGNE WATER QUALITY CONTROL ACT OF 1969

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (California Water Code Section 7), waters of the state fall under the jurisdiction of the appropriate regional water quality control board (RWQCB). The RWQCB must prepare and periodically update water quality control plans (basin plans). Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control point and nonpoint sources of pollution to achieve and maintain these standards. The RWQCB's jurisdiction includes federally protected waters as well as areas that meet the definition of waters of the state. Waters of the state is defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not federally protected under Section 401 provided they meet the definition of waters of the state. Actions that affect waters of the state, including wetlands, must meet the RWQCB's waste discharge requirements.

If USACE determines that a wetland is not subject to regulation under the CWA Section 404, Section 401 water quality certification is not required. However, the RWQCB may impose waste discharge requirements, if fill material is placed into waters of the state.

On April 2, 2019, the State Water Resources Control Board (SWRCB) adopted its proposed State Wetland Definition and Procedures for Discharges of Dredge or Fill Material to Waters of the State. Waters of the state are defined as any surface water or groundwater, including saline waters, within the boundaries of the state. This includes all waters of the U.S., but also areas not regulated under the CWA. The SWRCB defines an area as a wetland as follows:

> An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater or shallow surface water or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

CALIFORNIA NATIVE PLANT PROTECTION ACT OF 1977

The California Native Plant Protection Act of 1977 (NPPA) (Fish and Game Code sections 1900–1913) prohibits importation of rare and endangered plants into California, take of rare and endangered plants, and sale of rare and endangered plants. The CESA defers to the NPPA, which ensures that state-listed plant species are protected when state agencies are involved, and projects are subject to CEQA. Plants listed as rare under the NPPA are not protected under CESA, but may receive protection in response to potentially significant impacts, in accordance with CEQA.

CALIFORNIA ENDANGERED SPECIES ACT OF 1984

CESA (Fish and Game Code section 2050 et seq.) prohibits the take of endangered and threatened species without a permit. Under CESA, take means "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill. (Fish and Game Code section 86) Unlike the federal definition, take under CESA does not include harm or harassment, and habitat destruction is not included. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and promote conservation of these species. CDFW administers the CESA and authorizes take through Section 2081 agreements (except for species designated as fully protected). Regarding rare plant species, CESA defers to NPPA, which is discussed above.

NATURAL COMMUNITY CONSERVATION PLANNING ACT OF 1991

A natural community conservation plan (NCCP) is a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity, which began under the state's NCCP Act (Fish and Game Code section 2800), legislation broader in its orientation and objectives than the ESA and CESA. An NCCP identifies and provides for the regional or area-wide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. The primary objective of the NCCP program is to conserve natural communities at the ecosystem level while accommodating compatible land use. The program seeks to anticipate and prevent the controversies and gridlock caused by species' listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process. Similar to regional HCPs, NCCPs can allow for take of listed species, while promoting overall conservation of the species through landscape level protections. In 2011, SB 618 authorized CDFW to permit the incidental take of Fully Protected species, if the species is covered and conserved in a NCCP.

CALIFORNIA OAK WOODLANDS CONSERVATION ACT OF 2001

The California Oak Woodlands Conservation Act (Fish and Game Code sections 1360–1372) was enacted to protect oak woodland habitats that were being diminished by development, firewood harvesting, and agricultural conversions. The Oak Woodlands Conservation Program was established as a result of the act and is intended to provide project funding opportunities for private landowners, conservation organizations, and cities and counties to conserve and restore oak woodlands. The program authorizes the Wildlife Conservation Board to purchase oak woodland conservation easements and provide grants for land improvements and oak restoration efforts.

Section 21083.4 of CEQA requires counties to determine if a project within their jurisdiction may result in conversion of oak woodlands that would have a significant adverse effect on the environment. If the lead agency determines that a project would result in a significant adverse effect on oak woodlands, mitigation measures to reduce the significant adverse effect of converting oak woodlands to other land uses are required.

CALIFORNIA FISH AND GAME CODE

Streambed Alteration Agreements, Fish and Game Code Sections 1600–1616

CDFW regulates activities that would interfere with the natural flow of, or substantially alter the channel, bed, or bank of a lake, river, or stream, including disturbance of riparian vegetation, under

Fish and Game Code section 1600–1616. CDFW requires a streambed alteration agreement for these activities. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Required conditions include avoidance or minimization of vegetation removal, use of standard erosion control measures, limitations on the use of heavy equipment, limitations on work periods to avoid impacts to fisheries and wildlife resources, and requirements to restore degraded sites or compensate for permanent habitat losses.

Migratory Birds, Fish and Game Code Section 3513

Section 3513 of the Fish and Game Code prohibits the take or possession of any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Protection of Bird Nests and Raptors, Fish and Game Code Sections 3503 and 3503.5

Section 3503 of the Fish and Game Code prohibits the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests.

Fully Protected Birds, Fish and Game Code Section 3511

The Fish and Game Code provides protection from take for a variety of species, referred to as fully protected species. Section 3511 lists fully protected birds and prohibits take of these species. Except for take related to scientific research, all take of fully protected species is prohibited. On October 8, 2011, SB 618 (Fish and Game Code section 3511) was signed into law. The bill revised the definition of "covered species" under the Natural Community Conservation Planning Act to include fully protected species. As a result of SB 618, the "taking" of fully protected species can now be authorized in cases where the take is incidental, and the fully protected species is being conserved and managed under an NCCP approved by CDFW. See Appendix BIO-1 for a list of fully protected species within the plan area of the proposed MTP/SCS.

Fully Protected Mammals, Fish and Game Code Section 4700

Fish and Game Code section 4700 lists fully protected mammals and prohibits take of these species. Except for take related to scientific research, all take of fully protected species is prohibited, unless covered by NCCP. See Appendix BIO-1 for a list of fully protected species within the plan area of the proposed MTP/SCS.

Fully Protected Fish, Fish and Game Code Section 5015

Fish and Game Code section 5015 lists fully protected fish and prohibits take of these species. Except for take related to scientific research, all take of fully protected species is prohibited, unless covered by NCCP.

Fully Protected Reptiles and Amphibians, Fish and Game Code Section 5050

Fish and Game Code section 5050 lists fully protected reptiles and amphibians and prohibits take of these species. Except for take related to scientific research, all take of fully protected species is prohibited.

DELTA CONVEYANCE (FORMERLY CALIFORNIA WATERFIX AND BAY DELTA CONSERVATION PLAN)

In May 2019 the Department of Water Resources (DWR) took formal action to rescind state and federal permit applications for the California WaterFix project. As of August 2019, DWR is pursuing a new environmental review and planning process for a single tunnel project to modernize State Water Project infrastructure in the Delta. DWR anticipates that the formal environmental review process will begin by the end of 2019.

CALIFORNIA ECORESTORE

California EcoRestore is a California Natural Resources Agency initiative implemented in coordination with state and federal agencies to advance the restoration of at least 30,000 acres of Sacramento-San Joaquin Delta habitat by 2020. The types of habitat targeted include tidal wetlands, floodplain, upland, riparian, fish passage improvements and others.

CALIFORNIA'S WILDLIFE ACTION PLAN

In 2000, Congress enacted the State Wildlife Grants Program to support state programs that broadly benefit wildlife and habitats, particularly those addressing "species of greatest conservation need." As a requirement for receiving federal funds under this program, state wildlife agencies were required to submit a state wildlife action plan (SWAP) to USFWS by October 2005.

CDFW prepared a 2015 update of the California SWAP. SWAP 2015 is a comprehensive, statewide plan for conserving California's fish and wildlife and their vital natural habitats for future generations. SWAP 2015 focuses on conservation of wildlife resources in the nation's most biologically diverse state using an approach that is in harmony with a growing human population and the need for resilience in the face of a changing climate. SWAP 2015 is a flexible, scientifically-grounded plan. It employs an ecosystem approach to conserve and manage diverse habitats and species and creates a blueprint for conservation actions to respond to the highest priorities of California's aquatic, marine, and terrestrial resources. It identifies priorities for conservation by regions and identifies specific strategies to achieve conservation goals.

SACRAMENTO-SAN JOAQUIN DELTA REFORM ACT OF 2009

In November 2009, the California Legislature enacted the Sacramento-San Joaquin Delta Reform Act (Delta Reform Act) (California Water Code Section 10610 et seq.), also known as SB 1 (Stats. 2009, 7th Ex. Sess., ch. 5) (SB X7-1), one of several bills passed at that time related to water supply reliability, ecosystem health, and the Delta. The Delta Reform Act created the Delta Stewardship Council (DSC), charged with developing and adopting the Delta Plan. The Delta Plan is a comprehensive, long-term management plan for the Delta that creates new rules and recommendations to further the state's coequal goals for the Delta: Improve statewide water supply reliability and protect and restore a vibrant and healthy Delta ecosystem, all in a manner that preserves, protects and enhances the unique agricultural, cultural, and recreational characteristics of the Delta. The Delta Plan was unanimously adopted by the DSC on May 16, 2013. The Delta Plan became effective with legally-enforceable regulations on September 1, 2013. Regulatory policies and recommendations applicable to biological resources include:

- Complete Bay Delta Conservation Plan (Recommendation WR R12),

- Restore Habitats at Appropriate Elevations (23 CCR Section 5006)),
- Protect Opportunities to Restore Habitat (23 CCR Section 5007),
- Expand Floodplains and Riparian Habitats in Levee Projects (23 CCR Section 5008),
- Prioritize and Implement Projects that Restore Delta Habitat (Recommendation ER R2),
- Avoid Introductions of and Habitat Improvements for Invasive Nonnative Species (23 CCR Section 5009), and
- Prioritize and Implement Actions to Control Nonnative Invasive Species (Recommendation ER R7).

The Delta Plan was amended in February 2016 to include refined performance measures, which were again amended in April 2018. A September 2016 amendment made permanent an exemption for single-year water transfers to be considered as covered actions. Also, in April 2018, the Delta Plan was amended to revise Chapter 3 to include new text and recommendations for conveyance, storage and operations, and to revise Chapter 7 to include new text and policy for setting priorities for State investments in Delta levees.

Under the Delta Reform Act, the DSC is charged with reviewing and advising local and regional agencies regarding the consistency of local and regional planning documents, including the proposed MTP/SCS, with the Delta Plan. The DSC's input includes reviewing the consistency of local and regional plans with the ecosystem restoration needs of the Delta and whether the lands set aside for natural resource protection are sufficient to meet the Delta's ecosystem needs. The Delta Reform Act requires that "covered actions," as defined, which include plans, programs, or projects within the primary or secondary zones of the Delta, be consistent with the Delta Plan.

The Delta Reform Act expressly provides that "covered actions" do not include the following: (1) RTPs, such as this proposed MTP/SCS; and (2) plans, programs, projects, activities (and any infrastructure necessary to support those plans, programs, projects, or activities) within the secondary zone of the Delta that SACOG has determined is consistent with the proposed MTP/SCS (California Water Code Section 85057.5). However, the DSC reviews any plan that includes land within the Delta zones, whether or not it is a covered action. MPOs that have a planning area crossing these boundaries are required to follow a consultation procedure with the DSC. This procedure includes early coordination to determine consistency of a proposed RTP with the Delta Plan. SACOG consulted with the DSC on January 15 and April 2, 2019 on the application of the law, the geography under DSC authority, and the policies established by the DSC, and will follow the Delta Reform Act's consultation requirements.

6.3.3 Local Plans and Regulations

This section summarizes local policies and habitat conservation plans that pertain to biological resources that could affect or be affected by the proposed MTP/SCS.

A summary of the current HCPs and NCCPs in the plan area of the proposed MTP/SCS is provided below and illustrated in Figure 6-3. Not all of these plans have been finalized, adopted, or implemented. During implementation of specific projects, an activity subject to Section 10 of the ESA (16 U.S. Code Section 1531 et seq.) and considered a covered project under the implementing rules of an adopted HCP or NCCP may be able to participate in the plan to mitigate effects on covered species. In some of the HCP/NCCPs, the permit requirement for waters, wetlands, and streams under Section 404 and Section 401 of the CWA (33 U.S. Code Section 1251 et seq.) and section 1602 of the Fish and Game Code are included in the overall permitting process.

El Dorado County General Plan Biological Resources Policy Update and Oak Resources Management Plan

The El Dorado County Board of Supervisors adopted the Biological Resources Policy Update and Oak Resources Management Plan (ORMP) in October 2017. The Biological Resources Policy Update included revisions to the General Plan objectives, policies, and implementation measures to establish a comprehensive Biological Resource Mitigation Program. The objective of this program is to conserve special-status species habitat, aquatic habitat, wetland and riparian habitat, habitat for migratory deer herds, and large expanses of native vegetation. The ORMP updated and revised the existing Oak Woodland Management Plan, and now defines mitigation requirements for impacts on oak woodlands, individual native oak trees, and heritage trees; and also outlines El Dorado County's strategy for oak resource management and conservation. The ORMP establishes an in-lieu fee payment option for impacts on oak woodlands and oak trees and identifies Priority Conservation Areas where oak woodland conservation efforts will be focused.

Natomas Basin Habitat Conservation Plan

The Natomas Basin is a low-lying area of the Sacramento Valley located in the northern portion of Sacramento County and the southern portion of Sutter County. The Natomas Basin HCP was adopted in 1997 and revised in 2003, covering a 53,341-acre area with two permit holders: the City of Sacramento and Sutter County. The Natomas Basin Conservancy is a nonprofit entity responsible for administering and implementing the Natomas Basin HCP and reports directly to the permit holders (Natomas Basin Conservancy 2015). The HCP covers 22 sensitive species, which are included in Appendix BIO-1 (Natomas Basin Conservancy 2014).

Placer County Conservation Program

The Placer County Conservation Program (PCCP) is in preparation as of May 2019. Placer County, CDFW, and USFWS finalized an HCP/NCCP planning agreement in December 2001. The PCCP would cover approximately 201,000 acres of western Placer County. Fourteen wildlife species are proposed for coverage and are included in Appendix BIO-1. As proposed, the PCCP would include the County Aquatic Resources Program to issue permits related to the CWA and the California Fish and Game Code. In 2018, the Placer County Board of Supervisors adopted an interim in-lieu fee program to mitigate the impact of development projects on covered species and habitat in advance of implementation of the PCCP (County of Placer 2014).

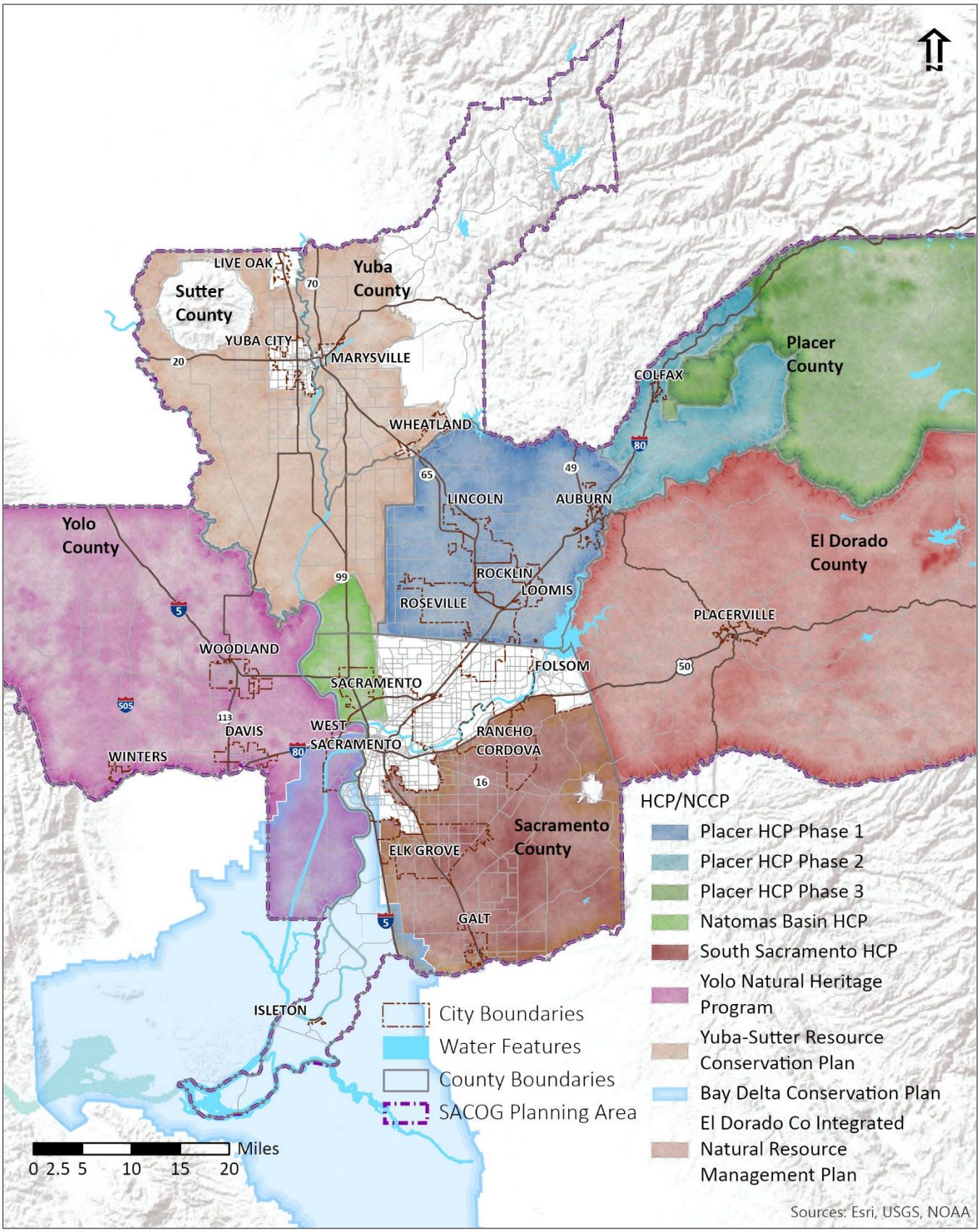


Figure 6-3
Plan Area HCP-NCP Boundaries

South Sacramento Habitat Conservation Plan

Pursuant to Section 10(a)(1)(B) of the ESA, the South Sacramento Habitat Conservation Plan (SSHCP) presents a regional approach to preserve Federal and state endangered and threatened species and to streamline the existing development-permitting process in areas under development. The SSHCP, which was approved by Sacramento County in 2018, is a large-scale consolidated effort to protect and enhance wetlands (primarily vernal pools), aquatic, and upland habitats to provide ecologically viable conservation areas (County of Sacramento et al. 2010). Permits for the SSHCP are being drafted but have not yet been issued as of May 2019. The SSHCP covers 372,000-acres of south Sacramento County and Rancho Cordova, California. It will preserve natural lands in Sacramento County and protect habitat for 28 special-status plant and animal species, including 10 state and federally listed species, which are included in Appendix BIO-1. The boundary of the SSHCP was defined using political and ecological factors. The geographical boundaries are U.S. Highway 50 to the north, the Sacramento River levee and County Road J11 to the west, the Sacramento County line with El Dorado and Amador counties to the east, and the San Joaquin County line to the south. The SSHCP will allow the County and cities of Sacramento, Rancho Cordova, and Galt to extend incidental take coverage to third parties.

Yolo Habitat Conservation Plan/Natural Communities Conservation Plan

The Yolo HCP/NCCP became effective January 11, 2019; it allows for the incidental take of specified species listed under the federal ESA and CESA, subject to conditions. The HCP/NCCP is implemented by the Yolo Habitat Conservancy, a joint powers agency composed of Yolo County, and its four cities (Davis, West Sacramento, Woodland, and Winters). The HCP/NCCP planning area includes the entirety of Yolo County which is approximately 653,500 acres. The plan also includes conservation activities outside of Yolo County within an additional 1,174 acres along Putah Creek in Solano County. The plan provides coverage for 12 species: eight state-listed or federally listed species and four species that are not listed but could become listed during the 50-year term of the plan. The covered species are included in Appendix BIO-1.

Yuba/Sutter Regional Conservation Plan

The Yuba-Sutter Regional Conservation Plan (YSRCP) would be an HCP and NCCP (YSRCP 2015). YSRCP would provide an effective framework to protect and enhance agricultural and natural resources in Yuba and Sutter counties, while improving and streamlining the environmental permitting process for impacts to threatened and endangered species. YSRCP would allow Yuba and Sutter counties; the cities of Wheatland, Yuba City, and Live Oak; and the Plan Implementing Entity (collectively, the permittees) to control threatened and endangered species permitting for activities and projects in specifically defined areas of the counties. YSRCP would also serve to provide comprehensive species and ecosystem conservation and contribute to the recovery of threatened and endangered species in northern California. The YSRCP area generally includes the counties of Sutter and Yuba; however, the YSRCP area does not include the Sutter Buttes, portions of Southern Sutter County within the Natomas Basin HCP, portions of Eastern Yuba County that are dominated by oak woodlands, and the City of Marysville. YSRCP would provide coverage for 19 species: 15 wildlife species and four plant species (included in Appendix BIO-1).

GENERAL PLANS

Local planning policies related to biological resources are also established in each jurisdiction's general plan. In general, jurisdictions may have policies in place that establish conservation areas; preserve ecological function; encourage wildlife-friendly development or operating practices; support native species; or address impacts on plants, fish, or wildlife; special-status species; oak woodland; or other habitat preservation (e.g., riparian, wetland, forest).

NATIVE AND HERITAGE TREE ORDINANCES

Most counties and numerous cities within the plan area of the proposed MTP/SCS have adopted general plan policies, and in some cases adopted ordinances to protect native and/or heritage trees, or encourage preservation of trees in public areas. These include the Placer County Tree Ordinance (Article 12.16), Sacramento County Tree Preservation and Protection Ordinance (Chapter 12.12), Yolo County Code (Section 8-1.708) and general plan policies in the Yolo County General Plan, Yuba County General Plan Conservation Element, and El Dorado County General Plan Conservation and Open Space Element. Most policies and ordinances require project applicants to obtain a tree removal permit and compensate for the removal of protected trees. These plans, ordinances, and policies are applicable to specific project approvals. Yolo County also has an Oak Woodland Conservation and Enhancement Plan, although the plan is voluntary.

6.4 Impacts and Mitigation Measures

6.4.1 Methods and Assumptions

This program-level analysis generally evaluated potential biological impacts that may occur from implementation of the proposed MTP/SCS based on the projected land use pattern and planned transportation network relative to the known inventory of biological resources within the plan area of the proposed MTP/SCS.

By 2040, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to transportation and land use conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year that comprehensive land use, demographic, traffic count and vehicle miles traveled data are available for the SACOG region. Chapter 1: Introduction includes a more detailed discussion of the baseline year for the proposed MTP/SCS. Exceptions to the 2016 baseline include updated state and federal special-status species lists (CDFW 2019, CNDDB 2019, CNPS 2019, USFWS 2019a).

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's HFTAs. Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

For the analysis of specific biological resources in this chapter, "existing conditions" refers to conditions approximately in the period 2008 to 2015, depending on the timeframe of specific data gathered for the analysis. The biological resource data available for this program-level document are compiled from resource surveys that were conducted over multiple years with varying completion dates, which makes it impractical to define a single year for the data. However, this chapter uses the most comprehensive and recently available maps and data on biological resources in each county. The biological resources environment in 2016 is reasonably represented by the available data describing conditions between 2008 and 2015, because development that has occurred in the region during this period has not been sufficient to substantially change biological conditions. The key sources of data and information used to identify existing biological resources in the plan area of the proposed MTP/SCS are listed below:

- California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation; California Department of Fish and Wildlife, and Federal Highways Administration (Spencer et al. 2010);
- California Aquatic Resource Inventory (CARI) version 0.3 (San Francisco Estuary Institute (SFEI) 2017) Yuba and Sutter Land Cover (SACOG 2012);
- South Sacramento HCP/NCCP Land Cover (County of Sacramento et al. 2014)
- Placer County Conservation Plan Western Placer Land Cover (County of Placer 2016; USDA 2014);
- Yolo HCP/NCCP Land Cover (County of Yolo 2015);
- CALVEG for the North Sierra (USDA 2014) and Central Valley (USDA 2016) ecological zones;
- CNDDB query results for Sacramento, Sutter, Yolo, Yuba, Placer, and El Dorado Counties (California Natural Diversity Database 2019; see Appendix BIO-1);
- USFWS list of endangered, threatened, and proposed species for Sacramento, Sutter, Yolo, Yuba, Placer, and El Dorado Counties (USFWS 2019a see Appendix BIO-1);
- CDFW's List of Special Vascular Plants, Bryophytes, and Lichens (CDFW 2019);
- CDFW's List of Vegetation Alliances and Associations (CDFW 2018b)
- CNPS's online Inventory of Rare and Endangered Plants for Sacramento, Sutter, Yolo, Yuba, Placer, and El Dorado Counties (CNPS 2019; see Appendix BIO-1);
- CNPS's A Manual of California Vegetation, Online Edition (CNPS 2019)
- CDFA's Pest Ratings of Noxious Weed Species and Noxious Weed Seed (CDFA 2019); and
- California Flora Database (Calflora 2019a).

This impact analysis recognizes that biological resources could be indirectly or directly affected by construction and maintenance activities associated with potential projects in the plan area of the proposed MTP/SCS. Biological resources could be directly or indirectly disturbed by the following activities:

Operational Impacts:

- projected changes in land use, where wildland or agricultural areas are converted;
- indirect changes in biological resources due to land use, such as changes in hydrology and runoff due to increased impervious surfaces (see Chapter 11 – Hydrology and Water Quality for a discussion of water runoff and water quality degradation and associated mitigation measures);
- direct loss of habitat associated with roadway widening, new transportation facilities, or interchange, rail, and bikeway improvements;
- herbicide application and removal of vegetation as part of landscaping and road maintenance; and
- degradation of water quality in wetlands and waterways, resulting from road runoff containing petroleum products.

Construction Impacts:

- stream dewatering or installation of temporary water-diversion structures during construction of new growth, bridges and other transportation facilities over riverine systems;
- temporary stockpiling of soil or construction materials and sidecasting of soil and other construction wastes;
- temporary removal of riparian vegetation along waterways during construction of new land uses and bridges;
- removal of vegetation during construction of temporary staging areas and access roads;
- ground disturbance;
- soil compaction in temporarily disturbed areas and generation of dust by construction equipment; and
- water runoff from the construction area.

The footprints of the projected land use pattern and planned transportation improvements anticipated in the proposed MTP/SCS were overlaid upon various land cover data. Road widenings, new roads, new or expanded interchanges, and new rail transit infrastructure projects were analyzed by calculating a 100-foot buffer area around the center line of the proposed projects and measuring the area overlapping various land cover data. This method was used because details about the planned transportation improvements identified in the proposed MTP/SCS, such as precise alignment, width, and location in relation to biological resources, are not known at this time. Only road widenings, new roads, new or expanded interchanges, and new rail transit infrastructure were spatially analyzed this way, and the analysis potentially overestimates potential impacts because many planned transportation improvements, such as road widenings, would not use the entire buffer area.

Planned transportation improvements that would be constructed within the footprint of existing roadways (e.g. re-paving; new transit service; bicycle lanes added within existing developed right-of-way) and projects without physical characteristics (e.g. programs) are not analyzed because they would not contribute to adverse effects. Class II (bike lanes) and Class III (bike routes) bicycle projects are included in the roadway buffer analysis because such projects are part of the roadway right-of-way. A

buffer analysis was not performed for Class I (separate, multi-use trails) projects. Because Class I trails are much narrower than roadways, performing a programmatic buffer analysis with meaningful results is not feasible, as even small shifts in alignment can result in varying outcomes. However, a majority of new Class I trails in the proposed plan area of the MTP/SCS run parallel to new, expanded, or existing roadways or along waterways and levees. Class I trails that run parallel to new or expanded roadways would be captured by the 100-foot buffer around new or expanded roadway and light rail projects that was used to calculate potential impacts on biological resources. Class I trails not covered by the 100-foot buffer are addressed qualitatively in the impact analysis.

Where the projected land use pattern or planned transportation improvements result in the conversion of land from wildland or potential habitat to developed or disturbed land, this analysis assumes there is a potential direct impact on biological resources. Because the precise location and acreage of sensitive natural communities is not completely known within the plan area of the proposed MTP/SCS, impacts to sensitive natural communities are quantified based on acreages of impact to wildland habitat. The impact acreages are estimates of the existing acres within each land cover type that are overlain by the projected land use pattern or planned transportation improvements in the proposed MTP/SCS. This analysis qualitatively addresses, but does not quantify, indirect impacts on biological resources. However, wherever direct impacts occur, the analysis expects that there are potential indirect impacts on biological resources adjacent to the directly converted lands. Mitigation Measures proposed within this chapter are designed to address both potential direct and indirect impacts on biological resources. Impacts identified in this analysis for the plan area of the proposed MTP/SCS are shown in Table 6-3, by Community Type, HFTA, and regionally.

Table 6-3
Biological Resources Impact Overview by Community Type and High Frequency Transit Areas (acres)

Land Use Development Area	Regional	Center/ Corridor	Established	Developing	Rural Residential	Lands Not Identified	Placer HFTAs	Sac. HFTAs	Yolo HFTAs
Land Cover Types Impact									
Wildland	27,762	905	7,694	11,082	7,956	425	1,061	789	29
Aquatic	3,289	78	1,227	2,010	115	58	535	70	20
Agriculture	9,943	896	3,439	4,717	704	452	103	310	141
Developed/ Disturbed	16,351	3,352	8,486	2,126	1,815	636	379	4,140	1,172
Critical Habitat Impact[1]	3,265	234	1,331	1,360	41	294	0	328	841
Essential Connectivity Area Impact	7,330	46	2,738	2,924	1,352	270	902	0	0

Source: USFWS 2019b, Critical Habitat Portal, Accessed March 2019, Spenser et al. 2010. Land use forecast and planned transportation project data and analysis, SACOG June 2019.
Note: Totals may not sum due to rounding.

The mitigation measures described for potential impacts to sensitive biological resources have not been developed through formal consultation or coordination with resource agencies (e.g., CDFW, USFWS, NOAA Fisheries, USACE, and RWQCB). As part of subsequent, project-level environmental analysis, agencies must be contacted as part of the environmental compliance process

to determine specific compensatory mitigation for impacts to wetlands, state- and federally listed species, and riparian habitats. Additional mitigation measures may also be identified as conditions of future project permits (e.g., a Section 404 permit, Biological Opinions, or Section 1602 Streambed Alteration Agreement).

The analysis assumes implementing agencies would ensure biological resources are treated in accordance with applicable federal, state and local laws and regulations as part of project planning, design and engineering.

6.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

- BIO-1: Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS;
- BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
- BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means;
- BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- BIO-6: Conflict with the provisions of an adopted habitat conservation plan (HCP), natural communities conservation plan (NCCP), or other approved local, regional, or state habitat conservation plan.
- BIO-7: Substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

6.4.3 Impacts and Mitigation Measures

IMPACT BIO-1: HAVE A SUBSTANTIAL ADVERSE EFFECT, EITHER DIRECTLY OR THROUGH HABITAT MODIFICATION, ON ANY SPECIES IDENTIFIED AS A CANDIDATE, SENSITIVE, OR SPECIAL-STATUS SPECIES IN LOCAL OR REGIONAL PLANS, POLICIES, OR REGULATIONS OR BY CDFW OR USFWS.

Regional Impacts

The plan area of the proposed MTP/SCS contains approximately 3.6 million acres of potential wildlife habitat, including wildland, aquatic, and agriculture land cover types (Table 6-1). While the quality of agriculture habitat for wildlife may not be as high as wildland land cover types, some lands provide important habitat to special-status species, and a number of species are closely associated with certain agriculture crops and practices. Aquatic habitats throughout the plan area have been dramatically reduced in acreage and altered in function since European settlement and the remaining aquatic habitat provides important areas for feeding, shelter, and movement of wildlife.

Implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS could result in the loss of special-status species and habitat. Impacts on special-status plants and special-status wildlife may include direct loss of individuals, reduction in local population size, reduced reproductive success, or habitat fragmentation. Table 6-4 provides estimates of potential regional impacts on habitat resulting from the projected land use pattern and planned transportation improvements intended to accommodate population growth and travel in the plan area of the proposed MTP/SCS. An unknown number of individual special-status species could be injured or killed during implementation and construction within the plan area of the proposed MTP/SCS. Because the precise location and abundance of special-status species is unknown within the plan area of the proposed MTP/SCS, impacts are quantified based on habitat suitability and described in more detail below.

Class I trails that run parallel to new or expanded roadways would be captured by the 100-foot buffer around new or expanded roadway and light rail projects used to calculate potential impact acreages. Some proposed Class I trails may not be captured by the 100-foot buffer, such as trails located along rivers, through open space or recreation areas, or in other areas greater than 100 feet from new or expanded roadways. Development of these Class I trails could result in impacts to special-status species habitat in excess of the impact acreages described below.

Table 6-4
Potential Impacts to Habitat Areas in the Plan Area of the Proposed MTP/SCS (acres)[1]

	Land Use Impacts	Transportation Impacts	Total Impacts
WILDLAND LAND COVER			
Grasslands	14,501	2,913	17,414
Chaparral	411	28	439
Scrub	45	0	45
Valley Oak Woodland/Savanna	1,329	99	1,428
Foothill Woodland	4,336	200	4,536
Montane Forest	2,969	25	2,994
Riparian	652	130	782
Barren	124	39	163

	Land Use Impacts	Transportation Impacts	Total Impacts
Mine Tailings	210	51	261
WILDLAND TOTAL	***24,577***	***3,485***	***28,062***
AQUATIC LAND COVER			
Wetlands	2,764	516	3,280
Open Water/Lakes and Reservoirs/River	150	60	210
AQUATIC TOTAL	***2,914***	***576***	***3,490***
AGRICULTURE LAND COVER			
Orchards and Vineyards	699	205	904
Pasture	2,369	563	2,932
Rice	814	176	990
Row and Field Crops	4,389	993	5,382
AGRICULTURE TOTAL	***8,271***	***1,937***	***10,208***
DEVELOPED/DISTURBED LAND COVER			
Developed	10,079	5,547	15,626
Disturbed	605	176	778
Nonnative Vegetation	9	0	9
DEVELOPED/DISTURBED TOTAL	***10,693***	***5,723***	***16,413***
TOTAL LAND COVER	**46,455**	**11,722**	**58,173**

Note: Totals may not sum due to rounding. Also, the land use and transportation acres reported in Table 6-4 vary minimally, about 0.1 percent, from the total land use footprint and planned transportation project acres reported in the Project Description because of overlapping geographies and different geographic extents to the data sources analyzed in this chapter.

Source: Land Cover data was compiled by Ascent in 2019 to create the land cover dataset that was analyzed in this chapter using data from U.S. Forest Service (USDA 2014, 2016), California Aquatic Resources Inventory (SFEI 2017), Placer County Conservation Plan (County of Placer 2016), South Sacramento HCP (County of Sacramento et al. 2014), Sutter and Yuba land cover (SACOG 2012), and Yolo HCP (County of Yolo 2015). Land use forecast and planned transportation project data and analysis, SACOG June 2019.

The projected land use pattern in the proposed MTP/SCS could result in potential conversion of approximately 24,557 acres of wildland habitats, 2,914 acres of aquatic habitats, and 8,271 acres of agriculture land conversion (Table 6-4). The potential impact from planned transportation improvements is smaller at approximately 3,185 acres of wildland habitats, 375 acres of aquatic habitats, and 1,672 acres of agriculture land converted (Table 6-4). Combined, the projected land use pattern and planned transportation improvements in the proposed MTP/SCS could result in conversion of 40,994 acres, or approximately 1.1 percent, of potential habitat for sensitive species and agricultural cover in the plan area of the proposed MTP/SCS. Wildland habitat in the plan area of the proposed MTP/SCS includes several land cover types that provide habitat, food, and cover for special-status species, some of which are endemic to these habitats.

The habitat type with the greatest acreage impact in the plan area of the proposed MTP/SCS is grassland. The projected land use pattern in the plan area of the proposed MTP/SCS could affect approximately 14,501 acres of grassland habitat, whereas planned transportation improvements could affect approximately 2,663 acres (Table 6-4). The projected land use pattern and planned transportation improvements under the proposed MTP/SCS could also result in potential conversion of approximately 5,690 acres of foothill woodland habitat, 2,995 acres of montane forest habitat, 439 acres of chaparral habitat, 234 acres of valley oak woodland habitat, and 45 acres of scrub habitat (Table 6-4). The projected land use pattern and planned transportation improvements

could also result in conversion of approximately 9,943 acres of agriculture lands, including row and field crops, pasture, rice, and orchards and vineyards (Table 6-4). Refer to Section 6.2 "Environmental Setting" for a discussion of special-status and common wildlife habitat associations.

The plan area of the proposed MTP/SCS supports 142 special-status plant species and 81 special-status wildlife species Appendix BIO-1) and supports critical habitat for seven federally listed plant species and eight federally listed wildlife species (Table 6-2). The projected land use pattern could affect 2,303 acres of critical habitat for five of these federally listed species: California red-legged frog, Sierra Nevada yellow-legged frog, delta smelt, and valley elderberry longhorn beetle, and vernal pool fairy shrimp (Table 6-5). Planned transportation improvements under the proposed MTP/SCS could affect 963 acres of critical habitat for five of these federally listed species: Delta smelt, vernal pool fairy shrimp, vernal pool tadpole shrimp, Sacramento Orcutt grass, and slender Orcutt grass (Table 6-5).

Table 6-5
Potential Impacts to Critical Habitat for Federally Listed Species in the Plan Area of the Proposed MTP/SCS (acres)

Species	Land Use Impacts	Transp. Impacts	Total Impacts
Amphibians			
California red-legged frog	47	0	47
Sierra Nevada Yellow-Legged Frog	20	0	20
Fish			
Delta smelt	2,022	740	2,763
Plants			
Sacramento Orcutt grass	0	4	4
Slender Orcutt grass	0	4	4
Invertebrates			
Valley elderberry longhorn beetle	15	0	15
Vernal pool fairy shrimp	198	121	319
Vernal pool tadpole shrimp	0	94	94
Total Critical Habitat	**2,303**	**963**	**3,265**

Note: Totals may not sum due to rounding.
Source: USFWS Critical Habitat Portal 2019; Compiled by SACOG and Ascent Environmental, 2019.

Because implementation of the projected land use pattern and planned transportation improvements under the proposed MTP/SCS at the regional level would result in conversion of habitats that support or have the potential to contain special-status plants and wildlife, Impact BIO-1 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-1a, BIO-1b, and BIO-1c are described below.

Localized Impacts

Center and Corridor Communities
Despite the predominantly urbanized character of Center and Corridor Communities, these areas contain some wildland (predominately grassland), aquatic, and agriculture land cover types, which may provide suitable habitat for special-status species.

Land use changes under the proposed MTP/SCS in Center and Corridor Communities could convert 805 acres of wildland habitats, 48 acres of aquatic habitat, and 808 acres of agriculture land (Table 6-6). The potential impact from planned transportation improvements is 101 acres of wildland, 30 acres of aquatic, and 88 acres of agriculture land.

The land cover type with the greatest acreage habitat impact in Center and Corridor Communities is grassland habitat. Implementation of the projected land use pattern and planned transportation improvements under the proposed MTP/SCS could result in conversion of approximately 757 acres of this habitat (Table 6-6). The projected land use pattern and planned transportation improvements could also result in conversion of other habitats, including approximately 54 acres of wetland habitat, 49 acres of riparian habitat, and 33 acres of foothill woodland habitat (Table 6-6).

Wildland and agriculture land cover types within Center and Corridor Communities may provide habitat for special-status species, as well as critical habitat for federally listed species. The projected land use pattern in Center and Corridor Communities could affect critical habitat for Delta smelt and valley elderberry longhorn beetle (Table 6-7). Planned transportation improvements in Center and Corridor Communities could also affect critical habitat for Delta smelt (Table 6-7).

Because construction of the projected land use pattern and planned transportation improvements of the Center and Corridor Communities could result in conversion of habitats that contain or have the potential to contain special-status plant and wildlife, Impact BIO-1 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-1a, BIO-1b, and BIO-1c are described below.

Established Communities

Despite the predominantly urbanized character of Established Communities, these areas contain some relatively large areas of wildland, aquatic, and agriculture land cover types, which may provide suitable habitat for special-status species.

The projected land use pattern under the proposed MTP/SCS in Established Communities could convert 6,562 acres of wildland habitats, 1,067 acres of aquatic habitat, and 2,855 acres of agriculture land (Table 6-6). The potential impact from planned transportation improvements includes 1,132 acres of wildland, 161 acres of aquatic habitat, and 584 acres of agriculture land.

The wildland land cover type with the greatest acreage habitat impact in Established Communities is grassland habitat. Implementation of the projected land use pattern and planned transportation improvements under the proposed MTP/SCS could result in conversion of approximately 5,253 acres of this habitat (Table 6-6). The projected land use pattern and planned transportation improvements could also result in conversion of other habitats, including approximately 1,173 acres of foothill woodland habitat, 615 acres of montane forest habitat, 1,165 acres of wetland habitat, 158 acres of riparian habitat, and 104 acres of chaparral habitat (Table 6-6).

Wildland and agriculture land cover types within Established Communities may provide habitat for special-status species, as well as critical habitat for federally listed species. The projected land use pattern in Established Communities could affect critical habitat for Sierra Nevada yellow-legged frog and Delta smelt (Table 6-7). Planned transportation improvements in Established Communities could also affect critical habitat for Delta smelt, vernal pool fairy shrimp, and vernal pool tadpole shrimp (Table 6-7).

Table 6-6
Potential Impacts to Habitat Areas (all land cover areas) by Community Type (acres)

	Center and Corridor Communities			Established Communities			Developing Communities			Rural Residential Communities			Lands Not Identified for Development		
	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
WILDLAND LAND COVER															
Grasslands	684	73	757	4,380	873	5,253	7,601	1472	9,073	1,836	100	1,936	0	394	394
Chaparral	2	0	2	85	19	104	4	9	13	320	0	320	0	0	0
Scrub	0	0	0	45	0	45	0	0	0	0	0	0	0	0	0
Valley Oak Woodland/ Savanna	38	4	42	170	38	208	389	35	424	732	17	749	0	5	5
Foothill Woodland	29	4	33	1,075	98	1,173	864	69	933	2,368	27	2,395	0	3	3
Montane Forest	16	0	16	599	17	616	17	9	26	2,337	0	2,337	0	0	0
Riparian	30	19	50	100	57	157	313	40	353	209	2	211	0	10	10
Barren	4	1	5	107	19	126	5	8	13	8	0	8	0	11	11
Mine Tailings	0	0	0	1	11	12	209	38	247	0	0	0	0	2	2
WILDLAND TOTAL	***805***	***101***	***905***	***6,562***	***1,132***	***7,694***	***9,402***	***1,680***	***11,082***	***7,810***	***146***	***7,956***	***0***	***425***	***425***
AQUATIC LAND COVER															
Wetlands	43	11	54	1,028	136	1,164	1,626	313	1,939	67	1	68	0	52	52
Open Water/Lakes and Reservoirs/Rivers	5	19	23	39	24	63	59	12	71	47	0	47	0	6	6
AQUATIC TOTALS	***48***	***30***	***77***	***1,067***	***160***	***1,227***	***1,685***	***325***	***2,010***	***114***	***1***	***115***	***0***	***58***	***58***
AGRICULTURE LAND COVER															
Orchards and Vineyards	31	2	33	485	25	510	117	3	120	66	2	68	0	172	172
Pasture	10	1	11	636	223	859	1,346	257	1,603	377	23	400	0	60	60
Rice	331	34	365	124	25	149	359	85	444	0	14	14	0	19	19
Row and Field Crops	436	52	488	1,610	311	1,921	2,155	395	2,550	188	34	222	0	201	201
AGRICULTURE TOTAL	***808***	***89***	***897***	***2,855***	***584***	***3,439***	***3,977***	***740***	***4,717***	***631***	***73***	***704***	***0***	***452***	***452***
DEVELOPED/DISTURBED LAND COVER															
Developed	2,193	1,123	3,316	4,991	3,238	8,229	1,220	538	1,758	1,675	123	1,798	0	526	526
Disturbed	33	3	36	222	32	254	337	30	367	10	1	11	0	110	110
Nonnative Vegetation	0	0	0	3	0	3	0	0	0	6	0	6	0	0	0
DEVELOPED/DISTURBED TOTAL	***2,226***	***1,126***	***3,352***	***5,216***	***3,270***	***8,486***	***1,557***	***569***	***2,126***	***1,691***	***124***	***1,815***	***0***	***636***	***636***
TOTAL LAND COVER	**3,885**	**1,345**	**5,231**	**15,700**	**5,146**	**20,846**	**16,621**	**3,313**	**19,934**	**10,246**	**343**	**10,589**	**0**	**1,573**	**1,573**

Source: Land Cover data was compiled by Ascent in 2019 to create the land cover dataset that was analyzed in this chapter using data from U.S. Forest Service (USDA 2014, 2016), California Aquatic Resources Inventory (SFEI 2017), Placer County Conservation Plan (County of Placer 2016), South Sacramento HCP (County of Sacramento et al. 2014), Sutter and Yuba land cover (SACOG 2012), and Yolo HCP (County of Yolo 2015). Land use forecast and planned transportation project data and analysis, SACOG June 2019.

Table 6-7
Potential Impacts to Critical Habitat for Federally Listed Species by Community Type (acres)

Species	Center and Corridor Communities			Established Communities			Developing Communities			Rural Residential Communities			Lands Not Identified for Development		
	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
Amphibians															
California red-legged frog	0	0	0	0	0	0	0	0	0	47	0	47	0	0	0
Sierra Nevada yellow-legged frog	0	0	0	20	0	20	0	0	0	0	0	0	0	0	0
Fish															
Delta smelt	140	79	219	818	312	1,130	1,064	71	1,135	0	0	0	0	279	279
Plants															
Sacramento Orcutt grass	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
Slender Orcutt grass	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
Invertebrates															
Valley elderberry longhorn beetle	15	0	15	0	0	0	0	0	0	0	0	0	0	0	0
Vernal pool fairy shrimp	0	0	0	0	90	90	198	27	225	0	0	0	0	4	4
Vernal pool tadpole shrimp	0	0	0	0	90	90	0	0	0	0	0	0	0	4	4
Total Critical Habitat	**156**	**79**	**234**	**838**	**492**	**1,331**	**1,262**	**98**	**1,360**	**47**	**0**	**47**	**0**	**294**	**294**

Source: USFWS 2019 b Critical Habitat Portal; compiled by SACOG 2019

Because construction of the projected land use pattern and planned transportation improvements of the Established Communities could result in conversion of habitats that contain or have the potential to contain special-status plant and wildlife, Impact BIO-1 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-1a, BIO-1b, and BIO-1c are described below.

Developing Communities

Despite the predominantly urbanized character of Developing Communities, these areas contain some relatively large areas of wildland, aquatic, and agriculture land cover types, which may provide suitable habitat for special-status species.

The projected land use pattern under the proposed MTP/SCS in Developing Communities could convert 9,402 acres of wildland habitats, 1,685 acres of aquatic habitat, and 3,977 acres of agriculture land (Table 6-6). The potential impact from planned transportation improvements includes 1,680 acres of wildland, 325 acres of aquatic, and 740 acres of agriculture land.

The wildland land cover type with the greatest acreage habitat impact in Developing Communities is grassland habitat. Implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS could result in conversion of approximately 9,073 acres of this habitat (Table 6-6). The projected land use pattern and planned transportation improvements could also result in conversion of other habitats, including approximately 1,939 acres of wetland habitat, 933 acres of foothill woodland habitat, and 353 acres of riparian habitat (Table 6-6).

Wildland and agriculture land cover types within Developing Communities may provide habitat for special-status species, as well as critical habitat for federally listed species. The projected land use pattern in Developing Communities could affect critical habitat for Delta smelt and vernal pool fairy shrimp (Table 6-7). Planned transportation improvements in Developing Communities could also affect critical habitat for Delta smelt and vernal pool fairy shrimp (Table 6-7).

Because construction of the projected land use pattern and planned transportation improvements of the Developing Communities could result in conversion of habitats that contain or have the potential to contain special-status plant and wildlife, Impact BIO-1 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-1a, BIO-1b, and BIO-1c are described below.

Rural Residential Communities

While Rural Residential Communities have undergone development and conversion of natural habitats for urban uses, these areas contain some relatively large areas of wildland, aquatic, and agriculture land cover types, which may provide suitable habitat for special-status species.

The projected land use pattern under the proposed MTP/SCS in Rural Residential Communities could convert 7,810 acres of wildland habitats, 114 acres of aquatic habitat, and 631 acres of agriculture land (Table 6-6). The potential impact from planned transportation improvements includes 147 acres of wildland habitats, 2 acre of aquatic habitats, and 72 acres of agricultural land (Table 6-6).

The wildland land cover type with the greatest acreage habitat impact in Rural Residential Communities is foothill woodland habitat. Implementation of the projected land use pattern in the proposed MTP/SCS could result in conversion of approximately 3,066 acres of this habitat (Table

6-6). The projected land use pattern and planned transportation improvements could also result in conversion of other habitats, including approximately 2,337 acres of montane forest habitat, 1,937 acres of grassland habitat, and 320 acres of chaparral habitat (Table 6-6).

Wildland and agriculture land cover types within Rural Residential may provide habitat for special-status species, as well as critical habitat for federally listed species. The projected land use pattern and planned transportation improvements in Rural Residential Communities could affect critical habitat for California red-legged frog (Table 6-7).

Because construction of the projected land use pattern of the Rural Residential Communities could result in conversion of habitats that contain or have the potential to contain special-status plant and wildlife, Impact BIO-1 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-1a, BIO-1b, and BIO-1c are described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Because the projected land use pattern in the proposed MTP/SCS would not result in the conversion of habitat resulting in loss of habitats that contain or have the potential to contain special-status wildlife, this impact is considered less than significant (LS). No mitigation is required. The proposed MTP/SCS would, however, make a limited number of planned transportation improvements in this Community Type by 2040. The potential impact from planned transportation improvements includes 425 acres of wildland, 58 acres of aquatic, and 453 acres of agriculture land. The land cover type with the greatest acreage impact in this Community Type is grassland. Implementation of the planned transportation improvements in the proposed MTP/SCS could result in conversion of approximately 4394 acres of this habitat (Table 6-6).

Wildland and agriculture land cover types within Lands Not Identified for Development may provide habitat for special-status species, as well as critical habitat for federally listed species. The planned transportation improvements in this Community Type could affect critical habitat for Delta Smelt, Sacramento Orcutt grass, slender Orcutt grass, vernal pool fairy shrimp, and vernal pool tadpole shrimp (Table 6-7).

Because construction of planned transportation improvements in Lands Not Identified for Development could result in conversion of habitats that contain or have the potential to contain special-status plant and wildlife, Impact BIO-1 is considered potentially significant (PS). Mitigation Measures BIO-1a, BIO-1b, and BIO-1c are described below.

High Frequency Transit Area Impacts

Implementation of the projected land use pattern and planned transportation improvements associated with HFTAs could result in impacts on habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status plant and wildlife species (see Appendix BIO-1). Effects on special-status species or their habitat could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6-8 provides estimates of potential impacts on habitat resulting from the projected land use pattern and planned transportation improvements intended to accommodate growth and travel in the three HFTAs.

Table 6-8
Potential Impacts on Habitat by High Frequency Transit Area (acres)

Land Cover	Placer County HFTAs			Sacramento County HFTAs			Yolo County HFTAs		
	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
WILDLAND LAND COVER									
Grasslands	895	116	1,011	585	116	701	21	0	21
Chaparral	0	0	0	0	0	0	0	0	0
Scrub	0	0	0	0	0	0	0	0	0
Valley Oak Woodland/ Savanna	5	2	7	17	0	17	0	0	0
Foothill Woodland	22	10	32	0	0	0	0	0	0
Montane Forest	0	0	0	0	*0*	0	0	0	0
Riparian	5	6	11	25	26	51	6	2	8
Barren	0	0	0	15	4	20	0	0	0
Mine Tailings	0	0	0	0	0	0	0	0	0
Rock Outcrops/Cliffs	0	0	0	0	0	0	0	0	0
Serpentine	0	0	0	0	0	0	0	0	0
WILDLAND TOTAL	***927***	***134***	***1,061***	***642***	***146***	***789***	***27***	***2***	***29***
AQUATIC LAND COVER									
Wetlands	425	110	535	38	9	47	0	0	0
Open Water/Lakes and Reservoirs/Rivers	0	0	0	7	16	23	11	8	20
AQUATIC TOTAL	***425***	***110***	***535***	***45***	***25***	***70***	***11***	***8***	***20***
AGRICULTURE LAND COVER									
Orchards and Vineyards	13	0	13	31	0	31	0	0	0
Pasture	1	32	33	117	20	136	0	0	0
Rice	7	0	7	0	0	0	0	0	0
Row and Field Crops	7	43	50	116	27	143	111	29	141
AGRICULTURE TOTAL	***28***	***75***	***103***	***264***	***47***	***310***	***111***	***29***	***141***
DEVELOPED/DISTURBED LAND COVER									
Developed	191	171	362	2,387	1,673	4,059	858	314	1,172
Disturbed	13	4	17	68	13	81	0	0	0
Nonnative Vegetation	0	0	0	0	0	0	0	0	0
DEVELOPED/DISTURBED TOTAL	***204***	***175***	***379***	***2,455***	***1,686***	***4,140***	***858***	***314***	***1,172***
TOTAL LAND COVER	**1,584**	**494**	**2,078**	**3,406**	**1,904**	**5,309**	**1,007**	**353**	**1,362**

Note: Totals may not sum due to rounding.
Source: Land Cover data was compiled by Ascent in 2019 to create the land cover dataset that was analyzed in this chapter using data from U.S. Forest Service (USDA 2014, 2016), Six County Aquatic Resources Inventory (SFEI 2017), Placer County Conservation Plan (County of Placer 2016), South Sacramento HCP (County of Sacramento et al. 2014), Sutter-Yuba HCP (SACOG 2012), and Yolo HCP (County of Yolo 2015). Land use forecast and planned transportation project data and analysis, SACOG June 2019.

Placer County High Frequency Transit Areas
The projected land use pattern under the proposed MTP/SCS in Placer County HFTAs could convert 927 acres of wildland habitat, 425 acres of aquatic habitat, and 28 acres of agricultural habitat (Table 6-8). Planned transportation improvements in Placer County HFTAs could result in conversion of 135 acres of wildland habitat, 110 acres of aquatic habitat, and 75 acres of agricultural habitat (Table 6-8).

The habitat type with the greatest acreage habitat impact in the Placer County TPA is grassland. Implementation of the projected land use pattern and planned transportation improvements proposed MTP/SCS in Placer County HFTAs could result in conversion of 1,011 acres of this habitat (Table 6-8). The projected land use pattern and planned transportation improvements could also result in conversion of other habitats, including approximately 39 acres of foothill woodland habitat (Table 6-8).

Wildland and agriculture land cover types may provide habitat for special-status species, as well as critical habitat for federally listed species. However, the projected land use pattern and planned transportation improvements in Placer County HFTAs would not affect critical habitat any federally listed species (Table 6-9).

Table 6-9
Potential Impacts to Critical Habitat for Federally Listed Species by High Frequency Transit Area (acres)

Species	Placer County HFTAs			Sacramento County HFTAs			Yolo County HFTAs		
	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
Delta smelt	0	0	0	48	87	135	675	155	830
Valley elderberry longhorn beetle	0	0	0	15	178	193	0	11	11
Giant garter snake	0	0	0	0	0	0	0	0	0
Least Bell's vireo	0	0	0	0	0	0	0	0	0
Steelhead – Central Valley DPS	0	0	0	0	0	0	0	0	0
Vernal pool fairy shrimp	0	0	0	0	0	0	0	0	0
Vernal pool tadpole shrimp	0	0	0	0	0	0	0	0	0
Western yellow-billed cuckoo	0	0	0	0	0	0	0	0	0
Total Critical Habitat	**0**	**0**	**0**	**63**	**265**	**328**	**675**	**166**	**841**

Note: Totals may not sum due to rounding.
Source: USFWS 2019b; Compiled by SACOG 2019

Because construction of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS could result in conversion of habitats that contain or have the potential to contain special-status plants and wildlife within Placer County HFTAs, Impact BIO-1 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-1a, BIO-1b, and BIO-1c are described below.

Sacramento County High Frequency Transit Areas
The projected land use pattern under the proposed MTP/SCS in Sacramento County HFTAs could convert 642 acres of wildland habitat, 45 acres of aquatic habitat, and 264 acres of agricultural habitat (Table 6-8). Planned transportation improvements in Sacramento County HFTAs could result in conversion of 146 acres of wildland habitat, 25 acres of aquatic habitat, and 47 acres of agricultural habitat (Table 6-8).

The habitat type with the greatest acreage habitat impact in the Sacramento County TPA is grassland. Implementation of the proposed MTP/SCS in Sacramento County HFTAs could result in conversion of 701 acres of this habitat (Table 6-8). The projected land use pattern and planned transportation improvements could also result in conversion of other habitats, including approximately 51 acres of riparian habitat and 47 acres of wetland habitat (Table 6-8).

Wildland and agriculture land cover types within Sacramento County HFTAs may provide habitat for special-status species, as well as critical habitat for federally listed species. The projected land use pattern and planned transportation improvements in Sacramento County HFTAs could affect critical habitat for Delta smelt and valley elderberry longhorn beetle (Table 6-9).

Because construction of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS could result in conversion of habitats that contain or have the potential to contain special-status plants and wildlife within Sacramento County HFTAs, Impact BIO-1 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-1a, BIO-1b, and BIO-1c are described below.

Yolo County High Frequency Transit Areas
The projected land use pattern under the proposed MTP/SCS in Yolo County HFTAs could convert 27 acres of wildland habitat, 11 acres of aquatic habitat, and 111 acres of agricultural habitat (Table 6-8). Planned transportation improvements expansion in Yolo County HFTAs could result in conversion of 2 acres of wildland habitat, 8 acres of aquatic habitat, and 29 acres of agricultural habitat (Table 6-8).

Implementation of the proposed MTP/SCS in Yolo County HFTAs could result in conversion of primarily agricultural habitat, and relatively small amounts of wildland and aquatic habitat. The wildland habitat type with the greatest acreage habitat impact in the Yolo County TPA is grassland. Implementation of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS in Yolo County HFTAs could result in conversion of 21 acres of this habitat (Table 6-8).

Wildland and agriculture land cover types within Yolo County HFTAs may provide habitat for special-status species, as well as critical habitat for federally listed species. The projected land use pattern in Yolo County HFTAs could affect critical habitat for Delta smelt (Table 6-9). Planned transportation improvements in Yolo County HFTAs could affect critical habitat for delta smelt and valley elderberry longhorn beetle (Table 6-9).

Because construction of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS could result in conversion of habitats that contain or have the potential to contain special-status plants and wildlife within Yolo County HFTAs, Impact BIO-1

is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-1a, BIO-1b, and BIO-1c are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project level would reduce impacts on biological resources and agencies with jurisdiction to adopt these measures should do so (Pub. Resources Code Section 21081).

Mitigation Measure BIO-1a: Conduct a Biological Resources Assessment.

- Prior to initiation of construction activities under the proposed MTP/SCS, the implementing agency shall require a qualified biologist to conduct a data review, land cover mapping (including aquatic habitats such as wetlands), and a reconnaissance-level survey and habitat assessment of the area of impact to identify whether any special-status plant or wildlife species habitat, riparian or other sensitive habitats, sensitive natural communities, wetlands, wildlife movement corridors, or wildlife nursery sites could be affected by construction activities. Additionally, the biologist will determine whether any local policies or ordinances intended to protect biological resources (e.g., tree removal policies) would apply, and whether construction activities would result in conflicts with these policies or ordinances. The data reviewed shall include the Biological Resources setting of this EIR (See Section 6.2 "Environmental Setting), and the best available current data for the area, including vegetation mapping data, species distribution information, CNDDB, CNPS Inventory of Rare and Endangered Plants of California, and relevant general plans, HCPs, and NCCPs. The biological resources assessment shall be completed at a time of year that is appropriate for identifying habitat and no more than one year prior to initiation of construction activities.
- If the qualified biologist determines that: the land within and in the vicinity of the area of impact does not contain suitable habitat for special-status plant or animal species, riparian or other sensitive habitats, sensitive natural communities, wetlands, wildlife movement corridors, or native wildlife nursery sites; construction activities would not result in adverse effects on these resources and/or that project implementation would not result in conflict with a local policy or ordinance or an adopted HCP or NCCP, the biologist will document the findings in a letter report to the implementing agency, and no further mitigation is required.

Mitigation Measure BIO-1b: Identify Special-Status Plant Species, and Avoid, Minimize, and Mitigate Impacts.

If the qualified biologist, after implementation of Mitigation Measure BIO-1a, determines that suitable habitat for special-status plants is present within the area of impact and could be adversely affected by construction activities, then the following measures shall be implemented:

- Eleven special-status plant species are covered under adopted HCPs or NCCPs within the plan area of the proposed MTP/SCS (Yolo HCP/NCCP, South Sacramento HCP, and Natomas Basin HCP; Appendix BIO-1). If a project under the proposed MTP/SCS is within the plan area of an adopted HCP or NCCP, and the project qualifies as a covered activity

under the HCP or NCCP, then the implementing agency may seek coverage under the plan. If permitting through an adopted HCP or NCCP is pursued, the implementing agency would be required to meet the permit conditions and other requirements established in the plan's Implementing Agreement, which often includes (depending on the plan) submitting a complete application package, paying required fees, fulfilling any appropriate survey requirements, and complying with all applicable conservation measures.

- For projects that are not within the plan area of an adopted HCP or NCCP or if special-status plant species that are not covered under an adopted HCP or NCCP may be present within the area of impact, the following measures shall apply:
- Prior to project initiation and during the blooming period for special-status plant species with potential to occur in the area of impact, a qualified botanist shall conduct protocol-level surveys for special-status plants in accordance with Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018c).
- If no special-status plants are found during the protocol-level survey, the botanist will document the findings in a letter report to USFWS, CDFW, and the implementing agency and no further mitigation will be required.
- If special-status plant species are found that cannot be avoided during construction, the implementing agency will consult with CDFW or USFWS to determine the appropriate mitigation measures for direct and indirect impacts that could occur as a result of project construction. The implementing agency will implement the agreed-upon mitigation measures to achieve no net loss of occupied habitat or individuals. Mitigation Measures may include preserving and enhancing existing populations, creation of offsite populations on project mitigation sites through seed collection or transplantation, and/or restoring or creating suitable habitat in sufficient quantities to achieve no net loss of occupied habitat and/or individuals.

Mitigation Measure BIO-1c: Identify Special-Status Wildlife, and Avoid, Minimize, and Mitigate Impacts.

If the qualified biologist, after implementation of Mitigation Measure BIO-1a, determines that suitable habitat for special-status wildlife is present within the area of impact and could be adversely affected by construction activities, then the following measures shall be implemented:

- Thirty special-status wildlife species are covered under adopted HCPs or NCCPs within the plan area of the proposed MTP/SCS (Yolo HCP/NCCP, South Sacramento HCP, and Natomas Basin HCP; Appendix BIO-1). If a project under the proposed MTP/SCS is within the plan area of an adopted HCP or NCCP, and the project qualifies as a covered activity under the HCP or NCCP, then the implementing agency may seek coverage under the plan. If permitting through an adopted HCP or NCCP is pursued, the implementing agency would be required to meet the permit conditions and other requirements established in the plan's Implementing Agreement, which often includes (depending on the plan) submitting a complete application package, paying required fees, fulfilling any appropriate survey requirements, and complying with all applicable conservation measures.
- For projects that are not within the plan area of an adopted HCP or NCCP or if special-status wildlife species that are not covered under an adopted HCP or NCCP may be present

within the area of impact due to the presence of suitable habitat, protocol-level surveys (where applicable), preconstruction surveys, and avoidance and minimization measures are required. Alternatively, if suitable habitat is determined to be present within the area of impact, presence of special-status species may be assumed instead of confirmed with surveys. Consultation with CDFW, USFWS, and/or NOAA Fisheries may also be required, depending on the type of impact and the species involved. Refer to the Avoidance and Minimization Measures for each special-status wildlife species with potential to occur within the plan area of the proposed MTP/SCS below.

- Consultation with CDFW or USFWS may include acquiring a CDFW Incidental Take Permit or a take exemption through Section 7, or an Incidental Take Permit through Section 10. Conditions of incidental take authorization may include minimization measures to reduce impacts on individual species, compensation for loss of the species including but not limited to preservation, restoration, or creation of special-status wildlife habitat. Incidental take authorization is not available for species with potential to occur within the plan area of the proposed MTP/SCS that are fully protected under California Fish and Game Code (American peregrine falcon, bald eagle, California black rail, golden eagle, greater sandhill crane, white-tailed kite, California wolverine, salt marsh harvest mouse, and ringtail).
- If habitat compensation is required, mitigation will occur at an agency approved mitigation bank or through individual mitigation locations as approved by USFWS and/or CDFW. Examples of representative minimum replacement ratios are presented below in Table 6-10. A mitigation and monitoring plan will be developed describing how unavoidable losses of special status wildlife will be compensated. The mitigation and monitoring plan will include how the site will be monitored and the duration of monitoring until the mitigation is considered to be successful. The implementing agency shall comply with all requirements of these Incidental Take Permits.
- Should Section 7 consultation be required, consideration of critical habitat within the area of impact would also be required. Designated critical habitat within the vicinity of the area of impact will be identified. All proposed project actions will be designed to avoid direct and indirect adverse modifications to these areas. Minimization measures, such as establishing and maintaining buffers around areas of designated critical habitat will be implemented in the event that avoidance is not feasible. If critical habitat may be adversely modified by the implementation of the proposed MTP/SCS, the area to be modified will be evaluated by a qualified biologist to determine the potential magnitude of the project effects (e.g., description of primary constituent elements present and quantification of those affected) at a level of detail necessary to satisfy applicable environmental compliance and permitting requirements.

Avoidance and Minimization Measures

California Red-Legged Frog

- If suitable habitat for California red-legged frog is determined to be present within or in the vicinity of the area of impact, the implementing agency shall retain a USFWS-approved biologist to conduct a pre-construction survey for California red-legged frog within the area of impact no more than two weeks before commencement of project construction activities.
- If no California red-legged frogs are found, further mitigation will not be required.
- If California red-legged frog adults, tadpoles, or eggs are found, the biologist will contact USFWS and CDFW to determine whether relocating the species is appropriate. If the

agencies approve of relocation, a USFWS-approved biologist will be allowed sufficient time to move the species from the work site before work activities begin.

- The biologist will conduct environmental awareness training for all construction personnel on required avoidance procedures and protocols if a California red-legged frog enters an active construction zone
- To the extent practicable, construction will not occur during the wet season, when California red-legged frogs are more likely to disperse through upland habitats. Work within all waters, wetlands, and the riparian corridor will be limited to the period from April 15 to October 15, with the exception of vegetation clearing.
- For work conducted during the California red-legged frog migration season (November 1 to May 31), exclusionary fencing will be erected around the area of impact during ground-disturbing activities after hand excavation of burrows has been completed. A qualified biologist will visit the site weekly to ensure that the fencing is in good working condition. Fencing material and design will be subject to the approval of USFWS. If exclusionary fencing is not used, a qualified biological monitor will be on-site during all ground disturbance activities. Exclusion fencing will also be placed around all spoils and stockpiles.
- For work conducted during the California red-legged frog migration season (November 1 to May 31), a qualified biologist will survey the area of impact (including access roads) in mornings following measurable precipitation events. Construction may commence once the biologist has confirmed that no California red-legged frogs are in the work area.
- Prior to beginning work each day, underneath equipment and stored pipes greater than 1.2 inches in diameter will be inspected for California red-legged frogs. If any are found, they will be allowed to move out of the construction area.
- Trenches and holes within the area of impact will be covered and inspected daily for stranded animals. Trenches and holes deeper than 1 foot will contain escape ramps (maximum slope of 2:1) to allow trapped animals to escape uncovered holes or trenches. Holes and trenches will be inspected prior to filling.
- All food and food-related trash will be enclosed in sealed trash containers at the end of each workday and removed completely from the area of impact once every three days to avoid attracting wildlife.
- A speed limit of 15 mph will be maintained on dirt roads.
- All equipment will be maintained such that there are no leaks of automotive fluids such as fuels, oils, and solvents. Any fuel or oil leaks will be cleaned up immediately and disposed of properly.
- Plastic monofilament netting (erosion control matting) or similar material will not be used within the area of impact because California red-legged frogs may become entangled or trapped. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 100 feet from aquatic habitat. If it is not feasible to store hazardous materials 100 feet from wetlands and the river channel, then spill containment measures will be implemented to prevent the possibility of accidental discharges to wetlands and waters.

- The implementing agency shall secure any necessary take authorization prior to project construction through formal consultation with USFWS pursuant to Section 7 of the ESA.

Prior to commencement of ground-disturbing activities, the implementing agency will implement the following measures to compensate for loss of California red-legged frog habitat.

- The implementing agency will provide suitable in-kind habitat that will be created, restored, and/or set aside in perpetuity at a ratio of 3:1. Alternatively, credits will be purchased at a USFWS-approved conservation bank. Compensation plans will be subject to review and approval by USFWS. All compensation will be acquired or secured prior to the beginning of ground disturbance.
- In-kind habitat compensation will occur prior to initiation of ground or vegetation disturbance activities. Aquatic habitat will be provided for damage or loss of aquatic habitat and upland habitat will be provided for damage or loss of upland habitat. Compensation will be accomplished through the following options: 1) acquire land, by itself, or possibly in conjunction with a conservation organization, State park, State Wildlife Area, National Wildlife Refuge, or local regional park that provides occupied habitat; 2) purchase the appropriate credit units at a USFWS-approved conservation bank; 3) restore habitat to support the Central California tiger salamander; or 4) other method as determined by USFWS including participation within a HCP permit area.

California Tiger Salamander

- If suitable habitat for California tiger salamander is determined to be present within or in the vicinity of the area of impact, the implementing agency shall retain a USFWS-approved biologist to conduct a pre-construction survey for California tiger salamander within the area of impact no more than two weeks before commencement of project construction activities.
- When feasible, there will be a 50-foot no-disturbance buffer around burrows that provide suitable upland habitat for California tiger salamander. Burrows considered suitable for California tiger salamander will be determined by the USFWS-approved qualified biologist.
- All suitable burrows directly affected by construction will be hand excavated under the supervision of a qualified wildlife biologist. If California tiger salamanders are found, the biologist will relocate individuals to the nearest burrow that is outside of the area of impact.
- The biologist will conduct environmental awareness training for all construction personnel on required avoidance procedures and protocols if a California tiger salamander enters an active construction zone
- For work conducted during the California tiger salamander migration season (November 1 to May 31), exclusionary fencing will be erected around the area of impact during ground-disturbing activities after hand excavation of burrows has been completed. A qualified biologist will visit the site weekly to ensure that the fencing is in good working condition. Fencing material and design will be subject to the approval of USFWS. If exclusionary fencing is not used, a qualified biological monitor will be on-site during all ground disturbance activities. Exclusion fencing will also be placed around all spoils and stockpiles.
- For work conducted during the California tiger salamander migration season (November 1 to May 31), a qualified biologist will survey the area of impact (including access roads) in mornings following measurable precipitation events. Construction may commence once the biologist has confirmed that no California tiger salamanders are in the work area.

- Prior to beginning work each day, underneath equipment and stored pipes greater than 1.2 inches in diameter will be inspected for California tiger salamander. If any are found, they will be allowed to move out of the construction area.
- Trenches and holes within the area of impact will be covered and inspected daily for stranded animals. Trenches and holes deeper than 1 foot will contain escape ramps (maximum slope of 2:1) to allow trapped animals to escape uncovered holes or trenches. Holes and trenches will be inspected prior to filling.
- All food and food-related trash will be enclosed in sealed trash containers at the end of each workday and removed completely from the area of impact once every three days to avoid attracting wildlife.
- A speed limit of 15 mph will be maintained on dirt roads.
- All equipment will be maintained such that there are no leaks of automotive fluids such as fuels, oils, and solvents. Any fuel or oil leaks will be cleaned up immediately and disposed of properly.
- Plastic monofilament netting (erosion control matting) or similar material will not be used within the area of impact because California tiger salamander may become entangled or trapped. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 100 feet from aquatic habitat. If it is not feasible to store hazardous materials 100 feet from wetlands and the river channel, then spill containment measures will be implemented to prevent the possibility of accidental discharges to wetlands and waters.
- The implementing agency shall secure any necessary take authorization prior to project construction through formal consultation with USFWS pursuant to Section 7 of the ESA.

Prior to commencement of ground-disturbing activities, the implementing agency will implement the following measures to compensate for loss of California tiger salamander habitat.

- The implementing agency will provide suitable in-kind habitat that will be created, restored, and/or set aside in perpetuity at a ratio of 3:1. Alternatively, credits will be purchased at a USFWS-approved conservation bank. Compensation plans will be subject to review and approval by USFWS. All compensation will be acquired or secured prior to the beginning of ground disturbance.
- In-kind habitat compensation will occur prior to initiation of ground or vegetation disturbance activities. Aquatic habitat will be provided for damage or loss of aquatic habitat and upland habitat will be provided for damage or loss of upland habitat. Compensation will be accomplished through the following options: 1) acquire land, by itself, or possibly in conjunction with a conservation organization, State park, State Wildlife Area, National Wildlife Refuge, or local regional park that provides occupied habitat; 2) purchase the appropriate credit units at a USFWS-approved conservation bank; 3) restore habitat to support the Central California tiger salamander; or 4) other method as determined by USFWS including participation within a HCP permit area.

Sierra Nevada Yellow-Legged Frog, Foothill Yellow-Legged Frog, Northern Leopard Frog, Southern Long-Toed Salamander, Western Spadefoot, and Yosemite Toad

- If suitable habitat for other special-status amphibians is determined to be present within or in the vicinity of the area of impact, the implementing agency shall retain a qualified biologist familiar with the life cycle of special-status amphibians with potential to occur in the area of impact (e.g., Sierra Nevada yellow-legged frog, foothill yellow-legged frog, northern leopard frog, southern long-toed salamander, western spadefoot, Yosemite toad) to conduct a pre-construction survey prior to commencement of construction activities, including land clearing, within the area of impact and a 400-foot buffer around the area of impact. Surveys shall consist of "walk and turn" surveys of areas beneath surface objects (e.g., rocks, leaf litter, moss mats, coarse woody debris) for salamanders, visual searches for frogs within upland and aquatic habitat. Surveys shall be conducted within the appropriate season to maximize potential for observation for each species, and appropriate surveys shall be conducted for the applicable life stages (i.e., eggs, larvae, adults).
- If no special-status amphibians are found, then no further mitigation will be required.
- If special-status amphibians are found during the protocol-level survey, then the implementing agency will consult with CDFW or USFWS. Mitigation Measures may include relocating individual animals, installation of exclusion fencing, or construction monitoring by a qualified biologist. The implementing agency will implement the agreed-upon mitigation measures to achieve no net loss of occupied habitat or individuals.
- A qualified biologist will be present during the grubbing and clearing activities in the riparian and aquatic habitat in the area of impact.
- For projects that include water work, egg and tadpole survey will be conducted. If Sierra Nevada yellow-legged frog, foothill yellow-legged frog, or Yosemite toad eggs or tadpoles are identified in the work area or within 250 feet downstream of the work area, USFWS and CDFW will be notified and the water quality will be monitored so that the activity does not directly or indirectly disturb eggs or tadpoles.

Giant Garter Snake

- If suitable habitat for giant garter snake is determined to be present within or in the vicinity of the area of impact, the implementing agency shall retain a qualified biologist to conduct a field investigation to delineate giant garter snake aquatic habitat within the area of impact and adjacent areas within 300 feet of the area of impact. Giant garter snake aquatic habitat includes agricultural ditches.
- During construction, an approved biologist experienced with giant garter snake identification and behavior shall be on-site daily when construction activities within aquatic habitat or within 300 feet of aquatic habitat are taking place. The biologist shall inspect the project site daily for giant garter snake prior to that day's start of construction activities. The biologist will also conduct environmental awareness training for all construction personnel working on the project site on required avoidance procedures and protocols if a giant garter snake enters an active construction zone.
- All construction activity within giant garter snake aquatic and upland habitat in and around the site shall be conducted between May 1 and September 15, the active period for giant garter snakes. This would reduce direct impacts on the species because the snakes would be active and respond to construction activities by moving out of the way.

- If construction activities occur in giant garter snake aquatic habitat, aquatic habitat shall be dewatered and then remain dry and absent of aquatic prey (e.g., fish and tadpoles) for 15 days prior to initiation of construction activities. If complete dewatering is not possible, the implementing agency shall consult with CDFW and USFWS to determine what additional measures may be necessary to minimize effects to giant garter snake. After aquatic habitat has been dewatered 15 days prior to construction activities, exclusion fencing shall be installed extending a minimum of 300 feet into adjacent uplands to isolate both the aquatic and adjacent upland habitat. Exclusionary fencing shall be erected 36 inches above ground and buried at least 6 inches below the ground to prevent snakes from attempting to move under the fence into the construction area. In addition, high-visibility fencing shall be erected to identify the construction limits and to protect adjacent habitat from encroachment of personnel and equipment. Giant garter snake habitat outside construction fencing shall be avoided by all construction personnel. The fencing and the work area shall be inspected by the approved biologist to ensure that the fencing is intact and that no snakes have entered the work area before the start of each workday. The fencing shall be maintained by the contractor until completion of the project.
- If a giant garter snake is observed, the biologist shall notify CDFW and USFWS immediately. Construction activities will be suspended in a 100-foot radius of the garter snake until the snake leaves the site on its own. If necessary, the biologist shall consult with CDFW and USFWS regarding appropriate procedures for relocation. If the animal is handled, a report shall be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect giant garter snake within 1 business day to CDFW and USFWS. The biologist shall report any take of listed species to USFWS immediately. Any worker who inadvertently injures or kills a giant garter snake or who finds one dead, injured, or entrapped must immediately report the incident to the approved biologist.
- All excavated steep-walled holes and trenches more than 6 inches deep shall be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each workday or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches shall be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within giant garter snake modeled habitat shall be inspected for giant garter snake by the approved biologist prior to being moved.
- If erosion control is implemented within the area of impact, non-entangling erosion control material shall be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material will be used to ensure snakes are not trapped (no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.
- The applicant shall ensure that there is no-net-loss of giant garter snake habitat by compensating for loss of habitat at a ratio of 1:1, by purchasing credits from a USFWS-approved conservation bank.
- Prior to construction, USFWS shall be consulted pursuant to Section 7 of the ESA. The activities may qualify to use the *Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties,*

California (USFWS 1999). The Habitat Replacement & Restoration Guidelines (Appendix A), Items Necessary for Formal Consultation (Appendix B), Avoidance & Minimization Measures During Construction (Appendix C), and Monitoring Requirements (Appendix D) shall be followed.

Western Pond Turtle

- If suitable habitat for western pond turtle is identified within or in the vicinity of the area of impact, the implementing agency shall retain a qualified biologist familiar with the species to conduct a preconstruction survey in the area of impact 48 hours before initiation of ground-disturbing construction activities within suitable habitat. Surveys for western pond turtle shall be conducted throughout the area of impact and within approximately 1,300 feet of suitable aquatic habitat within or adjacent to the area of impact.
- If no western pond turtles are found, then further mitigation will not be required.
- If western pond turtles or their nest sites are found, the biologist shall contact the CDFW to determine whether relocation and/or exclusion buffers and nest exclosures are appropriate. If CDFW approves of moving the animal, the biologist shall be allowed sufficient time to move the western pond turtle from the work site before work activities begin.

Coast horned lizard

- If suitable habitat for coast horned lizard is determined to be present within or in the vicinity of the area of impact, the implementing agency shall retain a qualified biologist familiar with coast horned lizard to conduct a preconstruction survey 48 prior to initiation of construction activities. The survey shall consist of visual surveys within suitable habitat. If coast horned lizards are found during the preconstruction survey, exclusion fencing will be installed around occupied habitat to prevent lizards from entering the area of impact during construction.
- If no coast horned lizards are found, then further mitigation would not be required.
- If a coast horned lizard is found within the area of impact during construction, it will be allowed to leave the area or will be relocated by a qualified biologist to the nearest suitable habitat outside of the area of impact.

California Spotted Owl

- If suitable habitat for California spotted owl is determined to be present within the area of impact, the implementing agency will retain a qualified biologist to conduct protocol-level surveys for the species in suitable nesting habitat within 0.25 mile of the area of impact prior to initiation of construction activity. Surveys for California spotted owl will follow the *Protocol for Surveying for Spotted Owl in Proposed Management Activity Areas and Habitat Conservation Areas* (USFS 1993), or another appropriate method determined by the appropriate regulatory agency.
- If California spotted owl nests are not found, then further mitigation would not be required.
- If California spotted owl nests are identified within the area of impact or within 0.25 mile of the area of impact, project activities will be delayed within 0.25 mile of the area of impact between March 1 and August 31 to avoid disturbances to or loss of the active nest site until the nest is no longer active. Project activities include vegetation removal, earth moving, and construction. This buffer may be reduced through consultation with CDFW.

- The project applicant shall not remove any trees between September 1 and February 28 that contained active nest sites for California spotted owl during the breeding season. Once a qualified biologist has deemed a nest site inactive for two consecutive years, the restriction to protect the nest tree shall be lifted.

Northern Goshawk

- If suitable habitat for northern goshawk is determined to be present within the area of impact, the implementing agency will retain a qualified biologist to conduct protocol-level surveys for the species in suitable nesting habitat within 0.25 mile of the area of impact prior to initiation of construction activity. Surveys for northern goshawk will follow the *Northern Goshawk Inventory and Monitoring Technical Guide* (Woodbridge and Hargis 2006), or another appropriate method determined by the appropriate regulatory agency.
- If no northern goshawk nests are found, then further mitigation will not be required.
- If northern goshawk nests are identified within the area of impact or within 0.25 mile of the area of impact, project activities will be delayed within 0.25 mile of the area of impact between March 15 and August 15 to avoid disturbances to or loss of an active nest site, until the nest is no longer active. This time frame is based on the California Forest Practice Rules guidelines and definition of "Critical Period" for northern goshawk. Project activities include vegetation removal, earth moving, and construction. This buffer may be reduced through consultation with CDFW.

Great Gray Owl

- If suitable habitat for great gray owl is determined to be present within the area of impact, the implementing agency will retain a qualified biologist to conduct protocol-level surveys for the species in suitable nesting habitat within 0.25 mile of the area of impact prior to initiation of construction activity. Surveys for great gray owl will follow the *Survey Protocol for Great Gray Owl (Strix nebulosa) within the Northwest Forest Plan Area* (USDA 2016), or another appropriate method determined by the appropriate regulatory agency.
- If no great gray owl nests are found, then further mitigation will not be required.
- If great gray owl nests are identified within the area of impact or within 0.25 mile of the area of impact, project activities will be delayed within 0.25 mile of the area of impact between March 15 and July 15 to avoid disturbances to or loss of an active nest site, until the nest is no longer active. Project activities include vegetation removal, earth moving, and construction. This buffer may be reduced through consultation with CDFW.

Swainson's Hawk

- If suitable habitat for Swainson's hawk is identified within or in the vicinity of the area of impact, and if construction activities occur between February 1 and August 31,the implementing agency shall retain a qualified biologist to conduct surveys for Swainson's hawk in accordance with the Swainson's Hawk Technical Advisory Committee 2000 guidelines (SHTAC 2000), or current guidance. Surveys will cover a minimum of a 0.5-mile radius around the construction area.
- If no Swainson's hawk nests are detected, then further mitigation will not be required.
- If nesting Swainson's hawks are detected, a 0.5-mile no disturbance buffer will be established. Buffers will be maintained until a qualified biologist has determined that the young have fledged.

- If potential nesting trees are to be removed during construction activities, removal will take place outside of Swainson's hawk nesting season and the implementing agencies will develop a plan, in consultation with CDFW, to replace known nest trees at a ratio of 3:1. If replacement planting is implemented, monitoring will be conducted annually for five years to assess the mitigation's effectiveness. The plan will include a performance standard for the mitigation that results in a no net loss of nesting habitat.

Other Special-Status Raptor

- If suitable habitat for other nesting special-status raptors (e.g., ferruginous hawk [*Buteo regalis*], golden eagle, bald eagle, northern harrier) or common raptors protected under California Fish and Game Code (e.g., red-tailed hawk, red-shouldered hawk) is identified within the area of impact or within 500 feet of the area of impact, all tree removal activities and construction activities shall occur during the nonbreeding season (September 1–January 31), if feasible.
- If tree removal or other construction activities must occur between February 1 and August 31, the implementing agency shall retain a qualified biologist to conduct a preconstruction survey for nesting raptors within 500 feet of the area of impact no more than 7 days prior to initiation of construction.
- If no nests are detected, then further mitigation will not be required.
- If nests are detected, impacts on nesting raptors, including direct impacts and indirect impacts (e.g., noise, presence of construction crews) shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction nest surveys. Factors to be considered for determining buffer size will include the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffer size may be adjusted if the qualified biologist, in consultation with CDFW, determines that such an adjustment would not be likely to adversely affect the nest. The buffer areas shall be protected with construction fencing, and no activity shall occur within the buffer areas until the qualified biologist has determined, in coordination with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer would not likely result in nest abandonment. Monitoring of the nest by a qualified biologist during and after construction activities will be required if the activity has potential to adversely affect the nest.
- Removal of bald and golden eagle nests is prohibited regardless of the occupancy status under the federal Bald and Golden Eagle Protection Act. If bald or golden eagle nests are found during preconstruction surveys, then the nest tree shall not be removed.
- Take of fully protected raptor species and active nests (i.e., American peregrine falcon, bald eagle, golden eagle, white-tailed kite) is prohibited, and disturbance, injury, or mortality of these species shall be completely avoided.

Burrowing Owl

- If suitable habitat for burrowing owl is determined to be present within the area of impact, the implementing agency shall retain a qualified biologist to conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat within the area of impact and accessible areas of suitable habitat within approximately 500 feet of the area of impact. Surveys shall be conducted before the start of construction activities and in accordance with Appendix D of CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).

- If no occupied burrows are found, a letter report documenting the survey methods and results shall be submitted to CDFW and no further mitigation would be required.
- If an active burrow is found during the nonbreeding season (September 1 through January 31), the implementing agency shall consult with CDFW regarding protection buffers to be established around the occupied burrow and maintained throughout construction. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan shall be developed, as described in Appendix E of CDFW's 2012 Staff Report. Burrowing owls shall not be excluded from occupied burrows until the project's burrowing owl exclusion plan is approved by CDFW. The exclusion plan shall include a plan for creation, maintenance, and monitoring of artificial burrows in suitable habitat proximate to the burrows to be destroyed, that provide substitute burrows for displaced owls.
- If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows shall not be disturbed and will be provided with a 150- to 1,500-foot protective buffer unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer shall depend on the time of year and level disturbance as outlined in the CDFW Staff Report (CDFW 2012). The size of the buffer may be reduced if a broad-scale, long-term, monitoring program acceptable to CDFW is implemented to prevent burrowing owls from being detrimentally affected. Once the fledglings are capable of independent survival, the owls can be evicted and the burrow can be destroyed per the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of CDFW's 2012 Staff Report.
- If active burrowing owl nests are found within the area of impact and are destroyed by project implementation, the implementing agency shall mitigate the loss of occupied habitat in accordance with guidance provided in the CDFW 2012 Staff Report, which states that permanent impacts to nesting, occupied and satellite burrows, and burrowing owl habitat shall be mitigated such that habitat acreage, number of burrows, and burrowing owls adversely affected are replaced through permanent conservation of comparable or better habitat with similar vegetation communities and burrowing mammals (e.g., ground squirrels) present to provide for nesting, foraging, wintering, and dispersal. The implementing agency shall retain a qualified biologist to develop a burrowing owl mitigation and management plan that incorporates the following goals and standards:
- Mitigation lands shall be selected based on comparison of the habitat lost to the compensatory habitat, including type and structure of habitat, disturbance levels, potential for conflicts with humans, pets, and other wildlife, density of burrowing owls, and relative importance of the habitat to the species range wide.
- If feasible, mitigation lands shall be provided adjacent or proximate to the area of impact so that displaced owls can relocate with reduced risk of take. Feasibility of providing mitigation adjacent or proximate to the area of impact depends on availability of sufficient suitable habitat to support displaced owls that may be preserved in perpetuity.
- If suitable habitat is not available for conservation adjacent or proximate to the area of impact, mitigation lands shall be focused on consolidating and enlarging conservation areas outside of urban and planned growth areas and within foraging distance of other conservation lands.

Mitigation may be accomplished through purchase of mitigation credits at a CDFW-approved mitigation bank, if available. If mitigation credits are not available from an approved bank and mitigation lands are not available adjacent to other conservation lands, alternative mitigation sites and acreage shall be determined in consultation with CDFW.

- If mitigation is not available through an approved mitigation bank and will be completed through permittee-responsible conservation lands, the mitigation plan shall include mitigation objectives, site selection factors, site management roles and responsibilities, vegetation management goals, financial assurances and funding mechanisms, performance standards and success criteria, monitoring and reporting protocols, and adaptive management measures. Success shall be based on the number of adult burrowing owls and pairs using the project site and if the numbers are maintained over time. Measures of success, as suggested in the 2012 Staff Report, shall include site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, changes in distribution, and trends in stressors.

Western Yellow-Billed Cuckoo, Least Bell's Vireo, and Willow Flycatcher

- If suitable habitat for western yellow-billed cuckoo, least Bell's vireo, or willow flycatcher is determined to be present within or in the vicinity of the area of impact, the implementing agency shall retain a qualified biologist to conduct protocol-level surveys for these species, following the guidance offered in *Western Yellow-billed Cuckoo Natural History Summary and Survey Methodology* (Halterman et al. 2009); *Least Bell's Vireo Survey Guidelines* (USFWS 2001); *A Survey Protocol for Willow Flycatcher in California* (Bombay et al. 2003) and/or current industry standards and the implementing agencies will initiate consultation with USFWS and CDFW.

- If no nests or territories are detected, then further mitigation will not be required.

- If nests are detected, the implementing agency will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely affected by construction. No-disturbance buffers around active nests will be a minimum of 250 feet, unless a qualified biologist determines that smaller buffers would be sufficient to avoid impacts to nesting birds in consultation with CDFW. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffers will be maintained until a qualified biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival.

Other Special-Status Birds

- If suitable habitat for other special-status nesting birds (e.g., bank swallow [*Riparia riparia*], black swift [*Cypseloides niger*], grasshopper sparrow [*Ammodramus savannarum*], loggerhead shrike) or other native nesting birds protected under sections 3503 and 3503.5 of the California Fish and Game Code is identified within the area of impact or within 500 feet of the area of impact, all tree removal activities and construction activities shall occur during the nonbreeding season (September 1–January 31), if feasible. If tree removal or other construction activities must occur between February 1 and August 31, the implementing agency shall retain a qualified biologist to conduct protocol-level nest surveys within 500 feet of the area of impact no more than 7 days prior to initiation of construction.

- If no nests are detected, then further mitigation will not be required.

- If nests are detected, direct impacts and indirect impacts (e.g., noise, presence of construction crews) shall be avoided by establishing appropriate buffers around active nest sites. Factors to be considered for determining buffer size will include the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffer size may be adjusted if the qualified biologist, in consultation with CDFW, determines that such an adjustment would not be likely to adversely affect the nest. The buffer areas shall be protected with construction fencing, and no activity shall occur within the buffer areas until the qualified biologist has determined, in coordination with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer would not likely result in nest abandonment. Monitoring of the nest by a qualified biologist during and after construction activities will be required if the activity has potential to adversely affect the nest.
- Take of fully protected bird species and active nests (i.e., California black rail, greater sandhill crane) is prohibited, and disturbance, injury, or mortality of these species shall be completely avoided.

Vernal Pool Invertebrates

- If suitable vernal pool habitat for vernal pool invertebrate species (i.e., Conservancy fairy shrimp, midvalley fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, Ricksecker's water scavenger beetle) is identified within the area of impact, and this habitat cannot be avoided, the implementing agency will retain a qualified biologist to conduct vernal pool invertebrate surveys within the area of impact and within 250 feet from the edge of the area of impact to evaluate direct and indirect effects on vernal pools in accordance with the *Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans within the Jurisdiction of the Sacramento Field Office, California* (USFWS 1996).
- The implementing agencies will secure any necessary take authorization prior to project construction through formal consultation between USACE and USFWS pursuant to Section 7 of the ESA and will implement all measures included in the Biological Opinion issued by USFWS.
- Habitat Preservation: The implementing agencies will compensate for direct effects of the project on the habitat for vernal pool invertebrates at a sufficient ratio for no net loss of habitat function or acreage, by purchasing vernal pool preservation credits from a USFWS-approved conservation bank, or from another USFWS-approved conservation bank. Compensation credits will be purchased prior to any ground-disturbing activities.
- Habitat Creation: The implementing agencies will compensate for the direct effects of the project on the habitat for vernal pool crustaceans at a sufficient ratio for no net loss of habitat function or acreage, by purchasing vernal pool creation credits from a USFWS-approved conservation bank, or from another USFWS-approved conservation bank.
- For seasonal wetlands and drainages that will be retained in the area of impact (i.e., those not proposed to be filled), a minimum setback of at least 50 feet from these features will be avoided in the project area. The buffer area will be fenced with high visibility construction fencing prior to commencement of ground-disturbing activities and will be maintained for the duration of construction activities.

Valley Elderberry Longhorn Beetle

- If suitable elderberry shrub habitat is identified within the area of impact, the implementing agency will retain a qualified biologist to conduct surveys for valley elderberry longhorn beetle according to the protocol outlined in USFWS *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*USFWS 2017). The biologist will determine if there is a riparian area or known valley elderberry longhorn beetle records within 2,526 feet (800 meters) of the project site, and whether the project site is continuous with a historical riparian corridor.
- If the project site does not contain riparian habitat, but does contain elderberry shrubs, then the elderberry shrubs will be inspected for valley elderberry longhorn beetle exit holes. If exit holes are not present the implementing agency will consult with USFWS and will consider additional information, including occurrences of valley elderberry longhorn beetle within 800 meters of the project site, and proximity of the project site to existing and historic riparian corridors.
- If riparian habitat is present within the project site and elderberry shrubs are present within 165 feet, then it is likely that the site is occupied by valley elderberry longhorn beetle. If the project site contains riparian habitat and elderberry shrubs are not present within 165 feet, the implementing agency will consult with USFWS, as presence of riparian habitat is indicative of historic valley elderberry longhorn beetle occupancy.
- Impacts to valley elderberry longhorn beetle will be avoided and minimized by following the Conservation Measures outlined in the USFWS 2017 Framework for cases where elderberry shrubs can be retained and protected within 165 feet of the project footprint.
- If elderberry shrubs are 165 feet or more from project activities, direct or indirect impacts are not expected. Shrubs will be protected during construction by establishing and maintaining a high visibility fence at least 165 feet from the drip line of each elderberry shrub.
- If elderberry shrubs can be retained within the project footprint, project activities may occur up to 20 feet from the dripline of elderberry shrubs if precautions are implemented to minimize the potential for indirect impacts. Specifically, these minimization measures include:
    - All areas to be avoided during construction activities will be fenced or flagged as close to construction limits as possible.
    - A minimum avoidance area of at least 20 feet from the dripline of each elderberry plant will be maintained to avoid direct impacts that could damage or kill the plant.
    - A qualified biologist will provide training for all contractors, work crews, and any onsite personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for non-compliance.
    - A qualified biologist will monitor the work area at project-appropriate intervals to assure that all avoidance and minimization measures are implemented. The amount and duration of monitoring will depend on the project specifics and will be discussed with a USFWS biologist.

- As much as feasible, all activities that could occur within 165 feet of an elderberry shrub will be conducted outside of the flight season of the valley elderberry longhorn beetle (March–July).
- Trimming of elderberry shrubs will occur between November and February and will avoid removal of any branches or stems that are greater than or equal to 1 inch in diameter to avoid and minimize adverse effects to valley elderberry longhorn beetle.
- Project activities, such as truck traffic or other use of machinery, will not create excessive dust on the project site, such that the growth or vigor of elderberry shrubs is adversely affected. Enforcement of a speed limit and watering dirt roadways are potential methods to minimize excessive dust creation.
- Herbicides will not be used within the drip-line of any elderberry shrub. Insecticides will not be used within 98 feet of any elderberry shrub. All chemicals will be applied using a backpack sprayer or similar direct application method. Mechanical weed removal within the drip-line of any elderberry shrub will be limited to the season when adults are not active (August–February) and will avoid damaging the elderberry.
- Erosion control will be implemented, and the affected area will be re-vegetated with appropriate native plants.

- If elderberry shrubs cannot be avoided, compliance with the ESA and consultation with USFWS is required and may involve acquiring an incidental take permit through Section 10, or a take exemption through Section 7. All elderberry shrubs with stems greater than 1 inch in diameter that cannot be avoided or have been adversely affected by indirect damage to stems of the entire shrub will be transplanted.
- No elderberry shrub will be removed or transplanted until authorization has been issued by USFWS and the project applicant has abided by all pertinent conditions of the incidental take permit or biological opinion. Conservation and minimization measures are likely to include preparation of supporting documentation that describes methods for relocation of existing shrubs and maintaining existing shrubs and other vegetation in a conservation area.
- Relocation of existing elderberry shrubs and planting of new elderberry seedlings and associated riparian species will be implemented according to the Framework (USFWS 2017). The Framework uses presence or absence of exit holes, and whether the affected elderberry shrubs are located in riparian habitat to determine the number of elderberry seedlings or cuttings and associated riparian vegetation that would need to be planted as compensatory mitigation for affected valley elderberry longhorn beetle habitat. Compensatory mitigation may include purchasing credits at a USFWS-approved conservation bank, providing on-site mitigation, or establishing and protecting habitat for valley elderberry longhorn beetle.

Bats

- If suitable bat roost habitat or bat colonies are identified within the area of impact that may be adversely affected by construction activities, the implementing agency shall retain a qualified biologist to conduct a preconstruction bat survey no more than 14 days prior to the start of construction. The survey may include investigation of suitable habitat (e.g., rocky outcrops, trees, snags, bridges, mines, caves, human-made structures) for bat use (e.g., guano), and/or an evening emergence survey. If evidence of bat use is observed, the species and number of bats using the roost shall be determined. Bat detectors may be used to supplement survey efforts.

- If no bat roosts are observed, further mitigation will not be required.
- If surveys confirm bats daytime-roost will be affected by construction activities, a Bat Exclusion Plan will be developed by the implementing agency and submitted to CDFW for review and approval prior to its implementation. No bat exclusion will occur between March 1 and August 15 (depending on location) which coincides with the maternity season in California.
- If a winter roost, a maternity roost, or any roost of a special-status bat species (i.e., pallid bat, Townsend's big-eared bat, western red bat) is found, a mitigation program addressing mitigation for the specific occurrence shall be submitted to CDFW by the implementing agency and qualified biologist. The mitigation plan shall establish a buffer area around the colony during hibernation or while females in maternity colonies are nursing young that is large enough to prevent disturbance to the colonies.

American Badger

- If suitable burrow habitat for American badger is identified within the area of impact, the implementing agency will retain a qualified biologist to conduct a preconstruction survey for American badger. The survey shall be conducted no more than 30 days prior to initiation of construction and will include visual inspection (e.g., direct observation, monitoring, trail camera) of suitable burrows to determine whether they are occupied.
- If no occupied dens are found, further mitigation will not be required.
- If occupied burrows are found, impacts on active badger dens shall be avoided by establishing exclusion zones around all active badger dens, within which construction activities shall be prohibited until denning activities are complete or the den is abandoned. The qualified biologist shall monitor each den once per week to track the status of the den and to determine when it is no longer occupied.

Special-Status Forest Carnivores

- If suitable habitat for California wolverine, fisher, or Sierra Nevada red fox is identified within the area of impact, the implementing agency will retain a qualified biologist to conduct a preconstruction survey prior to commencement of construction activities (e.g., tree removal, ground disturbance) for these species within the area of impact and a 0.25 mile buffer of the area of impact.
- If individuals or potential or occupied dens are not found, further mitigation will not be required.
- If California wolverine, fisher, or Sierra Nevada red fox are identified, or if potential dens of these species are located, an appropriate method shall be used by a qualified wildlife biologist to confirm whether the den is occupied. This may involve use of remote field cameras, track plates, or hair snares. Other devices such as fiber optic scope may be utilized to determine occupancy. If the potential den is not occupied, the entrance will be temporarily blocked so that no other animals occupy the area during the construction period but only after it has been fully inspected. The blockage will be removed once construction activities have been completed.
- If a den is found to be occupied by one of these species, a no-disturbance buffer will be placed around the occupied den location. The no-disturbance buffer will include the den tree (or other structure) plus a suitable buffer as determined by the biologist in coordination with

USFWS and CDFW. Construction activities in the no-disturbance buffer will be avoided until the nest is unoccupied as determined by a qualified wildlife biologist in coordination with USFWS and CDFW.

- Take of fully protected mammal species (i.e., California wolverine) is prohibited, and disturbance, injury, or mortality of this species shall be avoided.

Ringtail

- If suitable habitat for ringtail is identified within the area of impact the implementing agency will retain a qualified biologist to conduct preconstruction surveys for ringtail to identify individual ringtails and potential nests.
- If individuals or potential or occupied nests are not found, further mitigation will not be required.
- If ringtail or potential nests are found, an appropriate method shall be used by the qualified biologist to confirm whether a ringtail is occupying the nest (e.g., remote field cameras, track plates, hair snares, fiber optic scope).
- If a nest is determined to be occupied by a ringtail, a buffer shall be established including the nest tree (or other structure) plus a suitable buffer as determined by the qualified biologist in coordination with CDFW. No construction activities shall occur within the buffer until the nest is unoccupied as determined by a qualified wildlife biologist in coordination with CDFW.
- Take of fully protected mammal species (i.e., ringtail) is prohibited, and disturbance, injury, or mortality of this species shall be avoided.

Special-Status Rabbits and Sierra Nevada Mountain Beaver

- If suitable habitat for Sierra Nevada snowshoe hare, western white-tailed jackrabbit, riparian brush rabbit, and Sierra Nevada mountain beaver is identified within the area of impact, the implementing agency shall retain a qualified biologist to conduct preconstruction surveys for these species. Surveys will include visual surveys for individuals and potential nests (e.g., shallow forms, cavities, depressions beneath brush).
- If individuals or potential or occupied nests are not found, further mitigation will not be required.
- If occupied nests are observed, a buffer shall be established including the nest plus a suitable buffer as determined by the qualified biologist in coordination with CDFW. No construction activities shall occur within the buffer until the nest is unoccupied as determined by a qualified wildlife biologist in coordination with CDFW.

Marysville California Kangaroo Rat

- If suitable habitat for Marysville California kangaroo rat is identified within the area of impact or within 100 feet of the area of impact, the implementing agency shall retain a qualified biologist to conduct preconstruction surveys within 60 days prior to ground disturbing construction activities. The survey will include burrow searches within 100 feet of the area of impact.
- If suitable burrows are not found, further mitigation will not be required.
- If suitable burrows for this species are identified, focused live trapping surveys may be conducted by a qualified biologist to determine whether the burrows are being used by

Marysville California kangaroo rat. If live trapping is not conducted or if live-trapping survey results are inconclusive, a 50-foot buffer will be established around suitable burrows. No construction activities shall occur within the buffer until the burrow is unoccupied as determined by a qualified wildlife biologist in coordination with CDFW.

Special-Status Fish

- If suitable aquatic habitat for special-status fish is identified within the area of impact, and construction activities could result in adverse effects on this habitat, impacts on these species will be avoided by implementing the following measures:
  - All work within waters where there is potential for Delta smelt to occur, as defined in the most recent USFWS guidance, will be confined to a seasonal work window of August 1 through November 30 when Delta smelt are least likely to be present. Because this species does not regulate its movement strictly within this time frame, modification to the work windows may be approved by USFWS prior to project implementation based on information from the various in-Delta monitoring programs.
  - In-water construction activities where there is potential for Central Valley steelhead and/or Chinook salmon to occur will be limited to the low-flow period between June 1 and October 1 to minimize the potential of adverse effects on federally listed anadromous salmonids during their emigration period.
  - In-channel construction activities which could affect habitat for listed anadromous salmonids will be limited to daylight hours during weekdays, leaving a nighttime and weekend period of passage for these fish species.
  - Construction best management practices for off-channel staging and storage of equipment and vehicles will be implemented to minimize the risk of contamination of the waters of the stream/river by spilled materials. Best management practices will also include minimization of erosion and stormwater runoff, as appropriate.
  - If bank stabilization activities are necessary, then such stabilization shall be constructed to minimize predator habitat, minimize erosion potential, and contain material suitable for supporting riparian vegetation.

Table 6-10
Examples of Minimum Replacement Ratios and Typical Mitigation for Wildlife Habitat

Species	Creation/Restoration Mitigation Component
Vernal pool fairy shrimp and vernal pool tadpole (would mitigate for other vernal pool species)[1]	Preservation: 2:1 (for direct or indirect impacts) in approved banks, 3:1 in non-bank.* Creation/ Restoration: 1:1 (2:1 if based on Service evaluation of site-specific conservation values) in approved banks, 2:1 in non-bank.* **Mitigation ratios for non-bank mitigation may be adjusted to approach those for banks based on Service evaluation.*
Valley elderberry longhorn beetle[2]	Transplant directly affected shrubs to a USFWS approved conservation bank and purchase conservation credits depending on stem size and shrub location Plant seedlings and associated riparian at stem placement ratios from 1:1 to 8:1, depending on stem size and shrub location.
California tiger salamander	No net loss of habitat through restoration, preservation, or compensation.
California red-legged frog	No net loss of habitat through restoration, preservation, or compensation.
Sierra Nevada yellow-legged frog	No net loss of habitat through restoration, preservation, or compensation.

Species	Creation/Restoration Mitigation Component
Giant garter snake[3]	Preservation: All replacement habitat must include both upland and aquatic habitat at a ratio of 2:1 upland acres to aquatic acres Creation/Restoration: From 1:1 to 3:1 depending on nature of impact.
Burrowing owl[4]	6.5 acres of foraging habitat for each pair relocated on site; 9.75 to 19.5 Varies depending on site conditions, consultation with CDFW is required. Create artificial burrows if necessary. Prepare a mitigation management plan and vegetation management goals in consultation with CDFW.
Swainson's hawk[5]	Depending on nest location with respect to project (typically 0.5:1 to 1.5:1) or participate in County sponsored Swainson's Hawk Mitigation Program if developed.

[1] Mitigation ratios are based on the Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California (Service file number 1-1-96-F-1) (USFWS 1996).
[2] Conservation Guidelines for Valley Elderberry Longhorn Beetle (USFWS 2017).
[3] Programmatic Consultation with the U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California (Service file number 1-1-F-97-149) (USFWS 1997).
[4] Staff Report on Burrowing Owl Mitigation (CDFW 2012).
[5] Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California (CDFG 1994).
Source: Compiled by Ascent Environmental in 2019.

SIGNIFICANCE AFTER MITIGATION

With implementation of Mitigation Measures BIO-1a, BIO-1b, and BIO-1c, impacts on special-status species would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, Impact BIO-1 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT BIO-2: HAVE A SUBSTANTIAL ADVERSE EFFECT ON ANY RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITY IDENTIFIED IN LOCAL OR REGIONAL PLANS, POLICIES, OR REGULATIONS OR BY CDFW OR USFWS

Regional Impacts

The plan area of the proposed MTP/SCS contains approximately 58,154 acres of riparian habitat (Table 6-1). Riparian habitat acreage was also identified in Impact BIO-1 in the context of its suitability for special-status species. Wildland cover types within the plan area of the proposed MTP/SCS include land cover types that could support sensitive natural communities. Sensitive natural communities are those natural communities that are of limited distribution statewide or within a county or region, support special-status plant species or are defined by the dominance or presence of such plant species and are often vulnerable to environmental effects of the projected land use pattern or projects. The plan area of the proposed MTP/SCS could support 137 sensitive natural communities, which include vegetation alliances and associations typically found in chaparral, oak woodland (including foothill woodland, oak savannah, and valley oak woodland), grassland,

montane forest, open water, riparian, scrub and wetland habitats (CDFW 2018b, CNPS 2015; refer to Appendix BIO-2). Implementation of the proposed MTP/SCS projected land use pattern and planned transportation improvements could result in the loss of sensitive natural communities. Table 6-4 provides estimates of potential regional impacts on habitat resulting from the projected land use pattern and planned transportation improvements intended to accommodate population growth and travel in the plan area of the proposed MTP/SCS. Overall, implementation of the proposed MTP/SCS could result in conversion of approximately acres 782 acres of riparian habitat (Table 6-4). Some proposed Class I trails may not be captured by the 100-foot buffer, including trails located along rivers or in other areas greater than 100 feet from new or expanded roadways. Development of these Class I trails could result in impacts to sensitive natural communities in excess of the impact acreages Because implementation of the projected land use pattern and planned transportation improvements under the proposed MTP/SCS at the regional level would result in conversion of sensitive natural communities and riparian habitat, Impact BIO-2 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-2 and BIO-3 are described below.

Localized Impacts

Center and Corridor Communities
Despite the predominantly urbanized character of Center and Corridor Communities, these areas contain some wildland habitat types that could support sensitive natural communities, including riparian habitat.

The projected land use pattern under the proposed MTP/SCS in Center and Corridor Communities could convert 803 acres of wildland habitats, including 30 acres of riparian habitat (Table 6-6). The potential impact from planned transportation improvements includes 101 acres of wildland, including 19 acres of riparian habitat (Table 6-6).

Because construction of the projected land use pattern and planned transportation improvements of the Center and Corridor Communities could result in conversion of habitats that could support sensitive natural communities, including identified riparian habitat, Impact BIO-2 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-2 and BIO-3 are described below.

Established Communities
Despite the predominantly urbanized character of Established Communities, these areas contain some wildland habitat types that could support sensitive natural communities, including riparian habitat.

The projected land use pattern under the proposed MTP/SCS in Established Communities could convert 6,562 acres of wildland habitats, including 100 acres of riparian habitat (Table 6-6). The potential impact from planned transportation improvements includes 1,132 acres of wildland, including 58 acres of riparian habitat (Table 6-6).

Because construction of the projected land use pattern and planned transportation improvements of the Established Communities could result in conversion of habitats that could support sensitive natural communities, including identified riparian habitat, Impact BIO-2 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-2 and BIO-3 are described below.

Developing Communities
Despite the predominantly urbanized character of Developing Communities, these areas contain some wildland habitat types that could support sensitive natural communities, including riparian habitat.

The projected land use pattern under the proposed MTP/SCS in Developing Communities could convert 9,402 acres of wildland habitats, including 313 acres of riparian habitat (Table 6-6). The potential impact from planned transportation improvements includes 1,680 acres of wildland, including 40 acres of riparian habitat (Table 6-6).

Because construction of the projected land use pattern and planned transportation improvements of the Developing Communities could result in conversion of habitats that could support sensitive natural communities, including identified riparian habitat, Impact BIO-2 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-2 and BIO-3 are described below.

Rural Residential Communities
While Rural Residential Communities have undergone development and conversion of natural habitats for urban uses, these areas contain some wildland habitat types that could support sensitive natural communities, including riparian habitat.

The projected land use pattern under the proposed MTP/SCS in Rural Residential Communities could convert 7,810 acres of wildland habitats, including 209 acres of riparian habitat (Table 6-6). The potential impact from planned transportation improvements includes 147 acres of wildland habitats, including 3 acres of riparian habitat (Table 6-6).

Because construction of the projected land use pattern of the Rural Residential Communities could result in conversion of habitats that could support sensitive natural communities, including identified riparian habitat, Impact BIO-2 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-2 and BIO-3 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. The proposed MTP/SCS would, however, make a number of planned transportation improvements in this Community Type by 2040. The potential impact from planned transportation improvements includes 425 acres of wildland habitat, including conversion of approximately 10 acres of riparian habitat (Table 6-6).

Because construction of planned transportation improvements in Lands Not Identified for Development could result in conversion of habitats that could support sensitive natural communities, including identified riparian habitat, Impact BIO-2 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-2 and BIO-3 are described below.

High Frequency Transit Area Impacts

Placer County High Frequency Transit Areas
The projected land use pattern under the proposed MTP/SCS in Placer County HFTAs could convert 927 acres of wildland habitat which may support sensitive natural communities, including

approximately 5 acres of riparian habitat (Table 6-8). Planned transportation improvements in Placer County HFTAs could result in conversion of 135 acres of wildland habitat, including approximately 6 acres of riparian habitat (Table 6-8).

Because construction of the projected land use pattern and the planned transportation improvements of the proposed MTP/SCS could result in conversion of habitats that could support sensitive natural communities, including identified riparian habitat, within Placer County HFTAs, Impact BIO-2 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-2 and BIO-3 are described below.

Sacramento County High Frequency Transit Areas
The projected land use pattern under the proposed MTP/SCS in Sacramento County HFTAs could convert 642 acres of wildland habitat which may support sensitive natural communities, including approximately 25 acres of riparian habitat (Table 6-8). Planned transportation improvements in Sacramento County HFTAs could result in conversion of 146 acres of wildland habitat, including approximately 26 acres of riparian habitat (Table 6-8).

Because construction of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS could result in conversion of habitats that could support sensitive natural communities, including identified riparian habitat, within Sacramento County HFTAs, Impact BIO-2 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-2 and BIO-3 are described below.

Yolo County High Frequency Transit Areas
The projected land use pattern under the proposed MTP/SCS in Yolo County HFTAs could convert 27 acres of wildland habitat which may support sensitive natural communities, including approximately 6 acres of riparian habitat (Table 6-8). Planned transportation improvements in Yolo County HFTAs could result in conversion of 2 acres of wildland habitat, all of which is riparian habitat (Table 6-8).

Because construction of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS could result in conversion of habitats that could support sensitive natural communities, including identified riparian habitat, within Yolo County HFTAs, Impact BIO-2 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-2 and BIO-3 are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project level would reduce impacts on biological resources and agencies with jurisdiction to adopt these measures should do so (Pub. Resources Code Section 21081).

Mitigation Measure BIO-2: Implement Mitigation Measure BIO-1a.

Mitigation Measure BIO-3: Avoid, Minimize, and Mitigate Impacts on Sensitive Natural Communities.

If the qualified biologist, after implementation of Mitigation Measure BIO-2, determines that riparian habitat or other sensitive natural communities are present within the area of impact and could be adversely affected by construction activities, then the following measures shall be implemented:

- To the extent practicable, and in consideration of other design requirements and constraints (e.g., meeting primary project objectives and needs, avoidance of other sensitive resources), the implementing agency shall attempt to design the proposed projects in a way that minimizes the removal of native sensitive natural communities, particularly trees that contribute to the overstory canopy of these communities.
- If adverse effects on riparian habitat or other sensitive natural communities associated with the bed, back, or channel of streams or lakes cannot be avoided, the implementing agency shall comply with Section 1602 of the California Fish and Game Code by submitting a Streambed Alteration Notification to CDFW, pursuant to Section 1600 et seq. of the California Fish and Game Code. If the resources are determined to be subject to CDFW jurisdiction, the implementing agency shall abide by the conditions of any executed agreement prior to any initiation of construction activities.
- The implementing agency shall compensate for permanent loss of riparian habitat at a sufficient ratio for no net loss of habitat function or acreage for restoration and preservation, which may be achieved through a combination of onsite restoration/creation, offsite restoration, preservation, or mitigation credits. If mitigation credits are not available, stream and riparian habitat compensation shall include establishment of riparian vegetation on currently unvegetated bank portions of streams affected by the project and enhancement of existing riparian habitat through removal of nonnative species, where appropriate, and planting additional native riparian plants to increase cover, continuity, and width of the existing riparian corridor along streams in the site and surrounding areas. Construction activities and compensatory mitigation shall be conducted in accordance with the terms of a streambed alteration agreement as required under Section 1602 of the California Fish and Game Code, and shall include development of a Compensatory Stream and Riparian Mitigation and Monitoring Plan for creating or restoring in-kind habitat in the surrounding area.
- The Compensatory Stream and Riparian Mitigation and Monitoring Plan shall include the following:
    - identification of compensatory mitigation sites and criteria for selecting these mitigation sites;
    - in-kind reference habitats for comparison with compensatory riparian habitats (using performance and success criteria) to document success;
    - monitoring protocol, including schedule and annual report requirements (compensatory habitat shall be monitored for a minimum of 5 years from completion of mitigation, or human intervention [including recontouring and grading], or until the success criteria identified in the approved mitigation plan have been met, whichever is longer);

- ecological performance standards, based on the best available science and including specifications for native riparian plant densities, species composition, amount of dead woody vegetation gaps and bare ground, and survivorship; at a minimum, compensatory mitigation planting sites must achieve 80 percent survival of planted riparian trees and shrubs by the end of the 5-year maintenance and monitoring period or dead and dying trees shall be replaced and monitoring continued until 80 percent survivorship is achieved;
- corrective measures if performance standards are not met;
- responsible parties for monitoring and preparing reports; and
- responsible parties for receiving and reviewing reports and for verifying success or prescribing implementation or corrective actions.

- If oak woodland habitat is removed, the county implementing agency shall determine if the loss of oak woodland would have a significant impact on the environment. If so, an oak woodland mitigation plan would be developed that achieves a no-net-loss of habitat acreage and function, which may be achieved through a combination of restoration/creation, preservation, or mitigation credits. At a minimum, the restoration and monitoring plan shall include clear goals and objectives, success criteria, specifics on restoration/creation (e.g., plant palette, soils, irrigation), specific monitoring periods and reporting guidelines, and a maintenance plan. Oak woodland restoration or creation shall be monitored for a minimum of five years and shall be considered successful when at least 75 percent of all plantings have become successfully established. Such mitigation sites shall be dedicated either in fee or as an easement in perpetuity held by a qualified agency. Guaranteed funding for maintenance of the mitigation sites shall be established.
- If losses of other sensitive natural communities recognized as sensitive by CDFW (see Appendix BIO-2) would be substantial, then additional compensation shall be provided through creating, restoring, or preserving in perpetuity in-kind communities to achieve no-net-loss of habitat function or acreage.

SIGNIFICANCE AFTER MITIGATION

With implementation of Mitigation Measures BIO-2 and BIO-3, impacts on riparian habitat and other sensitive natural communities would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, Impact BIO-2 remains significant and unavoidable (SU) for the purposes of this program-level review.

IMPACT BIO-3: HAVE A SUBSTANTIAL ADVERSE EFFECT ON STATE OR FEDERALLY PROTECTED WETLANDS (INCLUDING, BUT NOT LIMITED TO, MARSH, VERNAL POOL, AND COASTAL WETLANDS) THROUGH DIRECT REMOVAL, FILLING, HYDROLOGICAL INTERRUPTION, OR OTHER MEANS.

Regional Impacts

The plan area of the proposed MTP/SCS contains approximately 234,266 acres of aquatic habitat, including 180,127 acres of wetland habitat, 35,340 acres of open water (e.g., lakes, ponds), and 18,799 acres of riverine habitat (Table 6-1). The projected land use pattern and planned transportation improvements in the proposed MTP/SCS could result in impacts on 3,490acres of aquatic habitat, including approximately 3,280 acres of wetland habitat, and 210 acres of open water (Table 6-4). Class I trails that run parallel to new or expanded roadways would be captured by the 100-foot buffer around new or expanded roadway and light rail projects used to calculate potential impact acreages. Some proposed Class I trails may not be captured by the 100-foot buffer, including trails located along rivers or in other areas greater than 100 feet from new or expanded roadways. Development of these Class I trails could result in impacts to aquatic habitat in excess of the impact acreages described below.

Although the quality and existing condition of the aquatic habitat throughout the plan area of the proposed MTP/SCS is not known, the projected land use pattern and planned transportation improvements would result in loss, fill, hydrological interruption (including dewatering) of these habitats. Regional impacts related to conversion of aquatic habitat associated with the projected land use pattern and planned transportation improvements in the MTP/SCS would be potentially significant (PS). Mitigation is required. Mitigation Measures BIO-4 and BIO-5 are described below.

Localized Impacts

Center and Corridor Communities
Despite the predominantly urbanized character of Center and Corridor Communities, these areas contain some aquatic habitat types. The projected land use pattern under the proposed MTP/SCS in Center and Corridor Communities could convert 45 acres of wetland habitat and 3 acres of open water (Table 6-6). The potential impact from planned transportation improvements includes 11 acres of wetland habitat and 19 acres of open water (Table 6-6).

Because construction of the projected land use pattern and planned transportation improvements of the Center and Corridor Communities could result in conversion of aquatic habitat, including wetlands, Impact BIO-3 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-4 and BIO-5 are described below.

Established Communities
Despite the predominantly urbanized character of Established Communities, these areas contain some aquatic habitat types. The projected land use pattern under the proposed MTP/SCS in Established Communities could convert 1,046 acres of wetland habitat, 10 acres of open waters, and 11 acres of riverine habitat (Table 6-6). The potential impact from planned transportation improvements includes 137 acres of wetland habitat and 24 acres of open waters (Table 6-6).

Because construction of the projected land use pattern and planned transportation improvements of the Established Communities could result in conversion of aquatic habitat, including wetlands, Impact BIO-3 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-4 and BIO-5 are described below.

Developing Communities
Despite the predominantly urbanized character of Developed Communities, these areas contain some aquatic habitat types. The projected land use pattern under the proposed MTP/SCS in Developed Communities could convert 1,659 acres of wetland habitat, 23 acres of open waters, and 3 acres of riverine habitat (Table 6-6). The potential impact from planned transportation improvements includes 122 acres of wetland habitat and 6 acres of open waters (Table 6-6).

Because construction of the projected land use pattern and planned transportation improvements of the Developed Communities could result in conversion of aquatic habitat, including wetlands, Impact BIO-3 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-4 and BIO-5 are described below.

Rural Residential Communities
While Rural Residential Communities have undergone development and conversion of natural habitats for urban uses, these areas contain some aquatic habitat types. The projected land use pattern under the proposed MTP/SCS in Rural Residential Communities could convert 78 acres of wetland habitat, 23 acres of open waters, and 13 acres of riverine habitat (Table 6-6). The potential impact from planned transportation improvements includes 2 acres of wetland habitat (Table 6-6).

Because construction of the projected land use pattern and planned transportation improvements of the Rural Residential Communities could result in conversion of aquatic habitat, including wetlands, Impact BIO-3 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-4 and BIO-5 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. The proposed MTP/SCS would, however, make a number of planned transportation improvements in this Community Type by 2040. The potential impact from planned transportation improvements includes 52 acres of wetland habitat and 6 acres of open waters (Table 6-6).

Because construction of planned transportation improvements in Lands Not Identified for Development could result in conversion of aquatic habitat, including wetlands, Impact BIO-3 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-4 and BIO-5 are described below.

High Frequency Transit Area Impacts

Placer County High Frequency Transit Areas
The projected land use pattern under the proposed MTP/SCS in Placer County HFTAs could convert 425 acres of wetland habitat (Table 6-8). Planned transportation improvements in Placer County HFTAs could result in conversion of 110 acres of wetland habitat (Table 6-8).

Because construction of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS could result in conversion of aquatic habitats, including wetlands, within Placer County HFTAs, Impact BIO-3 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-4 and BIO-5 are described below.

Sacramento County High Frequency Transit Areas
The projected land use pattern under the proposed MTP/SCS in Sacramento County HFTAs could convert 38 acres of wetland habitat, 6 acres of open waters, and 1 acre of riverine habitat (Table 6-8). Planned transportation improvements in Sacramento County HFTAs could result in conversion of 9 acres of wetland habitat and 16 acres of riverine habitat (Table 6-8).

Because construction of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS could result in conversion of aquatic habitats, including wetlands, within Sacramento County HFTAs, Impact BIO-3 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-4 and BIO-5 are described below.

Yolo County High Frequency Transit Areas
The projected land use pattern under the proposed MTP/SCS in Yolo County HFTAs could convert 11 acres of wetland habitat (Table 6-8). Planned transportation improvements in Sacramento County HFTAs could result in conversion of 8 acres of wetland habitat (Table 6-8).

Because construction of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS could result in conversion of aquatic habitats, including wetlands, within Yolo County HFTAs, Impact BIO-3 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-4 and BIO-5 are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project level would reduce impacts on biological resources and agencies with jurisdiction to adopt these measures should do so (Pub. Resources Code Section 21081).

Mitigation Measure BIO-4: Implement Mitigation Measure BIO-1a.

Mitigation Measure BIO-5: Avoid, Minimize, and Mitigate Impacts on Wetland and Other Waters.

If the qualified biologist, after implementation of Mitigation Measure BIO-4, determines that wetlands or other waters are present within the area of impact and could be adversely affected by construction activities, then the following measures shall be implemented:

- The implementing agency shall conduct a delineation of state or federally protected wetlands and submit the delineation to USACE for verification. The delineation shall be conducted according to methods established in the USACE Wetlands Delineation Manual (Environmental Laboratory 1987), the Arid West Supplement (Environmental Laboratory 2008), and state wetland procedures (California Water Boards 2019 or current procedures).

- The implementing agencies shall obtain a USACE Section 404 permit, RWQCB Section 401 certification, and a Streambed Alteration Agreement (1602) from CDFW if required, and the implementing agency shall implement all permit conditions. The acreage, location, and methods for compensation shall be determined during the Section 404, RWQCB, and Streambed Alternation Agreement (1602) permitting process.
- Wetland habitat shall be restored, enhanced, and/or replaced at an acreage and location and by methods agreeable to USACE, RWQCB, and CDFW as appropriate, depending on agency jurisdiction. The replacement of waters or wetlands shall be equivalent to the nature of the habitat lost and shall be provided at a suitable ratio to ensure that, at a minimum, there is no net loss of habitat acreage or value. The replacement habitat shall be set aside in perpetuity for habitat use.

SIGNIFICANCE AFTER MITIGATION

With implementation of Mitigation Measures BIO-4 and BIO-5, impacts on state or federally protected wetlands would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, Impact BIO-2 remains significant and unavoidable (SU) for the purposes of this program-level review.

IMPACT BIO-4: INTERFERE SUBSTANTIALLY WITH THE MOVEMENT OF ANY NATIVE RESIDENT OR MIGRATORY FISH OR WILDLIFE SPECIES OR WITH ESTABLISHED NATIVE RESIDENT OR MIGRATORY WILDLIFE CORRIDORS, OR IMPEDE THE USE OF NATIVE WILDLIFE NURSERY SITES.

Regional Impacts

There are approximately 1,032,759 acres of ECA mapped within the plan area of the proposed MTP/SCS, most of which are composed of wildland habitats (see discussions in Setting and Methods and Assumptions). The wildland habitat in the plan area of the proposed MTP/SCS could also include native wildlife nursery sites, such as important fawning areas for mule deer, spawning areas for native fish, or maternal roots for bats. These native nursery sites are not mapped on a regional scale and would require evaluation at a project-specific level.

Implementation of the proposed MTP/SCS could result in conversion of approximately 7,330 acres of land mapped as ECA: 5,533 acres classified as wildland, 837 classified as aquatic habitat, 673 acres classified as developed/disturbed, and 191 acres classified as agricultural (Table 6-12). The majority of the affected wildland and aquatic habitat within the ECA consists of annual grasslands, wetlands, and oak woodlands (Table 6-11). Class I trails that run parallel to new or expanded roadways would be captured by the 100-foot buffer around new or expanded roadway and light rail projects used to calculate potential impact acreages. Some proposed Class I trails may not be captured by the 100-foot buffer, including trails located along rivers or in other areas greater than 100 feet from new or expanded roadways. Development of these Class I trails could result in impacts to wildlife movement corridors or native wildlife nursery sites in excess of the impact acreages described below.

Table 6-11
Potential Impacts to Essential Connectivity Areas (acres)

Land Cover by Essential Connectivity Area	Land Use Impact	Transp. Impact	Total Impacts
Bear Mountains - Middle Fork Cosumnes River			
Montane Forest	13	0	13
Bear River – Chaparral Hill/Yuba River			
Foothill Woodland	1	0	1
Bear Slough - Browns Creek			
Grasslands	1	0	1
Developed/Disturbed	1	0	1
Blue Ridge/ Rocky Ridge - Capay Hills			
Developed/Disturbed	2	0	2
Coon Creek - Bear River			
Grasslands	27	0	27
Developed/Disturbed	11	0	11
Curry Creek - Coon Creek			
Grasslands	1,160	101	1,261
Valley Oak Woodland/Savanna	2	6	8
Riparian	11	2	13
Wetlands	653	139	793
Open Water/Lakes and Reservoirs/Rivers	3	0	3
Orchards and Vineyards	12	0	12
Rice	80	6	86
Row and Field Crops	51	7	58
Developed/Disturbed	14	9	22
Duck Creek North Fork - Coyote Creek			
Grasslands	256	33	287
Foothill Woodland	1	0	1
Wetlands	6	0	6
Open Water/Lakes and Reservoirs/Rivers	1	0	1
Developed/Disturbed	6	0	6
Marble Valley - Sawtooth Ridge			
Grasslands	1,873	326	2,199
Chaparral	106	0	106
Valley Oak Woodland/Savanna	69	5	74
Foothill Woodland	1,194	22	1,216
Montane Forest	245	0	245
Riparian	21	3	24
Barren	11	17	28
Wetlands	3	6	9
Open Water/Lakes and Reservoirs/Rivers	3	0	3

Land Cover by Essential Connectivity Area	Land Use Impact	Transp. Impact	Total Impacts
Pasture	1	0	1
Row and Field Crops	4	0	4
Developed	395	107	502
Disturbed	0	1	1
Middle Fork Cosumnes River - Big Mountain Ridge			
Grasslands	2	0	2
Chaparral	1	0	1
Foothill Woodland	3	0	3
Montane Forest	36	0	36
Stone Lake - Yolo Bypass			
Grasslands	0	78	78
Riparian	0	2	2
Wetlands	3	21	24
Pasture	1	0	1
Row and Field Crops	0	8	8
Developed	6	72	78
Disturbed	0	4	4
Yolo Bypass - Sacramento Bypass			
Row and Field Crops	0	15	15
Developed	0	42	42
LAND COVER TOTAL	**6,289**	**1,032**	**7,321**

Source: Land Cover data was compiled by Ascent in 2019 to create the land cover dataset that was analyzed in this chapter using data from U.S. Forest Service (USDA 2014, 2016), Six County Aquatic Resources Inventory (SFEI 2017), Placer County Conservation Plan (County of Placer 2016), South Sacramento HCP (County of Sacramento et al. 2014), Sutter-Yuba HCP (SACOG 2012), and Yolo HCP (County of Yolo 2015). Land use forecast and planned transportation project data and analysis, SACOG June 2019. Spencer et al. 2010, compiled by SACOG 2019

The majority of the proposed MTP/SCS impacts are concentrated in two ECAs: the Marble Valley-Sawtooth Ridge ECA and the Curry Creek-Coon Creek ECA (Table 6-11). The Marble Valley-Sawtooth Ridge ECA generally follows the north and middle forks of the American River in Placer and El Dorado counties, south to Folsom Lake, including portions of the grassland habitat in the Sierra Nevada foothills in Sacramento and El Dorado counties. The Curry Creek-Coon Creek ECA is located primarily in Placer County, west of the cities of Lincoln, Roseville, and Rocklin (Figure 6.2). The projected land use pattern within these ECA could result in fragmented habitat and isolated populations of wildlife. While most transportation improvements (e.g., large roads and highways) under the proposed MTP/SCS are planned along existing transportation corridors, these actions could create barriers for dispersing wildlife.

Because implementation of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS at the regional level could result in conversion of habitats that contain portions of ECA that could disrupt wildlife movement or dispersal corridors, or disturb native wildlife nursery areas, Impact BIO-4 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-6 and BIO-7 are described below.

Localized Impacts

Center and Corridor Communities
The projected land use pattern under the proposed MTP/SCS in Center and Corridor Communities could convert 17 acres of wildland habitat and 9 acres of developed/disturbed habitat that contain portions of ECA (Table 6-12). The potential impact from planned transportation improvements includes 13 acres of wildland habitat, 1 acre of aquatic habitat, and 6 acres of developed/disturbed habitat that contain portions of ECA (Table 6-12).

Because construction of the projected land use pattern and planned transportation improvements in Center and Corridor Communities could result in conversion of habitats that contain portions of ECA that could disrupt wildlife movement or dispersal corridors or disturb native wildlife nursery areas, Impact BIO-4 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-6 and BIO-7 are described below.

Established Communities
The projected land use pattern under the proposed MTP/SCS in Established Communities could convert 16 acres of agricultural habitat, 1,882 acres of wildland habitat, 294 acres of aquatic habitat, and 177 acres of developed/disturbed habitat that contain portions of ECA (Table 6-12). The potential impact from planned transportation improvements includes 157 acres of wildland habitat, 47 acres of aquatic habitat, and 66 acres of developed/disturbed habitat that contain portions of ECA (Table 6-12).

Because construction of the projected land use pattern and planned transportation improvements in Established Communities could result in conversion of habitats that contain portions of ECA that could disrupt wildlife movement or dispersal corridors or disturb native wildlife nursery areas, Impact BIO-4 is considered potentially significant (PS). Mitigation is required. Mitigation Measure BIO-6 and BIO-7 are described below.

Developing Communities
The projected land use pattern under the proposed MTP/SCS in Developing Communities could convert 131 acres of agricultural habitat, 1,945 acres of wildland habitat, 374 acres of aquatic habitat, and 21 acres of developed/disturbed habitat that contain portions of ECA (Table 6-12). The potential impact from planned transportation improvements includes 18 acres of agricultural habitat, 303 acres of wildland habitat, 90 acres of aquatic habitat, and 45 acres of developed/disturbed habitat that contain portions of ECA (Table 6-12).

Because construction of the projected land use pattern and planned transportation improvements in Developing Communities could result in conversion of habitats that contain portions of ECA that could disrupt wildlife movement or dispersal corridors or disturb native wildlife nursery areas, Impact BIO-4 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-6 and BIO-7 are described below.

Rural Residential Communities
The projected land use pattern under the proposed MTP/SCS in Developing Communities could convert 3 acres of agricultural habitat, 1,192 acres of wildland habitat, 2 acres of aquatic habitat, and 128 acres of developed/disturbed habitat that contain portions of ECA (Table 6-12). Planned transportation

improvements could convert 24 acres of wildland habitat and 4 acres of developed/disturbed habitat that contain portions of ECA (Table 6-12).

Because construction of the projected land use pattern and planned transportation improvements in Rural Residential Communities could result in conversion of habitats that contain portions of ECA that could disrupt wildlife movement or dispersal corridors or disturb native wildlife nursery areas, Impact BIO-4 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-6 and BIO-7 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. The proposed MTP/SCS would, however, make a number of planned transportation improvements in this Community Type by 2040. The potential impact from planned transportation improvements includes 23 acres of agricultural habitat, 100 acres of wildland habitat, 29 acres of aquatic habitat, and 118 acres of developed/disturbed habitat that contain portions of ECA (Table 6-12).

Because construction of the planned transportation improvements in Lands Not Identified for Development could result in conversion of habitats that contain portions of ECA that could disrupt wildlife movement or dispersal corridors or disturb native wildlife nursery areas, Impact BIO-4 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-6 and BIO-7 are described below.

High Frequency Transit Area Impacts

Placer County High Frequency Transit Areas
The projected land use pattern under the proposed MTP/SCS in Placer County HFTAs could convert 19 acres of agricultural habitat, 514 acres of wildland habitat, 253 acres of aquatic habitat, and 11 acres of developed/disturbed habitat that contain portions of ECA (Table 6-13). Planned transportation improvements in Placer County HFTAs could result in conversion of 5 acre of agricultural habitat, 35 acres of wildland habitat, 60 acres of aquatic habitat, and 5 acres of developed/disturbed habitat that contain portions of ECA (Table 6-13).

Because construction of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS could result in conversion of habitats that contain portions of ECA that could disrupt wildlife movement or dispersal corridors or disturb native wildlife nursery areas within Placer County HFTAs, Impact BIO-4 is considered potentially significant (PS). Mitigation is required. Mitigation Measures BIO-6 and BIO-7 are described below.

Sacramento County and Yolo County High Frequency Transit Areas
Because the projected land use pattern and planned transportation improvements under the proposed MTP/SCS in Sacramento and Yolo counties HFTAs would not result in the conversion of any habitats containing ECAs (Table 6-13), Impact BIO-4 is considered less than significant (LS). No mitigation is required.

Table 6-12
Potential Impacts on Essential Connectivity Areas by Community Type (acres)

Land Cover	Center and Corridor Communities			Established Communities			Developing Communities			Rural Residential Communities			Lands Not Identified for Development		
	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
WILDLAND LAND COVER															
Grasslands	14	12	26	1243	127	1369	1817	278	2096	245	23	268	0	98	98
Chaparral	0	0	0	6	0	6	4	0	4	96	0	96	0	0	0
Valley Oak Woodland/ Savanna	0	0	0	3	10	13	10	2	12	69	0	69	0	0	0
Foothill Woodland	0	0	0	474	7	481	112	14	126	613	1	614	0	0	0
Montane Forest	0	0	0	143	0	143	0	0	0	150	0	150	0	0	0
Riparian	0	0	0	4	4	8	2	0	3	19	0	19	0	2	2
Barren	3	1	4	9	9	18	0	8	8	0	0	0	0	0	0
Rock Outcrops/Cliffs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WILDLAND TOTAL	***17***	***13***	***30***	***1,882***	***157***	***2,039***	***1,945***	***303***	***2,248***	***1,192***	***24***	***1,216***	***0***	***100***	***100***
AQUATIC LAND COVER															
Wetlands	0	1	1	293	47	340	370	90	460	1	0	1	0	29	29
Open Water/Lakes and Reservoirs/Rivers	0	0	0	1	0	1	4	0	4	1	0	1	0	0	0
AQUATIC TOTAL	***0***	***1***	***1***	***294***	***47***	***341***	***374***	***90***	***464***	***2***	***0***	***2***	***0***	***29***	***29***
AGRICULTURE LAND COVER															
Orchards and Vineyards	0	0	0	12	0	12	0	0	0	0	0	0	0	0	0
Pasture	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0
Rice	0	0	0	0	0	0	80	6	86	0	0	0	0	0	0
Row and Field Crops	0	0	0	3	0	3	51	12	63	2	0	2	0	23	23
AGRICULTURE TOTAL	***0***	***0***	***0***	***16***	***0***	***16***	***131***	***18***	***149***	***3***	***0***	***3***	***0***	***23***	***23***
DEVELOPED/DISTURBED LAND COVER															
Developed	9	6	15	266	66	332	21	44	65	128	4	132	0	114	114

Land Cover	Center and Corridor Communities			Established Communities			Developing Communities			Rural Residential Communities			Lands Not Identified for Development		
	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
Disturbed	0	0	0	10	0	10	0	1	1	0	0	0	0	4	4
DEVELOPED/DISTURBED TOTAL	***9***	***6***	***15***	***277***	***66***	***342***	***21***	***45***	***66***	***128***	***4***	***132***	***0***	***118***	***118***
TOTAL LAND COVER	**26**	**20**	**46**	**2,468**	**269**	**2,738**	**2,472**	**455**	**2,927**	**1,325**	**28**	**1,353**	**0**	**269**	**269**

Note: Totals may not sum due to rounding.

Source: Land Cover data was compiled by Ascent in 2019 to create the land cover dataset that was analyzed in this chapter using data from U.S. Forest Service (USDA 2014, 2016), Six County Aquatic Resources Inventory (SFEI 2017), Placer County Conservation Plan (County of Placer 2016), South Sacramento HCP (County of Sacramento et al. 2014), Sutter-Yuba HCP (SACOG 2012), and Yolo HCP (County of Yolo 2015). Land use forecast and planned transportation project data and analysis, SACOG June 2019.

Table 6-13
Potential Impacts on Essential Connectivity Areas by High Frequency Transit Area (acres)

Land Cover	Placer County HFTAs			Sacramento County HFTAs			Yolo County HFTAs		
	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
WILDLAND LAND COVER									
Grasslands	511	32	542	0	0	0	0	0	0
Valley Oak Woodland/Savanna	0	2	2	0	0	0	0	0	0
Foothill Woodland	0	0	0	0	0	0	0	0	0
Riparian	3	1	4	0	0	0	0	0	0
WILDLAND TOTAL	***514***	***35***	***548***	***0***	***0***	***0***	***0***	***0***	***0***
AQUATIC LAND COVER									
Wetlands	253	60	313	0	0	0	0	0	0
AQUATIC TOTAL	***253***	***60***	***313***	***0***	***0***	***0***	***0***	***0***	***0***
AGRICULTURE LAND COVER									
Orchards and Vineyards	12	0	12	0	0	0	0	0	0
Rice	7	0	7	0	0	0	0	0	0
Row and Field Crops	0	5	5	0	0	0	0	0	0
AGRICULTURE TOTAL	***19***	***5***	***24***	***0***	***0***	***0***	***0***	***0***	***0***
DEVELOPED/DISTURBED LAND COVER									
Developed	11	5	16	0	0	0	0	0	0
DEVELOPED/DISTURBED TOTAL	***11***	***5***	***16***	***0***	***0***	***0***	***0***	***0***	***0***
LAND COVER TOTAL	**797**	**105**	**901**	**0**	**0**	**0**	**0**	**0**	**0**

Note: Totals may not sum due to rounding.

Source: Land Cover data was compiled by Ascent in 2019 to create the land cover dataset that was analyzed in this chapter using data from U.S. Forest Service (USDA 2014, 2016), Six County Aquatic Resources Inventory (SFEI 2017), Placer County Conservation Plan (County of Placer 2016), South Sacramento HCP (County of Sacramento et al. 2014), Sutter-Yuba HCP (SACOG 2012), and Yolo HCP (County of Yolo 2015). Land use forecast and planned transportation project data and analysis, SACOG June 2019.

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project level would reduce the impacts on biological resources and agencies with jurisdiction to adopt these measures should do so (PRC Section 21081).

Mitigation Measure BIO-6: Implement Mitigation Measure BIO-1a.

Mitigation Measure BIO-7: Avoid, Minimize, and Mitigate Impacts on Wildlife Movement Corridors or Native Wildlife Nursery Sites.

If the qualified biologist, after implementation of Mitigation Measure BIO-6, determines that wildlife movement corridors or native wildlife nursery sites are present within the area of impact and could be adversely affected by construction activities, then the following measures shall be implemented:

- Implementing agencies shall design projects such that they avoid and minimize direct and indirect impacts on wildlife movement corridors and/or native wildlife nursery sites. Design considerations may include but would not be limited to the following:
  - constructing wildlife friendly overpasses, underpasses, bridges and/or culverts that are integrated with appropriate roadside fencing that maintains animals off the road and direct them towards crossing structures;
  - using wildlife friendly fencing;
  - limiting wildland conversions in identified wildlife corridors or native wildlife nursery sites;
  - retaining wildlife friendly vegetation in and around developments; and
  - avoid the nursery season for common wildlife during construction.
- For projects that cannot avoid significant impacts on wildlife movement corridors or native wildlife nursery areas, implementing agencies shall consult with CDFW to determine appropriate measures to minimize direct and indirect impacts that could occur as a result of implementation of the proposed MTP/SCS and shall implement measures to mitigate impacts on wildlife corridors or native wildlife nursery sites.
- For projects that require the placement of stream culverts in a fish spawning stream, the implementing agencies shall follow the USACE, NOAA Fisheries, USFWS, and CDFW permit conditions and design requirements to allow fish passage through the culverts.
- For projects in or adjacent to riparian corridors, project design shall maximize distance of lighting from riparian corridors and direct light sources away from the riparian corridor. Night lighting of trails along riparian corridors should be avoided.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts Mitigation Measures BIO-6 and BIO-7, Impact BIO-4 would be reduced to less than significant (LS). Additionally, projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt mitigation, this impact remains significant and unavoidable (SU).

IMPACT BIO-5: CONFLICT WITH ANY LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES, SUCH AS A TREE PRESERVATION POLICY OR ORDINANCE.

Regional Impacts

Several counties and cities in the plan areas of the proposed MTP/SCS plan area have local ordinances and policies in place to protect biological resources such as streams, sensitive vegetation communities (e.g., riparian areas), and native trees as well as non-native trees in urban landscapes. Some of these ordinances and policies require stream and riparian setbacks and protection of trees of certain species or size, and these requirements vary among municipalities. The proposed MTP/SCS projected land use pattern could result in construction within a stream or riparian setback area, protected sensitive vegetation community, or in removal of trees that are protected by local policies or ordinances. Impact BIO-1, BIO-2, and BIO-3 describe potential impacts on special-status plants, special-status wildlife, sensitive natural communities (including riparian habitat), and wetlands. Mitigation Measures BIO-1a, BIO-1b, BIO-1c, BIO-2 through BIO-5 would mitigate these impacts to less than significant if adopted by implementing agencies.

Most of the woodland habitats in the plan area of the proposed MTP/SCS are mapped at sizes ranging from one-half acre up to several hundred acres. Therefore, isolated trees in rural areas and city street trees are not mapped. The projected land use pattern and planned transportation improvements in the proposed MTP/SCS could result in impacts on these trees; some of which may be protected under local ordinances and policies. Additionally, trees that are protected under local ordinances and policies may not be considered special-status plant species or sensitive natural communities; thus, would not benefit from implementation of Mitigation Measures BIO-1a, BIO-1b, or BIO-3.

Similarly, streams, wetlands, and riparian areas are identified in the plan area of the proposed MTP/SCS and would benefit from implementation of Mitigation Measures BIO-1a, BIO-3, and BIO-5. However, local ordinances and policies may have additional requirements that exceed the requirements of these Mitigation Measures.

In addition, implementation of the proposed MTP/SCS may also conflict with other local policies or ordinances that protect locally significant biological resources.

Therefore, the projected land use pattern and planned transportation improvements under the proposed MTP/SCS could result in conflicts with local policies or ordinances protecting biological resources which would be a potentially significant (PS) impact at the regional level for Impact BIO-5. Mitigation is required. Mitigation Measures BIO-8 and BIO-9 are described below.

Localized and High Frequency Transit Area Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, Placer County High Frequency Transit Areas, Sacramento County High Frequency Transit Areas, and Yolo County High Frequency Transit Areas
Impacts on biological resources protected by local policies or ordinances are site-specific. The potential to impact these resources does not vary by the Community Type or location of the projected land use pattern and planned transportation improvements. Therefore, the regional analysis above also applies at the localized and High Frequency Transit Area levels. Impacts related to conflicts with local policies or ordinances protecting biological resources are considered potentially significant (PS) for Impact BIO-5, consistent with the regional analysis. Mitigation is required. Mitigation Measures BIO-8 and BIO-9 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Thus, conflicts with local policies or ordinances protecting biological resources are not expected. Therefore, impacts associated with the projected land use pattern would be less than significant (LS), and no mitigation is required.

The proposed MTP/SCS would, however, make a number of planned transportation improvements in this Community Type by 2040. Therefore, impacts associated with planned transportation improvements related to conflicts with local policies or ordinances protecting biological resources are considered potentially significant (PS) for Impact BIO-5, consistent with the regional analysis. Mitigation is required. Mitigation Measures BIO-8 and BIO-9 are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project level would reduce the impacts on biological resources and agencies with jurisdiction to adopt these measures should do so (PRC Section 21081).

Mitigation Measure BIO-8: Implement Mitigation Measure BIO-1a.

Mitigation Measure BIO-9: Avoid, Minimize, and Mitigate for Impacts to Protected Trees and Other Biological Resources Protected by Local Ordinances.

If the qualified biologist, after implementation of Mitigation Measure BIO-1a, determines that local ordinances or policies intended to protect biological resources would apply and that construction activities may result in conflict with these ordinances or policies, then the following measures shall be implemented:

- Implementing agencies shall design projects such that they avoid and minimize direct and indirect impacts on protected trees and other locally protected resources where feasible, as defined in Section 15364 of the CEQA Guidelines.

- At a minimum, qualifying protected trees (or other resources) shall be replaced at ratios included in the local general plan, local policies, or city or county codes in locally approved mitigation sites.
- As part of project-level environmental review, implementing agencies shall ensure that projects comply with the most recent general plans, policies, and ordinances, and conservation plans.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts Mitigation Measures BIO-8 and BIO-9, Impact BIO-5 would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt mitigation, Impact BIO-5 remains significant and unavoidable (SU).

IMPACT BIO-6: CONFLICT WITH THE PROVISIONS OF AN ADOPTED HABITAT CONSERVATION PLAN, NATURAL COMMUNITIES CONSERVATION PLAN, OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN.

Regional Impacts

There are currently three adopted HCPs in the MTP/SCS plan area: the Natomas Basin HCP, the South Sacramento HCP, and the Yolo HCP/NCCP. Several additional HCPs are under preparation (See "Regulatory Setting"). The purpose of developing an HCP or NCCP is to facilitate a permittee or project applicant in obtaining an incidental take permit from USFWS and/or an NCCPA permit from CDFW, and to develop a long-term conservation plan to protect and contribute to the conservation of covered species and natural communities in a plan area while allowing for covered activities that are compatible with other local policies and regulations

For projects within the plan area of an adopted HCP or NCCP that covers multiple projects and permittees (e.g., a regional or countywide multi-species HCP/NCCP), and for activities specifically covered by the plan (i.e., covered activities) that may result in take of a species covered by the plan (i.e., covered species), an eligible applicant may obtain an incidental take permit through voluntary participation in the HCP or NCCP if plan coverage/permit issuance is available. For activities that may result in take of a listed species but are not covered under an adopted HCP or NCCP, an applicant would pursue individual project permitting (See Mitigation Measures BIO-1b and BIO-1c).

Under the proposed MTP/SCS, individual project-related take of any state or federally listed species would be minimized and avoided through implementation of mitigation measures (see Impact BIO-1). If an individual project under the proposed MTP/SCS is located within the plan area of an adopted HCP or NCCP and the project is considered a covered activity under the HCP or NCCP, the applicant may pursue coverage under the plan. If permitting through an adopted HCP or NCCP is pursued, the applicant would be required to meet the permit conditions and other requirements established in the plan's Implementing Agreement, which may include (depending on the plan) submitting a complete application package, paying required fees, fulfilling any appropriate survey requirements, and complying with all applicable conservation measures. If permit conditions and

requirements established in the HCP or NCCP Implementing Agreement are not met, the project would not receive coverage and would be required to secure coverage individually.

Regardless of whether take of a listed species may occur and permitting is needed, individual projects under the proposed MTP/SCS implemented within plan areas of adopted HCPs or NCCPs and considered covered activities under adopted HCPs or NCCPs would be required to be consistent with the plans as a condition of project approval by the approving entity (e.g., Yolo Habitat Conservancy, South Sacramento Conservation Agency Joint Powers Authority).

Because the consistency of covered activities within the plan area with an adopted HCP, NCCP, or other conservation plan is a legal requirement, implementation of projects considered covered activities under the proposed MTP/SCS would not result in conflict with the provisions of adopted HCPs, NCCPs, or other approved local, regional, or state habitat conservation plans. However, individual land use projects or transportation improvements under the proposed MTP/SCS that would not be considered covered activities under an adopted HCP, NCCP, or other conservation plan would be required to seek coverage outside of these plans for potential impacts to biological resources. Impacts to biological resources that are not mitigated through an adopted HCP, NCCP, or other conservation plan may result in conflicts with these plans and are considered potentially significant (PS) for Impact BIO-6. Mitigation is required. Mitigation Measures BIO-10 through BIO-15 are described below.

Localized and High Frequency Transit Area Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, Lands Not Identified for Development in the Proposed MTP/SCS, Placer County High Frequency Transit Areas, Sacramento County High Frequency Transit Areas, and Yolo County High Frequency Transit Areas
The localized and TPA analysis does not vary by the Community Type or location of the projected land use pattern or planned transportation improvements. Therefore, the regional analysis also applies at the localized level and High Frequency Transit Area levels.

Therefore, the projected land use pattern and planned transportation improvements related to conflicts with the provisions of adopted HCPs, NCCPs, or other approved local, regional, or state habitat conservation plans are considered less than significant (LS) for Impact BIO-6 at the localized and High Frequency Transit Area levels. No mitigation is required.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project level would reduce the impacts on biological resources and agencies with jurisdiction to adopt these measures should do so (PRC Section 21081).

Mitigation Measure BIO-10: Implement Mitigation Measure BIO-1a.

Mitigation Measure BIO-11: Implement Mitigation Measure BIO-1b.

Mitigation Measure BIO-12: Implement Mitigation Measure BIO-1c.

Mitigation Measure BIO-13: Implement Mitigation Measure BIO-2.

Mitigation Measure BIO-14: Implement Mitigation Measure BIO-3.

Mitigation Measure BIO-15: Implement Mitigation Measure BIO-4.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts Mitigation Measures BIO-10 through BIO-15 if an individual project is not considered a covered activity under an adopted HCP, NCCP, or other conservation plan, Impact BIO-6 would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt mitigation, this impact remains significant and unavoidable (SU).

IMPACT BIO-7: SUBSTANTIALLY REDUCE THE HABITAT OF A FISH OR WILDLIFE SPECIES; CAUSE A FISH OR WILDLIFE POPULATION TO DROP BELOW SELF-SUSTAINING LEVELS; THREATEN TO ELIMINATE A PLANT OR ANIMAL COMMUNITY; OR SUBSTANTIALLY REDUCE THE NUMBER OR RESTRICT THE RANGE OF AN ENDANGERED, RARE, OR THREATENED SPECIES.

Regional, Localized, and HFTA Impacts

As described in Impacts BIO-1, BIO-2, BIO-3, and BIO-4, implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS would adversely affect special-status (e.g., endangered, rare, threatened) plant and wildlife species, as well as habitat for these species, including sensitive natural communities, riparian habitat, and aquatic habitat.

Suitable foraging, breeding, and sheltering habitat for common native bird, mammal, amphibian, reptile, and other animal species is ubiquitous throughout the plan area of the proposed MTP/SCS. These common species do not meet the criteria for special-status species as defined in this EIR; however, mandatory findings of significance pursuant to State CEQA Guidelines Section 15065(a)(1) require consideration of whether a project would "substantially degrade the quality of the environment, reduce habitat of wildlife species, cause wildlife populations to drop below self-sustaining levels, or threaten to eliminate a plant or animal community." Because of the numerous common wildlife species distributed throughout the plan area, implementation of the proposed MTP/SCS could disturb or otherwise affect many common native species. Additionally, some common wildlife species are subject to state or federal regulatory protections. For example, native nesting birds are protected under sections 3503 and 3503.5 of the California Fish and Game Code and the MBTA.

Effects on individual animals as a result of implementation of the proposed MTP/SCS described previously for Impact BIO-1 (for special-status species), Impact BIO-2 (for sensitive natural communities), Impact BIO-3 (for state or federally protected wetlands) and Impact BIO-4 (for wildlife movement and nursery sites of common species) would generally be the same for common wildlife species. Temporary disturbances to foraging patterns, local movements, and reproductive activities of common bird, mammal, reptile, and amphibian species resulting from construction and operation under the proposed MTP/SCS would occur in some locations. While common wildlife species are generally well-distributed, abundant, and adapted to varying levels of natural and anthropogenic disturbances, temporary disturbances and displacement of animals associated with implementation of the proposed MTP/SCS could occur locally. This is considered a potentially significant (PS) impact for Impact BIO-7. Mitigation is required. Mitigation Measures BIO-16 through BIO-21 are discussed below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project level would reduce the impacts on biological resources and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure BIO-16: Implement Mitigation Measure BIO-1a.

Mitigation Measure BIO-17: Implement Mitigation Measure BIO-1b.

Mitigation Measure BIO-18: Implement Mitigation Measure BIO-1c.

Mitigation Measure BIO-19: Implement Mitigation Measure BIO-2.

Mitigation Measure BIO-20: Implement Mitigation Measure BIO-3.

Mitigation Measure BIO-21: Implement Mitigation Measure BIO-4.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts Mitigation Measures BIO-16 through BIO-21, Impact BIO-7 would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt mitigation, this impact remains significant and unavoidable (SU).

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Chapter 7—Cultural, Paleontological, and Tribal Cultural Resources

7.1 Introduction

This chapter describes the existing conditions (environmental and regulatory) and assesses the potential cultural, paleontological, and tribal resources impacts of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on review of existing and available information and is regional in scope. Data, analysis, and findings provided in this chapter were considered and prepared at a programmatic level. For consistency with the 2016 MTP/SCS EIR, paleontological resources are addressed in this chapter even though these resources are grouped with geology and soils in Appendix G of the CEQA Guidelines (SACOG 2016). Impacts to unique geologic features are addressed in Chapter 9 – Geology, Soils, Seismicity, and Mineral Resources.

Cultural resources include archaeological sites or districts of prehistoric or historic origin, built environment resources older than 50 years (e.g., historic buildings, structures, features, objects, districts, and landscapes), and traditional or ethnographic resources, including tribal cultural resources, which are a separate category of cultural resources under CEQA. Paleontological resources include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains that are more than 5,000 years old and occur mainly in Pleistocene or older sedimentary rock units.

In response to the Notice of Preparation (NOP), SACOG received comments related to cultural and tribal cultural resources from the Native American Heritage Commission (NAHC) and United Auburn Indian Community of the Auburn Rancheria. The commenters expressed that the Draft EIR should consider the following:

- early consultation with traditionally and culturally affiliated California Native American tribes;
- compliance with Assembly Bill (AB) 52 (Statutes of 2014);
- compliance with Senate Bill (SB) 18 (Statutes of 2004);
- NAHC recommendation for cultural resource assessments; and
- analysis of Tribal Cultural Resources (including avoidance measures, mitigation measures, post-review discovery mitigation measures, worker awareness training, and avoidance).

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, these comments have been carefully

reviewed and considered by SACOG and are reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

7.2 Environmental Setting

The following summarizes the region's geology, prehistoric and historic setting, known cultural resources, and paleontological sensitivity.

7.2.1 Regional Geology

The plan area of the proposed MTP/SCS is located in a broad area that extends across three of California's 11 geomorphic provinces, from the Coast Ranges on the west, across the Great Valley, to the Sierra Nevada on the east.

The western edge of the plan area of the proposed MTP/SCS is in the Coast Ranges geomorphic province. This province is characterized by northwest-trending mountain ranges and valleys formed over the past 10 million years by active uplift related to complex tectonics of the San Andreas fault and plate boundary system (Atwater and Stock 1998; Norris and Webb 1990). At the general latitude of the plan area of the proposed MTP/SCS, the eastern Coast Ranges consist of a central core of Mesozoic units, including the diverse units of the Franciscan complex, flanked on the west by extensive exposures of Miocene volcanic rocks and on the east by an upward younging sequence of marine and terrestrial sedimentary units that ranges in age from Cretaceous to Neogene (refer to geologic timescale in Table 7-1). The area's larger drainages preserve several generations of alluvial fan and stream deposits ranging in age from Pleistocene to Holocene (Graymer et al. 2002; Wagner and Bortugno 1982).

Table 7-1
Divisions of Geologic Time

Era	Period	Time in Millions of Years Ago (approximately)	Epoch
Cenozoic	Quaternary	< 0.01	Holocene
		2.6	Pleistocene
	Tertiary	5.3	Pliocene
		23	Miocene
		34	Oligocene
		56	Eocene
		65	Paleocene
Mesozoic	Cretaceous	145	
	Jurassic	200	
	Triassic	251	
Paleozoic	Permian	299	
	Carboniferous	359	
	Devonian	416	
	Silurian	444	
	Ordovician	488	
	Cambrian	542	
Precambrian		2,500	

Source: USGS Geologic Names Committee 2010

The central portion of the plan area of the proposed MTP/SCS is in the Sacramento Valley, which forms the northern portion of California's Great Valley geomorphic province (Norris and Webb 1990). The Great Valley is a nearly flat alluvial plain that lies between the Sierra Nevada on the east, the Coast Ranges on the west, the Tehachapi Mountains on the south, and the Klamath Mountains on the north. Subdivided into the Sacramento Valley to the north and the San Joaquin Valley to the south, the Great Valley has an average width of about 50 miles and is about 400 miles long. The Sacramento Valley is bounded by the Stockton Arch to the south (Bartow 1991; Norris and Webb 1990).

The Great Valley is floored by a thick sequence of alternating marine and terrestrial sedimentary deposits that range in age from Jurassic through Holocene. The base of the sequence likely rests on Mesozoic crystalline rock associated with the Sierra Nevada in the east and central portions of the valley and on Franciscan metasediments and mélange associated with the Coast Ranges in the west. Mesozoic sedimentary rocks in the subsurface include marine deposition. These rocks are overlain by Tertiary strata reflecting marine, estuarine, and terrestrial conditions, which are in turn overlain by Quaternary fluvial and alluvial strata that record uplift and erosion of the Sierra Nevada and Coast Ranges to approximately their present shape (Norris and Webb 1990). Breaking the monotony of this long, flat valley is the Sutter Buttes, a volcano that intruded through the Great Valley sediments approximately 1.56 to 0.90 million years ago, creating the buttes and a ring of exposed Cretaceous and Tertiary sediments around the buttes (Hausback 1991).

The Sierra Nevada geomorphic province is a tilted fault block nearly 400 miles long, averaging 50 to 80 miles wide. The eastern face of this block is steep and marked with multiple, rugged scarps. In contrast, the western face is a gentle slope (about 2 degrees) that disappears under the sediments of the Great Valley (California Geological Survey 2002). The Sierra Nevada was formed by a series of intrusion, uplift, and erosional/depositional events. Plutonic rocks of the Jurassic to Cretaceous Sierran batholith occur throughout the province. The Western Metamorphic Belt is a complex collage of various lithologic units formed at a collisional plate boundary during the late Jurassic to early Cretaceous Nevadan Orogeny. The geologic units that make up the belt are marine metavolcanics, metasediments, and oceanic crustal rock of Ordovician to Jurassic age. The metamorphic bedrock contains gold-bearing veins in the northwest trending Mother Lode located along the western slope of the Sierra Nevada between the Feather and Tuolumne river drainages. Along the western edge of the northern Sierra Nevada, marine sediments of Cretaceous age are present, including fossiliferous sandstones and shales, overlay Sierran basement rocks. In a broken band along the lower foothills, the Ione Formation records Eocene marine sedimentation. This unit is known for the economic value of its high-quality clays and sands. Quaternary sedimentary rocks include alluvium, colluvium, landslide deposits, stream and river terrace deposits, lake deposits, and glacial deposits. The glacial deposits in the higher Sierra and the adjacent Basin and Range province are the oldest of the Quaternary deposits (Norris and Webb 1990.)

7.2.2 Prehistory

The cultural-historical framework that provides the foundation for the entire prehistoric record of the plan area of the proposed MTP/SCS in the Sacramento Valley, adjacent Coast Ranges and Sierran foothills, and Sierra Nevada mountains in El Dorado, Placer and Yuba counties is divided into three broad temporal periods that each reflect similar cultural characteristics: Paleo-Indian, Archaic, and Late Prehistoric. The Archaic is further divided into the Lower, Middle, and Upper Archaic based on radiocarbon dates, although the timing varies regionally for each period. This understanding of the prehistory of the plan area of the proposed MTP/SCS is based on

archaeological research conducted by scholars from the 1930s onward and on well-regarded syntheses of California archaeology and projectile point types (Justice 2002; Moratto 1984; Rondeau et al. 2007), Central Valley archaeology (Fredrickson 1973, 1974, and 1994; Rosenthal et al. 2007), and north-central Sierran region archaeology (Elston et al. 1977 and 1994; Jackson et al. 1994; Rosenthal 2002).

The earliest accepted archaeological evidence of human occupation during the Paleo-Indian Period (11,550–8550 cal [calibrated] B.C.; calibration is used to convert the laboratory determination of carbon-dated materials to calendar years) is relatively sparse and scattered throughout the state. Although Fluted Clovis-like projectile points associated with the Paleo-Indian Period have been found in the Coast Ranges, the Central Valley, and the Sierra Nevada, none have been confirmed in the plan area of the proposed MTP/SCS. The subsequent Lower Archaic Period (8550–5550 cal B.C.) is represented mainly by isolated stemmed projectile points or chipped stone crescents, with only a few archaeological sites dating to this period known from the foothills and the southern Central Valley. Similarly, few projectile points have been identified on the western slope of the north-central Sierran region that date to the Lower Archaic Period. Little evidence exists in the Central Valley prior to the Middle Archaic Period (5550–550 cal B.C.) due mainly to periodic episodes of alluvial fan and floodplain deposition during the end of the Pleistocene (approximately 9050 cal B.C.) and at the beginning of the early Middle Holocene (approximately 5550 cal B.C.) that either destroyed or buried Paleo-Indian and Lower Archaic Period archaeological sites (Rondeau et al. 2007; Rosenthal 2002; Rosenthal and McGuire 2004; Rosenthal et al. 2007).

Archaeological sites dating to the Middle Archaic Period (5550–550 cal B.C.) are relatively scarce on the valley floor, but more common in the foothills, particularly in buried contexts between circa 4050 and 2050 cal B.C. Middle Archaic sites from the later portion of the period, less than 4,500 years ago, are more common in the Central Valley and Sierra Nevada mountains. The archaeological assemblages indicate populations were increasingly sedentary, as shown by refined and specialized tool assemblages and features, evidence of basketry, a wide range of non-utilitarian artifacts, and objects obtained through an established coastal and trans-Sierran trade network. These groups consumed a variety of animals, plants, and fish and followed a seasonal foraging strategy that generally entailed movements between the uplands in the spring and summer and lower elevations in the fall and winter (Elston et al. 1977 and 1994; Fredrickson 1973, 1974, and 1994; Jackson et al. 1994; Moratto 1984; Rosenthal et al. 2007).

After 2,700 years, during the Upper Archaic Period (550 cal B.C.–cal A.D. 1100), early human access to more specialized technology resulted in innovations with new types of shell beads, bone tools, ceremonial blades, and charmstones. This period is better represented and understood than the previous time periods. Regional variation in subsistence practices focused on seasonally available resources that were harvested and processed in bulk (e.g., acorns, salmon, shellfish, rabbits, and deer). The archaeological record in the Central Valley reflects a heavy reliance on acorns. In the lower Sacramento Valley and Delta region, large mounded villages developed that included accumulations of habitation debris and features (e.g., hearths, rock-lined ovens, house floors, and burials). It also appears that valley people periodically colonized riparian and other well-watered foothill habitats. Additionally, the distribution of obsidian and coastal shell beads and ornaments, as well as projectile points diagnostic of high Sierran manufacture that have been found along the American River corridor in Foresthill, Auburn and Rocklin in Placer County and in Hawver Cave in El Dorado County, indicate exchange of commodities continued to be widespread (Elston et al.

1977 and 1994; Fredrickson 1973, 1974, and 1994; Hull 2007; Jackson et al. 1994; Justice 2002; McGuire 2007; Moratto 1984; Rosenthal et al. 2007).

The diversity and number of artifacts and the number of archaeological sites increased in the plan area of the proposed MTP/SCS after 1,000 years ago during the Late Prehistoric Period (cal A.D. 1100 to Historic Contact). An increase in population and sedentism of the population led to the development of social stratification, with an elaborate ceremonial and social organization. Large villages and smaller satellite communities developed along the major tributaries in the valley and foothills. At some valley and foothills sites, the archaeological deposits preserved house floors or other structural remains. The occurrence of flanged tubular pipes and baked clay effigies representing humans and animals are examples of items associated with ceremonials and rituals. The Late Prehistoric Period was also shaped by a number of cultural innovations (e.g., the bow and arrow, bone fish hooks, and harpoons). In addition, in some parts of the lower Sacramento Valley, archaeological assemblages from this period include a local form of pottery known as Cosumnes Brownware. The extensive exchange networks present during this period were facilitated by the use of clamshell disk beads as a form of currency. The cultural patterns typical of the Late Prehistoric Period also begin to reflect the cultural traditions known from historic period Native American groups (Elston et al. 1977 and 1994; Fredrickson 1973, 1974, and 1994; Jackson et al. 1994; Moratto 1984; Rosenthal et al. 2007).

7.2.3 Ethnography

Three indigenous California groups historically inhabited the plan area of the proposed MTP/SCS: Patwin, Nisenan (also referred to as Southern Maidu), and Plains Miwok (also Mi-wuk). The language families or dialects spoken by each group are regarded as part of a larger Penutian linguistic stock (Golla 2007). Like other groups throughout the Central Valley and foothills, the acorn was a plant staple for the three groups. These mainly sedentary, complex hunter-gatherer groups also relied on a wide range of abundant natural resources available in their territories, which they hunted, fished, or collected using a variety of tools, implements, and enclosures. Material culture also included a variety of ornamental and ceremonial items, and networks of foot trails connected groups to hunting or plant gathering areas, villages, ceremonial places, and distant trade networks.

The traditional culture and lifeways of the three groups were disrupted beginning in the early 1800s. As part of Spanish settlement and missionization, Plains Miwok were transported to Mission San José and Patwin were brought to the San Francisco, San José, and Sonoma missions (Johnson 1978; Levy 1978). Although Spanish explorers entered Nisenan territory as early as 1808, there is no record of the forced movement of Nisenan to the missions (Wilson and Towne 1978). During the Mexican Period, native peoples were affected by land grant settlements and decimated by foreign disease epidemics that swept through the densely populated Central Valley in the 1830s. The discovery of gold in 1848 followed by a vast influx of immigrants had a devastating impact on the lives of indigenous Californians in the Central Valley and all along the Sierra Nevada foothills. The mass introduction and concentration of diseases, the loss of land and territory (including traditional hunting and gathering locales), violence, malnutrition, and starvation accompanied the tens of thousands of gold seekers.

PATWIN

The historic territory occupied by the Patwin in the plan area of the proposed MTP/SCS included what is today Yolo County and the portion of Sutter County west of the Sutter Buttes. *Patwin* is the local Native American word for "people." Their territory extended from Princeton in Colusa County south to Suisun Bay, and from the Sacramento River west across the eastern slope of the Coast Ranges. The Patwin economy was based principally on the utilization of natural resources from the riverine corridor, wetlands, and grasslands of the lower Sacramento Valley, and from the open woodlands on the eastern foothills of the Coast Ranges. Villages were generally established in the river valleys, particularly Bear, Capay, Cortina, Long, and Napa valleys (Johnson 1978; Kroeber 1925 and 1932).

NISENAN

Within the plan area of the proposed MTP/SCS, the historic territory occupied by the Nisenan, or Southern Maidu, included what is today El Dorado, Placer, and Yuba counties, eastern Sutter County, and the northern half of Sacramento County. Their territory extended from the North Fork Yuba River south to the Cosumnes River, and east from the Sutter Buttes to the crest of the Sierra Nevada Range. According to Maidu legend, the Sutter Buttes, known as *Histum Yani* or Spirit Mountain, are where the spirits of their people rest before journeying to the afterlife. *Nisena-n* ("from among us") was used as a self designation by those inhabiting the Yuba and American river drainages. Settlement locations for groups of Valley Nisenan and neighboring Hill Nisenan depended primarily on elevation, exposure, and proximity to water and other resources. Permanent villages were usually located on low rises along major watercourses. Village size among the Hill Nisenan was smaller than among valley groups. The Nisenan economy was based on the seasonal bounty of flora and fauna provided by the rich valley and foothills environment (DPR 2014; Kroeber 1925 and 1929; Wilson and Towne 1978).

PLAINS MIWOK

The historic territory occupied by the Plains Miwok (also Mi-wuk) in the plan area of the proposed MTP/SCS included the southern half of Sacramento County and southern third of El Dorado County. Prior to Euro-American contact, Plains Miwok territory in the Central Valley included land from north of the Cosumnes River to south of the lower Mokelumne River, and the Sacramento River from Rio Vista to Freeport. The Northern Sierra Miwok, Central Sierra Miwok, and Southern Sierra Miwok inhabited the foothills and mountains to the east. *Miwok* is the name used by the Central Sierra Miwok, meaning "people." Similar to neighboring groups, Plains Miwok built their dwellings on high ground, with main villages concentrated along the major waterways, and depended on gathering acorns and other plant foods, hunting, and fishing for subsistence (Kroeber 1925; Levy 1978).

7.2.4 History

EARLY EXPLORATION AND SETTLEMENT

Spanish Period (1769–1822)

The Spanish were the earliest European explorers to enter and claim what would become the state of California. Between 1769 and 1823, 21 missions were established by the Spanish and the

Franciscan Order along the coast between San Diego and San Francisco. Between 1806 and 1813, Spanish expeditions into the Central Valley led by Lieutenant Gabriel Moraga explored along the main rivers (e.g., American, Calaveras, Cosumnes, Feather, Merced, Mokelumne, Sacramento, San Joaquin, and Stanislaus). The last Spanish expedition into California's interior was led by Luis Arguello in 1817 and traveled up the Sacramento River, past the future site of the City of Sacramento to the mouth of the Feather River, before returning to the coast (Beck and Haase 1974; Gunsky 1989; Hoover et al. 2002).

Mexican Period (1822–1848)

After the end of the Mexican Revolution (1810–1821) against the Spanish crown, the Mexican Period is marked by an extensive era of land grants, most of which were in the interior of the state, as well as by exploration by American (i.e., United States citizens) fur trappers west of the Sierra Nevada Range. The first American trapper to enter California, Jedediah Smith, explored along the Sierra Nevada in 1826, and in 1827 he entered the Sacramento Valley, traveling along the American and Cosumnes rivers. Other trappers soon followed, including employees of the Hudson's Bay Company in 1832. By the mid-1840s, a number of American settlers had arrived in California via overland routes (Gunsky 1989; Hoover et al. 2002).

Most of the land grants to Mexican citizens in California (*Californios*) were in the interior since the Mexican Republic sought to increase the population away from the more settled coastal areas where Spanish settlements had been concentrated. One of the largest land grants in the Sacramento Valley was awarded to John Augustus Sutter after he became a Mexican citizen. In 1839, he founded a trading and agricultural empire called New Helvetia that was headquartered at Sutter's Fort near the divergence of the Sacramento and American rivers in today's City of Sacramento. Only a small portion of the 48,839-acre New Helvetia land grant was located in Sacramento County. The majority of land covered by the grant was located in present-day Sutter and Yuba counties, straddling the east and west sides of the Feather River. Within the six-county plan area of the proposed MTP/SCS, Mexican land grants were also awarded in Yolo and Placer counties, but not El Dorado County (Beck and Haase 1974; Hoover et al. 2002)

American Period (1848–Present)

The American Period was initiated in February 1848 with the signing of the Treaty of Guadalupe Hidalgo, which ended the Mexican-American War (1846–1848), and California became a territory of the United States. Gold was discovered at Sutter's Mill on the American River in Coloma the same year, and by 1849 nearly 90,000 people had journeyed to the gold fields. In 1850, largely as a result of the Gold Rush, California became the thirty-first state. Known today as the "Golden State," California continues to pay tribute to its Gold Rush heritage and to its fields of golden poppies, the state flower (California State Library 2019; Hoover et al. 2002).

Thousands of settlers and immigrants continued to pour into the state, particularly after the completion of the transcontinental railroad in 1869. Subsequent settlement of the American West was also encouraged by the passage of the Swampland Acts of the mid-1800s to early 1900s and the Homestead Act of 1862, among others. The availability of a reliable supply of water was a critical component of successful farm and ranch homesteading and the related growth of riverside towns. Settlements and towns that served the needs of the farming and ranching homesteads were typically

established at river crossing points by trails or roadways, and many became important commercial centers for trade and transport (Beck and Haase 1974; Caltrans 2006 and 2007; Hoover et al. 2002).

As gold mining declined, cattle and sheep ranching and agriculture assumed a more prominent role in the state's economy. The vast Central Valley's climate and fertile soil, plus the construction of extensive irrigation and reclamation systems, combined to produce a variety of fruits, vegetables, nuts, and grains. Population growth and changes in the landscape within the Central Valley region, including the plan area of the proposed MTP/SCS, reflect the importance of mining, the growth of agriculture and ranching, and development of the regional transportation network. A wealth of other natural resources, such as lumber and minerals, including stone and gravel, also contribute to the region's continuing growth and development.

GOLD RUSH ERA

In January 1848, gold was discovered by James Marshall on the South Fork of the American River near present day Coloma in the foothills of Sutter County. Subsequent gold discoveries were made not long after that, such as the discovery made by Jonas Spect on the Yuba River in the vicinity of Marysville in June 1848. The onset of the Gold Rush brought thousands of people into California. Miners poured into the Sierra Nevada foothills in search of placer deposits along the rivers and creeks of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties. When the surficial placer deposits were depleted in the mid-1850s, the miners turned to other methods to reach gold-bearing strata. One of the most common methods, hydraulic mining, introduced vast quantities of rock, sand, and mud into the mountain and valley waterways and was prohibited in 1884. Beginning in 1898, mining companies used large dredges to mine gold deposits along the rivers and major creeks. Some of the tailings associated with this type of gold mining remain visible across today's landscape, particularly along the American, Yuba, and Cosumnes rivers in the plan area of the proposed MTP/SCS. During and after the Gold Rush era from (1848–1855), gold-seekers also turned to hard-rock mining, digging underground tunnels to follow the gold-bearing quartz veins in the Mother Lode (Caltrans 2008; Hoover et al. 2002).

The Gold Rush of 1848 to 1855 triggered the spread of new camps and towns across the Mother Lode and the rich mining region north of the Mother Lode, the flourishing of riverside supply centers like the cities of Sacramento and Marysville, and the development of transportation networks for hauling freight, mail, consumer goods, and passengers. The increasing demand for food and commodities by the miners boosted the expansion and success of the agricultural industry, and increased cattle and sheep ranching and poultry production. Lumber production, the manufacture of clothing and dry goods, the ore processing industry, and the beginning of a fishing industry were also prompted during the Gold Rush era (Beck and Haase 1974; Hoover et. al. 2002).

The Gold Rush, and subsequent mining in the decades that followed, dramatically altered California's cultural and natural landscape, particularly portions of the Sacramento Valley and neighboring Sierra Nevada foothills. Mining also contributed to the settlement of the plan area of the proposed MTP/SCS and to the historic significance of individual communities such as the cities of Auburn and Folsom. The growth and variety of techniques employed for gold mining was accompanied by the development of water conveyance systems. In the early 1850s, ditches were dug to get water to the "dry diggings" and companies were soon organized and building ditches, canals, and flumes to supply water to miners using sluices to extract gold from the river gravels. With the advent of hydraulic mining, the demand for water increased and its supply by ditch companies

became even more lucrative. By 1865, over 5,300 miles of mining ditches and canals had been officially recorded in the Mother Lode region. Of these, many are still used for agricultural irrigation, municipal water services and hydroelectric power systems, and remain an important feature of the region's cultural landscape (JRP and Caltrans 2000).

7.2.5 Individual County History

The following is a brief overview of the history of the plan area of the proposed MTP/SCS by county. "County" refers to the geographic area of the county and includes all land in the area, both unincorporated and incorporated.

EL DORADO COUNTY

El Dorado County is one of the original 27 counties created by the California State Legislature in 1850. Originally, the county's boundaries included parts of present-day Amador, Alpine, and Placer counties. By 1919, the state adopted the current boundary lines that are marked to the east by the state of Nevada and to the west by Sacramento County. The American and Cosumnes rivers form the county's northern and southern boundaries. The original county seat was the town of Coloma, but in 1857 it was moved to Placerville where it remains to this day (Coy 1973; Hoover et al. 2002).

On January 24, 1848, James W. Marshall, an employee of John A. Sutter, discovered gold near the area of present-day Coloma. The first mining town in California sprouted soon after his discovery, and the gold region of El Dorado County experienced rapid growth. It is likely the county derives its name, El Dorado, meaning "the gilded man" in Spanish, from Marshall's discovery, as well as the gold discovered by others (Hoover et al. 2002).

Both during and after the Gold Rush, gold mining was the predominant industry in El Dorado County for many years. Large mining camps such as Placerville, El Dorado, and Diamond Springs developed into permanent towns. Other mineral products in the region include large deposits of slate, granite, lime, and asbestos, as well as building stones. By the turn of the twentieth century, lumbering, livestock raising, and farming had joined mining as the principal industries of the county. Another industry that gained popularity in El Dorado County was tourism. In the early 1900s, with the advent of the automobile, visitors increasingly traveled to the Sierra Nevada and Lake Tahoe. U.S. Highway 50 (which was the primary route to the gold fields in 1849, known as the Placerville Road) was California's first state-sanctioned wagon road. It was incorporated into the state (and later the national) highway network during the twentieth century, when it became part of the Interstate Highway System. At present, the county's economy is heavily dependent on recreation and tourism. Eldorado National Forest, which comprises about 57 percent of the county's land base, is one of the most heavily used wilderness areas in the nation. El Dorado County has two incorporated cities (Placerville and South Lake Tahoe) (California Highways 2019; Hoover et al. 2002; Phillips and Miller 1915).

PLACER COUNTY

Placer County was created by the Legislature of the State of California in 1851, from portions of Sutter and Yuba counties. The county takes its name from a form of mining predominant during the Gold Rush—placer mining. The City of Auburn, one of the earliest mining towns in California, was designated the seat of justice when the county was created. Auburn continues to be the county seat today (Hoover et al. 2002).

The earliest settlement in Placer County was Sicard's Ranch, established in 1845, after Theodore Sicard obtained a Mexican land grant in 1844. The ranch became an important stopping place on the Emigrant Trail over Donner Pass to Sutter's Fort. While the population of the county was small at this time, it grew exponentially with the onset of the Gold Rush, and mining towns and camps sprouted up in various places throughout the county (Hoover et al. 2002; Lardner and Brock 1924).

For many years, the primary focus of Placer County's economy was gold mining. During the Gold Rush, placer deposits, which were easier to obtain, were mined in the rivers. Numerous mining camps lined the banks of the American River in the Folsom Mining District, many of which are now beneath Folsom Lake. As gold became more difficult to mine, miners turned to hydraulic mining. The waste gravel and silt created by hydraulic mining collected downstream, creating shallower depths prohibitive to river transportation networks, changing stream ecology, and driving levee construction to control erratic overflows. In 1884, this more industrialized and destructive form of gold mining was prohibited from discharging debris in the Sierra Nevada region by the Sawyer Decision.

In the late 1800s, Placer County's economy shifted slowly away from gold production to agriculture, timber production, and the shipping and freighting industries. The arrival of the railroad in 1864 at Roseville and Rocklin contributed to the county's economic success since it provided access to markets east of the Sierra Nevada. Quarrying and shipping local granite via the railroad also promoted the growth of Rocklin. The production of citrus fruits became especially important during the 1880s and 1890s, while fruit packing and shipping were key county industries in the first two decades of the twentieth century. Newcastle and Loomis are examples of towns that began as mining camps, but became important hubs of the county's fruit industry, while Lincoln and Sheridan continued to support ranching and farming (Hoover et al. 2002; Lardner and Brock 1924).

Recreation and tourism also contributed to Placer County's economy. Much of central and eastern Placer County is included within the Tahoe and Eldorado National Forests, extending to the Tahoe Basin. In the 1930s, Lake Tahoe became known as a recreation center, and the area boomed as a ski resort destination after World War II. The county has five incorporated cities (i.e., Auburn, Colfax, Lincoln, Rocklin, and Roseville) within the plan area of the proposed MTP/SCS (Hoover et al. 2002).

SACRAMENTO COUNTY

Sacramento County is one of the original 27 counties established by the California Legislature in 1850, and the City of Sacramento has always been the county seat. Spanish explorers first visited the Sacramento County region as early as the late 1700s in their search for suitable mission sites. The first American to travel through the Sacramento area was explorer and trapper Jedediah Strong Smith, who established the Sacramento Trail during the 1820s. Other explorers followed Smith's general path in the 1830s (Hoover et al. 2002).

Settlement of the Sacramento area by non-indigenous people did not begin until the late 1830s and early 1840s, when individuals such as John Sutter obtained land grants from the Mexican government. Mexican citizens generally received these grants in exchange for an agreement to protect Mexican interests in these remote interior regions. Sutter's settlement at New Helvetia (Sutter's Fort) is probably the best known of these early operations.

At its inception, Sacramento County was largely supported by commerce related to the Gold Rush and river shipping. The City of Sacramento was a central location to the foothill mining districts and served as a river transportation hub. The City had 12 stage lines by 1853 and became the state capital in 1854. After the conclusion of the Gold Rush, when agriculture in the Sacramento Valley became an important part of the economy, Sacramento County, and particularly the city of Sacramento, continued to grow. Wheat was a staple product early on, but by the twentieth century, a variety of fruits, including citrus fruits, as well as nuts, displaced it in importance. The county also experienced tremendous growth as a result of the construction of railroads in the Sacramento area. In 1856, the Sacramento Valley Railroad constructed an alignment from Sacramento to Folsom. In 1869, the transcontinental railroad was completed, linking the Sacramento region directly with markets in the east. From 1860 to 1861, the City of Sacramento was also the westernmost point of the Pony Express (Beck and Haase 1974; Hoover et al. 2002; Phillips and Miller 1915).

By the mid-twentieth century, two military bases had been constructed in the county and a major freeway, Interstate 5, ran through the heart of the old city of Sacramento. While the military bases closed in the late twentieth century, the county continued to grow in economic wealth and population. The county is unique in having a large percentage of residents who live outside the boundaries of the county's seven incorporated cities (i.e., Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, and Sacramento), while much of the land outside the urban areas continues to be used for agricultural purposes (Hoover et al. 2002; Sacramento County 2011, 2017).

SUTTER COUNTY

The County of Sutter, one of the original 27 counties created in 1850 by the California State Legislature, was named in honor of the famous Sacramento Valley settler and pioneer, John Augustus Sutter. Initially, the county seat was located in Auburn; however, after Auburn became the seat for Placer County in 1851, the seat was moved to the small town of Vernon (now called Verona). In 1856, the boundaries were fixed to their present locations and Yuba City was designated the county seat, where it remains to this day (Hoover et al. 2002).

The Spanish were the first Europeans to explore the region of Sutter County in the early 1800s. The first American to enter the region was Jedediah Strong Smith, who crossed the Yuba River in 1828. In late May and early June of 1846, well-known American explorer, John C. Frémont, camped in the vicinity of the Sutter Buttes (Hoover et al. 2002).

Sutter County's initial growth was a result of the influx of miners to the region during the Gold Rush. Its principal city, Yuba City, was founded during this period. John Sutter's Hock Farm, established in 1841 on the west side of the Feather River below Yuba City, prospered during this period as a cattle ranch. After the Gold Rush, the county grew slowly and its economy was focused mainly on agriculture. In 1863, county farmer, William Thompson, grew the first Thompson seedless grapes, which were exhibited to the public in Marysville in 1875. The county also became known for producing an assortment of other crops, including grains, peaches, rice, and walnuts. Stock raising and dairy farming were also practiced. Along with Yuba City, Live Oak is the only other incorporated city in the county (Hoover et al. 2002; Phillips and Miller 1915; Sutter County 2008).

YOLO COUNTY

Yolo County is one of the original 27 counties created by the California State Legislature in 1850. Initially, the county's territory was nearly twice as large as it is now and included a large portion of present-day Colusa County. By 1923, the boundaries were redrawn to their current configuration. The Sacramento River spans the entire length of the county's eastern border. The county seat was changed several times, until the City of Woodland became the permanent county seat in 1862 (Coy 1973; Hoover et al. 2002).

The Spanish first explored Yolo County in 1808, sailing up the Sacramento River to present-day Sutter County. American hunters and trappers such as Jedediah Strong Smith and Ewing Young, as well as a group of Hudson's Bay Company trappers also visited the region in the early 1800s. Of the 11 Mexican land grants awarded in the county, the U.S. government eventually confirmed only five (Hoover et al. 2002).

The California Gold Rush of the 1850s transformed Yolo County from an isolated farming community into a booming agricultural region, as disenchanted miners realized they could make greater fortunes through farming and ranching. In the 1840s and 1850s, residents of the county based their livelihood on raising livestock; however, as floods and droughts decimated their herds, farmers increasingly turned to crop farming. Early settlements were concentrated along the waterways, Cache and Putah creeks and the Sacramento River. Barley and wheat became the dominant crops in Yolo County starting in the 1860s. The first Pacific Coast salmon cannery was established in 1864 on the west side of the Sacramento River at Washington, now part of the present-day City of West Sacramento. Alfalfa, used to feed livestock and enrich the soil, was the major irrigated crop in the 1870s. Irrigation improvements in the twentieth century allowed the introduction of new crops, such as rice, into the area. In 1905, the University of California established a College of Agriculture in Yolo County. This evolved into the University of California, Davis in 1959, and its agricultural school continues to enjoy global renown for agricultural research and education (Hoover et al. 2002; Olney 1902).

In the last half of the twentieth century, Yolo County enjoyed a dramatic increase in population growth within its incorporated areas due to its climate, the rural atmosphere, and nearby educational opportunities. The availability of transportation was and continues to be a major countywide asset that provides access to water, rail, air travel, and major road networks, such as Interstates 5 and 80. In addition, the Deep Water Channel to West Sacramento opened in 1963. Today, agriculture and related endeavors remain Yolo County's primary source of economic activity. Over 80 percent of the population resides in the county's four incorporated cities (i.e., Davis, West Sacramento, Winters, and Woodland) (Employment Development Department 2019; Hart 1987).

YUBA COUNTY

Yuba County is one of the original 27 counties created by the California State Legislature in 1850. At the time of its creation, the county included portions of Placer, Nevada, and Sierra counties. In 1851, Yuba County lost almost one-half of its territory when Placer and Nevada counties were created. In the following year, more of its territory was lost when Sierra County was created. The county's current boundary with the Feather and Bear rivers as its western and southern borders was shaped in 1923. Marysville, the county's principal city, has been the county seat since 1850 (Coy 1973; Hoover et al. 2002).

As early as 1808, the Spanish were the first Europeans to enter the territory of what is now Yuba County. In the 1830s, hunters and trappers from the Hudson's Bay Company also periodically penetrated the region. In 1846, American explorer, John C. Frémont, wrote a detailed account of the Maidu (Nisenan) inhabitants (Hoover et al. 2002).

The first Euro-American settlements in Yuba County were established just a few years before Frémont's visit, after John A. Sutter took control of the territory in 1841. In 1842, Theodore Cordua leased a portion of land from Sutter. An employee of Cordua's, Charles Cuvillaud, eventually purchased some of Cordua's ranch. The town of Marysville was laid out on this land, which was named after Cuvillaud's wife, Mary Murphy Cuvillaud. The branch of the California Emigrant Trail over Donner Pass passed through the county and the emigrants rested and obtained supplies at Johnson's Ranch, established in 1844 and located on the Bear River near present-day Wheatland (Hoover et al. 2002).

The Gold Rush brought an influx of miners into Yuba County, and the county experienced an economic and population boom as a result. When the Gold Rush ended, the county continued to gain a portion of its income from gold-related industries. In the 1870s, Marysville foundries manufactured equipment for hydraulic mining. In the early twentieth century, after the Sawyer Decision ended hydraulic mining in 1884, extensive dredging took place along the Yuba River. Some of the early mining towns (e.g., Browns Valley, Brownsville, Camptonville, Clipper Mills, Dobbins, and Smartsville) survive today, while others were destroyed by dredge mining (Hoover et al. 2002; Kelley 1989).

For most of its history, agriculture has been an important part of Yuba County's economy. In 1845, the first wheat crop was planted in the county. From the 1850s to the 1870s, vineyards were planted, grain was produced, and livestock raising was practiced in the eastern part of the county. In the twentieth century, livestock raising continued to be important, as did cultivation of fruits and nuts. By 2017, the most important agricultural elements of Yuba County's economy were walnut, rice, prune, peach, and milk production, as well as cattle raising (Scheer 2017; Thompson & West 1879). Since 1942, the presence of Beale Air Force Base has been a source of economic importance to the county (AECOM 2011; Scheer 2017).

7.2.6 Known Cultural Resources Located in the Plan Area of the Proposed MTP/SCS

The following section presents a broad overview of cultural resources located in the plan area of the proposed MTP/SCS. The term "cultural resources" includes archaeological sites, districts, buildings, structures, and objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reason. Paleontological resources are discussed below in a separate section.

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of prehistoric or historic-era physical remains (e.g., stone tools, bottles, former roads, house foundations). Built environment resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges, canals, levees, railroads) generally over 50 years of age. Traditional or ethnographic cultural resources may include Native American sacred sites or tribal cultural resources, traditional cultural places, and traditional resources of any ethnic community that are important for maintaining the cultural traditions of any group.

A prehistoric or historic archaeological site, district, built environment resource, or traditional cultural resource that is recognized as historically or culturally significant may be determined to be a "historic property" or a "historical resource" as defined by federal law (36 Code Federal Regulations [CFR] Section 800.16[l][1]) or state law (Public Resources Code [PRC] Sections T21084.1; 14 California Code of Regulations [CCR] Section 15064.5a). Under state law, an archaeological site may also meet the definition of a "unique archaeological resource" (PRC Section 21083.2). Also under state law, a "tribal cultural resource" may be a "historical resource," "unique archaeological resource," or "nonunique archaeological resource" (PRC Section 21074).

Efforts to identify cultural resources within the plan area of the proposed MTP/SCS included a search of records maintained by the California Office of Historic Preservation (OHP), the California Department of Transportation (Caltrans), and the NAHC, plus providing notification to geographically affiliated Native American tribes pursuant to Assembly Bill (AB) 52.

More specifically, general cultural resources information was reviewed for each county (or portion thereof) within the plan area of the proposed MTP/SCS. This information is maintained by OHP as the California Historical Resources Information System (CHRIS) and is collected and managed at the following regional Information Centers:

- Northwest Information Center at Sonoma State University (Yolo County);
- North Central Information Center at California State University, Sacramento (Sacramento, Yuba, Placer, and El Dorado counties); and
- Northeast Information Center at California State University, Chico (Sutter County).

Each Information Center maintains records of known archaeological sites and built environment resources. Resources consulted at the Information Centers included data from the following:

- Historic Property Data File by county for National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) listings, and properties recognized as locally significant;
- Archaeological Determinations of Eligibility by county for NRHP and CRHR listings;
- Historic properties listed in the NRHP and historical resources listed in the CRHR;
- California Points of Historical Interest (PHIs);
- California Historical Landmarks (CHLs); and
- California Inventory of Historical Resources.

In addition to a search of the records maintained by the Information Centers, a review was conducted of the Historic Bridge Inventory for State Agency and Local Agency bridges maintained by Caltrans (Caltrans 2019a and 2019b). The inventory by Caltrans provides an account of bridges listed in the NRHP, bridges that are eligible for NRHP listing, bridges that may be eligible or that are ineligible for NRHP listing, and bridges that remain unevaluated. The original statewide bridge inventory was completed by Caltrans in 1986, and was updated in 2015 for bridges built between 1965 and 1974 (Caltrans 2015). The updated 2019 inventory includes subsequent evaluations required for individual bridge improvement projects. As they reach 50 years of age, bridges constructed in 1975 and later, which have not been previously evaluated, may need to be evaluated for a project by Caltrans or other lead agency.

NATIVE AMERICAN RESOURCES

NAHC was contacted with a request for a search of their Sacred Lands database for any potential sacred sites or other potential traditional cultural properties known to occur within the plan area of the proposed MTP/SCS. The response by NAHC on June 21, 2019, states that their search indicates potential for Native American cultural resources to be located in the plan area of the proposed MTP/SCS. Their response also indicates specific tribal contacts should be made at the project level in order to determine whether sacred lands or areas of cultural sensitivity are present (refer to Appendix Cultural-1).

Pursuant to the requirements of AB 52 (Chapter 532, Statutes of 2014), SACOG is responsible for notifying and responding to any requests received in writing from geographically affiliated tribes for consultation regarding the potential of a project to impact Tribal Cultural Resources (TCRs). SACOG provided formal notification to 15 tribes on November 2, 2018. SACOG's formal notification letter requested that any requests for AB 52 consultation be provided by December 5, 2018, consistent with Public Resources Code Section 21080.3.1, which requires that tribes respond in writing within 30 days of receipt of the formal notification. SACOG did not receive any written requests for consultation within the 30-day statutory timeline.

HISTORIC BUILT ENVIRONMENT RESOURCES

Numerous historic built environment resources are located throughout the greater plan area of the proposed MTP/SCS. Historic built resources generally include buildings, roads, trails, bridges, canals, levees, and railroads usually associated with the historic era beginning with the first Euro-American contact and attaining at least 50 years of age. A historic district is an identifiable entity that contains elements such as a group of residential buildings that contribute to the district's historic character. In general, concentrations of historic built environment resources in the greater plan area of the proposed MTP/SCS occur:

- within historic neighborhoods and business districts;
- adjacent to transportation corridors (i.e., historic trails, highways, railroads, navigable sloughs);
- on historic ranches; and
- in areas of historic-era rock, soil, and mineral extraction.

These built environment resources are commonly associated with key historic events that occurred in the region, including the Gold Rush, hydraulic and dredge mining, agriculture, irrigation, reclamation, and transportation. Within California, thousands of built resources are currently listed in or are eligible for listing in the NRHP or the CRHR. Additional historic built environment resources have been designated as CHLs, PHIs, or as local historic resources or landmarks important to a region or community. In addition to the programs maintained at the national and state level, several local governments throughout the plan area of the proposed MTP/SCS have established listings or passed ordinances in recognition of the importance of such resources to their communities.

The Directory of Properties in the Historic Property Data File (HPD), maintained for each county by OHP, is a master list of all built environment properties that have been evaluated for their historic significance as properties that appear eligible for listing, have been determined eligible for

listing, or are listed in the NRHP or CRHR. In general, listing a property in the NRHP involves submission of a formal nomination form that requires concurrence from the State Historic Preservation Officer (SHPO), the State Historical Resources Commission, and the Keeper of the National Register. Properties that are evaluated and found, with SHPO concurrence, to be eligible for listing under one or more of the NRHP criteria but are never nominated, are afforded the same protections as listed properties. Properties listed or found eligible for listing in the NRHP are also automatically eligible for listing in the CRHR. Historical resources listed in or determined eligible for listing in the CRHR may not be eligible for NRHP listing, but are afforded protection under CEQA. The HPD also includes built environment resources that have been identified as historically significant by local government agencies. Such resources are also afforded protection under CEQA. The property types listed in the HPD are typically non-archaeological in nature and encompass numerous built environment resources, with significant architectural and/or engineering features. For confidentiality reasons, OHP maintains a separate list of archaeological resources.

The HPD provided a broad overview of the number and types of significant historic built environment resources located in the plan area of the proposed MTP/SCS. Tables 7-2 through 7-6 list the number of individually eligible resources, historic properties, historic districts, CHLs, and PHIs located within the plan area of the proposed MTP/SCS. Because the HPD is updated as new resources are continuously located through survey work and other means, and as resources generally reach 50 years of age, the following tables should not be considered final, but are the most comprehensive listing available as of April 2012, when the HPD was last updated by OHP.

In addition, the Historic Bridge Inventory maintained by Caltrans provided an overview of the bridges listed in or eligible for listing in the NRHP (Caltrans 2019a and 2019b). These are provided in Table 7-6. Bridges listed in, or formally determined eligible for listing in, the NRHP are automatically listed in the CRHR. Caltrans last updated the original inventory in 2015, which evaluated most of the state highway and local roadway bridges constructed prior to 1975 (Caltrans 2015). The current 2019 inventory also includes subsequent evaluations required for individual bridge improvement projects (Caltrans 2019a and 2019b).

Table 7-2 lists by county the number of known individual historic and built environment resources in the greater plan area of the proposed MTP/SCS listed in or eligible for listing in the NRHP or CRHR, and those properties recognized as historically significant by local governments. This table includes individual counts of historic district contributing resources.

Table 7-2
Number of Individual and Built Environment Historic Properties in the Plan Area of the Proposed MTP/SCS

County	Properties Listed in the NRHP or CRHR	Properties Determined Eligible for Listing in the NRHP or CRHR	Properties That Appear Eligible for NRHP or CRHR through Survey Evaluation	State Owned Properties That Appear Eligible for NRHP or CRHR	Properties Recognized as Historically Significant by Local Government
El Dorado	92	53	10	11	0
Placer	135	55	66	3	286
Sacramento	702	115	129	4	314

County	Properties Listed in the NRHP or CRHR	Properties Determined Eligible for Listing in the NRHP or CRHR	Properties That Appear Eligible for NRHP or CRHR through Survey Evaluation	State Owned Properties That Appear Eligible for NRHP or CRHR	Properties Recognized as Historically Significant by Local Government
Sutter	22	10	10	0	0
Yolo	113	15	235	5	391
Yuba	89	15	55	5	164

Sources: Yolo County: Northwest Information Center, April 25, 2019; Sacramento, Yuba, Placer, and El Dorado counties: North Central Information Center, April 25, 2019; and Sutter County: Northeast Information Center, April 25, 2019. The HPD database maintained by the OHP was last updated in April 2012. The data in the table excludes the portions of El Dorado and Placer counties that are part of the Tahoe Regional Planning Area.

Table 7-3 includes specific historic districts located in the plan area of the proposed MTP/SCS listed in or eligible for listing in the NRHP or CRHR and those properties recognized as historically significant by local governments. The Historic Districts listed in the table comprise resources including, but not limited to, groupings of residential buildings, structures (such as water conveyance resources), and railroad facilities. For planning purposes, it is important to keep in mind that Historic Districts are often found near downtown city cores where early commercial, industrial, and residential development has occurred. The table provides the name and general location of the Historic Districts; it does not provide a count of individual or contributing resources.

Table 7-3
Historic Districts Located in the Plan Area of the Proposed MTP/SCS

City/Location	District Name	Listed in:		Determined Eligible for:		Recommended Eligible for NRHP or CRHR	Recognized as Historically Significant by Local Government
		NRHP	CRHR	NRHP	CRHR		
El Dorado County							
Echo Lake	El Dorado Wall Discontinuous District		X	X			
Eldorado National Forest	West Wright's Lake Tract Historic District		X	X			
Gold Hill	Wakamatsu Tea & Silk Farm Colony District	X	X				
Placer County							
Emigrant Gap	Drum-Spaulding Historic Hydro District		X	X			
Auburn	College Way District					X	
Auburn	Crutcher Court District						X
Auburn	Hale Tract & College Tract, Hale, College Tract District						X
Auburn	Huntley Subdivision, Huntley District						X

City/Location	District Name	Listed in:		Determined Eligible for:		Recommended Eligible for NRHP or CRHR	Recognized as Historically Significant by Local Government
		NRHP	CRHR	NRHP	CRHR		
Auburn	East Auburn, Uptown Business District						X
Dutch Flat	Dutch Flat Historic District	X	X				
Auburn	Old Auburn Historic District	X	X				
Auburn	Parkside Terrace District						X
Sacramento County							
Locke	Locke Historic District	X	X				
McClellan Air Force Base	Sacramento Air Depot Historic District		X	X			
Sacramento	Reclamation District 1000 - American River Watershed		X	X			
Sacramento	9th Street Plaza Park Historic District					X	
Sacramento	Capitol Extension District	X	X				
Sacramento	Alkali Flat North Historic District	X	X				
Sacramento	Boulevard Park	X	X				
Sacramento	Alkali Flat West Historic District	X	X				
Sacramento	Alkali Flat Central Historic District	X	X				
Sacramento	Old Sacramento Historic District	X	X				
Sacramento	Transcontinental Railroad Terminus and Shops Historic District					X	
Sacramento	Upper K Street Commercial District					X	
Walnut Grove	Walnut Grove Chinese-American Historic District	X	X				
Sacramento	R Street Corridor Historic District		X	X			
Elk Grove	Elk Grove Historic District/Old Town Elk Grove	X	X				

City/Location	District Name	Listed in:		Determined Eligible for:		Recommended Eligible for NRHP or CRHR	Recognized as Historically Significant by Local Government
		NRHP	CRHR	NRHP	CRHR		
Walnut Grove	Walnut Grove Commercial/Residential Historic District	X	X				
Walnut Grove	Walnut Grove Japanese-American Historic District	X	X				
Isleton	Isleton Chinese and Japanese Commercial Districts	X	X				
Sacramento	New Helvetia Historic District	X	X				
Sacramento	Southside Park Historic District	X	X				
Sacramento	McKinley Park Historic District	X	X				
Sutter County							
Live Oak	Live Oak Historic Commercial District	X	X				
Yolo County							
Woodland	Downtown Woodland Historic District	X	X				
Winters	Main Street Historic District	X	X				
Yuba County							
Marysville	Marysville Historic Commercial District	X	X				

Sources: Yolo County: Northwest Information Center, August 2011; Sacramento, Yuba, Placer, and El Dorado counties: North Central Information Center, August 2011; and Sutter County: Northeast Information Center, August 2011. Actions taken by the State Historical Resources Commission for years 2012 to May 8, 2019; retrieved May 2019 from http://ohp.parks.ca.gov/?page_id=24479. Spreadsheet of NRHP Listed Properties current to April 4, 2019; retrieved May 2019 from https://www.nps.gov/subjects/nationalregister/database-research.htm. The data in the table excludes the portions of El Dorado and Placer counties that are part of the Tahoe Regional Planning Area.

Tables 7-4 and 7-5 list by county and city the CHLs and PHIs located in the plan area of the proposed MTP/SCS. Since these are significant historical resources, each should be considered in planning processes. Some of these properties are also listed in the NRHP, and some CHLs are also listed in the CRHR.

Table 7-4
California Historical Landmarks Located in the Plan Area of the Proposed MTP/SCS

City/Location	CHL #	Name
El Dorado County		
Placerville	141	Hangman's Tree
Placerville	142	Studebaker's Shop (site of)
Coloma	143	Marshall Monument
Kelsey	319	Marshall's Blacksmith Shop
Shingle Springs	456	Shingle Springs
Placerville	475	Old Dry Diggins - Old Hangtown Placerville
Georgetown	484	Georgetown
El Dorado	486	El Dorado (Originally Mud Springs)
Diamond Springs	487	Diamond Springs
Greenwood	521	Greenwood
Coloma	530	Gold Discovery Site
Pilot Hill	551	Site of California's First Grange Hall
Folsom (Vicinity)	569	Mormon Island
Folsom (Vicinity)	570	Negro Hill
Folsom (Vicinity)	571	Salmon Falls
Folsom (Vicinity)	572	Condemned Bar
Clarksville	699	Mormon Tavern-Overland Pony Express Route in California
El Dorado	700	El Dorado-Nevada House (Mud Springs) Overland Pony Express Route in California
Placerville	701	Placerville - Overland Pony Express Route in California
Rescue	703	Pleasant Grove Overland Pony Express Route in California
Cedar Grove	704	Sportsman's Hall Overland Pony Express Route in California
US. Highway 50 (at Ice House Road)	705	Moore's (Riverton) - Overland Pony Express Route in California
US. Highway 50 (near Kyburz)	706	Webster's (Sugar Loaf House) - Overland Pony Express Route in California
US. Highway 50 (at Strawberry)	707	Strawberry Valley House - Overland Pony Express Route in California
Rescue	747	Coloma Road - Rescue
Coloma	478	Coloma Road - Coloma
Placerville	767	Methodist Episcopal Church
Gold Hill	815	Wakamatsu Tea and Silk Farm Colony
American River near State Route 49	1051	Mountain Quarries Railroad Bridge
Placer County		
Dutch Flat	397	Town of Dutch Flat
Forest Hill	398	Yankee Jim's
Forest Hill	399	Town of Forest Hill
Between Fowler and Newcastle	400	Virginiatown

City/Location	CHL #	Name
Iowa Hill	401	Iowa Hill
Michigan Bluff	402	Town of Michigan Bluff
Emigrant Gap	403	Emigrant Gap
Auburn	404	City of Auburn
Gold Run	405	Town of Gold Run
Auburn	463	Ophir
Folsom Lake State Recreation Area	585	Pioneer Express Trail
Squaw Valley	724	Pioneer Ski Area of America, Squaw Valley
Roseville	780-1	First Transcontinental Railroad - Roseville
Rocklin	780-2	First Transcontinental Railroad - Rocklin
Newcastle	780-3	First Transcontinental Railroad - Newcastle
Auburn	780-4	First Transcontinental Railroad - Auburn
Colfax	780-5	First Transcontinental Railroad - Colfax
Soda Springs	799-2	Overland Emigrant Trail
Penryn	885	Griffith Quarry
American River near State Route 49	1051	Mountain Quarries Railroad Bridge
Sacramento County		
Sacramento	366	Pioneer Telegraph Station
Meiss Road and Highway 16, west of Sloughhouse	439	Site of Grist Mill Built by Jared Dixon Sheldon
Prairie City Road and Highway 50	464	Prairie City
Highway 16 and Michigan Bar Road	468	Michigan Bar
Sacramento	525	Sutter's Fort
Sacramento	526	California's First Passenger Railroad
Folsom	558	Terminal of California's First Passenger Railroad
Sacramento	566	Sacramento City Cemetery
Sloughhouse	575	Sloughhouse
Sacramento	591	Sutter's Landing
Sacramento	592	New Helvetia Cemetery
Sacramento	593	Sutterville
Sacramento	594	Site of China Slough
Sacramento	595	Eagle Theater
Sacramento	596	Site of Home of Newton Booth
Sacramento	597	What Cheer House
Sacramento	598	Site of Stage and Railroad (First)
Sacramento	599	Crocker Art Gallery
Sacramento	601	Western Hotel
Sacramento	602	Ebner's Hotel
Sacramento	603	Lady Adams Building
Sacramento	604	Site of Sam Brannan House

City/Location	CHL #	Name
Sacramento	605	Site of Sacramento Union
Sacramento	606	B.F. Hastings Building
Sacramento	607	Adams and Company Building
Sacramento	608	Site of Orleans Hotel
Sacramento	609	D.O. Mills Bank Building
Sacramento	610	Overton Building
Sacramento	611	Original Sacramento Bee Building
Sacramento	612	Site of Pioneer Mutual Volunteer Firehouse
Sacramento	613	Site of Congregational Church
Sacramento	614	Stanford-Lathrop Home
Folsom Powerhouse State Park	633	Old Folsom Powerhouse
Sacramento	633-2	Old Folsom Powerhouse - Sacramento Station A
Sacramento	654	Site of the First Jewish Synagogue Owned by a Congregation on the Pacific Coast
Sacramento	654-1	Chevra Kaddisha (Home of Peace Cemetery)
Franklin (Franklin Cemetery)	657	Grave of Alexander Hamilton Willard
Sacramento	666	Camp Union, Sutterville
Elk Grove	680	Murphy's Ranch
Sacramento	697	Five Mile House - Overland Pony Express Route in California
Rancho Cordova	698	Fifteen Mile House - Overland Pony Express Route in California
Folsom	702	Folsom - Overland Pony Express Route in California
Elk Grove	719	Grave of Elitha Cumi Donner Wilder
Sacramento	745	The Coloma Road - Sutter's Fort
Folsom Lake State Recreation Area	746	The Coloma Road - Nimbus Dam
Sacramento	780	First Transcontinental Railroad
Sacramento	780-8	First Transcontinental Railroad - Western Base of the Sierra Nevada
Sacramento	812	Old Sacramento
Elk Grove	817	Site of First County Free Library Branch in California
Sacramento	823	Governor's Mansion
Sacramento	869	Site of First and Second State Capitols at Sacramento
Sacramento	872	California's Capitol Complex
Sacramento	900	Nisipowinan Village Site
Sacramento	934	Temporary Detention Camps for Japanese Americans - Sacramento Assembly Center
Sacramento	967	California Almond Growers Exchange Processing Facility
Sacramento	991	State Indian Museum
Sacramento	1013	Site of the First African American Episcopal Church Established on the Pacific Coast

City/Location	CHL #	Name
Sutter County		
Yuba City (Highway 99)	346	Hock Farm (Site of)
Yuba City (Highway 20)	929	Site of the Propagation of the Thompson Seedless Grape
Yolo County		
Woodland	851	Woodland Opera House
Woodland	864	Gable Mansion
West Sacramento	1040	First Pacific Coast Salmon Cannery Site
Yuba County		
Highway 20, west of Smartsville	320	Timbuctoo
Smartsville	321	Smartsville
Wheatland	493	Johnson's Ranch
Wheatland	799-3	Overland Emigrant Trail
Marysville	889	Bok Kai Temple
Arboga Community, south of Marysville	934	Temporary Detention Camps for Japanese Americans - Marysville Assembly Center
Wheatland	1003	Site of the Wheatland Hop Riot of 1913

Sources: California Department of Parks and Recreation, Office of Historic Preservation, California State Historical Landmarks listed by County; last modified 2014; retrieved May 2019 from http://ohp.parks.ca.gov/listedresources/. Actions taken by the State Historical Resources Commission for years 2012 to May 8, 2019; retrieved May 2019 from http://ohp.parks.ca.gov/?page_id=24479. The data in the table excludes the portions of El Dorado and Placer counties that are part of the Tahoe Regional Planning Area.

Table 7-5
California Points of Historical Interest in the Plan Area of the Proposed MTP/SCS

City/Vicinity	PHI#	Name	On NRHP
El Dorado County			
Carson Pass Summit	P42	Tragedy Spring (State Highway 88)	
Georgetown	P186	Hoboken House	
Placerville	P533	Methodist Episcopal Church/Episcopal Church of Our Savior	
Placerville	P637	Hangtown's Gold Bug Park - Hattie (Gold Bug), Priest, Silver Pine Mines, and 8-stamp Stamp Mill	
Placerville	P652	Pearson's Soda Works	X
Placerville	P653	The Stable Building	
Placerville	P734	The Smith Flat House	
Somerset	P747	Willow School	
Placerville	P809	Spanish Hill Mine Complex (Highway 50)	
Placer County			
Auburn	P354	Buckner's Bar	
Auburn	P355	Grizzly Bear House	
Auburn	P356	Liberty House	
Auburn	P357	Butcher Ranch	
Auburn	P358	Todd's Valley	
Auburn	P359	Clipper Gap	
Auburn	P360	U.S. Ranch	
Auburn	P361	Spring Garden School	
Penryn	P517	Griffith Residence	

City/Vicinity	PHI#	Name	On NRHP
Newcastle	P578	Newcastle Portuguese Hall	X
Dutch Flat	P618	Baxter (Baxter's Camp)	
Auburn	P619	Allen & Sandhorfer Blacksmith, Auburn Iron Works	
Auburn	P656	Burns Home, Howell Home	
Rocklin	P664	Finnish Temperance Hall, Finn Hall	
Auburn	P693	Auburn Grammar School, Auburn Civic Center Project	
Sheridan	P728	Sheridan Cash Store	
Auburn	P803	Auburn IOOF Hall	
Auburn	P821	Masonic Temple, Masonic Hall	
Newcastle	P836	Newcastle Fruit Sheds	
Auburn	P838	Auburn Public Library, Old Auburn Library	
Sacramento County			
Rancho Cordova	P823	American River Grange Hall #172	X
Rio Linda	P614	The Archway	
Folsom	P712	Chinese Diggings, Natoma Station Ground Sluice	
Sacramento	P666	Curran Farmhouse	
Sacramento	P754	Eastern Star Hall	
Elk Grove	P717	Elk Grove Grammar School/Elk Grove Unified School District	
Sacramento	P800	George Hack House	
Walnut Grove	P665	Jean Harvie School, Walnut Grove Community Center	
Sacramento	P126	Joseph Hampton Kerr Homesite	
Galt	P579	Liberty Schoolhouse	
Folsom	P798	Negro Bar	
Carmichael	N562	Nisenan Village Site	X
Sacramento	P532	Old Elk Grove Hotel Site	
Galt	P743	Rae House	
Sacramento	P149	River Mansion	
Citrus Heights	P737	Rusch Home	
Sacramento	P611	St. Elizabeth's Church	
Orangevale	P734	The Villa (Serve Our Seniors Incorporated)	
Sacramento	P744	Whitter Ranch (Originally Saylor Ranch)	
Folsom	P810	Yeong Wo Cemetery	
Citrus Heights	P*	Fourteen Mile House	
Sutter County			
Yuba City	P395	Bill Butler House	
Sutter	P315	Butte House watering Trough	
Yuba City	P390	Campbell's House	
Yuba City	P393	E.G. Van Arsdale House	
East Nicolaus	P333	East Nicolaus High School	
Yuba City	P396	Eugene Boyd House	
Sutter	P309	Freemont Monument	
Yuba City	P391	G.W. Carpenter House	
Yuba City	P311	H.C. McLaughlin Law Office	
Yuba City	P389	McGruder House	
East Nicolaus	P98	McKague Home	
Meridian	P314	Old Brick House of Sumner Paine	
Yuba City	P394	S.G. Stabler and Swinson House	
Yuba City	P312	Sanborn Law Office/Winship Hall	
Yuba City	P313	Sutter County Canning & Packing Company	

City/Vicinity	PHI#	Name	On NRHP
Yuba City	P387	Sutter County Courthouse	
Yuba City	P388	Sutter County Hall of Records	
Yuba City	P826	Sutter County Masonic Temple	
Yuba City	P392	Thomas D. Boyd House	
Yuba City	P385	William Harkey house	
Yuba City	P386	William O'Banion House	
Meridian	P310	Wooley's Grave	
Yuba County			
Capay	P567	Capay School	
West Sacramento	P765	Leonidas Taylor Monument	
Yolo	P213	Mary's Chapel and Cemetery	
Davis	P144	Russell Boulevard	
Woodland	P214	Saint Agnes Church	
Woodland	P767	William B. Gibson House, Yolo County Museum	
Woodland	P374	Woodland Congregational Church, First Church of Christian Scientist	
Woodland	P766	Yolo County Courthouse	
Yuba County			
Wheatland	P376	Camp Far West Cemetery	
Wheatland	P467	Chinese Cemetery and Funeral Pyre	
Challenge	P350	Falck House	
Wheatland	P377	Grace Episcopal Church	
Wheatland	P375	Johnson's Crossing	
Marysville	P828	Marysville Hotel	
Wheatland	P378	Muck Home	
Smartville	P817	Parks Bar Bridge 16-11 Site	
Marysville	P436	Ramirez Castle/The Mansion	
Dobbins	P783	Sacred Heart Church	
Smartville	P740	Smartville Church of the Immaculate Conception	
Wheatland	P379	Wheatland Masonic Temple	X
Challenge	P351	Woodleaf Hotel	X
Marysville	P841	Yuba Power House	

Sources: California Department of Parks and Recreation, Office of Historic Preservation, California Points of Historical Interest listed by County; retrieved May 2019 from http://ohp.parks.ca.gov/listedresources/. Actions taken by the State Historical Resources Commission for years 2012 to May 8, 2019; retrieved May 2019 from http://ohp.parks.ca.gov/?page_id=24479. A star (*) indicates a number is not available for recently nominated PHI. The data in the table exclude the portions of El Dorado and Placer counties that are part of the Tahoe Regional Planning Area.

Table 7-6 lists the historic bridges located in the plan area of the proposed MTP/SCS recorded in the Caltrans state and local bridge inventories (Caltrans 2019a and 2019b). In consideration of the proposed MTP/SCS planned transportation improvements, it is possible that a historic bridge could be located in or near a proposed project. The majority of historic bridges located in the plan area of the proposed MTP/SCS are found near major waterways, such as the American and Sacramento rivers. The historic bridges listed below should be considered in planning processes for road widening and interchange improvements. As noted, Caltrans last updated the original inventory in 2015 (Caltrans 2015), with the current 2019 list including evaluations for subsequent individual bridge improvement projects, and bridges listed or formally determined eligible for listing in the NRHP are automatically listed in the CRHR (Caltrans 2019a and 2019b).

Table 7-6
Historic Bridges in the Plan Area of the Proposed MTP/SCS

Bridge Name	Location	Bridge #	State of California Bridge		Local Agency Bridge	
			Listed in NRHP	Determined Eligible for NRHP	Listed in NRHP	Determined Eligible for NRHP
El Dorado County						
Echo Summit Sidehill Viaduct	03-ED-050-67.30	25 0044		X		
South Fork American River	0.1 mi E of SR 49	25C0004				X
Camp Creek	0.5 mi SE Mt Aukum Rd	25C0025				X
Rock Creek	5.5 mi NE of SR 193	25C0099				X
Weber Creek	1.1 mi NE Missouri Flat	25C0116				X
Placer County						
North Fork American River	1.5 mi W Shirt Tail Cyn Rd	19C0002				X
North Fork American River	East of I-80	19C0060				X
Sierra Boulevard Overhead	Roseville St & Lincoln St	19C0067				X
Sacramento County						
Sacramento River (Isleton)	03-SAC-160-5.86-IST	24 0051		X		
Steamboat Slough	03-SAC-160-19.76	24 0052		X		
Sacramento River (Paintersville)	03-SAC-160-20.87	24 0053		X		
Three Mile Slough	03-SAC-160-L6.98	24 0121		X		
Sacramento River (Freeport)	Concts Frprt Bl S Riv Rd	24C0001				X
American River (Jibboom Street)	0.1 mi N Richards Blvd	24C0022				X
American River (Greenback Lane)	0.2 mi E Folsom-Auburn Rd	24C0067				X
Gold Creek	0.1 mi W Amer River Cyn	24C0268				X
Yolo County						
Sacramento River (Tower Bridge)	03-YOL-275-13.07-WSAC	22 0021	X			
Cache Creek	500 ft E SH 16	22C0003				X
Davis Underpass	0.1 mi S of 1st St	22C0017			X	
Sacramento River ("I" Street)	At Sacramento Co. line	22C0153			X	
Yuba County						
Dry Creek	1.9 mi S Smartville Rd	16C0006				X
Oregon Creek	0.1 mi E of SR 49	16C0017			X	

Note: bridges listed in or formally determined eligible for listing in the NRHP are automatically listed in the CRHR.
Source: Caltrans Historic Bridge Inventory, last updated in 2015. State Agency Bridges retrieved May 13, 2019, from http://www.dot.ca.gov/hq/structur/strmaint/hs_state.pdf; Local Agency Bridges retrieved May 13, 2019, from http://www.dot.ca.gov/hq/structur/strmaint/hs_local.pdf.

ARCHAEOLOGICAL RESOURCES

The variety of archaeological resources generally present in the six counties within the plan area of the proposed MTP/SCS include prehistoric sites, historic-era archaeological sites, sites with both prehistoric and historic-era components, and prehistoric or historic-era isolated finds. Archaeological resources may also include Native American sacred sites, tribal cultural resources, traditional cultural places, or traditional cultural properties, which are discussed separately in the next section.

Prehistoric site types in the plan area of the proposed MTP/SCS include, but are not limited to, habitation sites, human burials, lithic scatters, bedrock milling features, toolstone quarries, and isolated artifacts. Historic-era archaeological sites in the plan area of the proposed MTP/SCS typically date to the Gold Rush era and early Euro-American settlement. Five categories of historical archaeological property types have been identified within the plan area of the proposed MTP/SCS: mining sites, building or structure foundations, refuse scatters and dumps, transportation-related features, and water conveyance systems. Concentrations of both prehistoric and historic archaeological sites in the plan area of the proposed MTP/SCS are commonly located along natural waterways, such as the American, Cosumnes, Feather, and Sacramento rivers as well as major tributaries and creeks.

The Archaeological Determinations of Eligibility (DOE), as well as the HPD, are master lists maintained by OHP that include all archaeological resources evaluated for their historic significance as properties that appear eligible for listing, have been determined eligible for listing, or are listed in the NRHP or CRHR. The DOE and HPD were reviewed in order to provide a broad overview of the number of significant archaeological resources located in the plan area of the proposed MTP/SCS. As noted under the section on Historic and Built Environment Resources, archaeological sites that are evaluated and found, with SHPO concurrence, to be eligible for listing under one or more of the NRHP criteria but are never nominated, are afforded the same protections as listed properties. Historical resources of an archaeological nature listed in or determined eligible for listing in the CRHR may not be eligible for NRHP listing, but are afforded protection under CEQA. The DOE and HPD may also list archaeological resources that have been identified as historically significant by local government agencies. Such resources are also afforded protection under CEQA.

Table 7-7 includes the number of archaeological resources in the plan area of the proposed MTP/SCS listed in or eligible for listing in the NRHP and CRHR, and those sites, if any, identified as historically significant by local agencies and listed in the DOE. Because the DOE and HPD are updated as new resources are continuously located or reevaluated, the table should not be considered final, but is the most comprehensive listing available as of April 2012, when the DOE and HPD were last updated by OHP. It is also important to note that the exact location of archaeological resources in the plan area of the proposed MTP/SCS is confidential and disclosure is restricted by federal and state laws, consistent with Section 304 of the National Historic Preservation Act (NHPA), Section 9 of Archaeological Resources Protection Act (ARPA), and State OHP Guidelines.

Table 7-7
Number of Significant Archaeological Resources in the Plan Area of the Proposed MTP/SCS

County	Eligible for Listing in the NRHP or CRHR	Listed in NRHP	Listed in CRHR	Recognized as Historically Significant by Local Government
El Dorado	41	1	42	0
Placer	90	2	92	0
Sacramento	20	6	26	0
Sutter	1	0	1	0
Yolo	5	0	5	0
Yuba	2	3	6	0

Sources: Yolo County: Northwest Information Center, April 25, 2019; Sacramento, Yuba, Placer, and El Dorado counties: North Central Information Center, April 25, 2019; and Sutter County: Northeast Information Center, April 25, 2019. The DOE and HPD databases maintained by the OHP were last updated in April 2012. The data in the table excludes the portions of El Dorado and Placer counties that are part of the Tahoe Regional Planning Area.

TRADITIONAL OR ETHNOGRAPHIC RESOURCES

Traditional or ethnographic cultural resources may include Native American sacred sites or tribal cultural resources, traditional cultural places, and traditional resources of any ethnic community that are important for maintaining the cultural traditions of any group. Such resources may include, but not be limited to, traditional landscapes, sacred mountains, buildings, ethnic neighborhoods, structures, objects, cemeteries or burial sites, ceremonial use areas, or areas where plants are collected for traditional foods, medicines, or basket weaving.

The most common type of Native American resources in the plan area of the proposed MTP/SCS are typically associated with resource procurement activities along waterways or ceremonial use areas. Traditional cultural places can range from expansive geographic areas such as the Sutter Buttes to individual locations associated with beliefs or practices that are of traditional cultural significance such as fishing and plant gathering sites and sacred ceremonial sites. Traditional cultural resources may also be recorded as archaeological resources in locations where human activity has measurably altered the earth or left deposits of prehistoric physical remains.

7.2.7 Paleontological Resources and Sensitivity

Paleontological resources include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains that are more than 5,000 years old and occur mainly in Pleistocene or older sedimentary rock units. Key information used in the preparation of this section is derived from published geologic literature and maps, and from guidelines published by the Society of Vertebrate Paleontology (SVP).

The SVP guidelines establish the criteria for screening the paleontological potential of rock units as high potential, undetermined, low potential, or no potential (SVP 2010). Paleontological potential refers to the likelihood that a rock unit will yield a unique or significant paleontological resource. All sedimentary rocks, some volcanic rocks, and some low-grade metamorphic rocks have potential to yield significant paleontological resources. Depending on location, the paleontological potential of subsurface materials generally increases with depth beneath the surface, as well as with proximity to known fossiliferous deposits.

The fossil yielding potential of a particular area is highly dependent on the geologic age and origin of the underlying rocks, which vary in distribution and surface exposure throughout the plan area of the proposed MTP/SCS. In the planning stage for a specific project, the fossil yielding potential is best determined by initially identifying the aerial and stratigraphic extents of the local geology, and performing a site-specific search of fossil locality records and peer-reviewed literature, followed by a field survey if appropriate.

For program-level purposes, the description of the paleontological sensitivity of geologic units in the plan area of the proposed MTP/SCS is necessarily broad and focuses on widespread or well-known rock units. This discussion also focuses on the vertebrate fossil record because the rarity and uniqueness of these fossils contribute to a high paleontological potential of the associated rock units. Paleontological resources reviewed in the following subsections are described by county and are based on review on May 14, 2019 of the records maintained in the University of California Museum of Paleontology (UCMP) database. "County" is used to refer to the geographic area of the county and includes all land, both county and city, in that area.

EL DORADO COUNTY

El Dorado County is in the Sierra Nevada geomorphic province. The Mehrten Formation, which is known to contain vertebrate fossils and is considered to have a high paleontological sensitivity, is widespread in the central portion of the county (Wagner et al. 1981). Otherwise, the sensitivity for paleontological resources in El Dorado County is similar to much of eastern Yuba and Placer counties where the sensitivity of the many geologic units in the foothills of the Sierra Nevada province require further study. Plutonic and metavolcanic units are unlikely to contain paleontological resources, but sedimentary and volcanic deposits could be sensitive for these resources.

Of special note is the cave paleontology of El Dorado County. The county has 3,795 records of vertebrate fossils, and these records are almost exclusively from Hawver Cave, Cool Cave, and Crystal Caverns (UCMP 2019a). These caves formed in limestone deposits in the Calaveras Formation. As Pleistocene-age animal remains accumulated in the caves, cave fill covered the remains. Cave fossils represent the animals that lived in, fell into, or were dragged by carnivores into the cave. This type of preservation is extremely rare and rich in scientific information. Fossils from these caves include ground sloths, raven, cougar, mammoth, dire wolf, deer, rodents, rabbit, and saber-toothed cat. Limestone in the county is therefore considered highly sensitive for paleontological resources.

PLACER COUNTY

As with Yuba County, Placer County straddles the Great Valley and Sierra Nevada geomorphic provinces. The paleontological sensitivity of the geologic units is similar to Yuba County with much of the western edge of the county underlain by highly sensitive Pleistocene units, including the Riverbank Formation (Gutierrez 2011; Wagner et al. 1981). Except for the limestone deposits of the Calaveras Formation, the sensitivity of the numerous geologic units in the foothills of the Sierra Nevada geomorphic province requires further study. Of the five UCMP vertebrate fossil records in Placer County, one is from the Pleistocene, a mastodon; three are from the Tertiary, a bony fish, a mammal, and a reptile; and one is from the Cretaceous, a cartilaginous fish (UCMP 2019b). Unlike

the limestone cave paleontology of El Dorado County, no fossils have been reported from the Calaveras Formation deposits in Placer County.

In addition, the well-known Mehrten Formation of Tertiary age is exposed in Placer County. Although there are no records of fossils in this unit in Placer County, UCMP has 318 records of vertebrate fossils from the Mehrten Formation in other California counties in the Great Valley geomorphic province. Fossils found in this unit include horse, mastodon, bony fish, saber-toothed cat, rodent, reptile, and camel (UCMP 2019c). The Mehrten Formation contains significant fossils that aid in interpreting late Miocene uplift of the Sierra Nevada mountain ranges, natural life during this time, climate, and environment of deposition. This unit is therefore considered highly sensitive for paleontological resources.

SACRAMENTO COUNTY

Sacramento County is entirely within the Great Valley geomorphic province, and Quaternary deposits directly underlie most of the county. The youngest of these deposits, such as the basin deposits and levee and channel deposits, are of Holocene age (less than 10,000 years old) and are therefore unlikely to contain paleontological resources. The Holocene deposits, however, may occur as a thin veneer overlying older, more sensitive deposits (Dawson 2009; Gutierrez 2011; Wagner et al. 1981).

Older Quaternary deposits of Pleistocene age, such as the Riverbank and Modesto Formations, are widespread in Sacramento County and are considered highly sensitive for paleontological resources. The UCMP database contains 126 records of vertebrate fossils in the county, including records for mammoth, camel, wood rat, and snake. Nearly all of these are from the Riverbank Formation (UCMP 2019d), which is well represented by important fossils recovered from excavations in North Natomas in 1989. Fossils from construction of the Arco Arena (now Sleep Train Arena) included remains of ground sloth, dire wolf, horse, rabbit, birds, wood rat, bison, camel, coyote, antelope, deer, and mammoth, as well as clams, fish, turtles, frogs, snakes, and land plant wood, leaves, and seeds (Jefferson 1991; Hilton et. al. 2000). Although there are presently no fossil records from the Modesto Formation in Sacramento County, diverse vertebrate faunas have been collected from similar Pleistocene alluvial units in other parts of northern California.

Numerous Tertiary and Jurassic deposits occur along the eastern margin of Sacramento County. These could be considered sensitive for paleontological resources because they could contain vertebrate fossils, though further information is needed.

SUTTER COUNTY

The paleontological sensitivity of most of Sutter County, which is directly underlain by Quaternary deposits, is similar to Sacramento and Yolo counties (Saucedo and Wagner 1992). The Holocene basin, levee and channel deposits are not considered sensitive for paleontological resources, but the older Pleistocene deposits (such as the Riverbank and Modesto Formations) are considered highly sensitive. Of the five vertebrate fossil records in Sutter County, three are in Pleistocene deposits and are of bison, horse, and an unidentified mammal (UCMP 2019e).

Although wholly in the Great Valley geomorphic province, Sutter County is unique because of the intrusion of the Sutter Buttes. Tertiary and Cretaceous geologic units are exposed in this portion of the valley as a result of volcanism associated with the Sutter Buttes (Saucedo and Wagner 1992).

UCMP has two records for Tertiary fossils in Sutter County, one of a cartilaginous fish in the Capay Formation and another of a horse in the Sutter Formation (UCMP 2019e). These two geologic units are therefore considered sensitive for paleontological resources.

YOLO COUNTY

Yolo County is in both the Great Valley and Coast Ranges geomorphic provinces. The eastern portion of Yolo County is in the Great Valley province and, similar to Sacramento County, is directly underlain by Quaternary deposits (Dawson 2009; Gutierrez 2011; Wagner and Bortugno 1982; Wagner et al. 1981). As in Sacramento County, the Holocene deposits are not considered sensitive for paleontological resources, but the older Pleistocene deposits (such as the Riverbank and Modesto Formations) are considered highly sensitive. Of the 92 UCMP records for vertebrate fossils in Yolo County, 21 are Pleistocene age and many are from the Modesto Formation (UCMP 2019f). The Pleistocene fossils include mammoth, giant ground sloth, saber-toothed cat, deer, and horse. Aggregate mining operations along lower Cache Creek have unearthed mammoth fossils in gravels mapped as the Modesto-Riverbank Formations since 1955 and found an isolated mammoth fossil discovery in the Tehama Formation at the mouth of the Capay Valley in 2004 (Baseline Environmental Consulting 2019). Seventy of the vertebrate fossil records for Yolo County are from the western margin of the county, which is in the Coast Ranges province. These records are from the Tehama Formation of Pliocene age and include fossils of fish, horses, and rodent (UCMP 2014f). Numerous vertebrate fossils in the Tehama Formation are also recorded in several other California counties. This unit is therefore considered highly sensitive for paleontological resources. Other Tertiary deposits in the plan area of the proposed MTP/SCS may also likely be considered sensitive. Numerous invertebrate marine fossils, for example, have been recovered from the Eocene-aged Capay Formation, which is exposed on the western side of the Capay Valley and is considered to have a high paleontological sensitivity.

YUBA COUNTY

Yuba County straddles the Great Valley and Sierra Nevada geomorphic provinces. There are no UCMP records of vertebrate fossils in Yuba County (UCMP 2019g). The paleontological sensitivity of the western portion of the county in the Great Valley province, however, is considered high because the geologic units are the same as in Sacramento County and include Pleistocene sediments such as the Riverbank and Modesto Formations (Saucedo and Wagner 1992).

The sensitivity of the many geologic units in the foothills of the Sierra Nevada geomorphic province in Yuba County requires further study. Plutonic and metavolcanic units are unlikely to contain paleontological resources, but sedimentary and volcanic deposits could be sensitive for these resources.

7.3 Regulatory Setting

7.3.1 Federal Regulations

FEDERAL ANTIQUITIES ACT OF 1906

The Federal Antiquities Act (16 U.S. Code Sections 431–433) was enacted with the primary goal of protecting cultural resources in the United States. As such, it prohibits appropriation, excavation, injury, or destruction of "any historic or prehistoric ruin or monument, or any object of antiquity"

located on lands owned or controlled by the federal government, without permission of the secretary of the federal department with jurisdiction. It also establishes criminal penalties, including fines or imprisonment, for these acts, and sets forth a permit requirement for collection of antiquities on federally owned lands.

Neither the Federal Antiquities Act itself nor its implementing regulations (43 CFR Section 3) specifically mentions paleontological resources. However, several federal agencies, including the National Park Service (NPS), Bureau of Land Management, and U.S. Forest Service, have interpreted objects of antiquity as including fossils. Consequently, the Federal Antiquities Act represents an early cornerstone for efforts to protect the nation's paleontological resources.

Archaeological and Paleontological Salvage Statute of 1906 and Federal-Aid Highway Acts of 1956 and 1960

The Archaeological and Paleontological Salvage Statute (23 U.S. Code Section 305) amended the Federal Antiquities Act of 1906 via the following text.

Funds authorized to be appropriated to carry out this title to the extent approved as necessary, by the highway department of any State, may be used for archaeological and paleontological salvage in that state in compliance with the Act entitled "An Act for the Preservation of American Antiquities," approved June 8, 1906 (PL 59-209; 16 U.S. Code Sections 431-433), and State laws where applicable.

This statute, included in the Federal-Aid Highway Acts (23 U.S. Code Section 305), gives specific authority to use federal funds for salvage of paleontological sites impacted by highway projects. Salvage of paleontological resources is permitted under federal highway project funding, as long as the excavated materials and any information recovered from them are used for public purposes and not for private gain.

Department of Transportation Act of 1966

Section 4(f) of the Department of Transportation Act (DOT Act), as amended and recodified in 1983 (49 U.S. Code Section 303), is triggered by projects funded or approved by a DOT agency, including the Federal Highway Administration, Federal Transit Administration, Federal Railroad Administration, and Federal Aviation Administration. Section 4(f) requires a comprehensive evaluation of all environmental impacts resulting from projects that involve the use, or interference with use, of the following types of land:

- publicly owned park lands that are open to the public;
- publicly owned recreation areas that are open to the public;
- publicly owned wildlife and waterfowl refuges that are open to the public; and
- publicly- or privately-owned historic sites of federal, state, or local significance that are eligible for listing in or are listed in the NRHP.

This evaluation, called the Section 4(f) statement, must be completed by proponents of federal-aid transportation projects in the plan area of the proposed MTP/SCS that affect Section 4(f) protected

land, as defined above. In order to proceed with use of the above-referenced lands, the evaluation must be sufficiently detailed to permit the U.S. Secretary of Transportation to determine that:

- there is no feasible and prudent alternative to the use of such land;
- the program or project includes all possible planning to minimize harm to any park, recreation area, wildlife and waterfowl refuge, or historic site that would result from the use of such lands; and
- if there is a feasible and prudent alternative, a proposed project using Section 4(f) protected lands cannot be approved by the Secretary; or if there is no feasible and prudent alternative, the proposed project must include all possible planning to minimize harm to the affected lands.

Detailed inventories of the locations and likely impacts on resources that fall into the Section 4(f) category are required in project-level environmental assessments.

In August 2005, Section 4(f) was amended under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) to simplify the process and approval of projects that have only *de minimis* impacts on lands protected by Section 4(f). Under these provisions, the U.S. Secretary of Transportation may find such a *de minimis* impact if consultation with the SHPO under Section 106 of the NHPA results in a determination that a transportation project will have no adverse effect on the historic site or that there will be no historic sites (i.e., historic properties) affected by the proposed action. In this instance, analysis of avoidance alternatives of Section 4(f) protected properties is not required and the Section 4(f) evaluation process is complete.

Paleontological resources are addressed under the DOT Act only if located on lands protected by Section 4(f).

NATIONAL HISTORIC PRESERVATION ACT OF 1966

NHPA, as amended (16 U.S. Code Section 470 et seq.), is the primary federal law governing the preservation of cultural and historic resources in the U.S. The NHPA establishes the federal government policy on historic preservation and the programs through which this policy is implemented. Section 106 of the NHPA (16 U.S. Code Section 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure, or object that is included in or determined eligible for inclusion in the NRHP and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings (36 CFR Section 800.1).

As defined in 36 CFP Section 800.16(y), a federal undertaking means a "project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval."

Specific regulations regarding compliance with Section 106 of the NHPA state that, although the tasks necessary to comply with Section 106 may be delegated to others, the federal agency is ultimately responsible for ensuring that the Section 106 process is completed according to statute. The Section 106 process is a consultation process that involves the SHPO throughout; the process

also calls for including Native American tribes and interested members of the public, as appropriate, throughout the process. Implementing regulations for Section 106 (36 CFP Section 800) detail the following five basic steps.

1. initiate the Section 106 process;
2. identify and evaluate historic properties (per 36 CFP Section 800.16[1], a "historic property" is a property that is listed in, or eligible for listing in, the NRHP);
3. assess the effects of the undertaking on historic properties within the area of potential effects;
4. if historic properties are subject to adverse effects, the federal agency, the SHPO, and any other consulting parties (including Native American tribes) continue consultation to seek ways to avoid, minimize, or mitigate the adverse effects. A memorandum of agreement (MOA) is usually developed to document the measures agreed upon to resolve the adverse effects; and
5. proceed in accordance with the terms of the MOA.

Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for inclusion in the NRHP. "Traditional cultural properties" (TCPs) eligible for listing in the NRHP are defined as areas or specific locations that have cultural significance for a living community of people that have been passed down through the generations, usually orally or through practice (Parker and King 1998). As such, TCPs can be associated with any ethnic community, including Native American tribes.

Section 106 of the NHPA does not apply to paleontological resources unless they are found in a culturally-related context (e.g., fossilized marine shell in association with a human burial). In addition to the Antiquities Act (16 U.S. Code Sections 431–433) of 1906, the preservation and salvage of fossils and other paleontological resources can be protected under the National Registry of Natural Landmarks (16 U.S. Code Sections 461–467) and NEPA, which directs federal agencies to "preserve important historic, cultural, and natural aspects of our national heritage" (see above).

Section 110 of the NHPA requires federal agencies to assume the responsibility for the preservation of historic properties under their jurisdiction or control. Section 110(f) of the NHPA, as codified at 36 CFR Section 800.10, requires federal agencies to undertake planning and actions necessary to minimize harm to any designated National Historic Landmark (NHL). If a proposed project is found to have the potential to adversely affect an NHL, the Secretary of the Interior (typically represented by a representative of the NPS) is invited to participate in the consultation.

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

NEPA (42 U.S. Code Section 4321 et seq.) directs federal agencies to use all practicable means to "preserve important historic, cultural, and natural aspects of our national heritage" (Section 101[b][4]). Regulations for implementing NEPA are found in 40 CFR Sections 1500–1508. Consideration of cultural resources is required under NEPA for proposed federal actions.

NEPA does not provide specific guidance regarding paleontological resources, but the NEPA requirement that federal agencies take all practicable measures to "preserve important historic,

cultural, and natural aspects of our national heritage" (NEPA Section 101[b][4]) is interpreted as applying to paleontological resources.

American Indian Religious Freedom Act of 1978

The American Indian Religious Freedom Act (AIRFA) (42 U.S. Code Section 1996) pledges to protect and preserve the traditional religious rights of American Indians, Aleuts, Eskimos, and Native Hawaiians. The AIRFA establishes a national policy that traditional Native American practices and beliefs, sites (and right of access to those sites), and the use of sacred objects shall be protected and preserved. If a place of religious importance to American Indians could be affected by a federal undertaking, the AIRFA promotes consultation with American Indian religious practitioners, which could be coordinated with Section 106 consultation. Amendments to Section 101 of NHPA in 1992 strengthened the interface between the AIRFA and NHPA by clarifying the following: (1) properties of traditional religious and cultural importance to an American Indian tribe or Native Hawaiian organization could be determined to be eligible for inclusion in the NRHP; and (2) in carrying out its responsibilities under Section 106, a federal agency shall consult with any American Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to properties described under (1).

Archeological Resources Protection Act of 1979

The ARPA (43 CFR Section 7) establishes uniform definitions, standards, and procedures to be followed by all federal land managers in providing protection for archaeological resources, located on public lands and Native American lands. Under ARPA, additional requirements could apply to agency action if federal or Native American lands are involved. ARPA: (1) prohibits unauthorized excavation on federal and American Indian lands; (2) establishes standards for permissible excavation; (3) prescribes civil and criminal penalties; (4) requires agencies to identify archeological sites; and (5) encourages cooperation between federal agencies and private individuals.

Native American Graves Protection and Repatriation Act of 1990

The intent of the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S. Code Section 3001) is to identify Native American affiliation or lineal descent and ensure the rightful disposition, or repatriation, of Native American human remains, funerary objects, sacred objects, and items of cultural patrimony that are in federal possession or control. The regulations implementing the requirements of NAGPRA relating to the inadvertent discovery of human remains and objects of cultural patrimony of Native American origin on federal or tribal lands are described in 43 CFR Section 10.4.

Omnibus Public Lands Management Act of 2009

The Omnibus Public Lands Management Act (16 U.S. Code Section 1132) contains provisions for the protection and preservation of paleontological resources. Under this law, the secretaries of the departments of Interior and Agriculture are directed to inventory, manage, and protect paleontological resources on the public lands they administer. In addition, the secretaries are directed to coordinate these efforts and to establish education programs to increase public awareness of the significance of paleontological resources. The law also prohibits the collection of

paleontological resources from federal lands without a permit, except in the case of noncommercial collecting that complies with other regulations for that federal land.

Secretary of the Interior's Standards for the Treatment of Historic Properties

The Secretary of the Interior's Standards for the Treatment of Historic Properties are intended to promote responsible preservation practices for treatment of historic properties (buildings, structures, objects, districts, and landscapes) (Grimmer 2017). The advisory, not regulatory, standards do not, in and of themselves, prescribe decisions about which features of a historic property should be saved and which can be changed. But once a treatment is selected, the standards provide philosophical consistency and guidance to the work. The four treatment approaches, in order of priority are:

- preservation, which places a high premium on the retention of all historic fabric through conservation, maintenance and repair. It reflects a property's continuum over time, through successive occupancies, and the respectful changes and alterations that are made;
- rehabilitation, which emphasizes the retention and repair of historic materials, but more latitude is provided for replacement because it is assumed the property is more deteriorated prior to work. (Both preservation and rehabilitation standards focus attention on the preservation of those materials, features, finishes, spaces, and spatial relationships that, together, give a property its historic character.);
- restoration, which focuses on the retention of materials from the most significant time in a property's history, while permitting the removal of materials from other periods; and
- reconstruction, which establishes limited opportunities to re-create a non-surviving site, landscape, building, structure, or object in all new materials.

National Register of Historic Places

The NRHP is the official list of the nation's recognized cultural resources deemed worthy of preservation. Authorized under the NHPA, the NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect cultural resources of national, state, and local significance. NPS, under the Secretary of the Interior, administers the NRHP. The State OHP administers the statewide NRHP program under the direction of the SHPO. Properties listed in the NRHP include districts, sites, buildings, structures, and objects that are significant to American history, architecture, archaeology, engineering, and culture. These resources contribute to an understanding of the historic and cultural foundations of the nation. The NRHP includes:

- all historic areas in the National Park System;
- NHLs which have been designated by the Secretary of the Interior for their significance to all Americans; and
- properties significant to the nation, state, or community which have been nominated by the state historic preservation offices, federal agencies, and tribal preservation offices, and have been approved by the NPS.

To be eligible for inclusion in the NRHP, a cultural resource must possess integrity and meet at least one of the following four criteria (A-D) delineated at 36 CFR Section 60.4. The quality of

significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and that:

- Criterion A: are associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B: are associated with the lives of persons significant in our past; or
- Criterion C: embody the distinct characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D: have yielded, or are likely to yield, information important in prehistory or history (36 CFR Section 60.4).

To retain historic integrity, a property must possess several and usually most of the seven aspects of integrity (location, design, setting, materials, workmanship, feeling and association). The retention of specific aspects of integrity is paramount for a property to convey its significance. Determining which of these aspects are most important to a particular property requires knowing why, where, and when the property is significant (NPS 1997).

Certain property types are generally excluded from consideration for listing in the NRHP, but can be considered if they meet one of the four significance criteria (A-D) listed above, possess integrity, and meet the special requirements of the seven "criteria considerations" listed below. For example, buildings and structures less than 50 years old ordinarily are not considered eligible for listing in the NRHP. Under Criteria Consideration G (see below), however, a property achieving significance within the past 50 years is eligible for NRHP inclusion if it is of "exceptional" importance (36 CFR Section 60.4). The seven criteria considerations are as follows:

- Criteria Consideration A: Religious properties,
- Criteria Consideration B: Moved properties,
- Criteria Consideration C: Birthplaces and Graves,
- Criteria Consideration D: Cemeteries,
- Criteria Consideration E: Reconstructed properties,
- Criteria Consideration F: Commemorative properties, and
- Criteria Consideration G: Properties that have achieved significance within the past 50 years (eligible if property is of "exceptional" importance).

7.3.2 State Regulations

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA (PRC Section 21000 et seq.) and the CEQA Guidelines (14 CCR Section 15000 et seq.) are the principal regulatory controls addressing whether a project will have a significant effect on the environment, including impacts on historical resources, unique archaeological resources, tribal cultural resources, human remains, and paleontological resources in California. Projects with the

potential to adversely affect significant cultural resources, human remains, or unique paleontological resources must be reviewed through the CEQA process. The designated CEQA lead agency for approval of a project is responsible for complying with CEQA's requirements regarding the identification of feasible measures to mitigate significant adverse changes to historical resources, unique archaeological resources, tribal cultural resources, human remains, and paleontological resources and ensuring that the measures are enforceable through permit conditions, agreements, or other measures.

Historical Resources

"Historical resource" is a term with defined statutory meaning (PRC Section 21084.1; determining significant impacts on historical and archaeological resources is described in the State CEQA Guidelines Section 15064.5). Under Section 15064.5(a) of the State CEQA Guidelines (14 CCR Section 15064.5[a]), historical resources include, but are not limited to, the following:

- a resource listed in or determined eligible by the State Historical Resources Commission for listing in the CRHR;
- a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k), or identified as significant in an historical resource survey meeting the requirements of PRC Section 5024.1(g) (presumption of historical significance);
- a resource that meets at least one of the four criteria for CRHR listing (provided below); or
- a resource that the lead agency otherwise determines is a historical resource as defined by Public Resources Code Sections 5020.1(j) or 5024.1. (14 Cal. Code Regs. Section 15064.5[a]).

CEQA Guidelines Section 15064.5(b) identifies actions that will result in a significant adverse effect on an historical resource:

- A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment; and
- "Substantial adverse change in the significance of an historical resource" means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.

  The significance of an historical resource is materially impaired when a project:

  - Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR; or
  - Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

CEQA Guidelines Sections 15064.5(b)(3), 15064.5(b)(4), and 15126.4(b) define appropriate mitigation for historical resources. For state-owned historical resources as described in PRC Section 5024, Section 15064.5(b)(5) states that lead state agencies shall consult with the SHPO.[1] For transportation projects that involve state highways, in accordance with CEQA Guidelines Section 15064.5(a) state-owned historical resources would include built or archaeological resources within Caltrans right-of-way that are listed in or determined eligible for listing in the NRHP or CRHR, that are registered as or meet CHL criteria, that are included in a local register of historical resources, or that have been identified as historically significant by local government agencies.

Archaeological Resources

Sections 15064.5(c) and 15064.5(f) of the CEQA Guidelines address archaeological sites and identify required steps in the process for identifying resources, determining if the resources are historical resources or unique archaeological resources, and mitigating for unknown subsurface resources discovered during development. CEQA Guidelines Section 15126.4(b)(3) also recommends mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.

As noted, CEQA distinguishes between two classes of archaeological resources: archaeological resources that meet the definition of a historical resource as above, and "unique archaeological resources." An archaeological resource is considered unique if it can be clearly demonstrated that there is a high probability that, without merely adding to the current body of knowledge, the archaeological artifact, object, or site meets any of the following three criteria:

- is directly associated with a scientifically recognized important prehistoric or historic event or person; or
- contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information; or
- has a special and particular quality such as being the oldest of its type or the best available example of its type (Public Resources Code Section 21083.2(g)).

CEQA Guidelines Section 15064.5(c)(4) notes that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of a project on those resources shall not be considered a significant effect on the environment.

[1] Consultation with the SHPO is required for federal undertakings in compliance with Section 106 of the NHPA. Under CEQA Guidelines Section 15064.5(b)(5), consultation with the SHPO is required as provided in Public]Resources Code Section 5024.5 where a State lead agency proposes an action affecting State-owned historical resources. Consultation with the SHPO should be coordinated in a timely manner with the preparation of environment documents.

CEQA Guidelines Section 15064.5(d) states that when an initial study identifies the existence of, or probable likelihood, of Native American human remains within a proposed project area, the lead agency will work with the appropriate Native Americans as identified by the NAHC. Section 15064.5(e) of the CEQA Guidelines describes the steps that should be taken in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery.

Tribal Cultural Resources

Pursuant to Assembly Bill (AB) 52 (Statutes of 2014), CEQA also requires lead agencies to consider whether projects will affect tribal cultural resources. As defined under PRC Section 21074, "tribal cultural resources" are either of the following:

- Sites, features, places, cultural landscapes that are geographically defined in terms of the size and scope of the landscape, sacred places, and objects with cultural value to a California Native American Tribe that are either:
    - Included or determined to be eligible for inclusion in the CRHR; or
    - Included in a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to the criteria for inclusion in the CRHR set forth in Public Resources Code Section 5024.1(c), if supported by substantial evidence and taking into account the significance of the resource to a California Native American tribe.
- A historical resource as defined in Public Resources Code Section 21084.1, a unique archaeological resource as defined in Public Resources Code Section 21083.2(g), or a nonunique archaeological resource as defined in Public Resources Code Section 21083.2(h) may also be TCRs.

CEQA further established a consultation process with California Native American tribes for proposed projects in geographic areas that are traditionally and culturally affiliated with that tribe. Per PRC Section 21073, "California Native American tribe" includes federally and non-federally recognized tribes on the NAHC contact list. NAHC maintains an inventory of California Native American sacred sites. Access to these records is restricted due to their sensitive nature and they are exempt from public disclosure. Native American historic, cultural, or sacred sites can be listed in or eligible for listing in the CRHR (PRC Sections 5097.9 and 5097.993). Considering that Native American sacred sites, traditional cultural places, TCRs, or TCPs may also be categorized as archaeological resources, an unknown number may be included on the DOE and HPD master lists of significant archaeological resources maintained by the OHP in the plan area of the proposed MTP/SCS (see Table 7-8).

Subject to certain prerequisites, CEQA requires, among other things, that a lead agency consult with the geographically affiliated tribe before the release of an environmental review document for a proposed project regarding project alternatives, recommended mitigation measures, or potential significant effects, if the tribe so requests in writing. If the tribe and the lead agency agree upon mitigation measures during their consultation, these mitigation measures must be recommended for inclusion in the environmental document (PRC Sections 21080.3.1, 21080.3.2, 21082.3, 21084.2, and 21084.3).

Per PRC Section 21084.2, "a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."

PRC Section 21084.3 suggests optional mitigation measures if the lead agency determines that the project will have a significant impact on TCRs. These include avoidance of damaging effects, preferably by preservation in place to protect the cultural and natural context, permanent conservation easements or other interests in real property, and protecting the resource.

TRIBAL CONSULTATION FOR GENERAL PLANS AND SPECIFIC PLANS

Senate Bill (SB) 18 (Stats. 2004, ch. 904; Gov. Code Sections 65352.3–5) requires that, prior to the adoption or amendment of a city or county's general plan or specific plans, the city or county shall consult with California Native American tribes that are on the contact list maintained by the NAHC. The intent of this law is to preserve or mitigate impacts on places, features, and objects, as defined in PRC Sections 5097.9 and 5097.993, which are located within the city or county's jurisdiction. The law also states that the city or county shall protect the confidentiality of information concerning the specific identity, location, character, and use of those places, features, and objects identified by Native American consultation. Government Code Sections 65362.3 to 65362.5 apply to all general and specific plans adopted and/or amended after March 1, 2005.

As the proposed MTP/SCS is not a general plan or specific plan, SB 18 does not apply. However, SB 18 would apply to updates to county or city general plans or specific plans that may be adopted by local jurisdictions in the future.

THE MILLS ACT OF 1972

The Mills Act (Gov. Code Section 50280 et seq.) provides for reduced property taxes on eligible historic properties in return for the property owner's agreement to maintain and preserve the historic property. Preservation of properties is to be in accordance with the standards and guidelines set forth by the U.S. Secretary of the Interior. To be designated, a building must meet qualifying criteria such as significant architecture, association with a historically significant event or person, or location in a historic district. Criteria for designation are described in greater detail under the sections on CRHR, CHLs, and PHIs.

CALIFORNIA GOVERNMENT CODE SECTION 25373

California Government Code Section 25373 gives local governments authority to acquire property for the preservation or development of a historical landmark. In addition, local governments may provide special conditions or regulations for the protection, enhancement, perpetuation, or use of places, sites, buildings, structures, works of art, and other objects having a special character or special historical or aesthetic interest or value.

CALIFORNIA GOVERNMENT CODE SECTION 27288.2

California Government Code Section 27288.2 requires the county recorder for which historical resources reside to record a certified resolution establishing a historical resources designation issued by the State Historical Resources Commission or a local agency. For previously designated

properties, the county may record the certified resolution establishing the historical resources designation upon submission.

California Code of Regulations Title 14 Sections 4307-4309

The sections of the CCR relating to the Department of Parks and Recreation afford protection to geologic features, paleontological features, archaeological features, and "paleontological materials," but grant the director of the state park system authority to issue permits for specific activities that may remove, treat, disturb, or destroy such resources, if the activities are in the interest of the state park system and for state park purposes (14 CCR Sections 4307–4309).

State Historic Building Code

The State Historic Building Code (Health & Safety Code Sections 18950–18961) provides alternative regulations and standards for the rehabilitation, preservation, restoration (including related reconstruction), or relocation of qualified historical buildings or structures. These alternative standards and regulations are intended to facilitate the rehabilitation, restoration, or change of occupancy so as to preserve their original or restored architectural elements and features, to encourage energy conservation and a cost-effective approach to preservation, and to provide for the safety of the building occupants.

California Native American Graves Protection and Repatriation Act

California Native American Graves Protection and Repatriation Act of 2001 (Health & Safety Code Sections 8010–8011) establishes a state repatriation policy that is consistent with and facilitates implementation of the federal NAGPRA. This law strives to ensure that all California Indian human remains and cultural items are treated with dignity and respect and encourages voluntary disclosure and return of remains and cultural items by publicly funded agencies and museums in California.

Disturbance of Human Remains

Disturbance of human remains without the authority of law is a felony (Health & Safety Code Section 7052). According to state law (Health & Safety Code Section 7050.5; PRC Section 5097.98), if human remains are discovered or recognized in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- the coroner of the county has been informed and has determined that no investigation of the cause of death is required, or
- if the remains are of Native American origin, one of the following has occurred:
    - the descendants from the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of with appropriate dignity the human remains and any associated grave goods as provided in PRC Section 5097.98, or
    - the NAHC was unable to identify a descendent or the descendent failed to make a recommendation within 48 hours after being notified by the commission.

According to the Health and Safety Code, six or more human burials at one location constitute a cemetery (Health & Safety Code Section 8100), and disturbance of Native American cemeteries is a felony (Health & Safety Code Section 7052). Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC within 24 hours; the NAHC then has jurisdiction over the Native American remains (Health & Safety Code Section 7052.5c; PRC Section 5097.98).

California Heritage Fund

PRC Sections 5079 to 5079.65 outline the appropriate uses of the California Heritage Fund, which shall be available, upon appropriation by the state Legislature, to implement laws providing for historical resource preservation. These include, but are not limited to, Section 5028 and Executive Order W-26-92, under criteria developed by the OHP and adopted by the State Historical Resources Commission.

Archaeological, Paleontological and Historical Sites

PRC Sections 5097 to 5097.6 outline the requirements for cultural resource analysis prior to the commencement of any construction project on State Lands. This section provides that the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands is a misdemeanor. It prohibits the knowing destruction of objects of antiquity without a permit (expressed permission) on public lands, and provides for criminal sanctions. This section was amended in 1987 to require consultation with the California NAHC whenever Native American graves are found. Violations for the taking or possessing remains or artifacts are felonies.

Native American Heritage

PRC Sections 5097.9–5097.991 provide that no public agency, and no private party using or occupying public property, or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1, 1977, shall in any manner whatsoever interfere with the free expression or exercise of Native American religion as provided in the U.S. Constitution and the California Constitution, nor shall any such agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require it. In addition, this section details the composition and responsibilities of NAHC. NAHC strives for the preservation and protection of Native American human remains, associated grave goods, and cultural resources.

NAHC has developed a strategic plan to assist the public, development community, federal and local agencies, educational institutions, and California Native Americans to better understand problems relating to the protection and preservation of cultural resources and to serve as a tool to resolve these problems and create an awareness among lead agencies and developers of the importance of working with Native Americans. PRC Sections 5097.91 and 5097.98 were amended by AB 2641 in 2006. This bill authorizes NAHC to bring an action to prevent damage to Native American burial grounds or places of worship and establishes more specific procedures to be implemented in the event that Native American remains are discovered.

UNAUTHORIZED ACTIONS

PRC Section 5097.5 specifically defines unauthorized excavation, removal, or destruction of archaeological, paleontological, or historical resources on public lands as a misdemeanor, except with the express permission of the public agency having jurisdiction over the lands.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The California Register of Historical Resources (CRHR) is a state program for use by state and local agencies, private groups and citizens to identify, evaluate, register and protect California's historical resources. The CRHR is the authoritative guide to the state's significant historical and archaeological resources. The CRHR program encourages public recognition and protection of resources of architectural, historical, archaeological and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding and affords certain protections under CEQA. Established in 1992, the criteria and procedures for CRHR eligibility parallel those of the NRHP.

In order for a resource to be designated for CRHR inclusion, a resource must retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance, and must meet at least one of the following four criteria:

- Criterion 1: Be associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States;
- Criterion 2: Be associated with the lives of persons important to national, California or local history;
- Criterion 3: Embody the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values; or
- Criterion 4: Have yielded, or have the potential to yield, information important to the prehistory or history of the nation, California or the local area (PRB Section 5024.1[c]).

In addition to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance.

As described in PRC Section 5024.1(d), resources that are automatically listed in the CRHR include those listed in or formally determined eligible for listing in the NRHP ("historic properties") and California Historical Landmarks from No. 770 onward. As defined in Public Resources Code Sections 5097.9 and 5097.993, Native American historic, cultural, or sacred sites could be listed or eligible for listing in the CRHR pursuant to PRC Section 5024.1.

The effects of CRHR-eligibility designation include limited protection, whereas environmental review may be required under CEQA if the historical resource may be impacted by a project. Additionally, the local assessor may enter into a contract with the property owner for property tax reduction in accordance with the Mills Act of 1972 (Government Code Section 50280 et seq.).

CALIFORNIA HISTORICAL LANDMARKS

CHLs are buildings, structures, sites, or places that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the county board of supervisors or city council in whose jurisdiction it is located; be recommended by the State Historical Resources Commission; and be officially designated by the Director of CSP.

To be eligible for designation as a CHL, a resource must meet at least one of the following criteria:

- be the first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California);
- be associated with an individual or group having a profound influence on the history of California; or
- be a prototype of, or an outstanding example of, a period, style, architectural movement or construction, or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer or master builder.

The effects of designation as a CHL include limited protection, whereas environmental review may be required under CEQA if the property is threatened by a project. CHLs from No. 770 onward are automatically listed in the CRHR. In addition, the local assessor may enter into a contract with the property owner for property tax reduction in accordance with the Mills Act of 1972 (Gov. Code Section 50280 et seq.).

CALIFORNIA POINTS OF HISTORICAL INTEREST

PHIs are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. No historical resource may be designated as both a CHL and a PHI. If a PHI is subsequently granted status as a CHL, the PHI designation will be retired.

To be eligible for designation as a PHI, a resource must meet at least one of the following criteria:

- be the first, last, only, or most significant of its type within the local geographic region (city or county);
- be associated with an individual or group having a profound influence on the history of the local area; or
- be a prototype of, or an outstanding example of, a period, style, architectural movement or construction, or be one of the more notable works or the best surviving work in the local region of a pioneer architect, designer or master builder.

The effects of designation as a PHI include limited protection, whereas environmental review may be required under CEQA if the property may be impacted by a project. Points designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. In addition, the local assessor may enter into a contract with the property owner for property tax reduction in accordance with the Mills Act of 1972 (Gov. Code Section 50280 et seq.).

7.3.3 Local Regulations

GENERAL PLANS

Many cities and counties include cultural and paleontological resource preservation policies in their general plans that include some mechanism for protecting cultural and paleontological resources in those communities that could affect or be affected by the proposed MTP/SCS. In general, the sections pertaining to prehistoric and historic archaeological and historic built environment resources address identification and maintenance and afford cultural resources a measure of local protection. The policies outlined in the individual general plans should be consulted prior to any undertaking or project.

Cultural and paleontological resources are generally discussed in either the Open Space Element or the Conservation Element of a general plan. Policies regarding cultural resources are similar throughout the plan area of the proposed MTP/SCS and call for the identification, protection, interpretation and enhancement of important historical, archaeological, paleontological, and cultural resources and their contributing environments.

The six countywide general plans applicable in the plan area of the proposed MTP/SCS include policies related to paleontological resources under the section on cultural resources. Although local city laws, ordinances, or regulations do not necessarily address paleontological resources, paleontological resources are included as significant resources under CEQA.

CERTIFIED LOCAL GOVERNMENTS

In 1980, NHPA was amended to include the Certified Local Governments (CLG) program. The purpose of this program is to support local governments in efforts to identify, evaluate, register, and preserve historic resources within their jurisdictions and to integrate preservation into local planning. A CLG is a local government whose historic preservation program and/or ordinance has been certified pursuant to Section 101(c) of the NHPA. The CLG program is a partnership among local governments, the State of California OHP, and the NPS, which is responsible for administering the National Historic Preservation Program. CLGs must be included in the process of nominating properties within their jurisdiction to the NRHP. They are also eligible to apply for a portion the state's annual federal allotment of Historic Preservation Funds that are designated for historic preservation projects.

The following CLGs are located in the plan area of the proposed MTP/SCS (listed by county):

- Sacramento County: City of Sacramento and City of Elk Grove;
- Yolo County: City of Davis; and
- Yuba County: City of Marysville.

7.4 Impacts and Mitigation Measures

7.4.1 Methods and Assumptions

This program-level analysis assesses the potential impacts to cultural, paleontological, and tribal cultural resources that could result from implementation of the proposed MTP/SCS based on the projected land use pattern and planned transportation improvements of the proposed MTP/SCS.

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS. Exceptions to the 2016 baseline in this chapter include the following:

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

This evaluation of cultural, tribal, and paleontological resource impacts assumes the lead agency for specific projects that result from implementation of the proposed MTP/SCS would comply, as appropriate, with federal, state, and local regulations, as follows:

- All projects undertaken by or jointly with Caltrans must abide by procedures and policies, outlined in Caltrans Standard Environmental Reference (SER), Volume 2 Cultural Resources. The SER also dictates the nature and extent of cultural resource protections consistent with federal and state environmental laws and regulations with which Caltrans must comply.
- Projects undertaken by or jointly with Caltrans must abide by the guidance outlined in Caltrans Standard Environmental Reference (SER), Volume 1, Chapter 8, Paleontological Resources. The chapter provides guidance on pertinent federal and state environmental laws and regulations. In the event a project involves lands administered by either federal or state agencies, the local offices of those agencies shall be contacted for additional guidance.
- For projects that constitute federal undertakings (defined in the Regulatory Setting section for cultural resources), consultation with the lead federal agency, SHPO (or THPO as relevant), and appropriate consulting parties would be required in accordance with Section 106 of the NHPA.
- For projects that constitute federal undertakings, compliance with Section 4(f) of the DOT Act of 1966 would require a comprehensive evaluation of all environmental impacts resulting from projects that involve the use of or interference with the use of publicly- or

privately-owned historic sites of federal, state, or local significance that are eligible for listing in or are listed in the NRHP. Paleontological resources would be addressed under the DOT Act only if located on lands protected by Section 4(f).

- For projects that will affect state-owned historical resources as described in PRC Section 5024, if the lead agency is a state agency, consultation with the SHPO by the lead state agency is required as provided in PRC Section 5024.5. Sections 5024(f) and 5024.5 require SHPO consultation before altering, transferring, relocating, or demolishing state-owned historical resources that are listed in or are eligible for inclusion in the NRHP or are registered or eligible for registration as CHLs.
- If human remains are discovered during implementation of individual projects under the proposed MTP/SCS, all work within a minimum of 50 feet of the discovery site would halt immediately. Representatives of the project sponsor and/or lead agency would notify the County Coroner, as stipulated in Section 7050.5 of the California Health and Safety Code. The Coroner would determine whether the remains are Native American and, if so, would contact NAHC by telephone within 24 hours. NAHC would follow the stipulations in PRC Section 5097.98, including notification of those persons it believes to be most likely descended from the deceased Native American. If NAHC is unable to identify a descendant, the descendant is unable to make a recommendation, or the landowner rejects the recommendation, NAHC would mediate any dispute between the parties. Where such mediation fails to provide measures acceptable to the landowner, the landowner shall reinter the human remains and associated funerary items with appropriate dignity on the property, in a location not subject to further subsurface disturbance.
- If human remains are discovered on federal or tribal lands, the provisions of the NAGPRA would apply. For NAGPRA-associated discoveries, it may be necessary to provide 24-hour, onsite security.
- Projects would comply with existing local regulations and policies that exceed any of the state or federal measures that protect built environment resources, archaeological resources, TCRs, paleontological resources, or unique geologic features.

CULTURAL AND TRIBAL RESOURCES

For cultural and tribal resources, the HPD and DOE master lists maintained by the OHP, Caltrans Historic Bridge Inventory, NAHC, and responses from geographically affiliated Native American tribes (as described in 7.2 Environmental Setting section above) are the primary sources used to gather information on known significant archaeological resources, sacred sites, tribal cultural resources, and built environment properties in the plan area of the proposed MTP/SCS. In general, these data were gathered at the county and city level through record searches of databases outlined in Section 7.2.6. The exact locations of significant cultural resources in or near specific proposed project areas related to the proposed MTP/SCS are not known at this time. Consequently, impacts have been assessed below at the program-level and take into consideration potential direct or indirect impacts that may occur to known and unknown cultural resources, including tribal cultural resources and human remains, in the plan area of the proposed MTP/SCS as a result of future ground-disturbing activities related to planned transportation improvements, including new roads, interchanges, widenings, and rail transit alignments; to projected land use pattern, including residential and commercial construction; and during future ongoing operations.

PALEONTOLOGICAL RESOURCES

For paleontological resources, reviews of geologic maps and of the paleontological database maintained by the UCMP are the primary sources of information used to assess the paleontological sensitivity of the geologic units in the plan area of the proposed MTP/SCS. These records were reviewed on May 14, 2019 (UCMP 2019a, 2019b, 2019c, 2019d, 2019e, 2019f, 2019g). As noted in Section 7.2.7, paleontological potential refers to the likelihood that a rock unit would yield a unique or significant paleontological resource (SVP 2010). The limits of an entire rock unit, both areal and stratigraphic, define the extent of paleontological potential. The review indicates that, in general, geologic units sensitive for paleontological resources are widespread in the plan area, particularly in the Sacramento Valley and adjacent lower foothills.

The SVP has established guidelines for the identification, assessment, and mitigation of adverse impacts on nonrenewable paleontological resources (SVP 2010). These guidelines represent the accepted standard of care for paleontological resources. In accordance with these guidelines, assessments of the scientific significance of fossilized remains are based on whether they can provide data on the taxonomy and phylogeny of ancient organisms, the paleoecology and nature of paleo environments in the geologic past, or the stratigraphy and age of geologic units. Because most vertebrate fossils are rare, they are considered important paleontological resources. Conversely, marine invertebrates are generally common, the fossil record is well developed and well documented, and they would generally not be considered an important paleontological resource. Substantial damage to or destruction of significant paleontological resources as defined by the SVP (2010) would represent a significant impact.

The criteria outlined by the SVP screen the paleontological potential of rock units and establish assessment and mitigation procedures tailored to such potential. Based on professional judgment and the SVP guidelines, impacts have been assessed below at the program-level and take into consideration potential direct or indirect impacts that may occur to known and unknown paleontological resources in the plan area of the proposed MTP/SCS as a result of future ground-disturbing activities related to planned transportation improvements, including new roads, interchanges, widenings, and rail transit alignments; to proposed projected land use pattern, including residential and commercial construction; and during future ongoing operations.

The analysis assumes implementing agencies would ensure cultural, paleontological, and tribal cultural resources are treated in accordance with applicable federal, state and local laws and regulations as part of project planning, design and engineering.

7.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

CR-1 Cause a substantial adverse change in the significance of a historical built environment resource pursuant to CEQA Guidelines Section 15064.5;

CR-2 Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5;

CR-3 Directly or indirectly destroy a unique paleontological resource or site;

CR-4 Disturb any human remains, including those interred outside of formal cemeteries;

CR-5 Cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:

i. Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to the criteria set forth in Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe; and/or

CR-6 Eliminate important examples of major periods of California history or prehistory pursuant to CEQA Guidelines Section 15065(a)(1).

A "historical resource" is a term with defined statutory meaning (includes any built environment resource, prehistoric or historic archaeological site, district, tribal cultural resource, or traditional cultural resource recognized as historically or culturally significant (PRC Section 21084.1; 14 CCR Section 15064.5[a])), potential impacts to historical resources of a built environment nature, historical resources of an archaeological nature, and tribal cultural resources are addressed separately in this EIR. While changes to the Appendix G of the State CEQA Guidelines were approved in December 2018 to separate paleontology from cultural resources for consistency with the 2016 MTP/SCS EIR, consideration of paleontological resources is retained in this chapter (SACOG 2016). Direct or indirect impacts to unique geologic features are addressed in Chapter 9 – Geology, Soils, Seismicity, and Mineral Resources.

7.4.3 Impacts and Mitigation Measures

IMPACT CR-1: CAUSE A SUBSTANTIAL ADVERSE CHANGE IN THE SIGNIFICANCE OF A HISTORICAL BUILT ENVIRONMENT RESOURCE PURSUANT TO CEQA GUIDELINES SECTION 15064.5.

Regional Impacts

This impact concerns potential direct and indirect impacts to historical built environment resources at the regional level. The bulk of potential impacts to historical built environment resources (i.e., historic buildings, structures, features, objects, districts, and landscapes) would likely occur during the construction of new land uses and new transportation improvements although new operational changes may also impact the historic character of these resources. The potential for future projects stemming from the proposed MTP/SCS to directly or indirectly impact historical built environment resources would, in general, vary by the development area type or location of transportation improvement. Historical built environment resources are more prevalent in areas that were initially developed more than 50 years ago, including historic downtown or main street areas such as downtown Sacramento, Auburn, and Placerville. Concentrations of historic buildings or structures and the presence of historic districts is thus more likely in Center and Corridor Communities than in Developing Communities, which are more likely to be located in previously undeveloped areas.

Although historical built environment resources may be more prevalent in older developed areas, they may be present in all Community Types. Outside of urban areas, examples of historical built environment resources include historic mines, rural residences and barns, roads, bridges, canals, and rural landscapes.

As presented in the setting section of this chapter, numerous historically significant built environment resources within the plan area of the proposed MTP/SCS are listed in the NRHP or CRHR, are recognized as eligible for listing in the NRHP or CRHR, or are recognized as historically significant by local governments, and thus meet the definition of a historical resource. It is likely there are additional historical built environment resources (i.e., historic buildings, structures, features, objects, districts, and landscapes) located in the plan area whose historic significance has not previously been assessed or documented. Built environment resources of historic importance that have recently achieved 50 years in age, or would soon achieve 50 years of age, that are located in urban settings or in less developed areas may not have been inventoried and thus may not be currently listed in federal, state, or local records.

This analysis identifies four potential areas where impacts to built environment historical resources could arise: direct permanent impacts resulting from construction, direct permanent impacts resulting from new operational changes, indirect permanent impacts resulting from new visual elements, and indirect temporary or permanent impacts resulting from noise and vibration associated with construction and operation of projects under the proposed MTP/SCS. Each of these areas is discussed below.

Direct permanent impacts by ground-disturbing and other activities associated with construction may include damage, physical demolition, destruction, relocation, or alteration of historical buildings or structures or the historic character of their physical surroundings, which could result in a substantial adverse change to historically significant built environment resources. In and around downtown city cores where historic districts may be located, construction may have a relatively higher potential to directly impact built environment historical resources. New highway or light rail segments through historic districts, for example, may constitute a significant impact if contributing elements to the district are directly or indirectly impacted, whereas improvements within existing rights-of-way are less likely to affect historical built environment resources.

Direct permanent impacts would be significant if a building or structure recognized as historically significant is removed or substantially modified in a manner inconsistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Grimmer 2017). If alterations of a historical built environment resource would cause that resource to lose its ability to convey its historic significance (e.g., removing distinctive bridge elements and/or features, altering the spatial relationship of contributing elements in a historic district or historic landscape, or changing the path of a historic railroad line), this direct impact may be addressed by design phase planning to ensure appropriate measures are devised in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* or *Historic Landscapes* (Birnbaum and Peters 1996; Grimmer 2017) that would minimize or reduce significant modifications to the historical resource's character-defining materials and features that could adversely impact the physical integrity of the built resource.

Permanent indirect impacts stemming from construction related to the projected land use pattern and planned transportation improvements or to ongoing operations by the introduction of new visual elements, such as elevated guideways, support columns, light rail platforms, or bridges, along

an established route or by new land uses or new transportation improvements may indirectly diminish the character of the setting that contributes to the historic significance of a historical built environment resource. These indirect impacts may be significant if incompatible with the historic character and viewshed of historical built environment resources. Indirect visual impacts may be addressed through design phase planning to ensure appropriate measures are devised in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* that would minimize or reduce permanent visual impacts that could adversely impact historical built environment resources.

Temporary or permanent indirect impacts could also arise due to noise or vibration levels from new construction and/or ongoing operations. Impacts could arise if the integrity of a built environment resource's significant historic features is diminished, the character of a building's physical features that contribute to its historic significance is changed, or the character of a building's historic use for noise-sensitive activities (e.g., theater, concert hall) is altered. Construction equipment, such as large bulldozers, pile drivers, or drill rigs, produce noise and vibration levels that may potentially have indirect adverse effects. New or expanded rail operations have the potential to result in substantial vibration and noise that could expose historic buildings or structures to excessive ground-borne vibrations or ground-borne noise, whereas vehicular traffic on roadways is rarely the source of vibration and ground-borne noise because vehicles are supported on spring suspension and pneumatic tires. If avoidance of a historical built environment resource is infeasible, these indirect impacts may also be addressed by design phase planning to ensure appropriate measures are devised in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* that would minimize or reduce significant noise or vibration levels that could adversely impact historical built resources.

Together, the potential direct regional impacts on historical built environment resources related to construction and operation of the projected land use pattern and planned transportation improvements that could result in modification or removal of a historical resource, and indirect impacts from new visual elements or from noise and vibration from construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact CR-1. Mitigation is required. Mitigation Measure CR-1 is described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities could potentially impact historical built environment resources due to direct impacts related to construction and operation of the projected land use pattern and proposed transportation improvements that could result in modification or removal of a historical resource, and indirect impacts from new visual elements or from noise and vibration from construction projects and ongoing operations.

Therefore, the potential direct and indirect localized impacts on historical built environment resources related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact CR-1. Mitigation is required. Mitigation Measure CR-1 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the proposed MTP/SCS planning period, the proposed MTP/SCS does not forecast any the projected land use pattern in Lands Not Identified for Development in the proposed MTP/SCS by 2040. Therefore, potential local impacts on historical built environment resources related to the projected land use pattern from construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS on Lands Not Identified for Development are considered less-than-significant (LS) for Impact CR-1. No mitigation is required.

The proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040. The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. The localized impacts associated with implementation of transportation improvements in the proposed MTP/SCS are the same in Lands Not Identified for Development in the MTP/SCS as described in the regional impacts discussion above. Transportation projects in this area could potentially impact historical built environment resources due to direct impacts related to construction and operation of planned transportation improvements that could result in modification or removal of a historical resource, and indirect impacts from new visual elements or from noise and vibration from construction projects and ongoing operations. Therefore, the potential direct and indirect localized impacts on historical built environment resources related to planned transportation improvements from implementation of the proposed MTP/SCS on Lands Not Identified for Development are considered potentially significant (PS) for Impact CR-1. Mitigation is required. Mitigation Measure CR-1 is described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in the HFTAs could potentially impact historical built environment resources due to direct impacts related to construction and operation of land use and planned transportation improvements that could result in modification or removal of a historical resource, and indirect impacts from new visual elements or from noise and vibration from construction projects and ongoing operations.

Therefore, the direct and indirect potential impacts in HFTAs on historical built environment resources related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the HFTA level are considered potentially significant (PS) for Impact CR-1. Mitigation is required. Mitigation Measure CR-1 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measure at a project level would reduce the impacts to historical built environment resources, and agencies with jurisdiction to adopt these measures should do so (PRC Section 21081).

Mitigation Measure CR-1: Conduct project-specific historic built environment resource studies and identify and implement project-specific mitigation.

Measures that shall be implemented, where feasible and necessary to address site-specific impacts, include, but are not limited to, the following:

- As part of the project/environmental review of individual projects, a records search at the appropriate Information Center of the CHRIS and a review of literature and historic maps shall be conducted to determine whether the project area has been previously surveyed and whether historic built environment resources were identified.
- In the event the records indicate that no previous survey has been conducted within the last five years, a qualified architectural historian (36 CFR Section 61) shall conduct a study of the project area for the presence of historic built environment resources. The study shall include conducting a field survey, necessary background, archival and historic research, consultation with local historical societies, museums or other interested parties as relevant, and preparation of a Historic Resource Assessment Report. The report shall document the results of the survey and the historic context, evaluate the federal, state, or local significance of built environment resources greater than 45 years in age[2] that may potentially be directly or indirectly impacted by project activities, recommend appropriate protection or mitigative treatment, if any, and include recordation of identified built environment resources on appropriate California Department of Parks and Recreation (CDPR) series 523 forms. The final report and CDPR forms shall be filed by the architectural historian with the CHRIS. Recommended treatment for historical built environment resources identified in the report shall be implemented.
- If no significant historic built environment resources are identified in the Historic Resource Assessment Report or prior survey of the project study area that may be directly or indirectly impacted by project activities, then mitigation for built environment resources is complete, and there is no adverse change to documented historical built environment resources for the project.
- If significant historic built environment resources are identified in the Historic Resource Assessment Report or prior survey of the project study area, the project sponsor and/or implementing agency should consider avoidance as the primary mitigation measure. If avoidance is possible, mitigation to documented historical built environment resources is complete.
- If avoidance of a significant built environment resource is not feasible, then the maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, or reconstruction of the historical resource, as recommended by a qualified architectural historian or historic architect (36 CFR Section 61) and conducted in a manner consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitation, Restoring, and Reconstructing Historic Buildings* or *Historic Landscapes* shall generally reduce impacts (Birnbaum and Peters 1996; Grimmer 2017). If adherence to the

[2] California's OHP recommends built environment resources constructed more than 45 years before the proposed start date of a project be considered during the evaluation process (OHP 1995). Early consideration before a resource reaches 50 years allows a sufficient period of time for project planning and design.

Secretary of the Interior's Standards cannot avoid materially altering in an adverse manner the physical characteristics or historic character of the surrounding environmental setting that contribute to a resource's historic significance, additional mitigation may be required.

- If avoidance of or minimization of substantial adverse effects to a significant built environment resource is not feasible through project design or by adherence to the *Secretary of the Interior's Standards*, the project sponsor and/or implementing agency should ensure that Historic American Buildings Survey (HABS), Historic American Engineering Record (HAER), or Historic American Landscapes Survey (HALS) documentation is completed prior to demolishment or significant material alteration of the resource's physical characteristics or setting. The HABS, HAER, and HALS programs formally document historical resources through the use of large-format photography, measured drawings, written architectural descriptions, and historical narratives. The level of documentation required as mitigation and preparation of the HABS, HAER, or HALS shall be determined and prepared by a qualified architectural historian or historic architect (36 CFR Section 61). The documentation packages shall be archived in appropriate public and secure repositories. Such documentation would not reduce the impact to a less-than-significant level.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact CR-1 may be reduced, but not to a less-than-significant level, because removal of a historically significant building or structure or the loss of character-defining features could still occur.

By implementation of this mitigation measure during project-level planning and design, direct impacts to historical built environment resources may be reduced to a less-than-significant (LS) level by avoidance or project redesign, by minimizing physical alterations, or by designing building use while retaining a property's historic character. The entire removal of a historically significant building or structure and/or the loss of character-defining features, however, would result in a significant and unavoidable (SU) direct impact. Indirect impacts to historical built environment resources may be reduced to a less-than-significant (LS) level by project-level planning designed to minimize or reduce permanent visual impacts and significant noise or vibration levels.

For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant. However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact CR-1 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT CR-2: CAUSE A SUBSTANTIAL ADVERSE CHANGE IN THE SIGNIFICANCE OF AN ARCHAEOLOGICAL RESOURCE PURSUANT TO CEQA GUIDELINES SECTION 15064.5.

Regional Impacts

This impact concerns potential direct and indirect impacts to historical or unique archaeological resources at the regional level. Potential impacts to archaeological resources are more likely to occur during the construction of new land uses and new transportation improvements rather than during

ongoing operations, and may vary by the Community Type or location of the projected land use pattern or planned transportation improvements. Archaeological resources are more likely to have been destroyed within historic urbanized and commercial areas, namely the Center and Corridor Communities, although this does not preclude the presence in urban settings of buried archaeological resources that may be significant. A greater number of surficial and buried archaeological resources are more likely to have been previously documented in the Established Communities, particularly since the enactment of CEQA in 1970, and to be found and not yet documented within Developing Communities, which tend to be presently undeveloped.

As presented in the setting section of this chapter, numerous archaeological resources within the plan area of the proposed MTP/SCS are listed in the NRHP or CRHR, are recognized as eligible for listing in the NRHP or CRHR, are listed in local historical registers, or are recognized as historically significant by local governments, and thus meet the definition of a historical resource. According to the DOE and HPD master lists maintained by the OHP, there are more than 330 historical resources of an archaeological nature in the plan area of the proposed MTP/SCS. This total may not reflect additional archaeological sites that are included in local registers or are otherwise recognized as historically significant by local governments. Also, several of these prehistoric and historic archaeological sites may include human remains or are traditional cultural places. In addition, it is likely there are other prehistoric, ethnohistoric, and historic-period archaeological resources in the plan area of the proposed MTP/SCS that have not been documented or evaluated for listing in the NRHP, CRHR, or local registers, or that may be considered unique archaeological resources. Large portions of the plan area have not been subjected to archaeological survey and may contain significant archaeological resources, on the surface or at depth. Additionally, there are likely a considerable number of documented archaeological resources that have not yet been evaluated for eligibility for listing in the NRHP, CRHR, or local registers.

This analysis identifies three potential areas where impacts to archaeological resources could arise: direct permanent impacts resulting from construction, direct permanent impacts resulting from new operational changes, and indirect permanent impacts resulting from access-related damage associated with construction and operation of the projected land use pattern and planned transportation improvements under the proposed MTP/SCS. Each of these areas is discussed below.

Direct permanent impacts to significant archaeological resources may result from ground disturbance associated with construction, such as grading and excavation. The development of new transportation facilities, construction of additional lanes, or the projected land use pattern stemming from the proposed MTP/SCS may have a relatively higher potential to directly impact archaeological resources, primarily through excavation in previously undisturbed soil and the disturbance of buried resources that have not been previously identified. The potential for permanent direct impacts to historical and unique archaeological resources may be comparatively less for improvements to existing facilities and modifications to existing rights-of-way since these areas have been previously disturbed. Regardless of prior disturbance, however, excavation at depth has the potential to directly impact undocumented archaeological resources.

The buried nature of archaeological materials, deposits or features makes accurate prediction of their location during project planning difficult, resulting in their inadvertent discovery during project-related ground disturbance. The Sacramento Valley floodplains and the banks of rivers and large streams in the valley and adjacent foothills were occupied and used during the prehistoric,

ethnohistoric, and historic periods with the result that archaeological resources, including human remains, are widespread and numerous within the plan area of the proposed MTP/SCS. River and stream drainages were often the prime locations for Native American village sites or processing camps, and for mining camps, ranches and farms, towns, and streamside transportation networks during the historic period. Prehistoric sites frequently took the form of mounds raised above the natural ground surface, but the upper portions of many of these sites are no longer visible—destroyed by modern agricultural practices, land reclamation, dam and levee construction, hydraulic or dredge mining, or Euro-American settlement. Intermittent flooding has also deposited layers of alluvium and buried intact archaeological sites below grade with no surface manifestations. In the first decade of the 21st century, for example, Native American burials and artifacts were found from seven to 12 feet below the surface during construction for a section of light rail and for a new City Hall in downtown Sacramento. Features of historic-era archaeological sites, such as privies, trash pits, wells, foundations, and burials, have also been concealed by later land uses and discovered during subsequent development.

Direct permanent impacts would be significant if historical or unique archaeological resources cannot be avoided or preserved in place by project design or redesign and are destroyed or substantially altered. Disturbance of, damage to, or substantial alteration or removal of archaeological materials or features would compromise the physical integrity and information potential of an archaeological deposit. Disturbance may result in a significant impact if the resource is listed in or is eligible for listing in the NRHP, CRHR or local registers and its contributing physical characteristics or the character of its physical setting is destroyed or substantially altered. This permanent direct impact may be addressed by advance project planning to ensure known historical or unique archaeological resource are avoided and preserved in place, and by project-redesign to avoid and preserve significant archaeological resources discovered inadvertently during project construction.

Permanent indirect impacts from construction and operational improvements may result from potential access-related damage to archaeological resources when public accessibility is increased because of the projected land use pattern or planned transportation improvements of the proposed MTP/SCS. The likelihood of unauthorized artifact collecting and destruction (intentional or unintentional) of prehistoric, ethnohistoric, and historic archaeological sites or features increases with ease of access. Recreational use, overland vehicle travel, and vandalism of archaeological sites degrade the integrity of these resources and can affect their eligibility to the NRHP, CRHR, or local registers. Ensuring appropriate measures are devised during project planning that would minimize or reduce damage to historical or unique archaeological resources may reduce indirect access-related impacts.

Together, the potential direct regional impacts on historical or unique archaeological resources related to the projected land use pattern and planned transportation improvements that could result in substantial alteration or removal of an archaeological resource, and indirect regional impacts from access-related damage from construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact CR-2. Mitigation is required. Mitigation Measures CR-2 and CR-3 are described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities could potentially impact historical or unique archaeological resources due to direct impacts related to the projected land use pattern and planned transportation improvements that could result in substantial alteration or removal of an archaeological resource, and indirect impacts from access-related damage from construction projects and ongoing operations.

Therefore, the potential direct and indirect localized impacts on historical or unique archaeological resources related to the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS in the Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Community Types are considered potentially significant (PS) for Impact CR-2. Mitigation is required. Mitigation Measures CR-2 and CR-3 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Therefore, potential impacts on historical and unique archaeological resources related to the projected land use pattern from implementation of the proposed MTP/SCS on Lands Not Identified for Development are considered less-than-significant (LS) for Impact CR-2. No mitigation is required.

The proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040. The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. The localized impacts associated with implementation of planned transportation improvements in the proposed MTP/SCS are the same in Lands Not Identified for Development in the MTP/SCS as described in the regional impacts discussion above. Transportation projects in this area could potentially impact historical or unique archaeological resources due to direct impacts related to land use and planned transportation improvements that could result in substantial alteration or removal of an archaeological resource, and indirect impacts from access-related damage from construction projects and ongoing operations. Therefore, the potential local impacts on historical and unique archaeological resources related to planned transportation improvements from implementation of the proposed MTP/SCS on Lands Not Identified for Development are considered potentially significant (PS) for Impact CR-2. Mitigation is required. Mitigation Measures CR-2 and CR-3 are described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impacts

discussion above. The projected land use pattern and planned transportation improvements in the HFTAs could potentially impact historical or unique archaeological resources due to direct impacts related to land use and planned transportation improvements that could result in substantial alteration or removal of an archaeological resource, and indirect impacts from access-related damage from construction projects and ongoing operations.

Therefore, the potential direct and indirect impacts in HFTAs on historical or unique archaeological resources related to the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS at the HFTA level are considered potentially significant (PS) for Impact CR-2. Mitigation is required. Mitigation Measures CR-2 and CR-3 are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project level would reduce the impacts to historical or unique archaeological resources, and agencies with jurisdiction to adopt these measures should do so (PRC Section 21081).

Mitigation Measure CR-2: Conduct project-specific archaeological resource studies and identify and implement project-specific mitigation.

Measures that shall be implemented, where feasible and necessary to address site-specific impacts, include, but are not limited to, the following:

- As part of the appropriate project/environmental review of individual projects, the NAHC shall be consulted to determine whether known sacred sites are in the project area, and to identify Native Americans to contact to obtain information about the project area and relevant areas of cultural sensitivity. Additional consultation with relevant tribal representatives may be appropriate regarding known prehistoric sites, traditional cultural places, TCPs, project areas deemed highly sensitive for prehistoric or ethnohistoric resources, or where avoidance of impacts to prehistoric or ethnohistoric resources may be infeasible.
- A records search at the appropriate Information Center of the CHRIS shall be conducted by a qualified archaeologist (36 CFR Section 61) as part of the appropriate project/environmental review of individual projects to determine whether the project area has been previously surveyed and whether archaeological resources were identified.
- In the event the records indicate that no previous survey has been conducted or the survey did not meet current professional standards or regulatory guidelines, the qualified archaeologist (36 CFR Section 61) or the Information Center shall make a recommendation on whether a survey is warranted based on the sensitivity of the project area for archaeological resources and current professional standards or regulatory guidelines.
- If a survey is considered warranted, the archaeological study of the project area by a qualified archaeologist shall include conducting a field survey, necessary background research, a Sacred Lands search by the NAHC and consultation with local Native Americans identified by the NAHC, consultation with local historical societies, museums or other interested

parties as relevant, and an Archaeological Survey Report. The confidential report shall document the results of the survey and the cultural context, assess the federal, state, or local significance of prehistoric, traditional, or historic-era archaeological resources that may potentially be directly or indirectly impacted by project activities, provide appropriate management recommendations, and include recordation of identified archaeological resources on appropriate California DPR series 523 forms. Management recommendations may include but not be limited to additional studies to evaluate identified sites, treatment for documented historical resources, or archaeological monitoring during ground-disturbing construction activities at locations determined by the archaeologist to be sensitive for subsurface cultural resource deposits, including local Native American monitors if sensitive for prehistoric resources. The final confidential report and DPR forms would be filed by the archaeologist with the CHRIS. Recommended treatment for historical resources identified in the report should be implemented.

- If no archeological resources are identified in the Archeological Survey Report that may be directly or indirectly impacted by project activities, mitigation is complete as there would be no adverse change to documented archeological resources.
- When a project would impact a known archaeological site, the project sponsor and/or implementing agency shall determine whether the site is a historical resource (CEQA Guidelines Section 15064.5(c)(1)). If archaeological resources identified in the project area are considered potentially significant, the project sponsor and/or responsible implementing agency shall undertake additional studies overseen by a qualified archaeologist (36 CFR Section 61) to evaluate the resources eligibility for listing in the CRHR, NRHP, or local register and to recommend further mitigative treatment. Evaluations shall be based on, but not limited to, surface remains, subsurface testing, or archival and ethnographic resources, on the framework of the historic context and important research questions of the project area, and on the integrity of the resource. If a site to be tested is prehistoric, local tribal representatives should be afforded the opportunity to monitor the ground-disturbing activities. Appropriate mitigation may include curation of artifacts removed during subsurface testing.
- If significant archaeological resources that meet the definition of historical or unique archaeological resources are identified in the project area, the preferred mitigation of impacts is preservation in place (CEQA Guidelines Section 15126.4(b); PRC Section 21083.2). Preservation in place may be accomplished by, but is not limited to, avoidance by project design, incorporation within parks, open space or conservation easements, covering with a layer of sterile soil, or similar measures. If preservation in place is feasible, mitigation is complete. Additionally, where the implementing agency determines that an alternative mitigation method is superior to in-place preservation, the project sponsor and/or implementing agency may implement such alternative measures.
- When preservation in place or avoidance of historical or unique archaeological resources are infeasible, data recovery through excavation shall be required (CEQA Guidelines Section 15126.4(b)). Data recovery would consist of approval of a Data Recovery Plan and archaeological excavation of an adequate sample of site contents so that research questions applicable to the site can be addressed. For prehistoric sites, local tribal representatives should be afforded the opportunity to monitor the ground-disturbing activities. If only part of a site would be impacted by a project, data recovery shall only be necessary for that portion of the site. Data recovery shall not be required if the implementing agency

determines prior testing and studies have adequately recovered the scientifically consequential information from the resources. Confidential studies and reports resulting from the data recovery shall be deposited with the appropriate CHRIS Information Center. Archaeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5 Health and Safety Code or the provisions of NAGPRA on federal or tribal lands. Mitigation may include curation for artifacts removed during data recovery excavation.

- If archaeological resources are discovered during construction, all work near the find shall be halted and the project sponsor and/or implementing agency shall follow the steps described under CEQA Guidelines Section 15064.5(f), including an immediate evaluation of the find by a qualified archaeologist (36 CFR Section 61) and implementation of avoidance measures or appropriate mitigation if the find is determined to be a historical resource or unique archaeological resource. Consultation with or affording local tribal representatives the opportunity to monitor mitigative treatment may be appropriate. Should the find include human remains, the remains shall be treated in accordance with the provisions of Section 7050.5 of the Health and Safety Code or the provisions of NAGPRA on federal or tribal lands. During evaluation or mitigative treatment, ground disturbance and construction work could continue on other parts of the project area.

Mitigation Measure CR-3: Reduce visibility or accessibility of historical or unique archaeological resources.

The project sponsor and/or implementing agency shall determine whether or not implementation of a project would indirectly impact historical or unique archaeological resources by increasing public visibility and ease of access. If so, the project sponsor and/or implementing agency shall take measures to reduce the visibility or accessibility of the historical or unique archaeological resource to the public. Visibility of the resource can be reduced through the use of decorative walls or vegetation screening. Accessibility can be reduced by installing fencing or vegetation barriers, particularly noxious vegetation such as poison oak or blackberry bushes. It is important to avoid creating an attractive nuisance when protecting significant archaeological sites. Conspicuous walls or signs indicating that an area is restricted may result in more attempts to access the excluded area.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts these mitigation measures, Impact CR-2 may be reduced, but not to a less-than-significant (LS) level, because destruction or substantial alteration of the contributing physical characteristics or character of the physical setting of a historical or unique archaeological resource could still occur.

By implementation of these mitigation measures, direct impacts to historical or unique archaeological resources may be reduced to a less-than-significant (LS) level by avoiding or preserving in place known historical or unique archaeological resources through project design, and by avoiding or preserving inadvertent discoveries of significant archaeological resources through project redesign. If avoidance or preserving in place is infeasible, direct impacts may be reduced to a less-than-significant (LS) level by minimizing disturbance or undertaking additional investigation to determine the significance and integrity of the portion of the archaeological resource within the project area. The destruction or substantial alteration of the contributing physical characteristics or

character of the physical setting of a historical or unique archaeological resource, however, would result in a significant and unavoidable (SU) direct impact. Indirect impacts to historical or unique archaeological resources may be reduced to a less-than-significant (LS) level by project-level planning designed to reduce public visibility and accessibility.

For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would likely reduce the impact to less than significant. However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact CR-2 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT CR-3: DIRECTLY OR INDIRECTLY DESTROY A UNIQUE PALEONTOLOGICAL RESOURCE OR SITE.

Regional Impacts

This impact concerns potential impacts to paleontological resources at the regional level. The potential to impact paleontological resources within the plan area of the proposed MTP/SCS does not, in general, vary by the Community Type or location of planned transportation improvements as paleontological resources may be present due to the presence of sensitive geological units, not due to the overlying land use. Although surficial paleo-resources may have been disturbed and obscured in previously developed areas or in agricultural areas, this does not preclude the potential for buried paleontological resources that generally increases with depth.

As discussed in the setting section of this chapter, geologic units considered sensitive for paleontological resources are widespread in the plan area of the proposed MTP/SCS, particularly in the Sacramento Valley and adjacent lower foothills. These units, which preserve a rich vertebrate fauna, include the Pleistocene-aged Riverbank and Modesto formations, the Tehama Formation of Pliocene age, and the Pliocene/late Miocene-aged Mehrten Formation. The limestone cave deposits of the Calaveras Formation are also highly sensitive for vertebrate fossils, as is the Pliocene/Miocene-aged Sutter Formation, whereas the Eocene-aged Capay Formation is sensitive for marine fossils.

Depending on location, rock units sensitive for paleontological resources may be exposed on the surface by fluvial actions or as outcrops, found at depth beneath younger sediments, or found beneath only a thin veneer of surficial soils or Holocene fan or alluvial deposits. During excavations for the Arco Arena (now Sleep Train Arena) in Sacramento in 1989, for example, a significant number of Pleistocene-aged fossilized vertebrate genera, including mammoths, were recovered from the Riverbank Formation at a minimum depth of 12 feet. In contrast, additional fossils of Columbian mammoths found in the Riverbank Formation were discovered exposed along Putah Creek near the City of Davis in 1975 and uncovered only three feet below the surface during trenching in 2004 for an underground pipeline near the City of Elk Grove.

Potential impacts to paleontological resources would be more likely to occur from ground-disturbing activities associated with land use and transportation improvement changes rather than during ongoing operations. Land use or transportation improvement operations from implementation of

the proposed MTP/SCS would not cause any ground-disturbing activities or destruction of paleontological resources.

Direct permanent impacts to paleontological resources from the projected land use pattern and planned transportation improvements as a result of the proposed MTP/SCS may result from ground disturbance associated with construction. Ground-disturbing activities such as excavation for building foundations and bridges, trenching for utility lines, tunneling, and grading, could damage or destroy sensitive paleontological resources on or near the surface or at depth. Construction in previously undisturbed areas and deep excavation activities would have the greatest probability to impact intact buried paleoresources. The potential for direct impacts to paleoresources may be comparatively less for improvements to existing facilities and modifications to existing rights-of-way since these areas have been previously disturbed. However, any construction in geologic units sensitive for paleontological resources could result in potentially significant damage to or destruction of unique paleontological resources.

Direct permanent impacts may arise if paleontological resources cannot be completely avoided by project design. Substantial damage to or destruction of significant paleontological resources as defined by the SVP (2010) would represent a significant impact. Excavation of the sediments and any significant fossils could destroy or degrade the condition of the fossils; additionally, the nature of project excavation would cause any fossils to be removed from their stratigraphic context, thereby reducing the scientific usefulness of the fossil. The extensive distribution and presence of rock units below the ground surface that may contain significant fossilized remains makes it difficult to predict the location of paleontological resources during the project planning phase, and thus increases the likelihood of inadvertent discovery of significant paleontological resources during construction and ground-disturbing activities.

Together, the potential direct regional impacts on paleontological resources related to the projected land use pattern and planned transportation improvements that could result in substantial alteration or removal of a significant paleontological resource from construction activities and ongoing operations resulting from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact CR-3. Mitigation is required. Mitigation Measure CR-4 is described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities could potentially impact paleontological resources due to direct impacts related to land use and transportation improvements that could result in substantial alteration or removal of a significant paleontological resource from construction projects and ongoing operations.

Therefore, potential local impacts on paleontological resources related to the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS in the Center and Corridor Communities, Established Communities, Developing

Communities, and Rural Residential Communities Community Types are considered potentially significant (PS) for Impact CR-3. Mitigation is required. Mitigation Measure CR-4 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the proposed MTP/SCS planning period, the proposed MTP/SCS does not forecast any the projected land use pattern in Lands Not Identified for Development in the proposed MTP/SCS by 2040. Therefore, potential local impacts on paleontological resources related to the projected land use pattern from implementation of the proposed MTP/SCS on Lands Not Identified for Development in the proposed MTP/SCS are considered less-than-significant (LS) for Impact CR-3. No mitigation is required.

The proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040. The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. The localized impacts associated with implementation of transportation improvements in the proposed MTP/SCS are the same in Lands Not Identified for Development in the MTP/SCS as described in the regional impacts discussion above. Transportation projects in this area could potentially impact paleontological resources due to direct impacts related to planned transportation improvements that could result in substantial alteration or removal of a significant paleontological resource from construction projects and ongoing operations. Therefore, potential local impacts on paleontological resources related to transportation improvements from implementation of the proposed MTP/SCS on Lands Not Identified for Development are considered potentially significant (PS) for Impact CR-3. Mitigation is required. Mitigation Measures CR-4 is described below.

High Frequency Transit Area Impacts

Placer County Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in the HFTAs could potentially impact paleontological resources due to direct impacts related to land use and planned transportation improvements that could result in substantial alteration or removal of a significant paleontological resource from construction projects and ongoing operations.

Therefore, the potential impacts in HFTAs on paleontological resources related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact CR-3. Mitigation is required. Mitigation Measure CR-4 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measure at a project level would reduce the impacts to unique paleontological resources, and agencies with jurisdiction to adopt these measures should do so (PRC Section 21081).

Mitigation Measure CR-4: Conduct project-specific paleontological resource studies and identify and implement mitigation.

Measures that shall be implemented, where feasible and necessary to address site-specific impacts, include but are not limited to:

- The fossil yielding potential of the project area shall be determined by initially identifying the aerial and stratigraphic extents of the local geology, and then by performing a site-specific search of fossil locality records and peer-reviewed literature, as appropriate, by a qualified professional paleontologist, established state clearinghouse such as the UCMP, and/or by an established paleontological repository. A field survey by a qualified professional paleontologist to assess the paleontological sensitivity of the project area may be warranted if the preliminary review is inconclusive.
- If a project area is found to contain or be in the near vicinity of previously identified paleoresources, or to be located within an area of high, moderate, or undetermined paleontological resource sensitivity, the project sponsor and/or implementing agency shall retain a qualified professional paleontologist prior to construction to conduct a survey, as warranted, to locate surface fossil concentrations and to assess the sensitivity of the project area for unique paleontological resources. After completion of the survey, the qualified paleontologist shall complete a technical report documenting the results of all work, and include any mitigation recommendations specific to the project. This study shall comply with standards in the industry such as the Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontological Resources and applicable regulations (SVP 2010).
- If the study indicates the project area is located in an area rich with paleontological resources, the study may recommend that the project sponsor and/or implementing agency retain a qualified paleontologist to prepare a Paleontology Mitigation Plan and monitor subsurface disturbance, such as grading, excavation, and trenching. Construction protocols to ensure that contractors take appropriate measures to avoid destroying fossil materials discovered during construction shall also be established by the project sponsor and/or implementing agency.
- Any area of known unique paleontological resources within a project area shall be avoided during construction if feasible. If avoidance of known resources is infeasible or a project has been identified as potentially directly or indirectly impacting, damaging or destroying a unique paleontological resource, treatment measures for nonrenewable unique paleontological resources may include appropriate documentation and/or salvage measures for fossils, microfossils, or matrix in consultation with the project sponsor and/or implementing agency. Treatment shall comply with regulatory requirements. Measures may include plans for sampling and data recovery. All final documentation of mitigation treatment for paleontological resources to be impacted by the project shall be approved by the project sponsor and/or implementing agency prior to the initiation of any project ground-disturbing activities.
- If fossils or other paleontological resources are encountered during construction, all work shall be halted within a minimum 30-foot radius of the find and a qualified paleontologist shall be contacted to examine the find and evaluate its significance. If the find is deemed to have significant scientific value, the paleontologist and the project sponsor and/or

implementing agency shall coordinate with the property owner to formulate a plan to either avoid impacts, document the resource, or to continue construction without disturbing the integrity of the find (e.g., by excavating the material containing the resources). Consistent with regulatory requirements, recommendations determined by the qualified professional paleontologist, project sponsor, and/or implementing agency to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact CR-3 may be reduced, but not to a less-than-significant level, because destruction of or substantial damage to a scientifically significant paleontological resource could still occur.

By implementation of this mitigation measure, direct impacts to paleontological resources may be reduced to a less-than-significant (LS) level by avoiding a paleontological resource, by minimizing disturbance and/or investigation of an inadvertent discovery, by pre-construction surface salvage of significant paleontological resources, or by recovering resources and data about the resources when avoidance is infeasible. The destruction of or substantial damage to a scientifically significant paleontological resource, however, would be a significant and unavoidable (SU) direct impact.

For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would likely reduce the impact to less than significant. However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact CR-3 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT CR-4: DISTURB ANY HUMAN REMAINS, INCLUDING THOSE INTERRED OUTSIDE OF FORMAL CEMETERIES.

Regional Impacts

This impact concerns potential impacts to human remains, including Native American remains, at the regional level. As discussed below, potential impacts to human remains, including remains that may not be interred in marked, formal burial locations, would be limited to construction; no post-construction, operational impacts are expected.

The six-county plan area of the proposed MTP/SCS has been inhabited by humans for at least 10,000 years and the remains of indigenous Californians and non-Native Americans have been discovered throughout this region outside of formal cemeteries. It is not always possible to predict where undocumented human remains may occur outside of formal cemeteries. As discussed under Impact CR-2, archaeological sites, including sites with human remains, have been buried by alluvial deposition and also truncated or buried during the historic period by agricultural practices, land reclamation, dam and levee construction, hydraulic or dredge mining, and Euro-American settlement. Archaeological sites and Native American burials and associated artifacts that have been buried below grade have no surface manifestations. Prehistoric, ethnohistoric, and historic-era

archaeological sites all have the potential to include human remains. Sites with human remains are highly important and are typically considered to be significant.

It is possible that excavation and project-related construction activities from the projected land use pattern and planned transportation improvements as a result of the proposed MTP/SCS may inadvertently impact human remains and associated grave goods not interred in cemeteries or marked, formal burial locations. The potential for inadvertent discovery of human remains may vary by Community Type or location of transportation improvements. The potential for discovery may be higher in areas with little previous disturbance, in previously undisturbed areas, or in areas where alluvial sediments have covered and preserved them, but excavation and other ground-disturbing activities, irrespective of depth, have the potential to encounter human remains.

As discussed in the regulatory setting discussion above and repeated under the methods and assumptions section of this chapter, state and federal regulations set forth specific requirements to address the inadvertent discovery of human remains.

Together, potential impacts on human remains from construction projects and ongoing operations related to the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS are considered less-than-significant (LS) for Impact CR-4 since the implementing agencies are responsible for complying with state and federal regulations regarding human remains. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS are required to comply with state and federal regulations regarding human remains.

Therefore, potential local impacts on human remains related to the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS in the Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development Community Types are considered less-than-significant (LS) for Impact CR-4. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Area s
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in the HFTAs are required to comply with state and federal regulations regarding human remains.

Therefore, potential impacts in HFTAs on human remains related to the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS level are considered less-than-significant (LS) for Impact CR-4. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT CR-5: CAUSE A SUBSTANTIAL ADVERSE CHANGE IN THE SIGNIFICANCE OF A TRIBAL CULTURAL RESOURCE.

Regional Impacts

This impact concerns potential direct and indirect impacts to TCRs at the regional level. Potential impacts to TCRs would be more likely to occur during the construction of new land uses changes and new transportation improvements rather than during ongoing operations, and may vary by the Community Type or location of the projected land use pattern or planned transportation improvements. TCRs are more likely to have been destroyed within historic urbanized and commercial areas; namely the Center and Corridor Communities, although this does not preclude the presence in urban settings of buried archaeological resources that may meet the definition of a TCR. A greater number of surficial TCRs and buried archaeological TCRs are more likely to have been previously documented as traditional cultural places, sacred sites, or archaeological sites in the Established Communities, and to be found and not yet documented within Developing Communities, which tend to be presently undeveloped.

As discussed in the setting section of this chapter, the NAHC maintains a confidential inventory of California Native American sacred sites. An unknown number of these sites may meet the TCR definition. An unknown number of sacred sites or TCRs may also be included on the DOE and HPD master lists maintained by the OHP of significant archaeological resources in the plan area of the proposed MTP/SCS. In addition, it is likely there are other TCRs in the plan area that have not been documented or evaluated. Large portions of the plan area have not been subjected to cultural resource survey and may contain TCRs. Additionally, there are likely a number of documented archaeological resources that have not been evaluated as TCRs.

This analysis identifies three potential areas where impacts to TCRs could arise: direct permanent impacts resulting from construction, direct permanent impacts resulting from new operational changes, and indirect permanent impacts resulting from access-related damage associated with construction and operation of projects under the proposed MTP/SCS. Each of these areas is discussed below.

Direct permanent impacts to TCRs may result from ground disturbance associated with construction, such as grading and excavation, for the projected land use pattern and planned transportation improvements stemming from the proposed MTP/SCS. The development of new transportation facilities, construction of additional lanes, or the projected land use pattern stemming from the proposed MTP/SCS may have a relatively higher potential to directly impact TCRs, primarily by grading or excavation in previously undisturbed soil and by the disturbance of buried resources that have not been previously identified. The potential for direct impacts to TCRs may be comparatively less for improvements to existing facilities and modifications to existing rights-of-way since these areas

have been previously disturbed. Regardless of prior disturbance, however, excavation at depth has the potential to directly impact undocumented TCRs of an archaeological nature.

As discussed under Impact CR-2, archaeological sites in the plan area of the proposed MTP/SCS, including those that may meet the TCR definition, have been buried by alluvial deposition and have also been truncated or buried during the historic period by agricultural practices, land reclamation, dam and levee construction, hydraulic or dredge mining, and Euro-American settlement. Archaeological sites that may meet the TCR definition that have been buried below grade have no surface manifestations, making accurate prediction of their location during project planning problematic.

Direct permanent impacts would be significant if TCRs cannot be avoided or preserved in place by project design or redesign and are destroyed or substantially altered. Disturbance of TCR features or places would compromise the traditional use of or the cultural character and integrity of the resource and may result in a significant impact if its contributing characteristics or the character of its physical setting is destroyed or substantially altered. Permanent direct impacts may be addressed by advance project planning and consulting with tribes that have requested consultation to ensure known TCRs are avoided and preserved in place, or to develop project alternatives that would minimize impacts to known TCRs. Permanent direct impacts to TCRs of an archaeological nature discovered inadvertently during project construction may be addressed by project redesign to avoid and preserve the TCR, and by requested tribal consultation focused at minimizing the impact.

Permanent indirect impacts from construction and operational improvements may result from potential access-related damage to TCRs when public accessibility is increased because of the projected land use pattern or new or improved transportation networks stemming from the proposed MTP/SCS. The likelihood of unauthorized artifact collecting and destruction (intentional or unintentional) of TCRs of an archaeological nature, or of damage to or destruction (intentional or unintentional) of TCRs that are traditional places for gathering natural resources, cultural landscapes or sacred places increases with ease of access. Recreational use, overland vehicle travel, and vandalism would degrade the integrity and traditional use of the TCRs. Ensuring appropriate measures that would minimize or reduce damage to TCRs are devised during project planning, coupled with requested tribal consultation, may reduce indirect access-related impacts.

Lead agencies are required, where feasible and necessary to address site-specific impacts, to engage in the following consultation procedures to minimize potential impacts to TCRs:

- The implementing agency shall begin consultation with a California Native American tribe traditionally and culturally affiliated with the project area prior to the release of a Negative Declaration (ND), Mitigated Negative Declaration (MND), or EIR if: (1) the tribe requested in writing to be formally informed of projects in the tribe's traditionally and culturally affiliated area; and (2) the tribe responds, in writing, within 30 days after formal notification from the implementing agency and requests consultation (PRC Section 21080.3.1(b)).
- Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project: the implementing agency shall again formally notify tribes who have requested to be contacted and notify them in writing of the proposed project within their traditionally and culturally affiliated area. Consultation shall occur if a tribe responds to the formal notification by requesting consultation in writing within 30 days.

The implementing agency shall begin the consultation process within 30 days of receiving a tribe's request (PRC Section 21080.3.1(d-e)).

- When a tribe requests consultation regarding alternatives to a project, recommended mitigation measures, or significant effects, then the consultation by the implementing agency shall include those topics. Consultation topics may also include the type of environmental review necessary, the significance of TCRs, the significance of the project's impacts on TCRs, project alternatives that would minimize or avoid impacts to TCRs, or appropriate mitigation or preservation measures that the tribe may recommend to the implementing agency. Consultation shall conclude with agreement on measures to mitigate or avoid a significant effect, if a significant effect exists, on a TCR or, after acting in good faith and after a reasonable effort, a party concludes that mutual agreement cannot be reached (PRC Section 21080.3.2).
- If the project may have a significant impact on a TCR, the implementing agency's environmental document shall discuss the impact and whether feasible alternatives or mitigation measures avoid or substantially lessen the impact on the TCR (PRC Section 21082.3).
- Any information, including, but not limited to, the location, description, and use of TCRs, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the implementing agency or any other public agency to the public, without the prior consent of the tribe that provided the information. If the implementing agency publishes any information submitted by a tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public (PRC Section 21082.3(c)).
- The public agency shall, when feasible, avoid damaging effects to any TCR (PRC Section 21084.3).

The implementing agency may certify an EIR or adopt a ND or MND if: the California Native American tribe traditionally and culturally affiliated with the project area has requested consultation but has failed to provide comments to the implementing agency, or otherwise failed to engage in the consultation process; the tribe has failed to request consultation within 30 days after formal notification of the project by the implementing agency; or after acting in good faith and after a reasonable effort, a party concludes that a mutual agreement cannot be reached on measures to mitigate or avoid a significant effect on a TCR (PRC Section 21082.3(d)).

While there are state requirements in place to minimize adverse impacts to TCRs, there is still the potential for access-related damage associated with construction and operation of projects under the proposed MTP/SCS. Therefore, the potential direct regional impacts on TCRs related to the projected land use pattern and planned transportation improvements that could result in substantial alteration or removal of a TCR, and indirect impacts from access-related damage from construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact CR-5. Mitigation is required. Mitigation Measures CR-5 and CR-6 are described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities could potentially impact TCRs due to direct impacts related to land use and planned transportation improvements that could result in substantial alteration or removal of a TCR, and indirect impacts from access-related damage from construction projects and ongoing operations.

Therefore, the potential direct and indirect impacts on TCRs related to the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS in the Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities Community Types are considered potentially significant (PS) for Impact CR-5. Mitigation is required. Mitigation Measures CR-5 and CR-6 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Therefore, potential impacts on TCRs related to the projected land use pattern from implementation of the proposed MTP/SCS on Lands Not Identified for Development are considered less-than-significant (LS) for Impact CR-5. No mitigation is required.

The proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040. The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. The localized impacts associated with implementation of transportation improvements in the proposed MTP/SCS are the same in Lands Not Identified for Development in the MTP/SCS as described in the regional impacts discussion above. Transportation projects in this area could potentially impact TCRs due to direct impacts related to planned transportation improvements that could result in substantial alteration or removal of a TCR, and indirect impacts from access-related damage from construction projects and ongoing operations. Therefore, the potential impacts on TCRs related to planned transportation improvements resulting from implementation of the proposed MTP/SCS on Lands Not Identified for Development are considered potentially significant (PS) for Impact CR-5. Mitigation is required. Mitigation Measures CR-5 and CR-6 are described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impacts discussion above. Land use and transportation projects in the HFTAs could potentially impact TCRs due to direct impacts related to land use and planned transportation improvements that could result

in substantial alteration or removal of a TCR, and indirect impacts from access-related damage from construction projects and ongoing operations.

Therefore, the potential direct and indirect impacts on TCRs in HFTAs related to the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact CR-5. Mitigation is required. Mitigation Measures CR-5 and CR-6 are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project level would reduce the impacts to TCRs, and agencies with jurisdiction to adopt these measures should do so (PRC Section 21081).

Mitigation Measure CR-5: Conduct project-specific consultation with traditionally and culturally affiliated California Native American tribes to identify tribal cultural resources and implement project-specific mitigation.

If the implementing agency determines that a project may cause a substantial adverse change to a TCR, and measures are not otherwise identified in the consultation process under PRC Section 21080.3.2, the following mitigation measures described at PRC Section 21084.3 shall be implemented, where feasible and necessary, to address site-specific impacts in order to avoid or minimize the significant adverse impacts:

- Avoidance and preservation of the TCRs in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria;
- Treating the TCR with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to: protecting the cultural character and integrity of the resource; or protecting the traditional use of the resource; protecting the confidentiality of the resource;
- Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places; or
- Protecting the resource.

Mitigation Measure CR-6: Reduce visibility or accessibility of tribal cultural resources.

Measures that shall be implemented for projects that have an ND, MND, or EIR include:

- The project sponsor and/or implementing agency shall determine whether or not implementation of a project would indirectly impact TCRs by increasing public visibility and ease of access. If so, the project sponsor and/or implementing agency shall take measures to reduce the visibility or accessibility of the TCR to the public. Visibility of the resource can be

reduced through the use of decorative walls or vegetation screening. Accessibility can be reduced by installing fencing or vegetation barriers, particularly noxious vegetation such as poison oak or blackberry bushes. It is important to avoid creating an attractive nuisance when protecting TCRs. Conspicuous walls or signs indicating that an area is restricted may result in more attempts to access the excluded area.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact CR-5 may be reduced, but not to a less-than-significant level, because destruction or substantial alteration of a TCR or of its contributing cultural and natural context could still occur.

By following state consultation procedures and implementing these mitigation measures, direct impacts to TCRs would be reduced to a less-than-significant (LS) level by avoiding or preserving in place known TCRs through project design, and by avoiding or preserving inadvertent discoveries of archaeological TCRs through project redesign. If avoidance or preserving in place is infeasible, direct impacts would be reduced to a less-than-significant (LS) level by minimizing disturbance or additional investigation needed to determine the significance and integrity of the portion of the resource within the project area and by requested tribal consultation. The destruction or substantial alteration of a TCR or of its contributing cultural and natural context, however, would result in a significant and unavoidable (SU) direct impact. Indirect impacts to TCRs would be reduced to a less-than-significant (LS) level by project-level planning, coupled with requested tribal consultation, designed to reduce public visibility and accessibility.

For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant. However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact CR-5 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT CR-6: ELIMINATE IMPORTANT EXAMPLES OF MAJOR PERIODS OF CALIFORNIA HISTORY OR PREHISTORY PURSUANT TO CEQA GUIDELINES SECTION 15065(A)(1).

Regional Impacts

This impact is addressed in the discussion of Impacts CR-1 through CR-5 above, which address impacts to historical built environment resources, archaeological resources, paleontological resources, human remains, and tribal cultural resources resulting from implementation of the proposed MTP/SCS. Mitigation Measure CR-7 addresses these impacts for CR-1, CR-2, CR-3, and CR-5. No mitigation is required for Impact CR-4 as potential impacts on human remains resulting from implementation of the proposed MTP/SCS are considered less-than-significant (LS) for Impact CR-4 since the implementing agencies are responsible for complying with state and federal regulations regarding human remains.

Therefore, the potential regional impacts of the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS on important examples of

major periods of California history and prehistory are considered potentially significant (PS) for Impact CR-6. Mitigation is required. Mitigation Measure CR-7 is described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS
This impact is addressed in the discussion of Impacts CR-1 through CR-5 above, which address impacts to historical built environment resources, archaeological resources, paleontological resources, human remains, and tribal cultural resources resulting from implementation of the proposed MTP/SCS. Mitigation Measure CR-7 addresses these impacts for CR-1, CR-2, CR-3, and CR-5. No mitigation is required for Impact CR-4 as potential impacts on human remains resulting from implementation of the proposed MTP/SCS are considered less-than-significant (LS) for Impact CR-4 since the implementing agencies are responsible for complying with state and federal regulations regarding human remains.

Therefore, the potential impacts of the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS on important examples of major periods of California history and prehistory within Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS are considered potentially significant (PS) for Impact CR-6. Mitigation is required. Mitigation Measure CR-7 is described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
This impact is addressed in the discussion of Impacts CR-1 through CR-5 above, which address impacts to historical built environment resources, archaeological resources, paleontological resources, human remains, and tribal cultural resources resulting from implementation of the proposed MTP/SCS. Mitigation Measure CR-7 addresses these impacts for CR-1, CR-2, CR-3, and CR-5. No mitigation is required for Impact CR-4 as potential impacts on human remains resulting from implementation of the proposed MTP/SCS are considered less-than-significant (LS) for Impact CR-4 since the implementing agencies are responsible for complying with state and federal regulations regarding human remains.

Therefore, the potential impacts of the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS on important examples of major periods of California history and prehistory within HFTAs are considered potentially significant (PS) for Impact CR-6. Mitigation is required. Mitigation Measure CR-7 is described below.

Mitigation Measures

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of Mitigation Measure CR-7 at a project level would reduce the impacts to important examples of major periods of California history or prehistory (historical built environment resources, archaeological resources, paleontological resources, and

tribal cultural resources), and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure CR-7: Implement Mitigation Measures CR-1 through CR-6.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact CR-6 may be reduced, but not to a less-than-significant level, because elimination of important examples of major periods of California history or prehistory could still occur. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant. However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact CR-6 remains significant and unavoidable (SU) for purposes of this program-level review.

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Chapter 8—Energy and Global Climate Change

8.1 Introduction

This chapter describes existing conditions (environmental and regulatory) and assesses the potential energy and climate change impacts of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). The chapter provides estimated existing and future energy consumption and greenhouse gas (GHG) emission inventories from all sources, and describes the methodology used to make those estimates. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data, analysis, and findings provided in this section were considered and prepared at a programmatic level. Emissions of air pollutants are addressed in Chapter 5 – Air Quality.

The consumption of nonrenewable energy (e.g., gasoline and diesel fuel) results in GHG emissions that ultimately result in anthropogenic (human-caused) climate change. Alternative energy sources such as natural gas, ethanol, and electricity (unless derived from solar, wind, nuclear, or other energy sources that do not produce carbon emissions) also produce GHG emissions that exacerbate global climate change. An overview of climate change, the anticipated impacts of climate change to California, and the climate change impacts of the proposed MTP/SCS are provided in this chapter.

The following sections address GHG emissions, their sources, and impacts on climate change. Statewide policies that address vehicle fuel efficiency are included in the analysis.

In response to the Notice of Preparation (NOP), SACOG received comments related to energy and global climate change from ECOS, Sierra Club (Placer County), and the Sacramento Municipal Utilities District (SMUD). The commenters expressed that the Draft EIR should consider the following:

- encourage member jurisdictions to align their climate actions plans with the MTP/SCS,
- relationship between vehicle miles traveled (VMT) and GHG,
- modeling assumptions that affect GHG projections,
- energy efficiency,
- electrical load needs,
- impacts of climate change, and
- GHG impacts.

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines, Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency

to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

Chapter 5 – Air Quality evaluates the potential impacts related to emissions of air pollutants as they relate to the aforementioned comments. Appendix PD-1 includes all NOP comments received.

8.2 Environmental Setting

8.2.1 An Overview of Global Climate Change

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the atmosphere from space. A portion of that radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is also absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations from the burning of fossil fuels and other anthropogenic climate drivers (IPCC 2014:5).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, soils, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-emitted CO_2 emissions remain stored in the atmosphere (IPCC 2013:467).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is enormous (approximately 50,000 million metric tons of carbon dioxide equivalent [$MMTCO_2e$] in 2010). No single project alone would measurably contribute to an incremental change in the

global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

8.2.2 An Overview of Energy Consumption

ELECTRICITY CONSUMPTION

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. In 2016, approximately 71 percent of the electrical power needed to meet California's demand was produced in the state (CEC 2019a). Approximately 29 percent of its electricity demand is imported from the Pacific Northwest and the Southwest (CEC 2019a). In 2017, California's electricity was derived from natural gas (43.4 percent), large hydroelectric resources (17.89 percent), coal (0.15 percent), nuclear sources (8.69 percent), oil (0.02), petroleum coke/waste heat (0.20), and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (29.65 percent) (CEC 2019a).

According to the California Energy Commission (CEC), total statewide electricity consumption increased from 166,979 gigawatt-hours (GWh) in 1980 to 227,606 GWh in 1990. The statewide electricity consumption in 2000 was 261,046 GWh reflecting a growth rate of 1.38 percent between 1990 to 2000 (CEC 2018a). Statewide consumption was 285,434 GWh in 2016, an annual growth rate of 0.56 percent between 2000 and 2016. The SACOG region consumed approximately 18,700 GWh in 2016, roughly 6.4 percent of the state total (CEC 2019b).

Peak electricity demand, expressed in megawatts (MWh), measures the largest electric power requirement during a specified period, usually integrated over one hour. A single MWh is enough power to meet the expected electricity needs of 1,000 typical California homes. Peak demand is important in evaluating system reliability, determining congestion points on the electrical grid, and identifying potential areas where additional transmission, distribution, and generation facilities may be needed. California's peak demand typically occurs in August between 3:00 p.m. and 5:00 p.m. High temperatures lead to increased use of air conditioning, which in combination with industrial loads, commercial lighting, and office equipment comprise the major demand for electricity consumption in the peak demand period in the state. In 2016, peak electricity demand (i.e., energy demand during a period in which electrical power is expected to be provided for a sustained period at a significantly higher than average supply level) for California was 60,543 MWh (CEC 2018b).

Pacific Gas and Electric (PG&E), Roseville Electric, and SMUD provide electricity within the plan area of the proposed MTP/SCS. Each of these electricity providers have individual assets, and also buy power (e.g., brokering) from a diverse mix of generating sources, including fossil-fueled plants, hydroelectric powerhouses, wind and solar farms, and nuclear power plants.

OIL

Gasoline and diesel fuel constitute 83 and 17 percent of petroleum-based fuels sold in California, respectively. According to the state Board of Equalization, 15.58 billion gallons of gasoline and 3.12 billion gallons of diesel were sold in 2016 (CEC 2019c).

California is currently ranked third in the nation among oil producing states. Total crude oil production in California totaled 186,079 thousand barrels annually in 2016, a decline of approximately 13 percent from 2010 (EIA 2019a).

California's refineries are located in the San Francisco Bay Area, the Los Angeles area, and the Central Valley. Imported crude oil is received by tanker, barge, pipeline, rail, or truck at nearly 100 terminals. Most of those are marine terminals. The crude oil is then sent to refineries by pipeline for refining.

NATURAL GAS

In 2016, the SACOG region consumed approximately 526 million therms of natural gas (CEC 2019d). Natural gas supplies are derived from underground sources and brought to the surface at gas wells. Once it is extracted, gas is purified and the odorant that facilitates gas detection is added to the normally odorless gas. Natural gas suppliers, such as PG&E, then send the gas into transmission pipelines, which are usually buried underground. Compressors propel the gas through the pipeline system, which delivers it to homes and businesses.

In 2016, California produced approximately 194,400 million cubic feet of natural gas annually (EIA 2019b). PG&E is the largest publicly-traded (investor-owned) utility in California and provides natural gas for residential, industrial, and agency consumers within the plan area of the proposed MTP/SCS.

8.2.3 Effects of Climate Change

According to the Intergovernmental Panel on Climate Change (IPCC), which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 1.5 degrees Celsius (°C) (2.7 degrees Fahrenheit [°F]) by 2040. This 1.5 degrees of warming represents a global average indicating that portions of the earth will experience more dramatic warming than others. Oceans, which support high specific heat, will experience less dramatic warming as compared to continents, particularly in inland regions.

According to *California's Fourth Climate Change Assessment* (2012), with global GHGs reduced at a moderate rate, California will experience average daily high temperatures that are warmer than the historic average by 2.5 °F from 2006 to 2039, by 4.4 °F from 2040 to 2069, and by 5.6 °F from 2070 to 2100; and if GHG emissions continue at current rates then California will experience average daily high temperatures that are warmer than the historic average by 2.7 °F from 2006 to 2039, by 5.8 °F from 2040 to 2069, and by 8.8 °F from 2070 to 2100 (OPR, CEC, and CNRA 2018:5).

Since the 2012 climate change assessment, California has experienced several of the most extreme natural events in its recorded history: a severe drought from 2012–2016, an almost non-existent Sierra Nevada winter snowpack in 2014-2015, increasingly large and severe wildfires, and back-to-back years of the warmest average temperatures (OPR, CEC, and CNRA 2018:3). According to the California Natural Resources Agency's (CNRA) *Safeguarding California Plan: 2018 Update*, California experienced the driest 4-year statewide precipitation on record from 2012 through 2015 and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018:55). In contrast, the northern Sierra Nevada experienced its wettest year on record during the 2016-2017 water year (CNRA 2018:64). According to the National Oceanic Administration and National

Aeronautics and Space Administration (NOAA), 2016, 2017, and 2018 were the hottest recorded years in history (NOAA 2019). The changes in precipitation exacerbate wildfires throughout California through a cycle of high vegetative growth coupled with dry, hot periods which lowers the moisture content of fuel loads. As a result, the frequency, size, and devastation of forest fires increases. In November 2018, the Camp Fire completely destroyed the town of Paradise in Butte County and caused 85 fatalities, becoming the state's deadliest fire in recorded history. Moreover, changes in the intensity of precipitation events following wildfires can also result in devastating landslides. In January 2018 following the Thomas Fire, 0.5 inches of rain fell over just 5 minutes in Santa Barbara causing destructive mudslides formed from the debris and loose soil left behind by the fire. These mudslides resulted in 21 deaths.

As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which can lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade ranges until spring flow into the Central Valley during winter rainstorm events. This scenario places more pressure on California's levee/flood control system (CNRA 2018:190–192). Furthermore, in the extreme scenario involving the rapid loss of the Antarctic ice sheet and the glaciers atop Greenland, the sea level along California's coastline is expected to rise 54 inches by 2100 if GHG emissions continue at current rates (OPR, CEC, and CNRA 2018:6).

Temperature increases and changes to historical precipitation patterns will likely affect ecological productivity. Existing habitats may migrate from climatic changes where possible, and those that lack the ability to retreat will be severely threatened. Altered climatic conditions dramatically endanger the survival of arthropods, which could have cascading effects throughout ecosystems (Lister and Garcia 2018). Conversely, a warming climate may support the populations of other insects such as mosquitos and ticks, which transmit diseases harmful to human health such as the Zika virus, West Nile virus, and Lyme disease (European Commission Joint Research Centre 2018).

Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure, crop production, forests and rangelands, and public health (CNRA 2018:64, 116–117, 127; OPR, CEC, and CNRA 2018:7–14). The effects of climate change will also have an indirect adverse impact on the economy as more severe natural disasters cause expensive, physical damage to communities and the state.

Additionally, adjusting to the physical changes associated with climate change can produce mental health impacts such as depression and anxiety (Fritze et al. 2008).

The *Sacramento Region Climate Adaptation Plan* identifies increased temperature and changes to historical precipitation patterns as the most likely and adverse primary climate change impacts to affect the plan area of the proposed MTP/SCS. These primary impacts, in turn, stimulate secondary impacts such as wildfire and localized and regional flooding. Due to its proximity to major rivers such as the Sacramento and American rivers, as well as its position within the watersheds of these rivers, the plan area of the proposed MTP/SCS is particularly susceptible to regional flooding impacts (SACOG 2015).

8.2.4 Effects of Energy Consumption Off the Grid

Depending on the source and use of the fuel, the impacts of energy consumption can be far reaching. Electricity generation, and the extraction and consumption of fossil fuels affect air emissions, water quality, solid waste, and land resources. Each of these is described in more detail below.

AIR EMISSIONS

Fossil fuel related energy production can lead to sulfur dioxide, nitrogen oxide, particulates, and CO_2 emissions. These emissions can be responsible for smog, acid rain, and haze. Emissions of particulates can settle on ice and snow, resulting in increased solar absorption and accelerated melting, which increases the effects of climate change in the form of a positive feedback loop.

WATER QUALITY

The production of energy can have an impact on water resources by the use of water for cooling and the creation of steam, the discharge of water after use, and the discharge of pollutants into natural water sources. The impact varies by the source of energy used, and technologies used in energy creation.

SOLID WASTE

Certain technologies used in the generation of energy create solid waste. While some of this can be disposed of in landfills, others like nuclear energy rods, oil sludge, and ash from coal require special handling as they may contain toxic materials.

LAND RESOURCES

Energy production usually requires the use of certain resources. While this varies by source and purpose, it usually entails the extraction of materials, like natural gas, coal, and oil, and/or the siting of large facilities, like nuclear and hydro-electric. The impacts vary from the erosion of land from mining, to the destruction of natural habitat, to contamination and disruption of water systems.

8.3 Regulatory Setting

8.3.1 International Regulations, Plans and Policies

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

The U.S. aligned with other countries around the world in 1994 by signing the United Nationals Framework Convention on Climate Change. Under the convention, governments collaborate and share information on national based policies and best practices related to curbing GHG emissions and adapting to the impacts of climate change.

8.3.2 Federal Regulations, Plans and Policies

CLEAN AIR ACT OF 1970

CAFE Standards

In *Massachusetts et al. v. Environmental Protection Agency et al.*, 549 U.S. 497 (2007), the Supreme Court of the U.S. ruled that CO_2 emission fit within the definition of "air pollutant" under the federal Clean Air Act (CAA) and that the U.S. Environmental Protection Agency (EPA) has the statutory authority to regulate GHG emissions.

In October 2012, EPA and the National Highway Traffic Safety Administration (NHTSA), issued final rules to further reduce GHG emissions and improve corporate average fuel economy (CAFE) standards for light-duty vehicles for model years 2017 and beyond (77 Federal Register [FR] 62624). These rules would increase fuel economy to the equivalent of 54.5 miles per gallon, limiting vehicle emissions to 163 grams of CO_2 per mile for the fleet of cars and light-duty trucks by model year 2025 (77 FR 62630). However, on April 2, 2018, the EPA administrator announced a final determination that the current standards are not appropriate and should be revised. On August 2, 2018, the U.S. Department of Transportation and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule), which would amend existing CAFE standards for passenger cars and light trucks, retaining the current model year 2020 standards through model year 2026 (NHTSA 2018), instead of steadily increasing fuel efficiency and reducing emissions over time. However, at the time of writing this Draft EIR, the SAFE Rule has not been formally adopted by EPA, and California (along with 16 other states) have filed a lawsuit against EPA. The ultimate approval of the SAFE Rule, and the outcome of any pending or potential lawsuits (and how such lawsuits could delay or affect the SAFE Rule's implementation), is unknown at this time. Nor is it known how future motor vehicle emissions will be impacted. Refer to Chapter 5 – Air Quality for more details.

California Greenhouse Gas Waiver

In December of 2005, the California Air Resources Board (CARB) requested, and on June 14, 2011, the EPA granted, an amendment to California's motor vehicle GHG emission standards beginning with model year 2009. The CAA standards require a waiver for states to enact emission standards for new cars. On June 14, 2011, EPA confirmed that CARB's amendments to its motor vehicle GHG emission standards are within the scope of the existing waiver of preemption issued. However, EPA is also proposing, in addition to the SAFE Rule, but as a separate action, to revoke California's waiver that would allow the state to keep the 2021-2025 standards in place. This includes CARB's zero emission vehicle (ZEV) programs. The ultimate revocation of California's waiver, and the outcome of any related lawsuits (and how such lawsuits could delay or affect the rule's implementation), is unknown at this time. Nor is it known how future motor vehicle emissions will be impacted. At the time of writing this Draft EIR, no formal action has been taken. Refer to Chapter 5 – Air Quality for more details.

ENERGY POLICY ACT OF 1992 AND 2005

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of

alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAct. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs. The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

MOVING AHEAD FOR PROGRESS IN THE 21ST CENTURY

Moving Ahead for Progress in the 21st Century (MAP 21) legislation makes significant changes to the framework that directs federal transportation funding, giving more flexibility to recipients, while metropolitan planning organizations (MPOs) establish performance measures and targets to evaluate these investments. This flexibility changes requirements and incentives for spending on sustainable transportation initiatives. The bill is the first significant change to transportation funding since the passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users in 2005.

Specifically, MAP 21 requires MPOs to address performance measures in planning and project selection. Long-range plans are required to include performance targets, and transportation improvement programs must discuss the anticipated effects of selected projects toward achieving the performance targets. In addition, electric vehicle (EV) charging and natural gas fueling stations are expressly authorized uses of funding under the Congestion Mitigation and Air Quality Improvement Program, surface transportation, and highway safety programs.

8.3.3 State Regulations, Plans, and Policies

STATEWIDE GHG EMISSION TARGETS AND CALIFORNIA'S 2017 CLIMATE CHANGE SCOPING PLAN

Reducing GHG emissions in California has been the focus of the state government for approximately two decades (State of California 2018). GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (Assembly Bill [AB] 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32 of 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. Executive Order B-55-18 calls for California to achieve carbon neutrality by 2045 and achieve and maintain net negative GHG emissions thereafter. These targets are in line with the scientifically established levels needed in the U.S. to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (United Nations 2015:3).

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by CARB, outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017a:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential,

and recycling and waste). CARB and other state agencies are currently developing a Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal of Executive Order B-55-18.

The state has also passed more detailed legislation addressing GHG emissions associated with industrial sources, transportation, electricity generation, and energy consumption, as summarized below. Energy consumption, and the regulations that apply to its generation and consumption, are identified within the discussion.

TRANSPORTATION-RELATED STANDARDS AND REGULATIONS

As part of its Advanced Clean Cars program, CARB established more stringent GHG emission standards and fuel efficiency standards for fossil fuel–powered on-road vehicles. In addition, the program's ZEV regulation requires battery, fuel cell, and plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025 (CARB 2016a:15). By 2025, when the rules will be fully implemented, GHG emissions from the statewide fleet of new cars and light-duty trucks will be reduced by 34 percent and cars will emit 75 percent less smog-forming pollution than the statewide fleet in 2016 (CARB 2016b:1).

Executive Order B-48-18, signed into law in January 2018, requires all state entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as 200 hydrogen fueling stations and 250,000 electric vehicle–charging stations installed by 2025. It specifies that 10,000 of these charging stations must be direct-current fast chargers.

CARB adopted the Low Carbon Fuel Standard (LCFS) in 2007 to reduce the carbon intensity of California's transportation fuels. The LCFS applies to fuels used by on-road motor vehicles and by off-road vehicles, including construction equipment (Wade, pers. comm., 2017).

CARB's ZEV programs could be affected if EPA revokes California's waiver that would allow the state to keep the 2021-2025 standards in place. However, as described in Chapter 5 – Air Quality, the ultimate approval date of the SAFE Rule or the revocation of California's waiver, and the outcome of any related lawsuits (and how such lawsuits could delay or affect implementation of the revocation), are all unknown at this time. Nor is it known how future motor vehicle emissions (and ZEV programs) could be impacted. Consequently, the implications of such future potential regulatory actions are speculative at this time. For example, a potential revocation of California's waiver could lead to legal action that could affect the SAFE Rule's applicability to fuel standards within the state. It is also possible that market forces could impact the SAFE Rule's efficacy in California (i.e., market demand for motor vehicle fuel efficiency in California could exceed the minimum fuel economy standards established by the SAFE Rule). Thus, this Draft EIR does not attempt to characterize or predict how SAFE Rule adoption or revocation of California's waiver could affect GHG emissions within the state or the plan area of the proposed MTP/SCS, as such would be speculative and this Draft EIR reflects the baseline conditions at the time the NOP was released.

The Sustainable Communities and Climate Protection Act of 2008

California's Sustainable Communities and Climate Protection Act (SB 375) (Stats. 2008, ch.728) requires MPOs to prepare a SCS that demonstrates how the region will meet its GHG per capita

emissions reduction targets through integrated land use, housing, and transportation planning. Specifically, the SCS must identify a transportation network that is integrated with the forecasted development pattern for the plan area and will reduce GHG emissions (over a 2005 base year) from automobiles and light trucks in accordance with targets set by CARB. In March 2018, CARB established new GHG emissions reduction targets for all MPOs in the state. SACOG's GHG emissions reduction target for Year 2035 was increased from 16 percent to a conditional 19 percent (CARB 2018a). The SACOG 2035 target was reset conditionally to 19 percent based on a pilot test proposed by SACOG staff of an enhanced SCS that recognizes some of the differences between the Sacramento region and the other three large MPOs. If SACOG is not able to secure the funding and commitments to implement the proposed pilot project, CARB staff would evaluate the SCS performance against an 18 percent target.

While increasing the SB 375 targets, CARB also noted that the increase fell short of what was needed to fully achieve state goals on GHG emissions reduction and climate change mitigation. In combination, the staff report and presentation materials to the CARB Board show that in total, the revised SB 375 GHG emissions reduction targets for all of the state's MPOs would result in a statewide reduction of 19 percent (compared to 18 percent from the prior targets), but that a 25 percent reduction was needed to fully meet the GHG emissions reduction goals of the 2017 Scoping Plan (CARB 2018a). The difference between the 19 percent resulting from CARB's updated SB 375 targets and the 25 percent identified need is referred to in other various CARB documents as the "gap."

In the SB 375 target resetting, CARB recognized that additional state action was needed to close this gap. "The recommended targets also recognize that additional State policy and funding tools are being developed to support further VMT reduction that will both help the State overall in achieving needed emission reductions and support MPOs in their ability to achieve higher targets by 2035" (CARB 2018a). The categories of state action to accomplish this, with help of MPOs and other organizations, were: funding mechanisms to incentivize infill development; improved performance analysis to assist agencies in funding supportive transportation projects; expanding investment in transit and active transportation; and pricing policies and programs. A common theme to all the additional actions is the focus on VMT reduction.

Two additional state documents provide context for understanding how these GHG emissions reduction targets relate to the transportation issues discussed in this chapter. One is the *2017 Scoping Plan* itself, which also recognizes that statewide collaboration is needed to address the gap; and further, that the gap in GHG emissions reductions would be closed through VMT reduction strategies (CARB 2017a):

> Discussions among a broad suite of stakeholders from transportation, the building community, financial institutions, housing advocates, environmental organizations, and community groups are needed to begin the process to pursue and develop the needed set of strategies to ensure that we can achieve necessary VMT reductions, and that the associated benefits are shared by all Californians. Appendix C further details potential actions for discussion that can be taken by State government, regional planning agencies, and local governments, to achieve a broad, statewide vision for more sustainable land use and close the VMT gap.

The second document, published by CARB in January 2019, provided additional detail on the scope of the challenge, and its relationship to CEQA:

> An RTP/SCS that meets the applicable SB 375 targets alone will not produce the GHG emissions reductions necessary to meet state climate goals in 2030 nor in 2050. This means that SB 375 targets are not stand-alone CEQA thresholds for GHG or transportation impact analysis (though SCS compliance may nonetheless entitle projects to certain CEQA exemptions or streamlining procedures pursuant to statute). In other words, a project that is consistent with an SCS may be eligible for certain exemptions, but compliance does not necessarily more broadly imply consistency with state climate goals nor with science-based GHG reduction targets, in CARB staff's non-binding view. Some land use development projects contemplated in an SCS that will be operational in 2030 and 2050 will be consistent with state climate goals, and SB 375 defines project circumstances under which CEQA streamlining is available to qualified projects consistent with an SCS. Other projects may need to consider additional mitigation measures to further reduce per capita light-duty transportation-related GHG emissions to levels that would not conflict with state climate goals. Likewise, certain transportation infrastructure projects that will be operational in 2030 and 2050 that substantially increase VMT may conflict with state climate goals, even if they are included in an SCS that meets the applicable SB 375 targets.

2018 Progress Report – California's Sustainable Communities and Climate Protection Act

In November 2018, CARB released the *2018 Progress Report on California's Sustainable Communities and Climate Protection Act* (2018 Progress Report) to evaluate the performance of the SCSs prepared pursuant to the first set of reduction targets established by SB 375. The 2018 Progress Report found that MPOs are not on track to meet the GHG reductions expected under SB 375 for 2020 due to an overall increase in statewide VMT per capita. While the state will meet its overall 2020 target due to reductions achieved in the energy sector, additional VMT reductions will be needed to meet longer-term state GHG reductions targets for 2030 and 2050.

Senate Bill 743 of 2013

SB 743 of 2013 (Steinberg, 2013; PRC Section 21099(b)(2)) required that the Governor's Office of Planning and Research (OPR) propose changes to the State CEQA Guidelines to address transportation impacts in high frequency transit areas and other areas of the State. In response, Section 15064.3 was added to CEQA in December 2018, requiring that transportation impacts no longer consider congestion but instead focus on the impacts of VMT. Agencies have until July 1, 2020 to implement these changes, but can also choose to implement these changes immediately. In support of these changes, OPR published its *Technical Advisory on Evaluating Transportation Impacts in CEQA*, which recommends that the transportation impact of a project be based on whether the project would generate a level of VMT per capita (or VMT per employee or some other metric) that is 15 percent lower than that of existing development in the region (OPR 2017:12–13), or alternatively be based on a different threshold that is supported by substantial evidence. OPR's technical advisory explains that this criterion is consistent with Section 21099 of the PRC, which states that the criteria for determining significance must "promote the reduction in greenhouse gas emissions" (OPR 2017:18). This metric is intended to replace the use of delay and level of service to measure transportation-related impacts. More detail about SB 743 is provided in the "Regulatory Setting" section of Section 16.3.2 – Transportation.

Renewable Portfolio Standard

The state has passed legislation requiring the increasing use of renewables to produce electricity for consumers. California utilities are required to generate 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011); 52 percent by 2027 (California Renewables Portfolio Standard Program [SB 100 of 2018]); 60 percent by 2030 (also SB 100 of 2018); and 100 percent by 2045 (also SB 100 of 2018).

Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the state's Title 24, Part 6, Building Energy Efficiency Standards (California Energy Code). CEC updates the California Energy Code every 3 years with more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions. The current California Energy Code (2016) is scheduled to be replaced by the 2019 standards on January 1, 2020. The 2019 California Energy Code will require builders to use more energy-efficient building technologies for compliance with increased restrictions on allowable energy use. Additionally, new residential units will be required to include solar panels, sized to offset the estimated electrical requirements of each unit (CCR, Title 24, Part 6, Section 150.1[c]14). CEC estimates that the combination of required energy-efficiency features and mandatory solar panels in the 2019 California Energy Code will result in new residential buildings that use 53 percent less energy than those designed to meet the 2016 California Energy Code. The CEC also estimates that the 2019 California Energy Code will result in new commercial buildings that use 30 percent less energy than those designed to meet the 2016 standards, primarily through the transition to high-efficacy lighting (CEC 2018a).

Warren-Alquist Act

The 1974 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as CEC. The creation of the act occurred as a response to the state legislature's review of studies projecting an increase in statewide energy demand, which would potentially encourage the development of power plants in environmentally sensitive areas. The act introduced state policy for siting power plants to reduce potential environmental impacts, and additionally sought to reduce demand for these facilities by directing CEC to develop statewide energy conservation measures to reduce wasteful, inefficient, and unnecessary uses of energy. Conservation measures recommended establishing design standards for energy conservation in buildings that ultimately resulted in the creation of the Title 24 Building Energy Efficiency Standards (California Energy Code), which have been updated regularly and remain in effect today. The act additionally directed CEC to cooperate with OPR, CNRA, and other interested parties in ensuring that a discussion of wasteful, inefficient, and unnecessary consumption of energy is included in all environmental impact reports required on local projects.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to AB 2076 (Chapter 936, Statutes of 2000), CEC and CARB prepared and adopted a joint agency report in 2003, *Reducing California's Petroleum Dependence.* Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation

fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT (CEC and CARB 2003). Further, in response to the CEC's 2003 and 2005 *Integrated Energy Policy Reports*, Governor Davis directed CEC to take the lead in developing a long-term plan to increase alternative fuel use.

Alternative Fuels Plan 2005

AB 1007 (Stats. 2005, ch. 371) requires the CEC to prepare a plan to increase the use of alternative fuels in the State. The California Alternative Fuel Plan, prepared in partnership with CARB, is presented as an alternative fuels goal coupled with a series of implementing requirements. It contains the following goals for renewable fuel use: nine percent by 2012, 11 percent by 2017, and 26 percent by 2022. This comes from an increase in alternative fuel vehicles, made possible by public sector investment as a catalyst for private sector involvement. The plan was published in 2007.

OTHER CLIMATE CHANGE-RELATED LEGISLATION

Short-Lived Climate Pollutant Reduction Strategy

In March 2017, CARB adopted the Short-Lived Climate Pollutant (SLCP) Reduction Strategy pursuant to SB 605 and SB 1393 (i.e., proposed regulation). SLCPs are climate pollutants with high global warming potential (GWP) with a short atmospheric lifespan as compared to CO_2. These include methane, black carbon, and fluorinated gases (F-gases). Achievable goals under the SLCP Reduction Strategy include a 50-percent reduction in anthropogenic black carbon (i.e., emissions sourced from human activity rather than natural events such as wildfires) and a 40-percent reduction in methane and F-gases from 2013 levels by 2030. Additional goals include converting manure and organic wastes to energy sources and soil amendment products, reducing the disposal of edible foods by diverting them to food banks, reducing emissions from residential wood stoves, and phasing out the use of F-gases (CARB 2017b).

Cap-and-Trade Program

In 2011, CARB adopted the cap-and-trade regulation and created the cap-and-trade program. The program covers GHG emissions sources that emit more than 25,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year such as refineries, power plants, industrial facilities, and transportation fuels. The cap-and-trade program includes an enforceable state-wide emissions cap that declines approximately 3 percent annually. CARB distributes allowances, which are tradable permits, equal to the emissions allowed under the cap. Sources that reduce emissions more than their limits can auction carbon allowances to other covered entities through the cap-and-trade market. Sources subject to the cap are required to surrender allowances and offsets equal to their emissions at the end of each compliance period. The cap-and-trade program took effect in early 2012 with the enforceable compliance obligation beginning January 1, 2013. The cap-and-trade program was initially slated to sunset in 2020, but the passage of SB 398 in 2017 extended the program through 2030.

Draft 2030 Natural and Working Lands Implementation Plan

In a joint, interagency effort, the California Environmental Protection Agency, California Department of Food and Agriculture (CDFA), CNRA, CARB, and California Strategic Growth Council released

the *Draft California 2030 Natural and Working Lands Climate Change Implementation Plan* (Draft Plan, Natural and Working Lands Plan) in January 2019. The Draft Plan is specific to the natural and working lands sector, which includes farmland, rangeland, forests, grasslands, wetlands, riparian areas, seagrass, and urban green space. The Draft Plan addresses the carbon flux from this sector, including the ever-dynamic changes in both GHG emissions and carbon sequestration associated with the management of these lands and includes reduction from of GHGs and black carbon from forest fires and fire management. Current management practices in California's natural and working lands sector result in more GHG emissions than carbon sequestration. The Draft Plan serves as a multidisciplinary approach to conserve and maintain a resilient natural and working lands sector that will gradually shift the natural and working lands sector from being a net carbon emitter to being a net carbon sink, while also improving air quality, water quality, wildlife habitat, recreation, and providing other benefits. The Draft Plan sets goals for, at a minimum, increasing the rate of State-funded soil conservation practices fivefold, doubling the rate of State-funded forest management and restoration efforts, tripling the rate of state-funded oak woodland and riparian reforestation, and doubling the rate of State-funded wetland and seagrass restoration (CalEPA et al. 2019:13). The measures included in the Draft Plan are projected to result in cumulative emissions reductions of 21.6 to 56.8 $MMTCO_2e$ by 2030 and cumulative emissions reductions of -36.6 to -11.7 $MMTCO_2e$ by 2045 (CalEPA et al. 2019:13–14).

California's Climate Adaptation Strategy

California's overall plan for climate adaptation is expressed in *Safeguarding California Plan: 2018 Update* (CNRA 2018). The plan provides policy guidance for State decisionmakers and is part of continuing efforts to reduce impacts and prepare for climate risks. The plan includes 76 policy recommendations across 11 policy sectors. One of the key sectors is agriculture. Policy A-2.6 of the plan is to build further collaboration between CDFA, the Department of Resources Recycling and Recovery (CalRecycle), and other partner agencies to identify strategies on how healthy soils can contribute to achieving some of the other State agency waste reduction and environmental objective and goals (CNRA 2018:130). The finished compost generated from facilities implemented in response to the proposed regulation would be used consistent with this adaptation planning policy, because local land use and permit approvals are typically conditioned upon such consistency.

8.3.4 Local Regulations, Plans and Policies

Sacramento Region Transportation Climate Adaption Plan

In 2015, the SACOG Board adopted the Sacramento Region Transportation Climate Adaptation Plan as part of its 2016 MTP/SCS updating, affirming the importance of climate adaption in addition to emissions mitigation. The plan provides high-level action and identifies key vulnerabilities to climate change in the region's transportation infrastructure. With recommendations for best practices and strategies, the plan builds a foundation for future work such as stakeholder engagement, in-depth asset-level assessments, funding, and monitoring (SACOG 2015).

General Plans

Several of SACOG's member agencies have general plan elements and policies that specifically address energy use and conservation, as well as the reduction of GHG emissions and strategies to prepare for the effects of climate change. Such general plans contain goals, objectives, and policies

aimed at reducing energy consumption and GHG emissions. These include policies on energy retrofits to existing residential and commercial land uses, zoning and building ordinances for energy efficiency of new construction, and ways to reduce VMT through land use and transportation priorities.

Local and Regional Greenhouse Gas Reduction Plans, Climate Action Plans, and Related Initiatives

Many of SACOG's member jurisdictions and partner agencies have climate action plans (CAPs), GHG reduction plans, and/or sustainability plans that set goals and targets on the reduction of GHG emissions, and outline policies to help achieve those goals. At the time of writing this Draft EIR, the cities of Sacramento, Elk Grove, West Sacramento, Citrus Heights, Folsom, West Sacramento, and Woodland as well as the counties of Sacramento, Yolo, and Placer have adopted CAPs, GHG Reduction Plans, or Sustainability Plans. In addition, many of the member jurisdictions (e.g., City of Galt and City of Winters) within the plan area of the proposed MTP/SCS have begun the CAP process by conducting baseline emissions inventories, which establish a reference point for GHG emissions reduction.

Many of the completed CAPs in the area address similar issues related to emissions produced by transportation, energy usage, and operational emissions. The types and quantity of emissions produced in the SACOG region vary among county boundaries. For instance, Yolo and Sutter counties have a higher proportion of emissions produced by agricultural activities that are not observed in more urban or less cultivated counties. Considering this, Yolo and Sutter counties have established more policies for reducing emissions due to these activities.

For most jurisdictions, transportation and energy usage produce a majority of GHG emissions. Policies observed among CAPs in the region establish a needed framework for improved circulation networks and energy conservation. Transportation policies aim to reduce VMT by offering more opportunities for alternative transportation modes, such as bicycling and transit use. In addition, many of the CAPs frame policies to promote transit-oriented development. Future residents in these developments will have close access to frequent local transit. In order to reduce emissions caused from energy usage, jurisdictions are committed to establishing policies that will provide energy efficiency for both residential and commercial land uses. Cities and counties include programs to improve energy efficiencies in old and new buildings and decrease the use of fossil fuels by providing incentives for renewable energy sources.

Mayors' Climate Commission on Climate Change

The Mayors' Climate Commission of Climate Change is a joint initiative of the mayors of the cities of Sacramento and West Sacramento. The mayors have established the Commission to develop a common vision and set of strategies for both cities to achieve Carbon Zero by 2045. The Commissions will be structured around key sectors including the built environment, mobility, and community health and resiliency. The Commission is currently in the process of developing a Recommendation Report that will highlight priority strategies to achieve Carbon Zero to inform Sacramento and West Sacramento's update to their CAPs.

CAPITAL REGION CLIMATE READINESS COLLABORATIVE

The Capital Region Climate Readiness Collaborative is a regional coalition that provides a network designed to promote greater resilience coordination at the regional and local level across the six-county Sacramento region (El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties). The purpose of this collaborative is to help leaders from government, business, agriculture, academia, labor, and community groups come together – within and across market and jurisdictional boundaries – to share information and best practices, leverage efforts and resources, avoid duplication, identify critical needs and strategies, and develop funding strategies to meet those needs.

8.4 Impacts and Mitigation Measures

8.4.1 Methods and Assumptions

This program-level analysis generally evaluates potential climate change and energy impacts from implementation of the proposed MTP/SCS based on the projected land use pattern and planned transportation network relative to existing conditions in the plan area of the proposed MTP/SCS.

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS. Exceptions to the baseline year include the following:

- estimates of GHG emissions associated with agricultural activity were derived using 2012 statewide data, which represents the most recent year for which data were available; and
- consistent with statutory direction pursuant to SB 375 a GHG baseline year was used to compare the per capita reductions achieved from the proposed MTP/SCS for which 2005 was selected.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area of the proposed MTP/SCS's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's high frequency transit areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

CLIMATE CHANGE

Using existing and projected land use and transportation data, total GHG emissions, measured in $MTCO_2e$, were estimated for the baseline, the federal transportation conformity year (2027), the SB 375 target year (2035), and the project horizon year (2040) from the following sources: area sources, natural gas combustion, electricity consumption, passenger vehicles, agricultural operations, high global-warming-potential (high GWP) gases, waste generation, and water consumption and

wastewater generation. These results were then extrapolated to conform to GHG reduction target years established by SB 32 (2030) and Executive Order S-3-05 (2050) to evaluate consistency with reduction values contained in the 2017 Scoping Plan.

Table 8-1 below shows the total GHG emissions for the plan area of the proposed MTP/SCS for 2016, 2030, 2040, and 2050. The method and calculations are described in subsequent paragraphs.

Table 8-1
Proposed MTP/SCS GHG Emissions in 2016, 2030, 2040, and 2050 ($MTCO_2e$/year) By Sector[1]

Sector	2016	2030	2040	2050
Area Sources	16,850	18,674	20,067	21,366
Natural Gas	1,975,555	1,991,661	2,059,911	2,066,987
Electricity	3,715,155	2,277,293	955,159	506,234
Mobile Sources (all vehicles)[2]	9,691,625	7,862,665	7,331,384	5,957,186
Agriculture[3]	1,410	1,404	1,400	1,396
High GWP[4]	1,283	1,491	1,618	1,767
Solid Waste	768,464	825,878	871,308	912,053
Water	357,263	241,785	156,391	74,119
TOTAL	16,527,605	13,220,852	11,397,238	9,541,109

[1] Land use and transportation data were provided by SACOG for the years 2016, 2027, 2035, and 2040. Emissions were extrapolated by Ascent based on trends and statewide targets for the years 2030 and 2050.
[2] The total emissions were estimated with EMFAC2014 for the plan area.
[3] Agricultural values were derived from the 2016 statewide GHG inventory and the 2012 values for total statewide acres of agriculture then scaled using projected acres of agriculture for the plan area of the proposed MTP/SCS.
[4] High GWP gases were derived from the 2016 statewide GHG inventory and 2016 statewide population estimates then scaled using population projections for the plan area of the proposed MTP/SCS.
Source: Modeling performed by Ascent Environmental, July 2019.

In 2018, CARB updated its statewide GHG emissions inventory for 2016 (CARB 2018b). The inventory for CO_2, CH_4, and N_2O included emissions from the following sectors: Transportation, Industrial, Electric Power, Commercial and Residential, Agriculture, High GWP Gases, and Recycling and Waste. This analysis estimates GHG emissions using sectors consistent with categories used in California Emissions Estimator Model (CalEEMod) (i.e., transportation, natural gas, electricity, solid waste, and water). Additional estimates were produced for the agriculture and high GWP gases sectors.

These estimates were produced using SACOG's projected land use and transportation estimates for the years 2016, 2027, 2035, and 2040, then scaled in consideration of emissions trends and statewide GHG reduction goals for 2030 (i.e., achievement of 40 percent below 1990 GHG levels) and 2050 (i.e., achievement of 80 percent below 1990 GHG levels).

Transportation Operations

Transportation vehicle activities for the years 2016, 2027, 2035, and 2040 were forecasted with SACOG's current travel demand model, SACSIM. SACSIM forecasts travel for typical weekday conditions. "Chapter 16 – Transportation" provides more details on the model. GHG emissions from all mobile sources were estimated using CARB's vehicle emissions model (EMFAC2014).

These emissions were extrapolated based on trends and statewide targets for the years 2030 and 2050 to show all years presented in Table 8-1.

Energy Production and Consumption

Energy production and consumption impacts were assessed for all years as residential and non-residential electricity production, and natural gas consumption. Energy consumption rates were derived from the values assumed in CalEEMod and applied on a regional scale based on existing and anticipated land uses for the forecast years.

Agriculture

The impacts for agricultural and forestry operations were assessed for the baseline by calculating the SACOG region's share of agricultural emissions from the statewide inventory. Baseline agricultural GHG emissions were derived using the 2016 statewide inventory and applying emissions to a per acre basis. These emissions were then scaled in consideration of SACOG's existing and forecasted acres of agricultural lands under the proposed MTP/SCS. These emissions are representative of SACOG's fair share of agricultural GHG emissions.

High GWP Gases

Climate change impacts related to high GWP gases were estimated for the baseline by evaluating the SACOG region's fair share of producing high GWP gases from the statewide inventory. Baseline GWP GHG emissions were derived using the 2016 statewide inventory and applying emissions on a per capita basis. This emissions estimate was then scaled in consideration of SACOG's existing and forecasted population in the plan area of the propose MTP/SCS. These emissions are representative of SACOG's fair share of agricultural GHG emissions.

ENERGY

Total energy use from the residential and commercial sectors, measured in GWh of electricity, therms of natural gas, and gallons of gasoline and diesel, were estimated for the baseline (2016), the project year (2040), and two interim years (2027 and 2035). These years differ from those used in the GHG estimates because the 2017 Scoping Plan does not contain a specific target for energy consumption per capita. The year 2016 was used for the baseline due to the availability of data for this single year from state and local sources. This includes data on energy consumption from CEC; emission inventories from CARB; electricity profiles from SMUD, PG&E, and Roseville Electric; and, land use and demographic estimates from the California Department of Housing and Community Development and SACOG. In addition, the lack of regional land use data for more recent years makes forecasting energy consumption difficult as estimates not based on accurate small-scale geographic land uses, like parcels, are less accurate. Table 8-2 shows the energy consumption for each year by source in the plan area of the proposed MTP/SCS.

Table 8-2
Electricity, Natural Gas, and Gasoline Consumption Estimates for 2016, 2027, 2035, and 2040 in the Plan Area of the Proposed MTP/SCS

Energy Source	2016	2027	2035	2040
Electricity (GWh)	13,013	13,822	14,508	14,913
Natural Gas (therms)	363,722,676	349,502,624	362,951,902	372,003,363
Gasoline (1000 gallons)	984,921	713,772	34,338	628,944
Diesel (1000 gallons)	187,066	208,936	223,309	231,015

Sources: SACOG 2019 and Ascent Environmental 2019

Electricity and natural gas usage data for 2016 were calculated for the plan area from the residential energy consumption survey (RECS 2015). For 2027, 2035, and 2040, energy consumption was estimated in CalEEMod by calculating the rate of consumption by different residential and non-residential land use types in 2016. These rates were then applied to the growth in each category for each of the horizon years in the proposed MTP/SCS, 2035 and 2040. In the proposed MTP/SCS, residential land uses are split into ten categories by household size, and five housing types (single-family detached, single-family attached, apartment 2 to 4-unit building, apartment 5 or more-unit building, and mobile home. The per capita use is based on the estimates of total households in SACSIM for years 2016, 2035, and 2040.

Gasoline and diesel consumption from all vehicles was estimated using outputs from EMFAC2014, developed by CARB to estimate emissions from on-road sources. Regional VMT values for baseline and the horizon year were then inputted into the EMFAC2014 to estimate total gallons of gasoline and diesel consumption.

As described in Chapter 5 – Air Quality, the ultimate timing for approval of the SAFE Rule or revocation of California's waiver, and the outcome of any related lawsuits (and how such lawsuits could delay or affect implementation of the federal actions), are all unknown at this time. Nor is it known how future motor vehicle emissions (and ZEV programs) could be impacted. Consequently, the implications of such future potential regulatory actions are speculative at this time. For example, a potential revocation of California's waiver could lead to legal action that could affect the SAFE Rule's applicability to fuel standards within the state. It is also possible that market forces could impact the SAFE Rule's efficacy in California (i.e., market demand for motor vehicle fuel efficiency in California could exceed the minimum fuel economy standards established by the SAFE Rule). Thus, this Draft EIR does not attempt to characterize or predict how SAFE Rule adoption or revocation of California's waiver could affect GHG emissions (and EMFAC models) within the state or the plan area of the proposed MTP/SCS as doing so would be speculative and this Draft EIR reflects the baseline conditions at the time the NOP was released. Also, it is assumed here that implementing agencies will comply with applicable federal, state and locals laws and regulations.

8.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

GHG EMISSIONS

GHG-1 Conflict with the SACOG region's achievement of SB 375 GHG emissions reduction targets.

GHG-2 Substantially interfere with achievement of the state's long-term climate goals, as set forth in CARB's 2017 Scoping Plan

GHG-3 Substantially interfere with achievement of applicable local GHG reduction plan goals.

GHG-4 Increase GHG emissions from project construction activities resulting from the proposed MTP/SCS in a manner inconsistent with achievement of the state's climate goals.

ENERGY

ENE-1 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

ENE-2 Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

8.4.3 Impacts and Mitigation Measures

IMPACT GHG-1: CONFLICT WITH THE SACOG REGION'S ACHIEVEMENT OF SB 375 GHG EMISSIONS REDUCTION TARGETS.

Regional Impacts

Pursuant to SB 375, CARB has established regional on-road GHG per capita emissions reduction targets for light-duty trucks and passenger vehicles. This section describes the regional impact from the projected land use pattern, planned transportation improvements, and other transportation strategies in the proposed MTP/SCS as they relate to SB 375 and the regional targets. Because this impact relates to a regional target, smaller area impacts are only considered in aggregation. Therefore, no separate analyses of local Community Types or HFTAs are conducted.

One of the goals of SB 375 is to achieve the GHG emissions reduction targets set by CARB through integrated planning for land use, transportation, and housing. Achievement of the 2035 SB 375 target is an objective of the proposed MTP/SCS. The growth in the proposed MTP/SCS, as described in Chapter 2 – Project Description, provides a mix of housing options, located closer to jobs and transit. The proposed growth is more compact in form and more effectively uses existing infrastructure. In addition, the proposed transportation projects include expansion of existing rail and bus service, increased headways to reduce wait time between transit service, increased bicycle and pedestrian improvements, and targeted roadway and highway improvement and expansion.

Chapter 16 – Transportation includes an analysis of the relationship between land use and travel behavior, which describes the land use through a set of measures that impact the amount and type of travel in a region. These measures include regional accessibility, street pattern, mix of use, distance to nearest transit, and residential density. Through the development of the proposed MTP/SCS, SACOG has utilized key land use / transportation relationships, in the development of

the land use growth allocations, and the transportation projects and improvements in the plan area of the proposed MTP/SCS. The benefits measured by these metrics not only impact VMT, but also increase walk and bike trips, as well as transit ridership. (Refer to Table 16-9 in Chapter 16 – Transportation for more information on the key land use-transportation relationships and travel improvements in the proposed MTP/SCS.)

For the SACOG region, the target set by CARB is 19 percent below 2005 levels by 2035. The 2005 GHG per capita emissions were modeled for the plan area of the proposed MTP/SCS to be 23.2 pounds per day. With the proposed MTP/SCS, the 2035 emissions levels were modeled to be 18.9 pounds per day, a 19 percent reduction from 2005. Notably, SACOG 2035 target was reset conditionally to 19 percent based on a pilot test proposed by SACOG staff of an enhanced SCS that recognizes some of the differences between the Sacramento region and the other three large MPOs. If SACOG is not able to secure the funding and commitments to implement the proposed pilot project, CARB staff would evaluate the SCS performance against an 18 percent target. Table 8-3 below outlines these reductions.

Table 8-3
Proposed MTP/SCS Senate Bill 375 Reduction Targets

Year	GHG (lb/day per capita)	Percent Reduction from 2005
2005	23.2	--
2035	18.9	19%

Source: SACOG 2019

These projections do not include any additional measures from the *2017 Scoping Plan* (e.g., programs to improve the efficiency of the vehicle fleet, or to reduce the reliance on carbon-based fuels), based on guidance on the SB 375 target provided by CARB (CARB 2017a, CARB 2018a, CARB 2019)The SB 375 target is intended to capture reductions in GHG emissions generated by reductions in travel and operational efficiencies on roadways. Implementation of the state's Advanced Clean Cars program, LCFS, and ZEV Mandate (and other 2017 Scoping Plan measures), will reduce levels even further.

Therefore, the impact on achieving the SB 375 GHG emissions reduction targets related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS is considered less than significant (LS) for Impact GHG-1. No mitigation is required.

IMPACT GHG-2: SUBSTANTIALLY INTERFERE WITH ACHIEVEMENT OF THE STATE'S LONG-TERM CLIMATE GOALS. AS SET FORTH IN CARB'S 2017 SCOPING PLAN

Regional Impacts

Emissions From the Passenger-Vehicle Sector
SB 375 seeks to reduce GHG emissions from the passenger-vehicle sector by reducing VMT within developed areas and areas planned for development within the jurisdictions of the state's 18 MPOs. SB 375, the law that the proposed MTP/SCS is prepared pursuant to, is identified in the 2017 Scoping Plan as a necessary component to achieving the goal of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030 as mandated by SB 32.

In a staff report issued February 2018 entitled *Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*, CARB identifies the SACOG region's conditional target for GHG emissions reductions as a 19 percent decrease in per-capita passenger-vehicle GHG emissions as compared to 2005 levels by 2035 (CARB 2018a). This reduction target adds to the GHG reductions achieved through the implementation of other statewide programs (e.g., cap and trade, RPS). The proposed MTP/SCS's performance with respect to the SB 375 target is analyzed in Impact GHG-1 above.

While the proposed MTP/SCS would meet the region's SB 375 target, nonetheless, as discussed in the Regulatory Setting, recent reports on the state's climate goals suggest that the regional 2035 GHG emissions reduction targets under SB 375 are not adequate to fully meet the goals of the *2017 Scoping Plan*. Collectively, CARB determined that if the state's 18 MPOs' all met the SB 375 GHG emission reduction targets set by CARB in 2018, a 19 percent reduction in per capita VMT would be achieved by 2035. In the target re-setting report, CARB expressed that to meet the statewide reduction goals set forth by SB 32 and the *2017 Scoping Plan*, the state would need to reduce per-capita GHG emissions by 25 percent by 2035, resulting in a 6 percent gap between the 19 percent emissions reductions targets set for the regions (averaged for the 18 MPOs and compared to a baseline year of 2005). The conclusion is, even meeting the SB 375 GHG emissions reduction targets, a 6 percent gap compared to the state's 25 percent reduction need would remain.

As CARB noted, "An RTP/SCS that meets the applicable SB 375 targets alone will not produce the GHG emissions reductions necessary to meet state climate goals in 2030 nor in 2050" (CARB 2019). CARB has also noted that greater reductions in VMT will be required to make up the 6 percent gap in GHG. Further, according to the 2018 Progress Report "California – at the state, regional, and local levels – has not yet gone far enough in making the systemic and structural changes to how we build and invest in communities that are needed to meet state climate goals." (CARB 2018d). It will take collaboration among all these levels of government to identify the additional VMT reductions needed to achieve the state's climate goals because the MPOs do not have the land use authority or resources to meet challenge alone.

Another pathway to close the gap between GHG reductions achieved through SCS implementation and the GHG reductions necessary to meet the state's GHG reduction goals could be through application of a 15 percent VMT reduction on a project-by-project basis as recommended by OPR (CARB 2019:11). As GHG reductions from the transportation sector become more difficult to achieve, it is also possible that Cap-and-Trade could be a viable method of capturing transportation emissions and reducing them through market-based carbon trading. Such an expansion of that program is speculative at the time of writing this Draft EIR, however.

Given the state's emphasis on VMT reduction as the only feasible way to achieve additional GHG reductions needed, and in recognition of the climate change benefits that occur from reduced VMT resulting in reductions in GHGs, the projected land use pattern proposed under the proposed MTP/SCS supports high density, transit-oriented development throughout the plan area. However, SACOG lacks the land use authority to enforce the proposed MTP/SCS throughout the region. Implementation of the projected land use pattern under the proposed MTP/SCS is within the purview of the implementing agencies overseeing land use development within the plan area. However, as described in Chapter 2 – Project Description, in order to incentivize implementation, SACOG has established a number of programs that support the needed high density and transit-oriented development in the region and the smart growth vision set forth in the Blueprint. For example:

- The Community Design Program funds placemaking projects that improve or enhance the livability of a community and promotes land use projects that lead to fewer vehicle miles traveled and more walking, biking, and transit use.
- The Active Transportation Program funds facilities for walking and biking in urban, suburban, and rural portions of the region, and connections between them. The program awards funds to projects that demonstrate a current need for walking or biking facilities, along with the potential to increase walking and biking if implemented, helping to realize the multimodal vision of the MTP/SCS.
- The Regional Program elevates projects that realize the performance benefits of the MTP/SCS, and also ensures a minimum investment level for high quality active transportation projects. Projects under the Regional Program must reduce regional VMT per capita; reduce regional congested VMT per capita; increase multimodal travel; provide long-term economic benefit within the region; improve goods movement; improve safety and security; and demonstrate 'State of Good Repair' benefits.
- The Green Region program targets investments that bring in new implementing partners into the transportation sector, with the goal of expediting electrification of the region's transportation network.
- The Transportation Demand Management Program aims to reduce vehicle trips and miles traveled by implementing cost-effective and innovative programs, services, projects, strategies, and policies that encourage people to change their travel behavior. The program consists of three avenues for distributing funding to project sponsors working towards those goals. The Traditional TDM program works with established regional partners, such as transportation management agencies, to continue implementing known TDM strategies and programs. TDM Mini-Grants support small events and non-infrastructure programs or projects to reduce single occupancy vehicle trips and miles and prioritizes testing new strategies and tactics for changing travel behavior. The TDM Innovations Grant Program also seeks to explore new and innovative projects and activities that implement strategies to reduce single-occupant vehicle travel and produce measurable results, such as parking pricing programs, technology-based solutions, and marketing projects.
- SACOG Air Quality programs seek to decrease the volume of pollutants emitted in a number of ways, from increasing multimodal options to informational programs to influence the voluntary reduction of driving during poor air quality events. Originally part of the region's commitment to decrease ozone-related emissions, components of the Air Quality programs are also present in other SACOG programs, such as the evolution of the Sacramento Emergency Clean Air and Transportation program from a standalone project to being part of Green Region.

Collectively, SACOG funding programs have supported projects that reduce VMT and GHG emissions by building transportation infrastructure or campaigns/programs to incentivize infill development, connecting people to community destinations with walking and biking facilities, reducing transportation-related emissions, and exploring new options to decrease VMT. Through competitive distribution, SACOG is able to advance the projects and programs that best implement the MTP/SCS.

Nonetheless, given the evidence put forth by CARB in the *2017 Scoping Plan*, and in the documents prepared by CARB related to the SB 375 target resetting finalized in March 2018, more must be done to reduce emissions from the transportation sector to achieve the state's climate goals.

Operational Emissions from Combined Sectors
As described in the Methods and Assumptions section of this chapter, operational GHG emissions were measured in $MTCO_2e$/year from transportation, electricity consumption, natural gas combustion, area, solid waste, and water consumption and wastewater generation. These sectors reflect the categories generated from CalEEMod. $MTCO_2e$/year estimates were also provided for agricultural-related emissions and high GWP gases (see Table 8-1).

For the region, 2016 GHG emissions totaled 16,527,605 $MTCO_2e$ (Table 8-1). Based on the methodology described in Section 8.4.1 – Methodology, estimates were developed for the years 2030, 2040, and 2050. Emissions for 2030 totaled 13,220,852 $MTCO_2e$/year (20 percent reduction from 2016), emissions for 2040 totaled 11,397,238 $MTCO_2e$/year (31 percent reduction from 2016), and emissions for 2050 totaled 9,541,109 $MTCO_2e$/year (42 percent reduction from 2016). These steady declines are largely attributable to the anticipated increase in the proportion of renewable energy sources supplying electricity to the plan area of the proposed MTP/SCS.

GHG emissions from sectors other than the passenger-vehicle mobile-source sector could also conceivably be reduced in future years due to the implementation of statewide regulations and policy directed at reducing emissions. For example, emissions from agriculture and the solid waste sector may be reduced through the actions contained in the SLCP strategy and regulatory requirements of SB 1383, which requires a 50 percent reduction in the level of statewide disposal of organic waste compared to 2014 levels by 2020 and a 75 percent reduction by 2025, as well as the policies enumerated in the Draft 2030 Natural and Working Lands Implementation Plan. SB 350, the 100 Percent Clean Energy Act of 2018 also requires that the state's electricity sector achieve carbon neutrality by 2045 with benchmark targets of 50 percent renewable energy by 2026 and 60 percent by 2030. However, while these reductions are expected, implementation of statewide regulations, such as the aforementioned plans, is beyond the scope of SACOG's authority.

The *2017 Scoping Plan* recognizes that 2030 serves as a benchmark year in the state's long-term climate change goals; however, the *2017 Scoping Plan* guides the state only to the 2030 goal. Moreover, given that the 2050 target of achieving an 80 percent reduction from 1990 GHG levels has not yet been codified in legislation (although established by Executive Order S-3-05), the *2017 Scoping Plan* does not provide a framework to achieve emissions targets beyond 2030. Nonetheless, given the identified gap between SACOG's 19 percent reduction target and the state's 25 percent reduction target for 2030, it is anticipated that such a gap would remain when looking toward 2050.

Implementation of the projected land use pattern under the proposed MTP/SCS would be subject to Title 24 Building Code requirements, including the California Energy Code and the mandatory requirements of the CalGreen Code. Future development would also be required to undergo environmental review that would evaluate the potential for climate change impacts to occur. It is likely that in cases where climate change impacts are identified, appropriate and feasible mitigation would be applied to reduce GHG emissions including on- and off-site GHG reduction measures (e.g., low-flow water appliance, energy-efficient home appliances, landscaping limits), investments in local or regional programs to reduce GHGs (e.g., electrified school bus programs, home

refurbishment rebate programs), and the purchase of carbon offsets through programs verified by third party such as the Climate Action Reserve.

Construction Emissions
The construction of the projected land use pattern and planned transportation improvements would require use of vehicles and equipment that would consume fuel and emit GHGs for construction activities, materials transport, and worker commutes. Typical earth-moving equipment that may be necessary to construct such facilities includes graders, scrapers, backhoes, jackhammers, front-end loaders, generators, water trucks, and dump trucks. Construction-related GHG emissions would be temporary and last only for the duration of construction. Local agencies, such as air pollution control districts, are generally charged with determining acceptable thresholds of GHG emissions, measured in $MTCO_2e$/year. Quantification of short-term construction-related GHG emissions is generally based on a combination of methods, including the use of exhaust emission rates from emissions models, such as OFFROAD 2007 and EMFAC 2017. These models require consideration of assumptions, including construction timelines and energy demands (e.g., fuel and electricity).

Implementing agencies vary on whether they require quantification of construction emissions and whether they consider construction emissions as cumulatively significant impacts. For land use and transportation projects located within the jurisdiction of an air district or implementing agency that does not recommend construction emissions be quantified, construction-related GHG emissions may not be considered significant. Other air districts within the plan area of the proposed MTP/SCS, including SMAQMD, recommend applying a "bright-line" threshold to evaluate construction emissions. However, as is the case for SMAQMD thresholds, such thresholds have typically been developed in consideration of nearer-term statewide GHG reduction goals, such as achieving 1990 levels of GHG emissions by 2020 as mandated by AB 32 (SMAQMD 2018). Given the variation in how air districts and implementing agencies analyze construction-related GHG emissions, construction of the projected land use pattern and planned transportation improvements under the proposed MTP/SCS could be inconsistent with the state's long-term climate change targets as framed in the 2017 Scoping Plan.

Conclusion
As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the climate goals set forth in CARB's *2017 Scoping Plan* related to transportation, passenger-vehicle sector, other operational sectors (i.e., energy, solid waste, other on- and off-road mobile-sources, water and wastewater treatment), and construction emissions at the regional level is considered potentially significant (PS) for Impact GHG-2. Mitigation is required. Mitigation Measures GHG-1, GHG-2, and GHG-3 are described below.

Localized Impacts

For all Community Types in the proposed MTP/SCS, an aggregated evaluation of GHG emissions was undertaken using the formula described in the Methods and Assumptions section of this chapter. Additional measures from the *2017 Scoping Plan* aimed at reducing emissions from electricity and natural gas consumption were considered. Impacts are described below.

Center and Corridor Communities
The Center and Corridor Communities are projected to contain a significant amount of more energy efficient attached, multi-family residential products, which are shown to have lower emissions as compared to other land uses.

In addition, Center and Corridor Communities will include a variety of planned transportation improvements by 2040 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects, that are expected to reduce GHG emissions.

However, for reasons similar to those described in the discussion of regional impacts, the potential remains to interfere with the *2017 Scoping Plan* GHG reduction targets related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the local level, and would therefore be potentially significant (PS) for Impact GHG-1. Mitigation is required. Mitigation Measures GHG-1, GHG-2, and GHG-3 are described below.

Established Communities
The growth pattern in Established Communities indicates that while these areas are proposed to have population, housing, and employment growth, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which will have a much higher rate of growth.

Established Communities are mostly lower density residential, office parks, and strip retail. They are considered to be mostly built-out, with little or no vacant land to develop. With little or no growth occurring, GHG emissions will remain constant, or even decrease slightly with the implementation of the *2017 Scoping Plan* measures outlined in the regional impacts section above. Established Communities will include a variety of planned transportation improvements by 2040 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

However, for reasons similar to those described in the discussion of regional impacts, the potential remains to interfere with the *2017 Scoping Plan* GHG reduction targets related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the local level, and would therefore be potentially significant (PS) for Impact GHG-2. Mitigation is required. Mitigation Measures GHG-1, GHG-2, and GHG-3 are described below.

Developing Communities
Developing Communities are expected to have a high rate of growth during the proposed MTP/SCS plan period. Although Developing Communities will serve a substantial portion of the growth in residential units and employment, the housing type will experience a significant shift from large lot detached to small lot detached and attached housing, increasing energy efficient and, therefore, emissions reductions. However, because Developing Communities contain little or no development in 2016, projected growth of lower density residential with supporting retail and public uses, will likely result in some increased GHG emissions.

Developing Communities will not necessarily include the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities will include more road widening projects and newly constructed road projects to serve the new

residential and employment developments that will be built by 2040. In addition, while Developing Communities have little or no transit service today, at build-out they may include bus service every 30 minutes or less. These areas also often include walk and bike facilities via trails. This will reduce emissions from travel.

The measures from the *2017 Scoping Plan*, as described above in the regional impacts section, are assumed to be largely implemented in Developing Communities. These areas have more opportunities to implement measures like on-site renewable energy sources, building efficiency, and appliance efficiency as they are being built within the timeframe of SB 32. This will help to reduce the emissions from the growth that occurs in the Developing Communities.

However, for reasons similar to those described in the discussion of regional impacts, the potential remains to interfere with the *2017 Scoping Plan* GHG reduction targets related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the local level, and would therefore be potentially significant (PS) for Impact GHG-2. Mitigation is required. Mitigation Measures GHG-1, GHG-2, and GHG-3 are described below.

Rural Residential Communities
These communities are expected to receive very limited growth by 2040. This is the lowest growth rate of any Community Type, resulting in a decreasing share of regional population, housing units, and employment. Rural Residential Communities are dominated by single family houses sitting on one to 20-acre parcels which, according to EIA data, are less efficient in terms of electricity and natural gas consumption when compared to multi-family products (EIA 2019). However, they are likely to receive the benefits from the *2017 Scoping Plan* aimed at GHG reductions as other Community Type.

These areas are mostly auto oriented, with little or no transit service. Existing transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service, thus maintaining the auto-dependent nature of these areas. However, they are likely to receive the benefits from the *2017 Scoping Plan* aimed at GHG reductions as other Community Types.

However, for reasons similar to those described in the discussion of regional impacts, the potential remains to interfere with the *2017 Scoping Plan* GHG reduction targets related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the local level, and would therefore be potentially significant (PS) for GHG-2. Mitigation is required. Mitigation Measures GHG-1, GHG-2, and GHG-3 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. The proposed MTP/SCS will make a limited number of transportation investments in this Community Type by 2040, including road maintenance, road widenings and safety enhancements, and other roadway improvements.

However, for reasons similar to those described in the discussion of regional impacts, the potential remains to interfere with the *2017 Scoping Plan* GHG reduction targets related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the local level, and would therefore be potentially significant (PS) for GHG-2. Mitigation is required. Mitigation Measures GHG-1, GHG-2, and GHG-3 are described below.

High Frequency Transit Areas Impacts

For all HFTAs in the proposed MTP/SCS, an aggregated evaluation of GHG emissions was done using the formula described in the Methods and Assumptions section of this chapter. Additional measures from the 2017 Scoping Plan aimed at reducing emissions from electricity and natural gas consumption were considered. Impacts are described below.

Placer County High Frequency Transit Areas

A large portion of housing growth in Placer County HFTAs between 2016 and 2040 are assumed to be attached (see the Product Description chapter). As discussed, EIA data shows this housing type to be more efficient than its single-family counterpart on a per unit basis in terms of consumption of electricity and natural gas (EIA 2019). This will support the plan's GHG emissions reduction goals.

Placer County HFTAs will include a variety of planned transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento. In addition, Placer County HFTAs are served by the Capital Corridor train, as well as high-quality transit service in Roseville. This creates more non-auto modes of travel, reducing emissions from travel.

However, for reasons similar to those described in the discussion of regional impacts, the potential remains to interfere with the *2017 Scoping Plan* GHG reduction targets related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS for Placer County HFTAs, and would therefore be potentially significant (PS) for GHG-2. Mitigation is required. Mitigation Measures GHG-1, GHG-2, and GHG-3 are described below.

Sacramento County High Frequency Transit Areas

Sacramento County HFTAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. Between 2016 and 2040, a large percentage of all new residential products are assumed to be attached (see the Product Description chapter), and residential densities are generally high, which will support a more energy efficient housing supply and will help reduce GHG emissions.

Sacramento County HFTAs would include a variety of planned transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. In addition, the Sacramento HFTAs are served by light rail, Capital Corridor, and numerous bus routes. In 2040, Sacramento HFTAs are assumed to have a streetcar corridor in downtown, and bus rapid transit service. This offers more non-auto modes of travel, reducing travel related emissions.

However, for reasons similar to those described in the discussion of regional impacts, the potential remains to interfere with the *2017 Scoping Plan* GHG reduction targets related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in Sacramento County HFTAs, and would therefore be potentially significant (PS) for GHG-2. Mitigation is required. Mitigation Measures GHG-1, GHG-2, and GHG-3 are described below.

Yolo County High Frequency Transit Areas

Yolo County HFTAs include the majority of West Sacramento and Davis, and some portions of Yolo County near the Sacramento International Airport where Sacramento Regional Transit District will run light rail service. As noted, residential growth in Yolo County HFTAs is dominated by attached housing at generally high densities (see the Product Description chapter). These housing types support the plan's goals of reducing energy consumption and GHG emissions.

Yolo County HFTAs will include a variety of transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, a major light rail extension to Sacramento International Airport, new streetcar service in West Sacramento, and increased express service to downtown Sacramento. In addition, the Yolo County HFTAs are served by Capital Corridor as well as numerous bus routes. In 2040, the area will include bus rapid transit and a streetcar in West Sacramento. This would reduce travel related emissions by offering non-auto modes of travel.

However, for reasons similar to those described in the discussion of regional impacts, the potential remains to interfere with the *2017 Scoping Plan* GHG reduction targets related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in Yolo County HFTAs, and would therefore be potentially significant (PS) for GHG-2. Mitigation is required. Mitigation Measures GHG-1, GHG-2, and GHG-3 are discussed below.

MITIGATION MEASURES

Mitigation Measure GHG-1: Implement Mitigation Measure TRN-1.

Mitigation Measure GHG-2: Coordinate and support local agencies within the plan area of the proposed MTP/SCS to reduce regional GHGs from all sectors.

SACOG, in partnership with air districts within the plan area of the proposed MTP/SCS, shall work with the counties and cities within the plan area to adopt qualified GHG reduction plans (e.g., CAPs), develop GHG-reducing planning policies, and implement local climate initiatives. These reductions can be achieved through a combination of programs, including ZNE in new construction, retrofits of existing buildings, incentivizing the development of renewable energy sources that serve both new and existing land uses, and other measures.

Mitigation Measure GHG-3: Implement all feasible on- and off-site mitigation measures to reduce GHG emissions below a lead agency–approved threshold of significance.

The applicable lead agency can and should implement, where necessary and feasible to address site-specific construction climate change impacts, the following measures to avoid or minimize impacts related to construction GHG emissions:

- Project proponents shall require its contractors to restrict the idling of on- and off-road diesel equipment to no more than 5 minutes while the equipment is on-site.
- Project proponents of new facilities shall implement waste, disposal, and recycling strategies (i.e., 10 percent recycled content for Tier 1 and 15 percent recycled content for Tier 2) in accordance with the voluntary measures for non-residential land uses contained in Section A5.405 of the 2016 CALGreen Code or in accordance with any update to these requirements in future iterations of the CALGreen Code in place at the time of project construction.
- Project proponents of new facilities shall achieve or exceed the enhanced Tier 2 target for nonresidential land uses of recycling or reusing 80 percent of the construction waste as described in Section A5.408 of the 2016 CALGreen Code or in accordance with any update to these requirements in future iterations of the CALGreen Code in place at the time of project construction.
- Project proponents shall require all diesel-powered, off-road construction equipment meet EPA's Tier 3 or Tier 4 emissions standards as defined in 40 CFR 1039 and comply with the exhaust emission test procedures and provisions of 40 CFR Parts 1065 and 1068. This measure can also be achieved by using battery-electric off-road equipment as it becomes available.
- Project proponents shall implement a program that incentivizes construction workers to carpool, and/or use public transit or electric vehicles to commute to and from the project site.

SIGNIFICANCE AFTER MITIGATION

Mitigation Measure GHG-1 has the potential to assist SACOG in achieving higher VMT reductions through new or expanded technologies, methods, measures, and programs; however, the efficacy or feasibility of such technologies, methods, measures, and programs are unknown at this time and beyond the scope of SACOG's authority to control. As a result, while it is possible that such technologies, methods, measures, and programs could reduce emissions as necessary to achieve the state's long-term climate change goals, reaching a conclusion to that effect would be speculative.

Mitigation Measure GHG-2 would further reduce VMT emissions in addition to reductions from other sectors (i.e., energy, area, water, and waste). SACOG's support of local climate change would be consistent with guidance in the *2017 Scoping Plan*, which indicates that local and regional GHG reduction efforts are necessary for the state to meet its long-term climate change goals. However, there is no assurance that local jurisdictions would implement the necessary measures to reduce the plan area of the proposed MTP/SCS fair share GHG inventory to levels consistent with statewide reduction targets. Additionally, SACOG cannot require local implementing agencies to adopt GHG reduction plans or policies.

While Mitigation Measures GHG-1 and GHG-2 would reduce GHG emissions throughout the plan area of the proposed MTP/SCS, the actual reductions achieved are uncertain at this time. If the implementing agency adopts these mitigation measures, Impact GHG-2 may be reduced, but not to a less-than-significant level. For projects proposing to streamline environmental review, lead agencies must comply with state guidance on VMT reduction and conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the VMT impact to less than significant. However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact GHG-2 remains significant and unavoidable (SU) for purposes of this program-level review.

Mitigation Measure GHG-3 would serve to mitigate the amount of GHGs emitted during construction phasing of the projected land use pattern and planned transportation improvements under the proposed MTP/SCS. While it is possible that such measures could reduce impacts such that construction emissions would be consistent with the *2017 Scoping Plan* and the state's long-term climate change goals, SACOG cannot require or enforce construction mitigation for projects outside of its purview. If the implementing agency adopts these mitigation measures, construction-related impacts under Impact GHG-2 may be reduced, but not to a less-than-significant level. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the construction-related impact to less than significant. However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, construction-related impacts under Impact GHG-2 remain significant and unavoidable (SU) for purposes of this program-level review.

IMPACT GHG-3: CONFLICT WITH APPLICABLE LOCAL GHG REDUCTION PLANS.

Regional Impacts

In the development of the proposed MTP/SCS, SACOG analyzed local CAPs, specific plans, and general plans that included targets for GHG reductions and made efforts to address policies within the plans. The local GHG reduction plans are adopted in an effort to comply with the goals set for local governments in the *2017 Scoping Plan*. While the land use pattern and planned transportation investments and strategies of the proposed MTP/SCS are consistent with SB 375 (see GHG-1), ultimately it is the local jurisdictions that have authority to determine consistency with local plans. SACOG has no jurisdiction in approval of the projected land use pattern within the plan area of the proposed MTP/SCS.

In addition, the proposed MTP/SCS does not address all of the potential reduction measures, goals, and GHG targets from various local agencies. CAPs, general plans, and other plans that address climate change and reduce GHG emissions will set targets based on state, regional, or local conditions. Not all plans will have identical GHG reduction goals and implementation measures. Entities in the SACOG region are in different stages of the CAP or GHG reduction planning process. As emissions inventories and climate action or GHG reduction plans are prepared and near completion or adoption, jurisdictions would set benchmarks to evaluate the implementation of their plan.

The proposed MTP/SCS relies on the benefits of dense, compact development coupled with an efficient and diversified transportation network. It seeks to reduce overall and per capita energy consumption and related GHG emissions from all sources. These actions would help to reduce GHG emissions associated with changes in land use and transportation systems at both the local and regional level, and thus could result in beneficial contributions to localized GHG emissions reductions identified in local plans.

Therefore, the projected land use pattern and planned transportation improvements in the proposed MTP/SCS at the regional level do not conflict with the applicable local GHG reduction plans. This impact is considered less than significant (LS) for Impact GHG-3. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT ENE-1: RESULT IN POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACT DUE TO WASTEFUL, INEFFICIENT, OR UNNECESSARY CONSUMPTION OF ENERGY RESOURCES, DURING PROJECT CONSTRUCTION OR OPERATION.

Regional Impacts

Implementation of the projected land use pattern and planned transportation improvements under the proposed MTP/SCS would result in energy consumption during construction and operation activities. Construction of land uses and planned transportation improvements would require the use of energy-consuming equipment for site preparation, grading, building assembly, and equipment installation. A wide variety of equipment powered through the combustion of liquid fuels may be used during the construction of new or expanded organic waste handling facilities. Examples of equipment typically used during construction include pavers, trenchers, mixers, cranes, dumpers/tenders, excavators, graders, tractors, trucks, forklifts, dozers, loaders, and scrapers. Internal-combustion engines that consume diesel and gasoline typically power these types of equipment and can have outputs ranging from 5 to 750 horsepower. Off-road equipment with diesel engines of 25 horsepower or larger are regulated by CARB for purposes of emissions reductions (13 CCR Section 2449). These regulations require operators to limit idling during operation and to upgrade older equipment with modern engines, which additionally provides benefits for the reduction of fuel consumption.

The transportation of workers and materials to and from project sites would require the consumption of diesel and gasoline fuels. Medium- and heavy-duty trucks and vans with Gross Vehicle Weight Ratings between 8,500 and 33,000 pounds would typically be used. Under CARB's Truck and Bus Regulations, vehicles with a Gross Vehicle Weight Rating greater than 14,000 pounds are required to have diesel engines built to 2010 standards no later than 2023 (CARB 2018c).

Construction activities would occur over the duration of the proposed MTP/SCS's horizon (i.e., 2040) at various locations throughout the plan area of the proposed MTP/SCS. The location, size, magnitude, and duration of construction activities within the plan area of the proposed MTP/SCS is unknown at the time of writing this EIR. However, construction activities, as compared to operational energy demand, would be short term in nature.

With respect to operations of the projected land use pattern and planned transportation improvements, baseline energy consumption was calculated for 2016 and compared to 2040. Per capita annual energy consumption in the SACOG region is shown in Table 8-4. In 2016, annual per capita consumption was approximately 5,476 kilowatt hours of electricity, 153 therms of natural gas, 400 gallons of gasoline, and 2 gallons of diesel fuel. Assuming the growth in the proposed MTP/SCS, annual per capita energy consumption is expected to decrease to 4,976 kilowatt hours of electricity, 124 therms of natural gas, 380 gallons of gasoline, and increase to 3 gallons of diesel by 2040. Table 8-4 summarizes these findings.

Table 8-4
Per Capita Energy Consumption in the Plan Area of the Proposed MTP/SCS

Source	2016	2040	Percent Reduction (2016 to 2040)
Electricity (kwh per capita)	5,476	4,976	9%
Natural Gas (therms per capita)	153	124	19%
Gasoline (gallons per capita)	400	380	5%
Diesel (gallons per capita)	2	3	-57%

Source: SACOG 2019

The energy consumption that would occur as a result of implementation of the proposed MTP/SCS would not constitute "wasteful, inefficient, or unnecessary" use of energy. Fuel use and energy consumption related to construction and operation are occurring at baseline conditions, and would continue to occur without the projected land use pattern or planned transportation improvements in the proposed MTP/SCS. Also, as shown in Table 8-4 above, per capita energy consumption would generally go down (with the exception of diesel fuel) by 2040 as compared to 2016 from implementation of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS. (Diesel emissions are primarily from heavy-duty vehicles and engine efficiency and fleet turnover is not happening at the same rate as VMT increases from these engine types (e.g., VMT increases are outpacing regulations and introduction of ZEV in this sector is more difficult). Consequently, no regional environmental impact would occur from the wasteful, inefficient, or unnecessary use of energy. Impact ENE-1 would be less than significant. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The potential localized environmental impact of the wasteful, unnecessary, or inefficient use of energy from the projected land use pattern and planned transportation improvements in the proposed MTP/SCS is the same as the regional impact and is considered less than significant (LS) for Impact ENE-1. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The potential environmental impact of the wasteful, unnecessary, or inefficient use of energy from the projected land use pattern and planned transportation improvements in the proposed MTP/SCS in HFTAs is the same as the regional impact and is considered less than significant (LS) for Impact ENE-1. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT ENE-2: CONFLICT WITH OR OBSTRUCT A STATE OR LOCAL PLAN FOR RENEWABLE ENERGY OR ENERGY EFFICIENCY.

REGIONAL IMPACTS

Implementation of the proposed MTP/SCS would not conflict with or obstruct a state or local plan for increasing renewable energy or energy efficiency. The proposed MTP/SCS would result in the development of new land uses that would induce new demand for electricity and natural gas; however, as discussed in Chapter 2 – Project Description, the proposed MTP/SCS's land use policies are directed at reducing automobile use through construction of compact and mixed use development in areas that offer transportation choices such as walking, biking, and transit. The land uses constructed under the proposed MTP/SCS would also be subject to the GHG reduction policies of a CAP, if applicable. At the time of writing this Draft EIR, many cities and counties in the region have CAPs, GHG Reduction Plans, or Sustainability Plans that include policies to increase the use of renewable energy throughout the region. The projected land use pattern included in the proposed MTP/SCS would not conflict with the applicability of those policies to future development within the plan area of the proposed MTP/SCS. The projected land use pattern would also be subject to the most recent iteration of the California Energy Code, which requires that single-family residential development include solar photovoltaics. Future land uses would also be required to adhere to future iterations of the California Energy Code which is updated on a triennial basis (once every three years) and is expected to become increasingly more stringent over time to further the state's renewable energy and GHG reduction goals.

Thus, the projected land use pattern in the proposed MTP/SCS would not conflict with a state or regional plan related to the increased use of renewable energy on a regional scale and would be a less-than-significant impact (LS) for Impact ENE-2. No mitigation is required.

The proposed MTP/SCSs would include planned transportation improvements that would further reduce dependence on petroleum products and increase reliance on renewable energy. For example, planned transportation improvements include decreasing automobile use as a primary mode of transportation by providing adequate pedestrian and bicycle facilities. Investments in EV charging infrastructure would also occur, which would relocate energy derived from petroleum combustion to the electricity grid, which, as discussed in Section 8.3 – Regulatory Setting, would be sourced by a greater portion of renewable energy as a result of SB 100 and the RPS. City and county policies to improve the regions EV infrastructure would continue to apply with implementation of the proposed MTP/SCS.

Therefore, the planned transportation improvements in the proposed MTP/SCS would not conflict with a state or regional plan related to the increased use of renewable energy on a regional scale and would be a less-than-significant impact (LS) for Impact ENE-2. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
Impacts related to conflicting with a state or regional plan to increase use of renewable energy would be the same as those discussed for regional impacts. Therefore, the potential to conflict with a state or regional plan to increase use of renewable energy in the Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development Community Types from implementation of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS would be a less-than-significant (LS) impact for Impact ENE-2. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts to HFTAs would be the same as those discussed under regional impacts. Therefore, the projected land use pattern and planned transportation improvements in the proposed MTP/SCS would not conflict with the goal of increasing reliance on renewable electricity sources in HFTAs. This impact is considered less than significant (LS) for Impact ENE-2. No mitigation is required.

MITIGATION MEASURES

None required.

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Chapter 9—Geology, Soils, Seismicity, and Mineral Resources

9.1 Introduction

This chapter describes the existing conditions (environmental and regulatory) and assesses the potential geologic, soils, seismic, and mineral resources impacts of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data, analysis, and findings provided in this section were considered and prepared at a programmatic level. Paleontological resources are addressed in Chapter 7 – Cultural, Paleontological, and Tribal Cultural Resources. Naturally occurring asbestos is addressed in Chapter 10 – Hazards, Hazardous Materials, and Wildfire. SACOG did not receive any comments regarding geology, soils, seismicity, or mineral resources in response to the Notice of Preparation (NOP). Appendix PD-1 includes all NOP comments received.

9.2 Environmental Setting

9.2.1 Geology and Topography

Figure 9-1 provides a geologic map of the SACOG region. As illustrated in Figure 9-1, the eastern portion of the plan area is composed of marine sedimentary, plutonic, and volcanic rock; the western portion of the plan area of the proposed MTP/SCS is primarily sedimentary rock.

The plan area of the proposed MTP/SCS is located in a broad area that extends across three of California's 11 geomorphic provinces: from the Coast Ranges on the west, across the Great Valley, to the Sierra Nevada on the east. The Coast Ranges geomorphic province, which is characterized by northwest-trending mountain ranges and valleys, formed over the past 10 million years by active uplift related to complex tectonics of the San Andreas fault and plate boundary system (Atwater and Stock 1998; Norris and Webb 1990). The larger drainages in this province preserve several generations of alluvial fan and stream deposits ranging in age from Pleistocene to Holocene (Graymer et al. 2002; Wagner and Bortugno 1982).

Comprising the center of the plan area of the proposed MTP/SCS, the Great Valley geomorphic province is a large, elongate, northwest-trending asymmetric structural trough filled with an extremely thick sequence of predominantly alluvial sediments ranging in age from Jurassic to Recent. This asymmetric geosyncline has a long, stable eastern shelf supported by the subsurface continuation of the granitic Sierran slope and a short western flank expressed by the upturned edges of the basin sediments (Hackel 1966).

The Sierra Nevada geomorphic province is a massive block of the earth's crust that has broken free on the east along the Sierra Nevada fault system and tilted westward. It is overlapped on the west by sedimentary rocks of the Great Valley geomorphic province and on the north by volcanic sheets extending south from the Cascade Range.

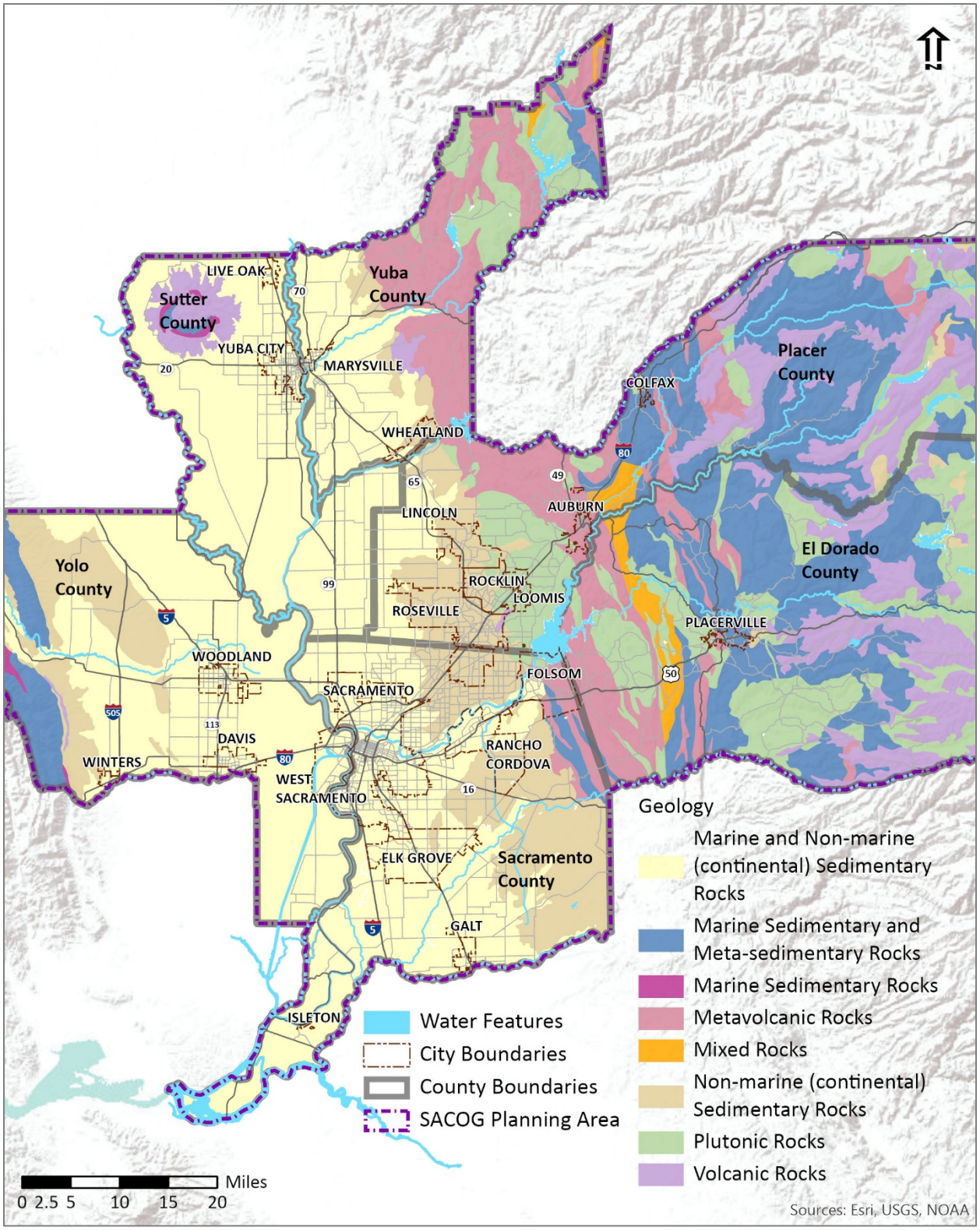


Figure 9-1
Geologic Map of the SACOG Region

The topographic features of the plan area of the proposed MTP/SCS vary, depending upon physiography. In the west, the plan area of the proposed MTP/SCS is typical of an alluvial valley influenced by sediment introduction from the Sierra Nevada and its foothills. From southwest to northeast, topographic features consist of the Sacramento-San Joaquin Delta (Delta), flat alluvial valleys, river floodplains and channels, low alluvial plains and fans, and dissected uplands. The eastern portion of the plan area of the proposed MTP/SCS generally consists of rocky foothills that increase in elevation to the east to become the Sierra Nevada crest. Elevations presently range from below sea level on the western edge of the plan area to over 10,000 feet on the Sierra Nevada crest at the eastern edge.

UNIQUE GEOLOGICAL RESOURCES

Key geological features in the plan area of the proposed MTP/SCS include the Sutter Buttes in Sutter County, which are a small circular complex of eroded volcanic lava domes that rise as buttes above the flat plains of the Sacramento Valley. In western Yolo County, Berryessa Snow Mountain National Monument includes several mountains that were once Jurassic seamounts. The gold deposits in the Mother Lode are a unique geologic resource in the Sierra Nevada.

9.2.2 Seismicity

Seismic hazards include earthquake fault ground rupture and ground shaking (primary hazards), and liquefaction and earthquake-induced slope failure (secondary hazards). When compared to other areas of the state (e.g., the San Francisco Bay Region), the plan area of the proposed MTP/SCS is not located in a very seismically active region. However, earthquakes have occurred in the vicinity of the plan area of the proposed MTP/SCS and are expected to occur again. Accordingly, ground shaking and liquefaction are the most critical seismic hazards in the plan area of the proposed MTP/SCS.

SURFACE RUPTURE AND FAULTING

The purpose of the Alquist-Priolo Earthquake Fault Zoning Act of 1971 (Alquist-Priolo Act). (Public Resources Code [PRC] Section 2621 et seq.) is to regulate development near active faults to mitigate the hazard of surface rupture. As defined under the Alquist-Priolo Act, an active fault is one that has had surface displacement within Holocene time (about the last 11,000 years). An early Quaternary fault is one that has had surface displacement during Quaternary time (the last 1.6 million years). A Pre-Quaternary fault is one that has had surface displacement before the Quaternary period (Hart and Bryant 1997).

Figure 9-2 depicts fault lines within the SACOG region. El Dorado County does not have any active faults; however, one fault that is part of the Rescue Lineament-Bear Mountain fault zone is potentially active. In Yolo County, the Hunting Creek Fault is an active fault located in the extreme northwestern corner of the County, with only a very short section of the fault located within the county. Most of the trace is located in Lake and Napa counties. The Dunnigan Hills Fault is the only other potentially active fault within the plan area of the proposed MTP/SCS, which is also located in an unincorporated area of Yolo County to the west of Interstate 5, between Dunnigan and the community of Yolo.

Although recent evidence suggests that buried thrust and inferred faults may located within the plan area of the proposed MTP/SCS, these faults do not have surface ruptures and are not officially recognized by the State of California or the International Building Code (IBC).

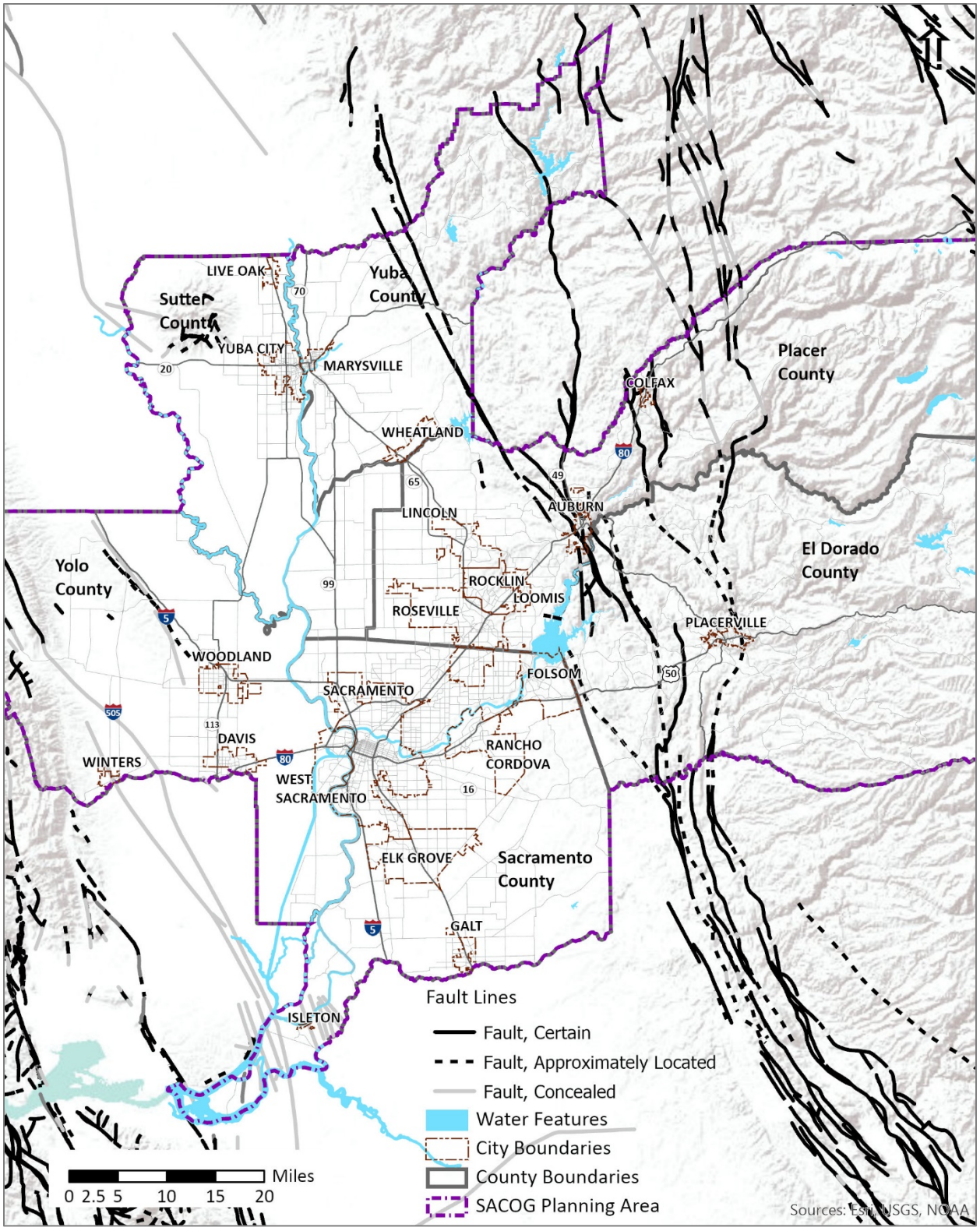


Figure 9-2
Fault Lines in the Plan Area of the Proposed MTP/SCS

GROUND-SHAKING HAZARD

The measurement of the energy released at the point of origin, or epicenter, of an earthquake is referred to as the magnitude. The greater the energy released from the fault rupture, the higher the magnitude of the earthquake. Earthquake energy is most intense at the fault epicenter. The farther an area from an earthquake epicenter, the less likely that ground shaking will occur. Geologic and soil units comprising unconsolidated, clay-free sands and silts can reach unstable conditions during ground shaking, which can result in extensive damage to structures built on them (see the "Liquefaction and Related Hazards" section below). Ground shaking is described by two methods: 1) ground acceleration as a fraction of the acceleration of gravity (*g*) or 2) the Modified Mercalli scale, which is a more descriptive method involving 12 levels of intensity denoted by Roman numerals. Modified Mercalli intensities range from I (shaking that is not felt) to XII (total damage).

ESTIMATES OF EARTHQUAKE SHAKING

The plan area of the proposed MTP/SCS is in a region of California characterized by a generally low ground-shaking hazard. Based on a probabilistic seismic hazard map that depicts the peak horizontal ground acceleration values exceeded with a 2 percent probability in 50 years, the probabilistic peak horizontal ground acceleration values in the plan area of the proposed MTP/SCS range from 0.3 to 0.8g (DOC 2008a). Because the plan area of the proposed MTP/SCS is distant from known, active faults, the intensity and frequency of ground-shaking and the associated hazard in the plan area of the proposed MTP/SCS are predicted to be low (Figure 9-3). In most earthquakes, only unreinforced masonry buildings would be damaged. The highest g values occur in the extreme western portions of Sacramento and Yolo counties and the easternmost portions of the plan area of the proposed MTP/SCS, specifically the eastern portions of Placer and El Dorado counties. In the majority of the plan area of the proposed MTP/SCS, the ground-shaking hazard is less due to fewer faults and fault complexes.

LIQUEFACTION AND RELATED HAZARDS

Liquefaction is a phenomenon in which the strength and stiffness of unconsolidated sediments are reduced by earthquake shaking or other rapid loading. Poorly consolidated, water-saturated fine sands and silts having low plasticity and located within 50 feet of the ground surface are typically considered to be the most susceptible to liquefaction (DOC 1997). Based on the sedimentological characteristics of the soils and the depth to groundwater, the liquefaction hazard is expected to be moderate for the portion of the plan area of the proposed MTP/SCS within the Great Valley geomorphic province and low for the portions of the plan area of the proposed MTP/SCS within the Sierra Nevada and Coast Range geomorphic provinces. Additionally, the plan area of the proposed MTP/SCS does not fall within any liquefaction seismic hazard zones of required investigation (DOC 2005).

The two potential ground failure types associated with liquefaction in the Great Valley geomorphic province are lateral spreading and differential settlement (Association of Bay Area Governments 2001). Lateral spreading involves a layer of ground at the surface being carried on an underlying layer of liquefied material over a gently sloping surface toward a river channel or other open face. Lateral spreading is common in the Great Valley geomorphic province (especially in the Delta) and poses a moderate to significant hazard (Association of Bay Area Governments 2001).

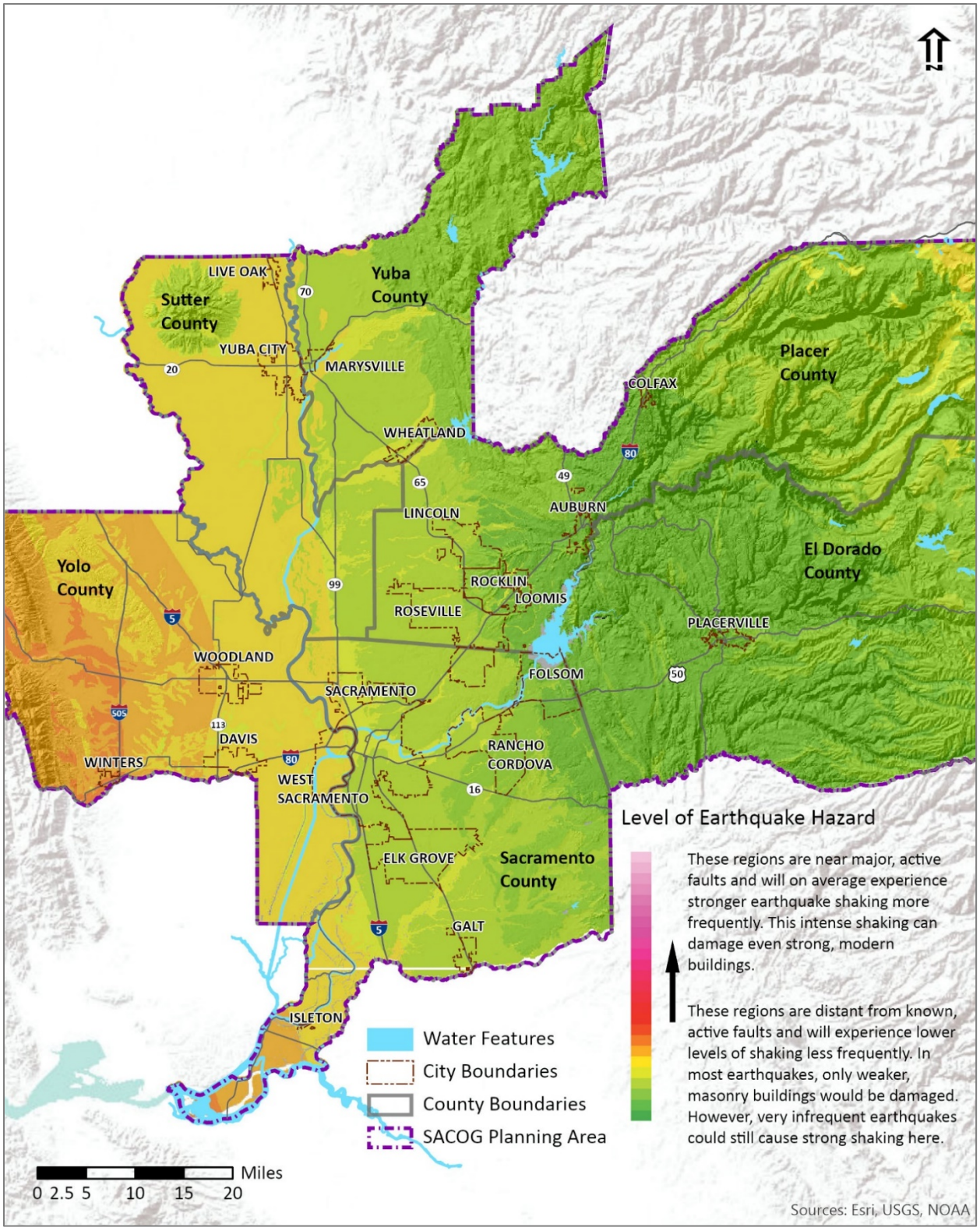


Figure 9-3
Fault Shaking Hazards Map in the Plan Area of the Proposed MTP/SCS

Another common hazard in the Great Valley geomorphic province (specifically the Delta) is differential settlement (also called ground settlement and, in extreme cases, ground collapse) as soil compacts and consolidates after ground shaking ceases. Differential settlement occurs when the layers that liquefy are not of uniform thickness, a common problem when the liquefaction occurs in artificial fills. Settlement can range from one to five percent, depending on the cohesiveness of the sediments (Tokimatsu and Seed 1984). Ground shaking and liquefaction could also result in dam failure, which is addressed in Chapter 11 – Hydrology and Water Quality.

9.2.3 Other Geologic Conditions

LAND SUBSIDENCE

Land subsidence (lowering of the land-surface elevation) primarily occurs in three ways: as a result of compaction and oxidation of peat soils; hydrocompaction (a condition that occurs when soil particles in saturated soils become highly consolidated as moisture is removed); and groundwater overdraft, which is the main mechanism for subsidence in the plan area.

Figure 9-4 illustrates the California Department of Water Resources' estimates of the recent, historical, and estimated potential for future land subsidence due to groundwater extraction. Historical and recent subsidence is present throughout northern and central Yolo County, where subsidence is highly likely to occur in the future. Sutter County extensometers have reported subsidence in the south, and south Sacramento and western Placer counties have recorded subsidence trends of up to one inch and up to two and a half inches, respectively. Land subsidence is also moderately likely to occur in the future in Sacramento County (highly likely in the southwestern tip and less likely in the southeast area), western Placer County, and southern Sutter County. The remainder of Sutter County and southern Yuba County have a lower risk of subsidence in the future. No past or future subsidence is estimated for El Dorado County (California Department of Water Resources 2014).

In the Delta, land subsidence has occurred due to oxidation and hydrocompaction. Subsidence initiated when the Delta was drained and reclaimed for agriculture. Continued exposure of the organic soils to oxygen during agricultural operations has accelerated the rate of decomposition of the organic matter (United States Geological Survey 2007).

The primary hazards associated with subsidence are increased pressure on levees and damage to underground utilities. Other effects of subsidence include changes in the gradients of stormwater and sanitary sewer drainage systems in which the flow is gravity-driven.

LANDSLIDES

California Department of Conservation has mapped the relative likelihood of deep-seated landslides based on regional estimates of rock strength and steepness of slopes (Wills, Perez, Gutierrez 2011). Generally, weak rocks and steep slopes are more likely to generate landslides. There is high landslide susceptibility at the eastern edge of the plan area in Placer and El Dorado counties and the western edge of the plan area in Yolo County. There is moderate susceptibility mapped in the foothills of Yuba, Placer, El Dorado, and Sacramento counties. The potential for landslides in the valley is generally low. While several sites in northwest and southwest Yolo County (Lower Lake, Wilson Valley, and Glascock Mountain) and mid-east El Dorado County (Riverton, Kyburz, and Pyramid Peak) have been identified as landslide hazards, the plan area of the proposed MTP/SCS does not fall within any landslide seismic hazard zones of required investigation (DOC 2005).

Summary of Recent, Historical, and Estimated Potential for Future Land Subsidence in California

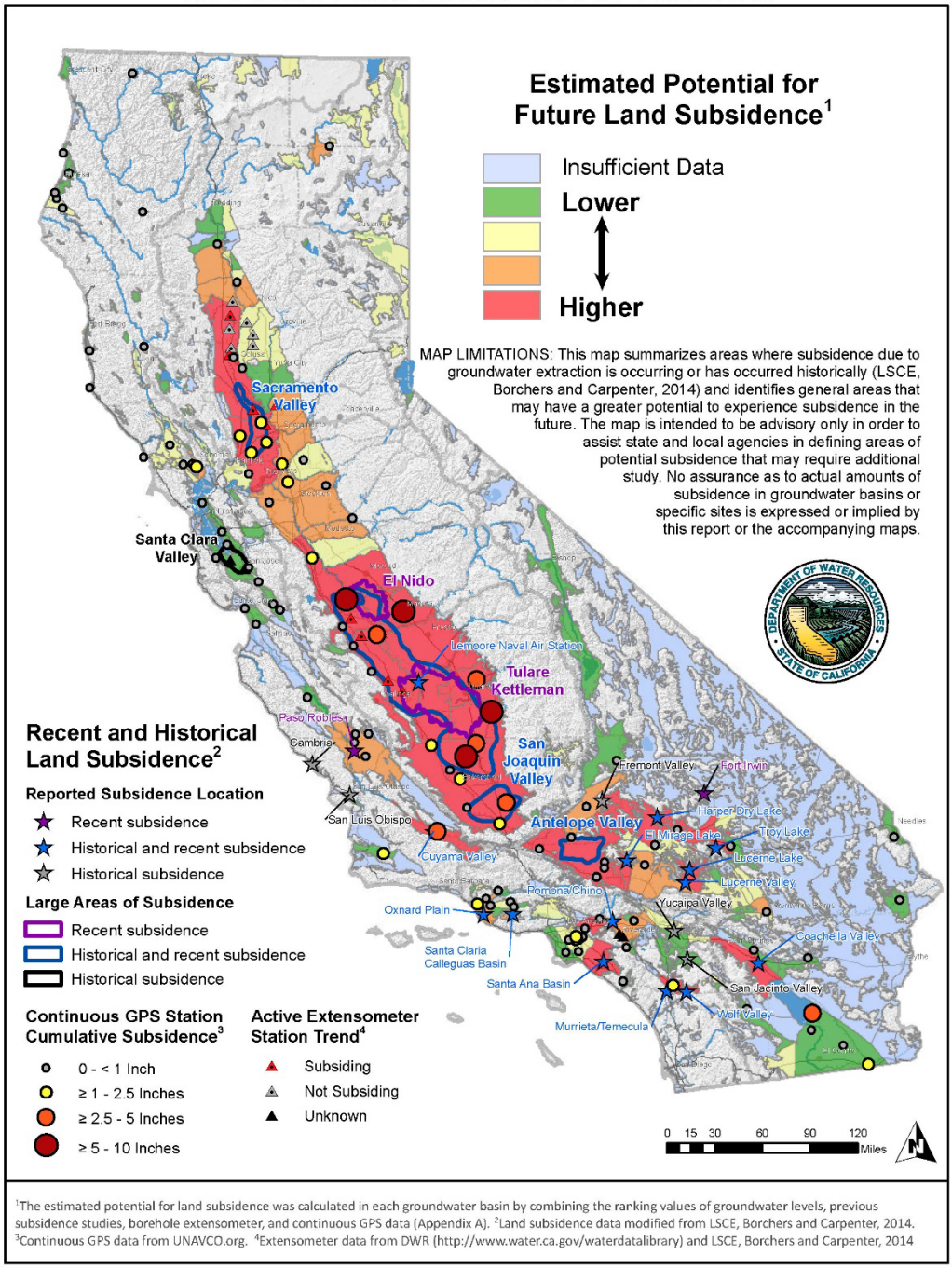


Figure 9-4
Recent, Historical, and Estimated Potential for Future Land Subsidence in California

9.2.4 Soils

The following describes the physical properties of soil, including such qualities as expansiveness and permeability. The resource value of the soil for support of agricultural practices is described in Chapter 4 – Agriculture and Forestry Resources. The potential for soil erosion to impair water quality is described in Chapter 11 – Hydrology and Water Quality.

Soils in the plan area of the proposed MTP/SCS are extensively mapped by the Natural Resources Conservation Service (NRCS), which provides current (2013–2014) data produced by the National Cooperative Soil Survey through the Web Soil Survey system. Figure 9-5 depicts soil taxonomy in the SACOG region. NRCS defines 12 dominant soil orders in Earth's soil taxonomy, characterized by vegetation, parent material, climate, weathering, or soil profile development, as shown in Table 9-1.

Table 9-1
Soil Taxonomy Dominant Orders

Alfisols: rich deciduous forest materials	**Mollisols:** base-rich, grassland materials
Entisols: sloped, weather-resistant minerals	**Ultisols:** extensively weathered materials
Histosols: organic materials	**Vertisols:** shrinking and swelling clays
Inceptisols: unweathered sediment	

Source: Natural Resources Conservation Service, data year 2003, 2014.

See Chapter 4 – Agriculture and Forestry Resources for a discussion of farmland mapping and the agricultural value of soils.

Expansive Soils

During cycles of wetting/swelling and drying/shrinking, expansion and contraction of soil volume can occur. Expansive soils can damage property and structures if these conditions are not considered during building design and construction. El Dorado, Placer, Sacramento, and Yuba counties generally contain little to no swelling clay (Olive et al. 1989). Abundant clay with slight to moderate swelling potential covers most of Sutter County, as well as portions of western Placer and Yuba counties. Most of Yolo County and the southernmost Delta portion of Sacramento County have less than 50 percent expansive soils with slight to moderate swelling potential. In the far western tip, Yolo County also has less than 50 percent expansive soils that have high swelling potential. Figure 9-6 shows where expansive soils are located within the plan area of the proposed MTP/SCS.

Geographic Relationships and Distribution of Soils in Major Land Resource Areas

NRCS designates Major Land Resource Areas (MLRAs) and associated Land Resource Units (LRUs) as the basic units for delineating statewide patterns of soils, climate, water resources, and land use. Elevation, topography, and rainfall (i.e., amount, timing, type, and distribution) are the primary factors used to delineate these LRUs (Natural Resources Conservation Service 2006).

As shown in Figure 9-7 the plan area of the proposed MTP/SCS falls within five MLRAs across two land resource regions identified by NRCS. Most of the plan area is located within MLRA 17 - the Sacramento and San Joaquin Valleys, MRLA 18 - the Sierra Nevada Foothills and MRLA 22A - the Sierra Nevada Mountains. Descriptions of soil texture and erosion, runoff, and expansion hazards for the five MLRAs are provided below for the surface horizon of the soils.

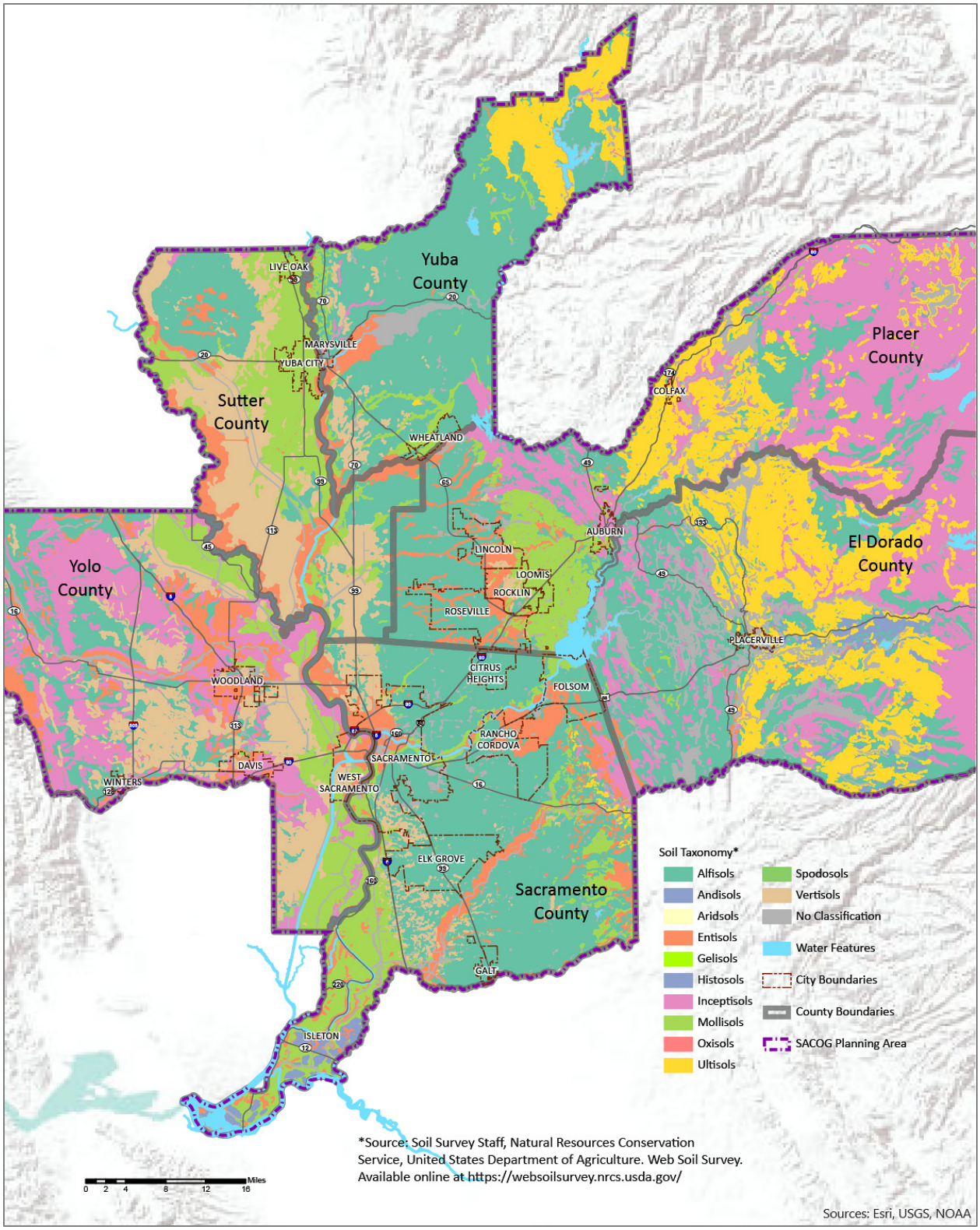


Figure 9-5
Soil Taxonomy in the Plan Area of the Proposed MTP/SCS

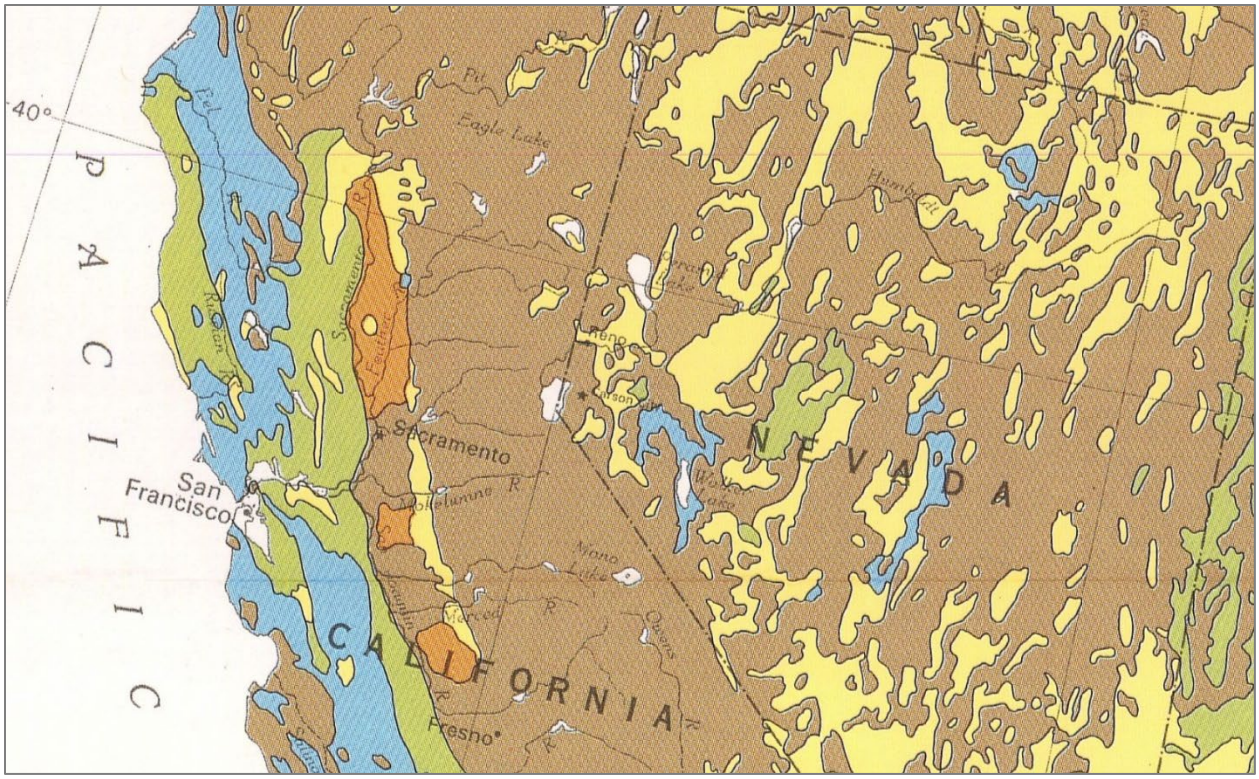


Figure 9-6
Soil Expansion Areas

Central California Coast Range

The westernmost portion of the plan area of the proposed MTP/SCS in Yolo County is located within MLRA 15—the Central California Coast Range. Soils within this area are gently sloping on hilly landscapes and primarily include Alfisols, Entisols, Mollisols, and Vertisols. Soil textures are generally clayey to loamy sand. Soil depth ranges from very shallow to deep, and these soils are somewhat excessively drained to well drained. Major soil resource concerns are erosion, maintenance of the content of organic matter in the soils, water quality, and low infiltration rates.

California Delta

The southern portion of the plan area of the proposed MTP/SCS, at the edge of Yolo and Sacramento counties, is located within MLRA 16—the California Delta. Soils within this area are nearly level, and primarily include Entisols, Histosols, and Mollisols. Soil depth is very deep, and soils are poorly to very poorly drained and clayey in texture. The major soil resource concern is the subsidence caused mainly by oxidation, wind erosion, and shrinkage of organic soils.

Sacramento and San Joaquin Valleys

The mid-western portion of the plan area of the proposed MTP/SCS, including the majority of Yolo and Sacramento counties, as well as portions of Yuba and Placer counties, is located within MLRA 17—the Sacramento and San Joaquin valleys. Soils within this area are nearly level and primarily include alluvial Alfisols, Aridisols, Entisols, Mollisols, and Vertisols on low terraces, fans, floodplains, and basins. Soil textures are generally clayey to loamy sand. Soils in the northern plan area are organic and very deep. Erosion hazard is slight to none, runoff is very slow, and soil expansiveness is low to high, depending on geographic location and texture.

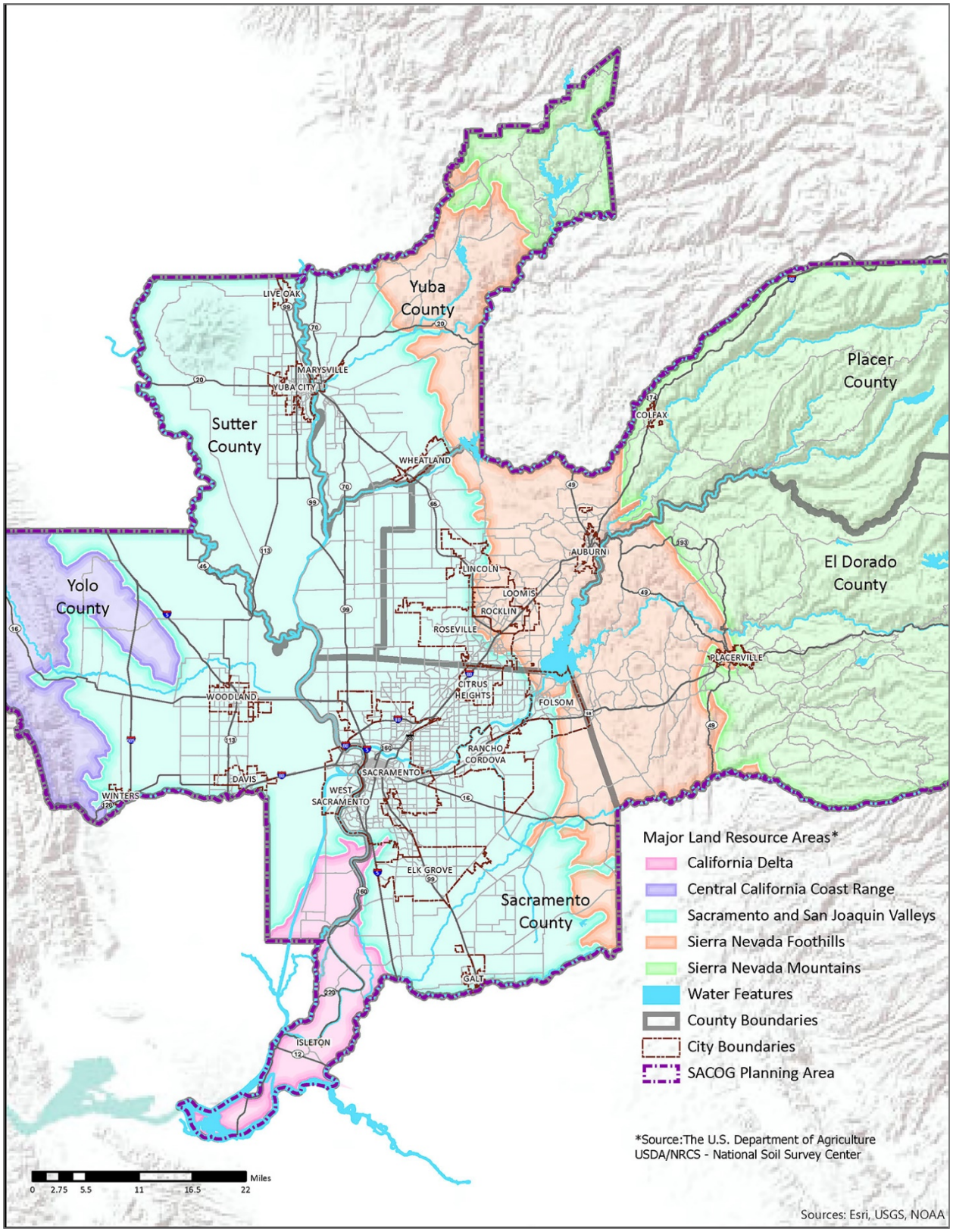


Figure 9-7
Major Land Resource Areas in the Plan Area of the Proposed MTP/SCS

Sierra Nevada Foothills

The mid-eastern portion of the plan area of the proposed MTP/SCS, including portions of Yuba, Placer, and El Dorado counties, is located within MLRA 18—the Sierra Nevada Foothills. Soils within this area are nearly level to moderately sloping, and are primarily alluvial, although soils are residual at the highest elevations. Soil orders include Alfisols, Entisols, Inceptisols, and Mollisols. Soil textures are generally loamy to sandy and some are even gravel-like. Soil depth ranges from shallow to deep. The erosion hazard is moderate due to the presence of poorly aggregated volcanic and igneous rocks. Runoff is moderate to rapid, and soil expansiveness is low moderate.

Sierra Nevada Mountains

The easternmost portion of the plan area of the proposed MTP/SCS in Placer and El Dorado counties is located within MLRA 22A—the Sierra Nevada Mountains. Soils within this area are sloping on hilly landscapes and primarily include Alfisols, Entisols, Inceptisols, Mollisols, and Ultisols. Soil depth ranges from very shallow to deep, and these soils are well drained or somewhat excessively drained. Soil textures and are loamy or sandy. Erosion hazard is highest on the moderately coarse textured, granitic soils that have been disturbed by logging, fires, overgrazing, or cultivation. Drainage can be a problem in many of these soils, depending on geographic location and texture.

9.2.5 Mineral Resources

A number of mineral resources can be found within the region, including construction aggregate (sand, gravel, and crushed stone), clay, and gold. Mineral Resource Zone (MRZ) classifications are provided in accordance with the California's Surface Mining and Reclamation Act (SMARA) (PRC Sections 2710–2796) described in further detail in Section 9.3 – Regulatory Setting.

MRZs are classified as follows:

- MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
- MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- MRZ-4: Areas where available information is inadequate for assignment into any other MRZ.

El Dorado County includes MRZ-2 locations directly north and south of the City of Placerville, extending to the county boundary, and south of Jenkinson Lake. Placer County includes MRZ-2 locations in the central portion of the county east of Colfax and west of French Meadows Reservoir. Sacramento County includes MRZ-2 locations in the north-central part of the county near the Jackson Corridor and in northeastern part of the county north of the Eaton area. Sutter County includes a small MRZ-2 location at the southern edge of Yuba City. Yolo County includes MRZ-2 location in the central part of the county along Cache Creek, surrounding Highway 16, west of Interstate 5 and east of the Capay Valley. Yuba County includes MRZ-2 locations west of Highway 70 along the south side of Highway 20. MRZ locations within the plan area of the MTP/SCS are depicted in Figure 9-8.

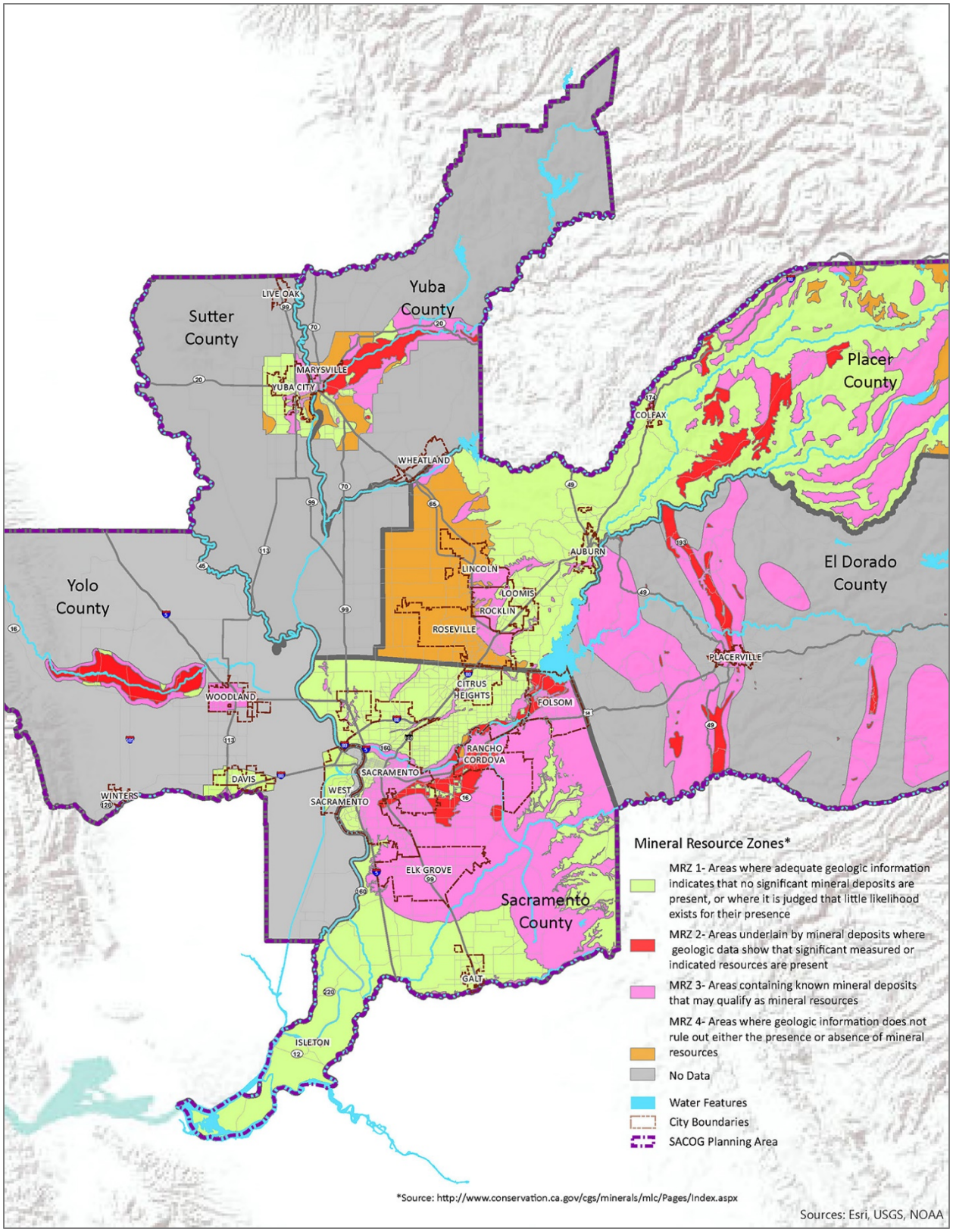


Figure 9-8
Mineral Resources Zones in the Plan Area of the Proposed MTP/SCS

9.3 Regulatory Setting

9.3.1 Federal Regulations

CLEAN WATER ACT OF 1972

The Clean Water Act (CWA) (33 U.S. Code Section 1251 et seq.) is discussed in detail in Chapter 11 – Hydrology and Water Quality. However, because CWA Section 402 is directly relevant to excavation and grading, the following additional information is provided for this chapter.

Amendments in 1987 to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) Program. The U.S. Environmental Protection Agency (EPA) has delegated to the State Water Resources Control Board (SWRCB) the authority for the NPDES program in California, which is implemented by the state's nine regional water quality control boards (RWQCBs) (CalEPA and SWRCB 2019) (SWRCB 2013).

The NPDES Permit Program controls water pollution by regulating point sources that discharge pollutants, including rock, sand, dirt, and agricultural, industrial, and municipal waste, into waters of the U.S. Under the NPDES Phase II Rule, construction activity disturbing one or more acres must obtain coverage under the state's General Permit for Discharges of Storm Water Associated with Construction Activity (General Construction Permit). Proponents of specific projects under the proposed MTP/SCS that would disturb one or more acres are required to obtain a General Construction Permit, prepare a Notice of Intent and a Storm Water Pollution Prevention Plan (SWPPP), and implement and maintain Best Management Practices (BMPs) to avoid adverse effects on water quality as a result of construction activities, including earthwork.

INTERNATIONAL BUILDING CODE

The International Building Code (IBC) is published by the International Code Council (ICC). The ICC was established in 1994 as a non-profit organization dedicated to developing a single set of comprehensive and coordinated national model construction codes. The IBC is used widely across the nation, and many states such as California adopt the IBC and then add requirements that are more stringent.

9.3.2 State Regulations

ONSITE WASTEWATER TREATMENT SYSTEMS

The SWRCB adopted the Onsite Wastewater Treatment Systems (OWTS) Policy: Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems in 2012. RWQCBs have principal responsibility for overseeing implementation of the policy, which requires local agencies to determine whether their regulations are consistent with the statewide minimum standards for water quality or whether the local agency will implement a Local Agency Management Program. The policy establishes a risk-based tiered approach for the regulation and management of OWTS installations and replacements, setting performance and protection level expectations and requiring actions where OWTS contribute to water quality degradation that adversely affect beneficial uses.

Most of Sacramento, Sutter, and Yolo counties (with the exception of westernmost mountainous Yolo County) have an annual average rainfall between 10 and 25 inches, which would have an allowed density of 1.5 dwelling units per acre under OWTS Tier 1 (Oregon Climate Service 1995). In El Dorado, Placer, and Yuba counties, the average annual rainfall is between 20 and 30 inches in the west, 30 to 55 inches in the middle, and 55 to 70 inches to the east (only limited areas in El Dorado County). Under OWTS Tier 1, the allowable density for areas with an average annual rainfall over 35 inches is less than 1 dwelling unit per acre. Most Rural Residential Communities are located in the western to middle portion of these counties where there is less annual average rainfall, and while the maximum allowable density is one dwelling unit per acre, many communities build at lower densities. A Local Agency Management Program under Tier 2 would be required for approval by SWRCB for subdivisions at densities greater than 0.75 dwelling units per acre in areas with less than 40 inches of annual average rainfall and 0.5 dwelling units per acre in areas with over 40 inches of annual average rainfall (SWRCB 2012).

ALQUIST-PRIOLO ACT

Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are "sufficiently active" and "well-defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for the purposes of the Act as within the last 11,000 years). A fault is considered well-defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant 1997).

SURFACE MINING AND RECLAMATION ACT OF 1975

The Surface Mining and Reclamation Act (SMARA) (PRC Sections 2710–2796) was enacted in response to land use conflicts between urban growth and essential mineral production. The stated purpose of the SMARA is to provide a comprehensive surface mining and reclamation policy that will encourage the production and conservation of mineral resources, while ensuring that adverse environmental effects of mining are prevented or minimized, mined lands are reclaimed and residual hazards to public health and safety are eliminated, and consideration is given to recreation, watershed, wildlife, aesthetic, and other related values. The SMARA includes noticing requirements when permitting a use that would preclude future extraction of identified mineral resources, defined as: 1) the potential to extract minerals in MRZ-2 lands or 2) the potential to extract minerals in land designated in a lead agency's general plan as having important mineral resources to be protected. In addition, these noticing requirements are subject to CEQA public review requirements.

SEISMIC HAZARDS MAPPING ACT OF 1990

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act (PRC Sections 2690–2699-6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically-induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones.

Permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites in Seismic Hazard Zones until appropriate site-specific geologic or geotechnical investigations have been carried out, and measures to reduce potential damage have been incorporated into the development plans. Seismic hazard maps have been prepared for parts of the San Francisco Bay Area and in the Los Angeles area; no such maps are presently available for the plan area due to the relatively low seismic risk.

In addition to the Seismic Hazards Mapping Act, the California Geologic Survey (CGS) provides guidelines (Guidelines for Evaluating and Mitigating Seismic Hazards in California) for evaluating seismic hazards other than surface fault rupture, and for mitigation measures as required by PRC Section 2695(a) (CGS 2008). The most current guidelines are provided in Special Publication 117A of 2008.

CALIFORNIA BUILDING CODE

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The 2019 CBC is based on the 2018 IBC published by the International Code Council. In addition, the CBC contains necessary California amendments, which are based on reference standards obtained from various technical committees and organizations such as the American Society of Civil Engineers (ASCE), the American Institute of Steel Construction, and the American Concrete Institute. ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads, as well as other loads (e.g., flood, snow, wind), for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements consider the occupancy category of the structure, site class, soil classifications, and various seismic coefficients that are used to determine a Seismic Design Category (SDC) for a project as described in Chapter 16 of the CBC. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E (very high seismic vulnerability and near a major fault), as well as SDC F (hospitals, police stations, emergency control centers in areas near major active faults). Design specifications are then determined in accordance with Chapter 16 of the CBC. Chapter 16, Section 1613 provides earthquake loading specifications for design and construction to resist the effects of earthquake motions in accordance with ASCE 7-05.

Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (1806), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). Chapter 18 also describes analysis of expansive soils and the determination of the depth to groundwater table. For SDC D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on

basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses mitigation measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

Specifically, Section 1803.7 of the 2019 CBC requires geologic and earthquake engineering reports for all proposed construction. The purpose of the engineering report is to identify geologic and seismic conditions that may require mitigations. The reports, which are prepared by a California certified engineering geologist in consultation with a California-registered geotechnical engineer, assess the nature of the site and potential for earthquake damage based on appropriate investigations of the regional and site geology, project foundations conditions, and potential seismic shaking at the site. These reports must consider the most recent CGS Note 48 (Checklist for the Review of Engineering Geology and Seismology Reports California Public Schools, Hospitals, and Essential Services Buildings), CGS Special Publication 42: Fault Rupture hazard Zones in California (for projects sites within an Alquist-Priolo Zone), and the most recent version of CGS Special Publication 117: Guidelines for Evaluating and Mitigating Seismic Hazard in California (project sites proposed within a Seismic Hazard Zone). All conclusions must be fully supported by satisfactory data and analysis.

The geotechnical report required in Section 1802.8.1 provides completed evaluations of the foundation conditions of the site and the potential geologic and seismic hazards. It includes site-specific evaluations of design criteria related to the nature and extent of foundation materials, groundwater conditions, liquefaction potential, settlement potential and slope stability; as well as the results of the analysis of problem areas identified in the engineering geologic report. The geotechnical report incorporates estimates of the characteristics of site ground motion provided in the engineering geologic report. The geotechnical report must be prepared by a geotechnical engineer registered in the State of California with the advice of the certified engineering geologist and other technical experts, as necessary. The approved engineering geologic report is submitted with, or as part of, the geotechnical report. Local jurisdictions in the proposed Plan area typically regulate construction activities through a process that requires the preparation of a site-specific geotechnical investigation, consistent with Title 24, Part 2, Chapter 18 of the CBC.

CCR Title 24 also includes the California Residential Code and the California Green Building Code, which have been adopted as separate documents (CCR Title 24, Part 2.5 and 11, respectively). The California Green Building Standards Code, otherwise known as "CALGreen," establishes mandatory minimum green building standards and optional Tier 1 and Tier 2 more stringent provisions. Cities and counties have the discretion to adopt either tier as mandatory or to adopt their own more stringent standards. The green building standards included in CALGreen enhance the design and construction of buildings using planning and design concepts that reduce negative impacts to the environment through energy efficiency, water efficiency and conservation, and material conservation and resource efficiency. Sections 4.106.2 and 5.106.1 contain requirements intended to limit erosion due to development that would disturb less than 1 acre. The California Residential Code includes structural design standards for residential one- and two-family dwellings and covers all structural requirements for conventional construction. This part incorporates by adoption the 2009 International Residential Code of the International Code Council with necessary California

amendments for seismic design. All other structures, including multi-family residential projects, are found in the other parts of the CBC as discussed above.

California Department of Transportation Seismic Design Criteria and Encroachment Permits

The California Department of Transportation (Caltrans) provides Seismic Design Criteria (SDC), which is an encyclopedia of new and currently-practiced seismic design and analysis methodologies for the design of new bridges in California. The SDC adopts a performance-based approach, specifying minimum levels of structural system performance, component performance, analysis, and design practices for ordinary standard bridges. The SDC has been developed with input from the Caltrans Offices of Structure Design, Earthquake Engineering and Design Support, and Materials and Foundations. The *Engineering Service Manual: Bridge Memo 20-1 to Designers* outlines the bridge category and classification, seismic performance criteria, seismic design philosophy and approach, seismic demands and capacities on structural components and seismic design practices that collectively make up Caltrans' seismic design methodology.

Additionally, Caltrans requires any construction project within a State highway right of way to obtain an encroachment permit (Streets and Highway Code 660). Encroachment permits require site grading and drainage plans, as well as additional analysis for erosion and sediment control and stormwater pollution prevention.

9.3.3 Local Regulations

General Plans

The Safety Elements of the various city and county general plans of the plan area of the proposed MTP/SCS contain goals, objectives, and policies aimed at reducing the geologically-related hazards and seismic risk to people and property. Jurisdictions also address geologic hazards through land use regulation, including designation for lower densities and intensities in higher risk areas, and the use of land use overlays to denote areas with shared land use characteristics (e.g., mineral resource and natural resource overlays). Proponents of specific projects in the plan area of the proposed MTP/SCS would be required to consult the applicable general plans and design the projects consistent with the applicable guidelines of the jurisdictions in which the projects are located.

Local Grading and Erosion Control Ordinances

Local jurisdictions have grading and erosion control ordinances that are intended to control erosion and sedimentation caused by construction activities. A grading permit is typically required for construction-related projects. As part of the permit, project applicants usually must submit a grading and erosion control plan, vicinity and site maps, and other supplemental information. Standard conditions in the grading permit include a description of BMPs similar to those contained in a SWPPP.

Geotechnical Investigations

Local jurisdictions in the plan area of the proposed MTP/SCS typically regulate construction activities through a process that may require the preparation of a site-specific geotechnical investigation, as required in CBC, Title 24, Part 2, Chapter 18. The purpose of a site-specific

geotechnical investigation is to provide a geologic basis for the development of appropriate construction design. Geotechnical investigations typically assess bedrock and Quaternary geology, geologic structure, soils, and the previous history of excavation and fill placement. Proponents of specific projects in the plan area of the proposed MTP/SCS that require design of earthworks and foundations for proposed structures would need to prepare geotechnical investigations on the physical properties of soil and rock at the site prior to project design.

9.4 Impacts and Mitigation Measures

9.4.1 Methods and Assumptions

This program-level analysis generally evaluates the potential for implementation of the proposed MTP/SCS to directly or indirectly result in seismic, geologic, or soil hazards based on the projected land use pattern and planned transportation network relative to the known distribution of existing faults, geology, and soil types.

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

This impact analysis assesses how implementation of the proposed MTP/SCS, including changes to the land use pattern and transportation network, may impact geology, seismicity, soils, and mineral resources. Impacts are evaluated qualitatively by considering the conditions of the plan area, the areas where growth and development are most likely to occur based on the projected land use pattern and planned transportation improvements in the proposed MTP/SCS, and the existing regulations that would apply to the subsequent land use pattern and planned transportation improvements to analyze its geological, soils, and mineral resources impacts.

The analysis assumes implementing agencies would ensure geologic, soils, seismicity, and mineral resources are treated in accordance with applicable federal, state and local laws and regulations as part of project planning, design and engineering.

9.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA if the following would occur:

GEO-1 Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

a. rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;

b. strong seismic ground shaking;

c. seismic-related ground failure, including liquefaction; or

d. landslides.

GEO-2 Result in substantial soil erosion or the loss of topsoil.

GEO-3 Locate a project on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

GEO-4 Result in development on expansive soil, as defined in Section 1803.5.3 of the International Building Code (International Conference of Building Officials, 2012), creating substantial direct or indirect risks to life or property.

GEO-5 Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

GEO-6 Directly or indirectly destroy a unique geologic feature.

GEO-7 Result in substantial impacts related to geology, seismicity, and soils from construction of proposed MTP/SCS projects.

GEO-8 Result in the loss of availability of a known designated mineral resource that would be of value to the region and the residents of the state.

GEO-9 Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

GEO-10 Result in a substantial impact to mineral resources from construction of proposed MTP/SCS projects.

Impacts to unique paleontological resources are addressed in Chapter 7 – Cultural, Tribal, and Paleontological Resources.

9.4.3 Impacts and Mitigation Measures

IMPACT GEO-1A: DIRECTLY OR INDIRECTLY CAUSE SUBSTANTIAL ADVERSE EFFECTS, INCLUDING THE RISK OF LOSS, INJURY, OR DEATH DUE TO RUPTURE OF A KNOWN EARTHQUAKE FAULT.

Regional Impacts

The risk of surface fault rupture in the plan area of the proposed MTP/SCS is generally low because of the scarcity of active faults. The only officially-recognized active fault (having surface displacement within the last 11,000 years) on the current Alquist-Priolo Map is the Hunting Creek Fault (see Figure 9-2 above) at the very northwestern edge of Yolo County (Yolo County 2009).

Buried thrust faults and inferred faults are also located within the boundaries of the proposed MTP/SCS; however, they do not have surface ruptures and are not officially-recognized.

The Alquist-Priolo Act strictly regulates where the projected land use pattern and planned transportation improvements can occur in relation to faults. The Hunting Creek Fault is in a predominately agricultural and open space area where no land use development or transportation improvements are planned. As a result, implementation of the proposed MTP/SCS would not cause substantial adverse effects due to rupture of a known fault.

The potential to directly or indirectly cause adverse regional impacts due to rupture of a known earthquake fault related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-1a. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the regional impacts discussion above. Because no land use or planned transportation improvements are proposed where there are active faults in the region, land use and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities Community Types are not likely to expose people or structures to substantial risk related to fault rupture. Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Further, under the proposed MTC/SCS, limited funding for the maintenance and improvement of transportation facilities would be allocated to the Lands Not Identified for Development Community Type.

The potential to directly or indirectly cause adverse localized impacts due to rupture of a known earthquake fault related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS is considered less than significant (LS) in all Community Types for Impact GEO-1a. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As discussed above, the only officially-recognized active fault is the Hunting Creek Fault at the very northwestern edge of Yolo County. There are no HFTAs in this area.

Therefore, the potential for adverse fault impacts related to the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS in the HFTAs is considered less than significant (LS) for Impact GEO-1a. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT GEO-1B: DIRECTLY OR INDIRECTLY CAUSE SUBSTANTIAL ADVERSE EFFECTS, INCLUDING THE RISK OF LOSS, INJURY, OR DEATH INVOLVING STRONG SEISMIC GROUND SHAKING.

Regional Impacts

The plan area of the proposed MTP/SCS is not very seismically active; however, ground shaking has occurred in the region and will likely occur again. The possibility of widespread exposure of people and structures to ground shaking can vary across an area and depends on such factors as earthquake intensity and fault mechanism, duration of shaking, soil conditions, and building type.

Figure 9-3 (shown above in Section 9-2) shows the levels of earthquake hazard and the related intensity of ground shaking that areas within the region may experience. The western portion of the region has a higher expected level of earthquake hazard (low to moderate) compared with the rest of the plan area of the proposed MTP/SCS, which is expected to experience lower levels of shaking, less frequently. However, very infrequent earthquakes could potentially cause strong ground shaking within the region.

As described above, the provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California. Design specifications are determined in accordance with Chapter 16 of the CBC according to the SDC (a classification system that combines the occupancy categories with the level of expected ground motions at the site, as described above). Chapter 16, Section 1613 provides earthquake loading specifications for design and construction to resist the effects of earthquake motions in accordance with ASCE 7-05. Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses mitigation measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. Compliance with the regulatory requirements in the CBC and any applicable local ordinances, and ensuring that structures are constructed in compliance with the law, is the responsibility of the project engineers and building officials (typically associated with the local jurisdiction).

Similarly, bridge design would be required to comply with Caltrans design criteria. Caltrans provides the SDC for design of new bridges in California, specifying minimum levels of structural system performance, component performance, analysis, and design practices for bridges. Proposed developments would also adhere to the local building code requirements for seismic safety to resist ground shaking through modern construction techniques. In addition, development would comply with local general plans and with standard industry practices and state provided guidance, such as CGS Special Publication 117A which provides guidance for the evaluation and mitigation of earthquake-related hazards.

Section 1803.7 of the 2019 CBC requires preparation of a geohazard reports for all proposed construction, with few exceptions. The purpose of the engineering report is to identify geologic and seismic conditions that may require mitigations. The reports, which are prepared by a California certified engineering geologist in consultation with a California-registered geotechnical engineer, assess the nature of the site and potential for earthquake damage based on appropriate investigations

of the regional and site geology, project foundations conditions, and potential seismic shaking at the site. In connection with grading, foundation, building, and other site development permits, the local jurisdiction reviews the geotechnical investigation and recommendations and imposes permit requirements based on the geotechnical recommendations and CBC provisions. Recommended corrective measures, such as structural reinforcement and replacing native soils with engineered fill, must be incorporated into project designs. Developments must also adhere to local building code requirements for seismic safety, which identify and require specified construction techniques that aid in structural resistance to ground shaking, as well as local general plans and zoning ordinances, where applicable policies exist.

Therefore, the potential for implementation of the proposed MTP/SCS to cause adverse ground shaking impacts through the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-1b. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS would be the same in each of these Community Types as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities Community Types are required to comply with state and local regulations related to seismic design, and therefore, are not likely to expose people or structures to substantial risk related to ground shaking. Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. In addition, all transportation improvements would be required to follow design provisions of the IBC and CBC, and bridge design would be required to comply with Caltrans design criteria.

Therefore, the potential for implementation of the proposed MTP/SCS to cause adverse ground shaking impacts related to the projected land use pattern and planned transportation improvements in all Community Types is considered less than significant (LS) for Impact GEO-1b. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The effects of implementing the proposed MTP/SCS would be the same in each of the HFTAs as described in the regional impacts discussion above. Land use and planned transportation improvements in the HFTAs would be required to comply with local regulations related to seismic design and, therefore, are not likely to cause substantial ground shaking.

The potential for adverse ground shaking impacts related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in the HFTAs is considered less than significant (LS) for Impact GEO-1b. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT GEO-1C: DIRECTLY OR INDIRECTLY CAUSE SUBSTANTIAL ADVERSE EFFECTS, INCLUDING THE RISK OF LOSS, INJURY, OR DEATH INVOLVING SEISMIC-RELATED GROUND FAILURE, INCLUDING LIQUEFACTION.

Regional Impacts

Ground failure as a result of an earthquake, including liquefaction, could occur in the plan area of the proposed MTP/SCS, potentially damaging structures and property and exposing people to substantial risk from the sudden loss in strength of unconsolidated sediments. However, since the region is not very seismically active, the potential for implementation of the proposed MTP/SCS to generate substantial seismic-related ground failure is generally low to moderate.

The effects of ground failure, including liquefaction, from development of the land uses or transportation improvements in the proposed MTP/SCS would be addressed through site-specific geotechnical studies required by local jurisdictions to be prepared in accordance with standard industry practices and state-provided guidance, such as CGS Special Publication 117A, which specifically address liquefaction. In addition, development would conform to the current seismic design provisions of the IBC and CBC in order to address losses from ground failure as a result of an earthquake. Proposed developments or improvements would also adhere to local general plans and local building code requirements that contain seismic safety requirements to resist ground failure through modern construction techniques.

Therefore, the potential for regional adverse ground failure impacts related to the projected land use pattern or planned transportation improvements associated with implementation of the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-1c. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities and Lands Not Identified for Development in the MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities Community Types are required to comply with state and local regulations related to seismic design and, therefore, are not likely to expose people or structures to substantial risk from seismic-related ground failure, including liquefaction. Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Because no development is proposed and there are no active faults identified within these areas, there is no potential to cause substantial adverse effects due to seismically-induced ground failure. Further, because planned transportation improvements are required to adhere to the seismic design provisions of the IBC, CBC, and local building code requirements, as well as conduct site-specific geotechnical studies, which would reduce the potential effects related to seismic-related ground failure in the region.

The potential for adverse localized ground failure impacts related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in all Community Types is considered less than significant (LS) for Impact GEO-1c. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS would be the same in each of the HFTAs as described in the discussion of regional impacts above. The projected land use pattern and planned transportation improvements in the HFTAs are required to comply with state and local regulations related to seismic design and, therefore, are not likely to cause seismic-related ground failure, including liquefaction.

The potential for adverse ground failure impacts in HFTAs related to the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-1c. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT GEO-1D: DIRECTLY OR INDIRECTLY CAUSE SUBSTANTIAL ADVERSE EFFECTS, INCLUDING THE RISK OF LOSS, INJURY, OR DEATH INVOLVING LANDSLIDES.

Regional Impacts

The proposed MTP/SCS includes the projected land use pattern and planned transportation improvements that could be located in areas with potential for landslides. Because the region is generally level, not seismically active, and has a low probability of ground shaking (see Figure 9-3 above), the risk of landslides caused by earthquakes is also generally low in most parts of the region and moderate in the Sierra Nevada Foothills. However, the northwest and southwest portion of Yolo County, the northwest portion of Sutter County (at the Sutter Buttes), the middle to southern portion of El Dorado County, and most of Placer County east of Interstate-80 are at very high risk of landslide susceptibility or are identified as landslide hazard areas (refer to Figure 9-5).

Most landslide susceptible and landslide hazard areas are located in predominately agricultural and open space areas where no development is planned. As discussed above, all new development would be subject to local building codes and the IBC, and CBC, which require implementation of design standards in seismically-active areas in order to safeguard against major structural failures or loss of life. Local jurisdictions also require a site-specific geologic investigation and analysis in accordance with standard industry practices and state-provided guidance, such as CGS Special Publication 117A, to minimize risk associated with landslides.

The potential for regional adverse landslide impacts related to projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-1d. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS would be the same in each of these Community Types as described in the regional impacts discussion above. The proposed land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities would be required to comply with state and local regulations related to seismic design and, therefore, are not likely to result in substantial risk related to landslides. Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Because no development is proposed in the Lands Not Identified for Development and there are no active faults identified within these areas, there is no potential to cause substantial adverse effects due to landslide. Further, because transportation improvements are required to adhere to the seismic design provisions of the IBC, CBC, and local building code requirements, as well as conduct site-specific geotechnical studies, there are no potential impacts from risks related to seismic-related ground failure in the region.

The potential for local adverse localized landslide impacts related to the projected land use pattern and planned transportation improvements in all Community Types associated with implementation of the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-1d. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS would be the same in each of the HFTAs as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in the HFTAs are required to comply with state and local regulations related to seismic design and, therefore, are not likely to expose people or structures to substantial risk related to landslides.

The potential for adverse landslide impacts related to the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS in the HFTAs is considered less than significant (LS) for Impact GEO-1d. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT GEO-2: RESULT IN SUBSTANTIAL SOIL EROSION OR THE LOSS OF TOPSOIL.

Regional Impacts

The projected land use pattern as a result of implementing the proposed MTP/SCS could result in soil erosion or the loss of topsoil due to a greater degree of exposed graded surfaces, excavation, stock piling, or boring, which are necessary during development. Development may disturb

previously undisturbed soils, and new development may increase water runoff, causing erosion problems, and, potentially, slope failure. Similarly, soil erosion and loss of topsoil could result from implementation of the proposed MTP/SCS planned transportation improvements that involve the expansion or extension of the transportation system into previously undeveloped land, which usually involves grading or earthwork and increased impervious surfaces and removal of vegetative cover.

However, with the exception of the Sierra Nevada Foothills where moderate erosion hazards may be present, the plan area of the proposed MTP/SCS has limited to no erosion hazards. Local jurisdictions generally have grading ordinances requiring a grading permit for major earthwork in order to minimize erosion and ensure that development in geologic hazard areas does not pose a threat to human life and property. While grading standards differ depending on the jurisdiction (e.g., project size, application requirements, approval process), all jurisdictions require submittal of a grading plan that includes erosion and sediment control measures for approval of a grading permit.

Generally, earthwork and ground-disturbing activities, unless below minimum requirements, require a grading permit, compliance with which minimizes erosion, and local grading ordinances ensure that construction practices include measures to protect exposed soils such as limiting work to dry seasons, covering stockpiled soils, and use of straw bales and silt fences to minimize off-site sedimentation. Additional reports, such as a soil engineering report, engineering geology report, or plans and specifications for grading may be required by the local building or engineering departments, depending on the development proposal. The application, plans, and specifications (if any) would be checked by the appropriate building official or engineer, and may be reviewed by other departments of the county or city to ensure compliance with the laws and ordinances under their jurisdiction. Earthwork recommendations for improved erosion controls, based on site conditions, would be incorporated into the project construction documents.

Development that disturbs more than 1 acre is subject to compliance with a NPDES permit, including the implementation of BMPs, some of which are specifically implemented to reduce soil erosion or loss of topsoil, and the implementation of a SWPPP through the local jurisdiction. BMPs that are required under a SWPPP would include erosion prevention measures that have proven effective in limiting soil erosion and loss of topsoil. Projects that would disturb less than 1 acre would be subject to the CALGreen requirements related to stormwater drainage that have been designed to prevent or reduce discharges of sediments through BMPs that include on-site retention and filtration. Generally, once construction is complete and exposed areas are revegetated or covered by buildings, asphalt, or concrete, the erosion hazard is substantially eliminated or reduced.

Existing regulatory requirements specify mandatory and relatively prescriptive actions that must occur during project development. There are regulations in place that would effectively reduce the potential for loss of topsoil or erosion impacts. Therefore, the potential for regional adverse erosion impacts related to projected land use pattern or planned transportation improvements associated with implementation of the proposed MTP/SCS would be considered less than significant (LS) for Impact GEO-2. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS
The projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to result in substantial soil erosion or the loss of topsoil. With respect to transportation in Lands Not Identified for Development, the proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040, including road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Because no development is proposed in the Lands Not Identified for Development, there is no potential for implementation of the project to cause substantial erosion.

Land use and planned transportation improvements in these communities would be subject to the regulations described in the evaluation of regional impacts above. The potential for loss of topsoil and erosion impacts related to the projected land use pattern and transportation improvements associated with implementation of the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-2 because there are regulations in place that would effectively reduce the potential for loss of topsoil or erosion impacts related to land use and planned transportation improvements in all Community Types. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS would be adequately addressed through existing regulations. Therefore, the potential for loss of topsoil and erosion impacts related to the projected land use pattern and transportation improvements associated with implementation of the proposed MTP/SCS in the HFTAs is considered less than significant (LS) for Impact GEO-2. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT GEO-3: LOCATE A PROJECT ON A GEOLOGIC UNIT OR SOIL THAT IS UNSTABLE, OR THAT WOULD BECOME UNSTABLE AS A RESULT OF THE PROJECT, AND POTENTIALLY RESULT IN ON-SITE OR OFF-SITE LANDSLIDE, LATERAL SPREADING, SUBSIDENCE, LIQUEFACTION, OR COLLAPSE.

Regional Impacts

Projected land use pattern or transportation improvements in the proposed MTP/SCS could be located on geologic units or soils that are unstable, or that could become unstable and result in geologic hazards. Structures, including residential units and commercial buildings, could be damaged

as a result of a landslide or mudslide from unstable soils or geologic units. Slope failure can occur naturally through rainfall or seismic activity, or through earthwork and grading related activities.

As mentioned previously, the northwest and southwest portion of Yolo County, the northwest portion of Sutter County, the middle to southern portion of El Dorado County, and most of Placer County east of Interstate-80 are at very high risk of landslide susceptibility or identified as landslide hazards (see Figure 9-5 above). Lateral spreading and differential settlement pose a moderate hazard in the Great Valley geomorphic province (Sacramento, Sutter, and Yolo counties, as well as western El Dorado, Placer, and Yuba counties). Construction of new structures near relatively steep slopes could provide additional loading, causing landslides or slope failure from unstable soils or geologic units. The loading associated with new construction could also induce differential settlement and ground collapse, particularly in the Great Valley geomorphic province.

Historical and recent subsidence is present throughout northern and central Yolo County, south Sutter County, south Sacramento County, and western Placer County (see Figure 9-4 above). Land subsidence is highly likely to occur in the future in Yolo County and southwest Sacramento County, and moderately likely to occur in the future in Sacramento County, western Placer County, and southern Sutter County. The potential for water demand associated with the projected land use pattern of the MTP/SCS to exacerbate subsidence due to additional groundwater extraction is addressed in Chapter 11 – Hydrology and Water Quality.

New development would also include earthwork and grading which may cause soils to become unstable and cause slope failure. This impact is addressed largely through the integration of geotechnical information in the planning and design process for projects to determine the local soil suitability for specific projects in accordance with standard industry practices and state-provided guidance, such as CGS Special Publication 117A, used to minimize the risk associated with these hazards. Corrective measures, such as structural reinforcement for unstable geologic units and using engineered fill to replace unstable soils, would be required for the design of individual future projects. These measures generally are enforced through compliance with local requirements for geotechnical stability and local building codes and ordinances, to avoid or reduce hazards relating to unstable soils and slope failure.

All site designs would be reviewed and approved by the appropriate federal, State, and local agencies. Project-specific geotechnical investigations consistent with existing regulatory requirements would identify areas of potential concern and recommend geotechnical measures for long-term stability, ensuring that regional growth and the projected land use pattern would not result in unstable soil conditions. Therefore, the potential for landslide, lateral spreading, subsidence, liquefaction, or collapse impacts related to the projected land use pattern or transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-3. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the regional impact discussion above. Land use and planned transportation improvements in Center and Corridor Communities, Established

Communities, Developing Communities, and Rural Residential Communities are not likely to result in landslide, lateral spreading, subsidence, liquefaction, or collapse.

With respect to transportation changes in Lands Not Identified for Development, the proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040, including road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Because the MTP/SCS does not include projected land use pattern in the Lands Not Identified for Development, there is no potential for implementation of the project to result in geologic or soil instability.

The proposed changes in land use and planned transportation improvements would be located on a range of different geologic materials and conditions. Hazards associated with unstable soils or geologic units are dependent on site- specific conditions, as well as the specific nature of the individual project proposed. With adherence to grading permit and building code requirements, including seismic design criteria as required by the CBC, Caltrans, Special Publication 117A, and local building code requirements, all improvements associated with both the land use development and planned transportation improvements would be designed to minimize potential risks related to unstable soils and geologic units. Because all land use development and transportation improvement are subject to state and local requirements for geotechnical stability that specify mandatory and relatively prescriptive actions that must occur during project development, the potential for landslide, lateral spreading, subsidence, liquefaction, or collapse impacts related to the projected land use pattern and transportation improvements from implementation of the proposed MTP/SCS in all Community Types is considered less than significant (LS) for Impact GEO-3. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impact discussion above. Land use and planned transportation improvements in the HFTAs are not likely to result in landslide, lateral spreading, subsidence, liquefaction, or collapse because all land use development and transportation improvement are subject to state and local geotechnical requirements. The potential for impacts related to the projected land use pattern and transportation improvements associated with implementation of the proposed MTP/SCS in the HFTAs is considered less than significant (LS) for Impact GEO-3. No mitigation is required.

MITIGATION MEASURES

None required.

Regional Impacts

The projected land use pattern and transportation improvements in the proposed MTP/SCS could be located on expansive soil, which would create risks to life or property. However, most areas in the proposed MTP/SCS planning area have little to no expansive soils or contain expansive soils with slight to moderate swelling potential (Figure 9-7 above). Only the far western edge of Yolo County has expansive soils with high swelling potential. This area is not planned for development.

As discussed under Impact GEO-3, this condition would be addressed largely through the integration of geotechnical information in the planning and design process for development projects to determine the local soil suitability for specific projects in accordance with standard industry practices and state-provided guidance used to minimize the risk associated with these hazards. These measures generally are enforced through compliance with CBC requirements, and local building codes and ordinances, to avoid or reduce hazards relating to unstable soils and slope failure. Therefore, the potential for expansive soil impacts related to the projected land use pattern or transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-4. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the regional impact discussion above. Land use and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are required to comply with state and local regulations related to geotechnical safety, which address the potential for substantial risks to life or property from developing on expansive soil.

With respect to transportation changes in Lands Not Identified for Development, the proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040, including road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Because the proposed MTP/SCS does not include projected land use pattern in the Lands Not Identified for Development, there is no potential for implementation of the project to result in a direct or indirect risk in this area.

Therefore, the potential for expansive soil impacts related to the projected land use pattern and transportation improvements associated with implementation of the proposed MTP/SCS in all Community Types is considered less than significant (LS) for Impact GEO-4. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impact discussion above. The land use pattern and planned transportation improvements in the HFTAs are required to comply with state and local regulations related to geotechnical safety that address the potential for substantial risks to life or property from developing on expansive soil. Therefore, the potential for expansive soil impacts related to the projected land use pattern and transportation improvements associated with implementation of the proposed MTP/SCS in the HFTAs is considered less than significant (LS) for Impact GEO-4. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT GEO-5: HAVE SOILS INCAPABLE OF ADEQUATELY SUPPORTING THE USE OF SEPTIC TANKS OR ALTERNATIVE WATER DISPOSAL SYSTEMS WHERE SEWERS ARE NOT AVAILABLE FOR THE DISPOSAL OF WASTEWATER.

Regional Impacts

Land uses and development in the plan area of the proposed MTP/SCS include a mix of projects ranging from high-density land uses in urbanized areas to low-density projects in the Rural Residential Communities. Sewer systems are required for most of the area of the proposed MTP/SCS. However, SWRCB identifies certain densities that can instead rely on a traditional septic tank or alternative septic system depending on the amount of annual average rainfall that an area receives.

OWTS are regulated at the state, regional, and local level. Local jurisdictions also have general plans that contain policies and implementation measures, including BMPs relevant to the use of septic tanks or alternative water disposal systems, and county environmental health departments regulate septic tanks through measures such as requiring a Sewage Disposal Permit for construction, re-construction, repair, or abandonment of septic tanks. In terms of alternative water disposal systems, the same measures would be enforced.

Planned transportation improvements in the proposed MTP/SCS would not require septic tanks or alternative water disposal systems.

Therefore, the potential for regional impacts related to OWTS as a result implementation of the projected land use pattern and planned transportation improvements contemplated in the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-5. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the regional impact discussion above. Land use and

planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development would be required to comply with applicable regulations related to OWTS, and therefore, are not likely to have adverse impacts from soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems.

Therefore, the potential for localized impacts related to OWTS as a result of the projected land use pattern or planned transportation improvements contemplated in the proposed MTP/SCS in all Community Types is considered less than significant (LS) for Impact GEO-5. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impact discussion above. Land use and planned transportation improvements in the HFTAs are required to comply with applicable regulations related to OWTS, and therefore, are not likely to have soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems. Moreover, HFTAs are generally in urban areas where access to public sewer systems is common.

The potential for impacts related to OWTS as a result of land use or planned transportation improvements contemplated in the proposed MTP/SCS HFTAs is considered less than significant (LS) for Impact GEO-5. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT GEO-6: DIRECTLY OR INDIRECTLY DESTROY A UNIQUE GEOLOGIC FEATURE.

Regional Impacts

Unique geologic features in the plan area of the proposed MTP/SCS include Berryessa Snow Mountain National Monument at the far western edge of Yolo County, the Sutter Buttes in northeast Sutter County, and various elements to the Sierra Nevada Mountains. These large features are not located near existing or proposed communities and are unlikely to be affected by implementation of the proposed MTP/SCS.

At a regional scale, the type and pattern of development proposed in the MTP/SCS is unlikely to result in the destruction of unique geologic features. Therefore, the potential for regional impacts due to the projected land use pattern and planned transportation improvements contemplated in the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-6. No mitigation is required. For additional discussion of the potential for the MTP/SCS to indirectly affect unique geologic features by altering the surrounding landscape or viewshed, refer to Chapter 3 – Aesthetics.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
As discussed above, unique geologic features are generally in rural portions of the plan area of the proposed MTP/SCS outside of the Established Communities. The potential for localized impacts because of the projected land use pattern and planned transportation improvements contemplated in the proposed MTP/SCS in all Community Types is considered less than significant (LS) for Impact GEO-6. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The HFTAs are generally within the established communities in the Sacramento Valley. This area is not associated with unique geological features and the development of these areas is unlikely to directly or indirectly destroy such resources. The impact of the projected land use pattern or planned transportation improvements contemplated in the proposed MTP/SCS HFTAs is considered less than significant (LS) for Impact GEO-6. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT GEO-7: RESULT IN SUBSTANTIAL IMPACTS TO GEOLOGY, SEISMICITY, AND SOILS FROM CONSTRUCTION OF PROPOSED MTP/SCS PROJECTS.

Regional Impacts

Many potential effects on geology, seismicity, and soils associated with implementation of the MTP/SCS would occur during the construction of individual projects. As addressed in Impacts GEO-1a through GEO-1c, the potential for the projected land use pattern or planned transportation improvements contemplated in the proposed MTP/SCS to cause substantial seismic effects is low because the plan area is not a seismically active region and there are existing regulations that address residual concerns at the project level. Implementation of the MTP/SCS is also unlikely to directly or indirectly result in the destruction of unique geologic features, as discussed in Impact GEO-6, due to the relative location of anticipated development and the existing regulatory environment. As described in Impact GEO-2, the projected land use pattern and transportation improvements could affect resources during normal construction activities, such as grading, excavation, clearing, removal of vegetation cover, and soil removal that could temporarily increase runoff, erosion, and sedimentation. Construction activities could also result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at construction sites and staging areas. The extent of these impacts would depend on the project size and location.

Existing regulatory requirements specify mandatory and relatively prescriptive actions that must occur during project development. While grading standards differ depending on the jurisdiction (e.g., project size, application requirements, approval process), all jurisdictions require submittal of a grading plan that includes erosion and sediment control measures for approval of a grading permit.

As discussed above, development that disturbs more than 1 acre is subject to compliance with a NPDES permit, including the implementation of best management practices. Projects that would disturb less than 1 acre would be subject to the CALGreen requirements related to stormwater drainage that have been designed to prevent or reduce discharges of sediments through BMPs that include on-site retention and filtration.

Although grading and soil erosion are protected differently among the various local jurisdictions in the plan area of the proposed MTP/SCS, these statewide requirements would address the potential effects of project construction on soils. Therefore, the potential impacts related to the projected land use pattern or transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-7. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS
Localized impacts associated with construction of the development and planned transportation improvements identified in the MTP/SCS would be the same as those identified for the region. As discussed above, land use and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to result in substantial soil erosion or the loss of topsoil during construction. With respect to transportation changes in Lands Not Identified for Development, the proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040, including road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Because no development is proposed in these areas under the plan, construction-generated impacts would not occur within this Community Type. As described in the evaluation of regional impacts above, the impact of the projected land use pattern and planned transportation improvements is considered less than significant (LS) for Impact GEO-7 because there are regulations in place that would effectively reduce the potential for loss of topsoil or erosion impacts due to construction of the projected land use pattern and planned transportation improvements in all Community Types. No mitigation is required.

High Frequency Priority Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impact discussion above. The projected land use pattern and planned transportation improvements are subject to state and local requirements for geotechnical stability and erosion prevention that would adequately address effects during construction. Therefore, the potential impacts related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in the HFTAs is considered less than significant (LS) for Impact GEO-7. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT GEO-8: RESULT IN THE LOSS OF AVAILABILITY OF A KNOWN DESIGNATED MINERAL RESOURCE THAT WOULD BE OF VALUE TO THE REGION AND THE RESIDENTS OF THE STATE.

Regional Impacts

Local jurisdictions have general plan policies to manage mineral resources, and are required under SMARA to consider mineral resource recovery areas that have been designated MRZ-2 locations (Figure 9-8), indicating that significant mineral deposits are present or are likely to be present. The proposed MTP/SCS uses the adopted and proposed land use and transportation plans from the cities and counties of the SACOG region to help determine where housing and employment growth is likely to occur.

The projected land use pattern associated with implementation of the proposed MTP/SCS could result in a reduction in availability of important designated mineral resources by making certain mineral resources inaccessible for future extraction. Most MRZ-2 areas are located in predominately agricultural and open space areas where no development is planned or in Rural Residential communities where limited development is planned. However, some MRZ-2 areas in the proposed MTP/SCS, such as those in Sacramento County, are already developed. The proposed MTP/SCS emphasizes further development within these already developed areas.

By developing more compactly, the proposed MTP/SCS directs more growth to the areas that are already urbanized and prevents undeveloped land from being converted to urban uses. Keeping growth contained to areas that are already developed limits the amount of growth that takes place at the urban edge, adjacent to areas containing mineral resources. Mining of mineral resources in or near urban development may create land use incompatibilities and may be economically infeasible. Compact growth and urban infill allow for the preservation of non-urban areas where mineral resources may be more feasible to remove.

Similarly, much of the planned transportation improvements from implementation of the proposed MTP/SCS would serve urban uses in urbanized areas of the region. The proposed MTP/SCS planned transportation improvements are developed to most efficiently meet the demands created by the forecasted growth in population and jobs, and focus mainly on the existing regional transportation system. Planned transportation improvements would largely be constructed within existing rights-of-way and without the acquisition of land, or within an urbanizing area.

Planned transportation improvements that occur in the federal or state right-of-way must also comply with the Caltrans encroachment permit process, and provide information on the location of mineral resources. The encroachment permit application requirements include information on the location of mineral resources approved under SMARA. Compliance with SMARA requirements for mineral resource sites and notice requirements would further minimize impacts to locally-important mineral resource sites. The potential loss of availability of a designated mineral resource is a consideration in the final design of individual land use projects and transportation improvements and may be addressed in the project-level environmental review and mitigation process.

Although the proposed MTP/SCS could result in land uses that would preclude the future extraction of mineral resources, these impacts are considered less than significant because the projected land use growth was generally designed to be consistent with local planning documents, which are required to consider mineral resource zones mapped by the state in the land use decisions. Further, most development would be in urban areas or within existing right of way for transportation-related uses where extraction of mineral resources is unlikely. Therefore, the potential for loss of availability of a designated mineral resource related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-8. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS
The projected land use pattern in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities, and transportation improvement projects in all of the Community Types, would be have similar impacts as discussed in the regional analysis and planned transportation improvements have the potential to result in the loss of availability of a designated mineral resource that would be of value to the region and the residents of the state.

Although some housing and employment growth, consistent with historical trends, may occur in the Lands Not Identified for Development within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any projected land use pattern related to the proposed MTP/SCS in these areas by 2040. Because the MTP/SCS does not include projected land use pattern in this area, there is no potential to result in the loss of availability of a designated mineral resource that would be of value to the region and the residents of the state. Thus, the potential for loss of availability of a designated mineral resource related to projected land use pattern associated with the implementation of the proposed MTP/SCS in the Community Types is considered less than significant (LS) for Impact GEO-7. No mitigation is required.

With respect to transportation in Lands Not Identified for Development, the proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040, including road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas.

Specific projects would be designed to be consistent with local planning documents, which are required to consider mineral resource zones mapped by the state. Further, most development would be in Center and Corridor Communities, Established Communities, and Developing Communities (or within existing right of way for transportation-related uses) where extraction of mineral resources is unlikely. Therefore, the potential for loss of availability of a designated mineral resource related to projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS in all Community Types is considered less than significant (LS) for Impact GEO-7. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS would be the same in each of the HFTAs as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in the HFTAs may result in the loss of availability of a designated mineral resource that would be of value to the region and the residents of the state. Specific projects would be designed to be consistent with local planning documents, which are required to consider mineral resource zones mapped by the State. Further, most HFTAs are in established urban areas where extraction of mineral resources is unlikely.

The potential for loss of availability of a designated mineral resource related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in the HFTAs is considered less than significant (LS) for Impact GEO-8. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT GEO-9: RESULT IN THE LOSS OF AVAILABILITY OF A LOCALLY-IMPORTANT MINERAL RESOURCE RECOVERY SITE DELINEATED ON A LOCAL GENERAL PLAN, SPECIFIC PLAN, OR OTHER LAND USE PLAN.

Regional Impacts

Implementation of the projected land use pattern in the proposed MTP/SCS would include new residential, commercial, and other land uses, as well as infill development. Expansion or extension of the roadway network from implementing proposed MTP/SCS planned transportation improvements would require the need for additional land.

Local general plans, specific plans, and other land use plans include policies to protect existing and future mineral production and extraction activities from surrounding uses, and require that future projects near mining activities have compatible land uses. In addition, compliance with SMARA requirements for mineral resource sites and notice requirements would further minimize impacts to locally-important mineral resource sites. Any improvements proposed in federal or state right-of-way are required to obtain an encroachment permit from Caltrans and provide information on mineral resources.

Therefore, regional impacts associated with the loss of availability of a locally-important mineral resource recovery site related to the projected land use pattern or planned transportation improvements from implementation of the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-9. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the regional impact discussion above. The projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are not likely to result in the loss of availability of a locally-important mineral resource recovery site.

With respect to transportation improvements in Lands Not Identified for Development, the proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040, including road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Therefore, there is no potential to result in the loss of availability of a designated mineral resource that would be of value to the region and the residents of the state.

All land use development and transportation improvement are subject to SMARA requirements and locally-important resources are regulated by local jurisdictions through policies incorporated into general plans, specific plans, and other land use plans. Thus, local impacts associated with the loss of availability of a locally-important mineral resource recovery site related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in all Community Types is considered less than significant (LS) for Impact GEO-9. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impact discussion above. The projected land use pattern and planned transportation improvements in the HFTAs are not likely to result in the loss of availability of a locally-important mineral resource recovery site.

All land use development and transportation improvement are subject to SMARA requirements and locally-important resources are regulated by local jurisdictions through policies incorporated into general plans, specific plans, and other land use plans. Thus, impacts associated with the loss of availability of a locally-important mineral resource recovery site related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS HFTAs is considered less than significant (LS) for Impact GEO-8. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT GEO-10: RESULT IN A SUBSTANTIAL IMPACT TO MINERAL RESOURCES FROM CONSTRUCTION OF PROPOSED MTP/SCS PROJECTS.

Regional Impacts

Construction activities associated with implementation of proposed MTP/SCS planned transportation improvements and land uses would require the use of mineral resources such as aggregate (sand, gravel, and crushed stone) and other mineral resources. However, the production and conservation of mineral resources is provided through a comprehensive surface mining and reclamation policy under SMARA. Additionally, local land use plans provide policies that protect mineral resources within their jurisdiction. Compliance with these policies would avoid or minimize substantial impact to mineral resources during construction of the proposed land uses and developments.

Therefore, regional impacts associated with adverse mineral resource impacts during construction related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-10. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the regional impacts discussion above. Land use and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are not likely to result in a substantial impact to mineral resources during construction. With respect to transportation changes in Lands Not Identified for Development, the proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040, including road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas.

Although some housing and employment growth, consistent with historical trends, may occur in Lands Not Identified for Development within the MTP/SCS planning period, the proposed MTP/SCS does not include projected land use pattern in this Community Type by 2040. Because no land use development is proposed in this area, there are no potential impacts likely to result in a substantial impact to mineral resources during construction.

The localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Because all land use development and transportation improvement are subject to SMARA requirements and locally-important resources are regulated by local jurisdictions through policies incorporated into general plans, specific plans, and other land use plans, the potential for local impacts associated with adverse mineral resource impacts during construction in all Community Types related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-10. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impact discussion above. The projected land use pattern and planned transportation improvements in the HFTAs are not likely to result in a substantial impact to mineral resources during construction because all land use development and transportation improvements are subject to SMARA requirements and locally-important resources are regulated by local jurisdictions through policies incorporated into general plans, specific plans, and other land use plans.

Thus, impacts associated with adverse mineral resource impacts during construction in HFTAs related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS is considered less than significant (LS) for Impact GEO-10. No mitigation is required.

MITIGATION MEASURES

None required.

Chapter 10—Hazards, Hazardous Materials, and Wildfire

10.1 Introduction

This chapter describes the existing conditions (environmental and regulatory) and assesses the potential impacts that may result from implementation of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. This chapter evaluates noise impacts to people residing or working within an airport land use plan or within two miles of a public or public use airport. Other noise issues are addressed in Chapter 13 – Noise and Vibration.

In response to the Notice of Preparation (NOP), SACOG received one comment regarding the need to address fire hazards at the wild land-urban interface from Placer County Sierra Club.

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines or Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

10.2 Environmental Setting

10.2.1 Hazardous Materials

Hazardous materials exist in many forms such as liquids, solids, or contained gases, and can be man-made or naturally occurring. These materials can be found in many places such as in groundwater, construction materials, and rocks (asbestos). The land use concerns associated with hazardous materials and the transportation of hazardous materials and wastes are discussed in this chapter. Worker health and safety, administered by the U.S. Occupational Safety and Health Administration (OSHA), and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. If hazardous material is disturbed during the construction of projects in the plan area of the proposed MTP/SCS, proper disposal is vital to avoid impacts to health and safety.

Lead, Asbestos, and Other Hazardous Materials in Existing Buildings

Hazardous materials are commonly found in building materials. Before 1978, lead compounds were used in interior and exterior paints. Before the 1980s, building materials often contained asbestos

fibers, which were used to provide strength and fire resistance. In addition, other common items present in buildings, such as electrical transformers, fluorescent lighting, electrical switches, heating/cooling equipment, and thermostats, can contain hazardous materials that may pose a health risk if not handled and disposed of properly. These include polychlorinated biphenyls (PCBs), which were used in hundreds of industrial and commercial applications because of their non-flammability, chemical stability, high boiling point, and electrical insulating properties. Equipment in the plan area that might contain PCBs includes electrical equipment and thermal insulation material (e.g., fiberglass, felt, foam, or cork). Older, pole-mounted electrical transformers can also contain PCBs.

NATURALLY OCCURRING ASBESTOS

Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin, but strong and durable fibers. Naturally occurring asbestos (NOA) is commonly associated with ultramafic rocks forming in high-temperature environments well below the surface of the earth. Once exposed at the earth's surface by geologic uplift and erosion, ultramafic rocks may be partially to completely altered into a type of metamorphic rock called serpentinite. Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or tremolite-actinolite asbestos in the bodies of these rocks or along their boundaries (Churchill and Hill 2000).

People exposed to low levels of asbestos may be at elevated risk (i.e., above background rates) of lung cancer and mesothelioma. The risk is proportional to the cumulative inhaled dose (i.e., quantity of fibers) and increases with the time since first exposure. Although there are a number of factors that influence the disease-causing potency of any given type or form of asbestos (e.g., fiber length and width, fiber type, and fiber chemistry), all forms are carcinogens.

In general, asbestos fibers do not pose a threat unless they are disturbed or introduced into the air as fugitive dust. Airborne exposure in areas containing NOA could arise from such activities as children playing in the dirt, dust raised from unpaved roads and driveways covered with crushed serpentine, grading and earth disturbance associated with construction activity, rock blasting, quarrying, or gardening. Asbestos can be tracked indoors or enter a home along with outdoor air, where normal household activities such as vacuuming can prolong airborne exposure.

NOA can be found in rock formations in 45 of California's 58 counties. Additionally, 51 counties include areas of exposed ultramafic rocks or serpentinite, which are common host rocks for asbestos. In the SACOG region, NOA is primarily found in western El Dorado County, with most concentrations located within and near El Dorado Hills. NOA can also be found in a few scattered parts of western Placer County and a small number of sites in eastern Sacramento County. Small amounts of ultramafic rock and asbestos occurrences have also been reported at the edge of western Yolo County and northern Yuba County (Van Gosen and Clinkenbeard, U.S. Geological Survey 2011). Known and likely occurrences of NOA are shown in Figure 10-1. The California Air Resources Board (CARB) and all five counties containing or potentially containing NOA have adopted measures to limit public exposure to NOA.

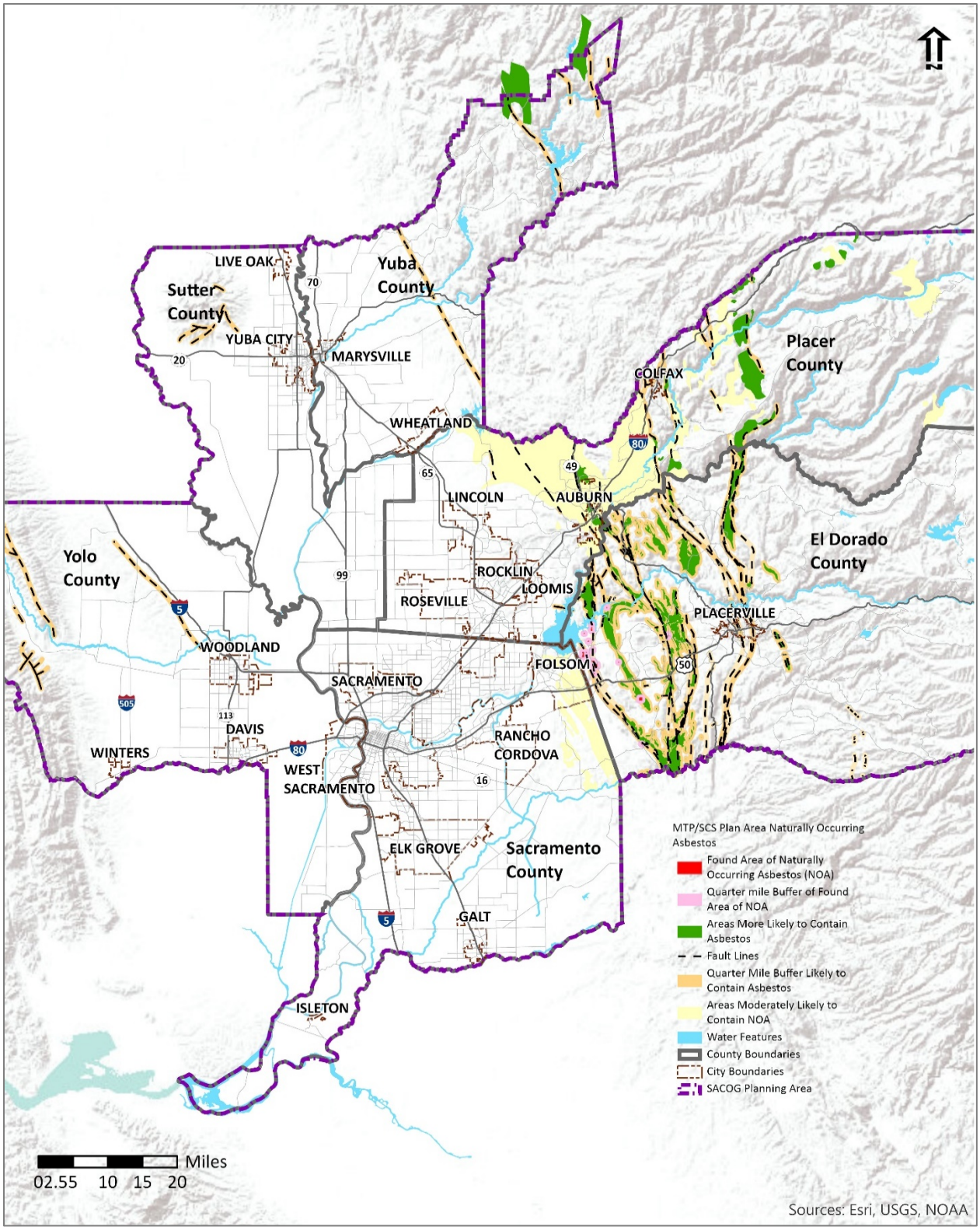


Figure 10-1
Naturally Occurring Asbestos in the Plan Area of the Proposed MTP/SCS

Hazardous Waste Generation and Management

The generation and handling of hazardous waste in the region is monitored by the U.S. Environmental Protection Agency (EPA); Central Valley Regional Water Quality Control Board (RWQCB); Sacramento Metropolitan Air Quality Management District (SMAQMD); and the Environmental Health and Hazardous Materials Control divisions of the six counties within the plan area of the proposed MTP/SCS. Industrial, commercial, and agricultural land uses are of particular concern because they may include areas where the concentrated use of hazardous materials and the generation of hazardous wastes have occurred over long periods of time. Businesses that generate hazardous waste are either large-quantity generators (e.g., heavy industrial or commercial facilities) or small-quantity generators (e.g., dry cleaners, automotive repair shops, etc.), both requiring an EPA identification number used to monitor and track hazardous waste activities.

Agricultural Use of Potentially Hazardous Materials and Generation of Waste

Agricultural enterprises have historically stored, handled, and applied pesticides and herbicides within the plan area. Agricultural chemicals used before the 1970s often included highly persistent compounds such as DDT (dichlorodiphenyltrichloroethane). Inorganic compounds containing heavy metals such as arsenic, lead, and mercury were commonly used before the 1950s. Chemicals commonly used in the past have the potential to leave residual inorganic or organic components in shallow soils that could persist for many decades. If present in elevated concentrations, these residues could pose a potential health risk to future construction workers, residents, and other persons who may come in direct contact with surface soils.

Chemicals currently used in agriculture are generally less-persistent, organic compounds. Because of today's stricter regulatory standards and product testing by EPA before commercial use, routine application of these materials does not generally result in accumulation to levels sufficient to cause health risk concern. However, there are other aspects of pesticide management that may result in impacts, including: pesticide-handling areas that lack concrete pads, berms, or cribs to contain spills or leaks during handling and storage; rinse water from washout facilities for pesticide-application equipment that has not been properly collected and treated before discharge; And equipment-repair and petroleum-storage areas.

Transport of Hazardous Materials

Major transportation corridors are used to transport goods throughout the region, state, and the country. Hazardous substances are often associated with the freight transported within these corridors, as well as within the soil surrounding them. The potential harm that hazardous waste can cause to people and the environment has resulted in scrutiny by national, state, and local governments, particularly as related to the safe transport of hazardous materials. Since hazardous materials are transported primarily on facilities shared by the public such as highways, rail lines and local roads, there is greater public exposure to these materials.

Potential for Existing Contamination of Transportation Corridors

Leaded gasoline was used as a vehicle fuel in the U.S. from the 1920s until the late 1980s. Although lead is no longer used in gasoline formulations, lead emissions from automobiles are a recognized source of contamination in soils along roadways (i.e., aerially-deposited lead). Surface and near-

surface soils along and underneath heavily-used roadways have the potential to contain elevated concentrations of lead. Generally, soils within 10 feet of the edge of the pavement and within the top 6 inches of the soil have the highest lead concentrations (DTSC 2016).

Contaminants common in railway corridors include wood preservatives (e.g., creosote and arsenic) and heavy metals in ballast rock. Ballast rock and soils associated with railroad tracks may also contain NOA. In addition, soils in and adjacent to these corridors might contain herbicide residues because of historical and ongoing weed-abatement practices.

Accidental Release of Hazardous Materials

As with the movement of goods and people in general, movement of hazardous materials can be defined by trips and modes. Any given "trip" from an origin to a destination can involve one or more "modes." In other words, a shipment may begin on a truck, be transferred to a train, and then be transferred again to another truck, before reaching its final destination. Table 10-1 describes a rough estimate of the volume of hazardous materials shipped in the region and the mode of transportation used.

Table 10-1
2012 Shipment Characteristics by Mode of Transportation for the Sacramento-Roseville, CA Community Flow Survey Area

Mode of Transportation	Tons All Freight 2007 (thousands)	Tons (percent of Total)	Hazardous Materials Estimate by Mode (thousands)	Percent Share of All Freight
All modes	**40,564**	**100**	**9,661**	**24**
Single modes	**39,940**	**98**	**9,559**	**24**
Truck (For-hire/Private)	39,504	97	5,673	14
Rail	423	1.0	244	58
Multiple modes	**624**	**1.5**	**3**	**0**
Parcel, U.S.P.S. or courier	261	0.6	0	0
Other multiple modes	360	0.9	0	0
Other and unknown modes	**0**	**0**	**0**	**-**

Hazardous Materials Estimate by Mode is based upon the percentage of Hazardous Material Shipment Characteristics by Mode of Transportation: 2007 & Shipment Characteristics by Mode of Transportation for the United States: 2007. Because of rounding, estimates may not be additive.
Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics and U.S. Department of Commerce, U.S. Census Bureau, 2012 Economic Census: Transportation Commodity Flow Survey, Issued February 2015.

Three agencies maintain searchable databases that track hazardous material releases in reportable quantities due to accidents during routine transport: EPA maintains the Hazardous Materials Incident Report System that contains data on hazardous material spill incidents reported to the U.S. Department of Transportation (DOT); California Office of Emergency Services (Cal OES) maintains the California Hazardous Materials Incident Report System that contains information on reported hazardous material accidental releases or spills; and State Water Resources Control Board's (SWRCB's) Site Cleanup Program maintains information on reported hazardous material accidental releases or spills. Although these databases include all reportable spills, hazardous materials spills

and accidental releases that are cleaned up immediately are not considered sites of potential environmental concern that would affect future land use.

DOT regulates the transportation of hazardous materials by truck and rail (49 Code Federal Regulations [CFR]), and the California Department of Public Health (CDPH) regulates the haulers of hazardous waste (Health & Safety Code, Section 20, Chapter 6.5). DOT also provides grants to local agencies for preparation and training relating to hazardous materials incidents through its Hazardous Materials Emergency Preparedness Program administered by Cal OES). As shown in Table 10-2, there are nine classes and many further subclasses of hazardous materials reflected on corresponding placards for display on vehicles hauling hazardous waste as defined by DOT.

Table 10-2
Classes of Hazardous Materials Regulated by DOT for Transport[1]

Class	Description
Class 1 Explosives	
Division 1.1 Mass Explosive Hazard	A substance with an explosion hazard that affects the entire load virtually instantaneously.
Division 1.2 Projection Hazard	A substance with an explosion hazard that has enough force to be propelled for some distance.
Division 1.3 Mass Fire Hazard	A substance with a fire, minor blast, or projection hazard producing considerable radiant heat or multiple fires.
Division 1.4 Minor Explosion Hazard	A substance that has, in the event of ignition, only a small explosion hazard anticipated to be largely contained within the package.
Division 1.5 Very Insensitive Explosives	A substance that is very insensitive to detonation with a mass explosive hazard.
Division 1.6 Extremely Insensitive Explosives	A substance that is extremely insensitive to detonation with a hazard below that of a mass explosion.
Class 2 Gases	
Division 2.1 Flammable Gases	A gas flammable with oxygen at 20 °C and a standard pressure of 101.3 kPa.
Division 2.2 Non-Flammable Gases	A gas contributing to the combustion of other material by providing more oxygen than air.
Division 2.3 Poisonous or Toxic Gases	A gas liable to cause either death, serious injury, or harm to human health if swallowed or inhaled, or by coming into contact with skin.
Class 3 Flammable Liquid	**A liquid with a flash point of not more than 93 °C.**
Class 4 Flammable Solids	
Division 4.1 Flammable Solid	A solid which is readily combustible or may cause or contribute to fire through friction.
Division 4.2 Spontaneously Combustible Material	A thermally unstable substance liable to ignite upon contact with oxygen or undergo a strongly exothermic decomposition without oxygen.
Division 4.3 Dangerous When Wet	A substance that by interaction with water is liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.
Class 5 Oxidizing Substances; Organic Peroxides	
Division 5.1 Oxidizer	A substance that can cause or contribute to the combustion of other material, generally by yielding oxygen.

Class	Description
Division 5.2 Organic Peroxide	A thermally unstable organic substance derived from hydrogen peroxide, which may undergo exothermic self-accelerating decomposition.
Class 6 Poisonous (Toxic) and Infectious Substances	
Division 6.1 Poisonous (Toxic Material)	A substance liable to cause either death, serious injury, or harm to human health if swallowed or inhaled, or by coming into contact with skin.
Division 6.2 Infectious Substance	A substance known or reasonably expected to contain pathogens such as microorganisms, bacteria, viruses, rickettsiae, parasites, fungi, or other agents which can cause disease.
Class 7 Radioactive Material	**A material containing radionuclides (atoms with an unstable nuclei subject to radioactive decay) where both the activity concentration and the total activity exceed certain pre-defined values.**
Class 8 Corrosives	**A material that can destroy human skin or corrode steel at a rate of 0.25 inches per year.**
Class 9 Miscellaneous Dangerous Goods	**A material that presents a hazard during shipment but does not meet the definition of the other classes.**

[1] Descriptions reflect a generalized summary definition of Classes of Hazardous Materials regulated by DOT. For a full legal description of class definitions, exceptions, divisions, specifications, etc., view the Electronic Code of Federal Regulations Title 49, Subtitle B, Chapter I, Subchapter C, Part 173.
Source: U.S. Government Publishing Office, Electronic Code of Regulations, 2019. https://www.ecfr.gov/cgi-bin/text-idx?node=pt49.2.173&rgn=div5#se49.2.173_150 Accessed May 17, 2019. https://www.ilo.org/legacy/english/protection/safework/ghs/ghsfinal/ghsc1528.pdfAccessed May 17, 2019. https://www.ecfr.gov/cgi-bin/text-idx?node=pt49.2.173&rgn=div5#se49.2.173_1115

Crude Oil Transport

Crude oil is the basic petroleum feedstock processed at refineries into the products propane, butane, gasoline, jet fuel, and diesel. As a natural material, crude oil characteristics vary depending mostly on the well from which it was obtained and its origin. Crude oils contain sulfur and may contain various other organic compounds, including nitrogen, metals, or inorganic materials such as salts or water.

Crude oil is transported to and from California via marine tanker, pipeline, and rail. The Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations classify hazardous materials based on the material's hazardous characteristics. Crude oil is assigned to hazard Class 3 based on specified characteristics of flammability and combustibility (49 CFR 173.120). Under PHMSA regulations, all crude oil must be shipped in tank cars built to the DOT-111 specification. The Bakken Formation is one of the largest contiguous deposits of oil and natural gas in the U.S., located underneath northwestern North Dakota, northeastern Montana, and southern Canada. Data gathered by PHMSA and Federal Railroad Administration (FRA) confirms that the Bakken crude oil currently being shipped across the country is more volatile than traditional Class 3 crude oil because it has unusually high vapor pressure. The average Bakken shipment travels over 1,000 miles to refineries in California and other locations. In 2018, California imported 5,291,377 barrels of oil (of which 56 percent came from Canada, 17 percent from Wyoming, and 27 percent from New Mexico) (CEC 2019).

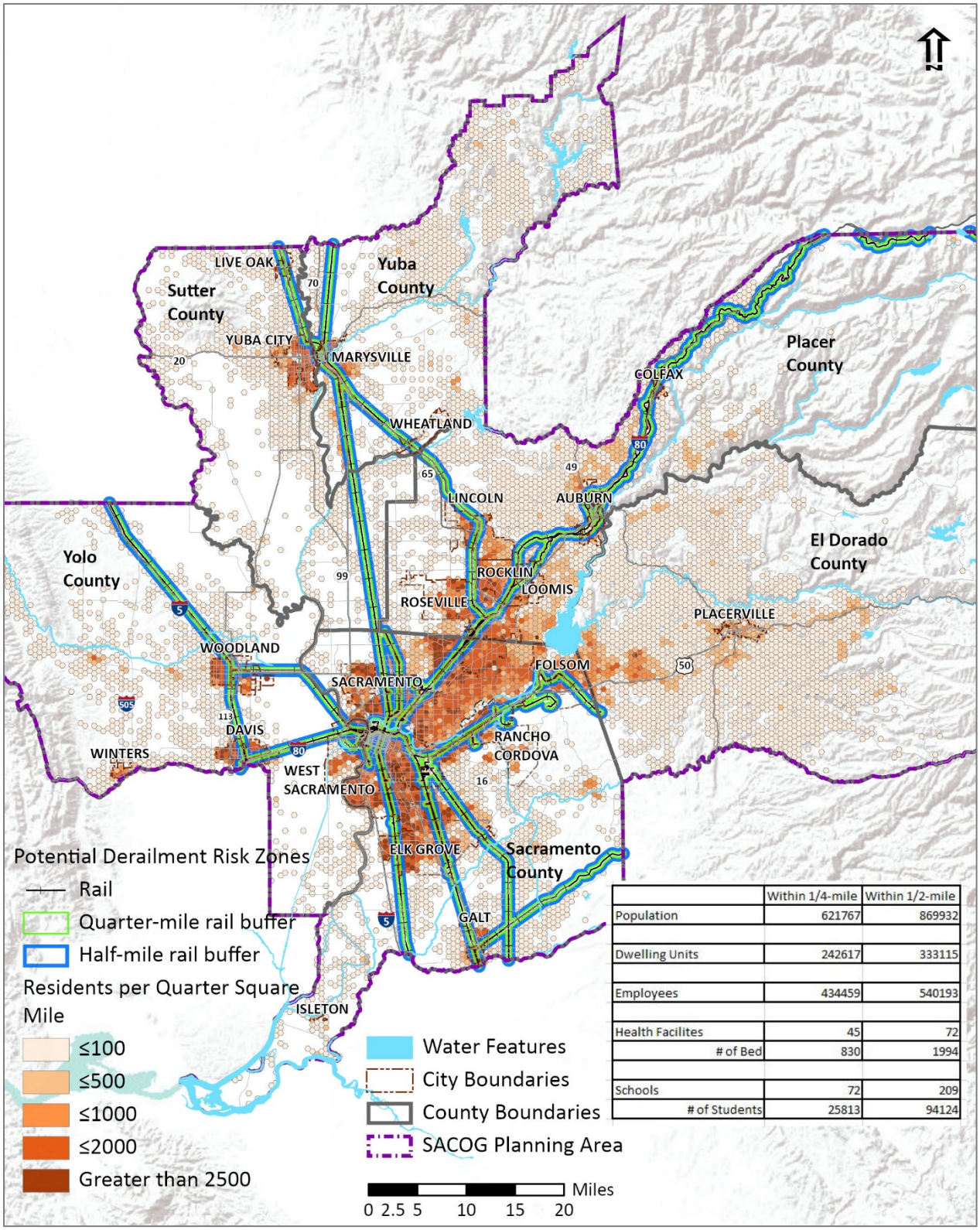
The transportation of hazardous substances poses a potential risk of fires, explosions, and hazardous materials release. Crude oil tanks could spill and ignite, creating thermal radiation impacts that could cause injury up to 220 feet away (San Luis Obispo County 2014). The greatest concern is the risk of a train accident, which can be caused by malfunction, derailment, or impact because of human or equipment error. The potential consequences of an accident are related to the size of the release (the volume of hazardous substance plus the failure type), the population density at the location of the accident, the specific release scenario, adjacent land uses, time of day, the physical and chemical properties of the hazardous material, and local weather conditions.

In general, the greater the miles traveled the greater the potential for a train accident. In 2018, there were two accidents in the plan area involving cars carrying hazardous materials: one on yard track in Yolo County and one on mainline track in Placer County (FRA 2019).

Trains transporting crude oil to refineries, including those in Benicia and unincorporated San Luis Obispo County, could enter California through five different locations. Three of these locations pass through the MTP/SCS plan area: one entering at the north end of the state from Oregon and two entering from the northeast from Nevada. Figure 10-2 shows the Union Pacific Railroad (UPRR) lines with the potential for crude oil transport. In California, there were 182 total petroleum spills (crude oil and other) associated with rail transport in 2013. Most reported incidents document a relatively small volume of oil released (Interagency Rail Safety Working Group 2014).

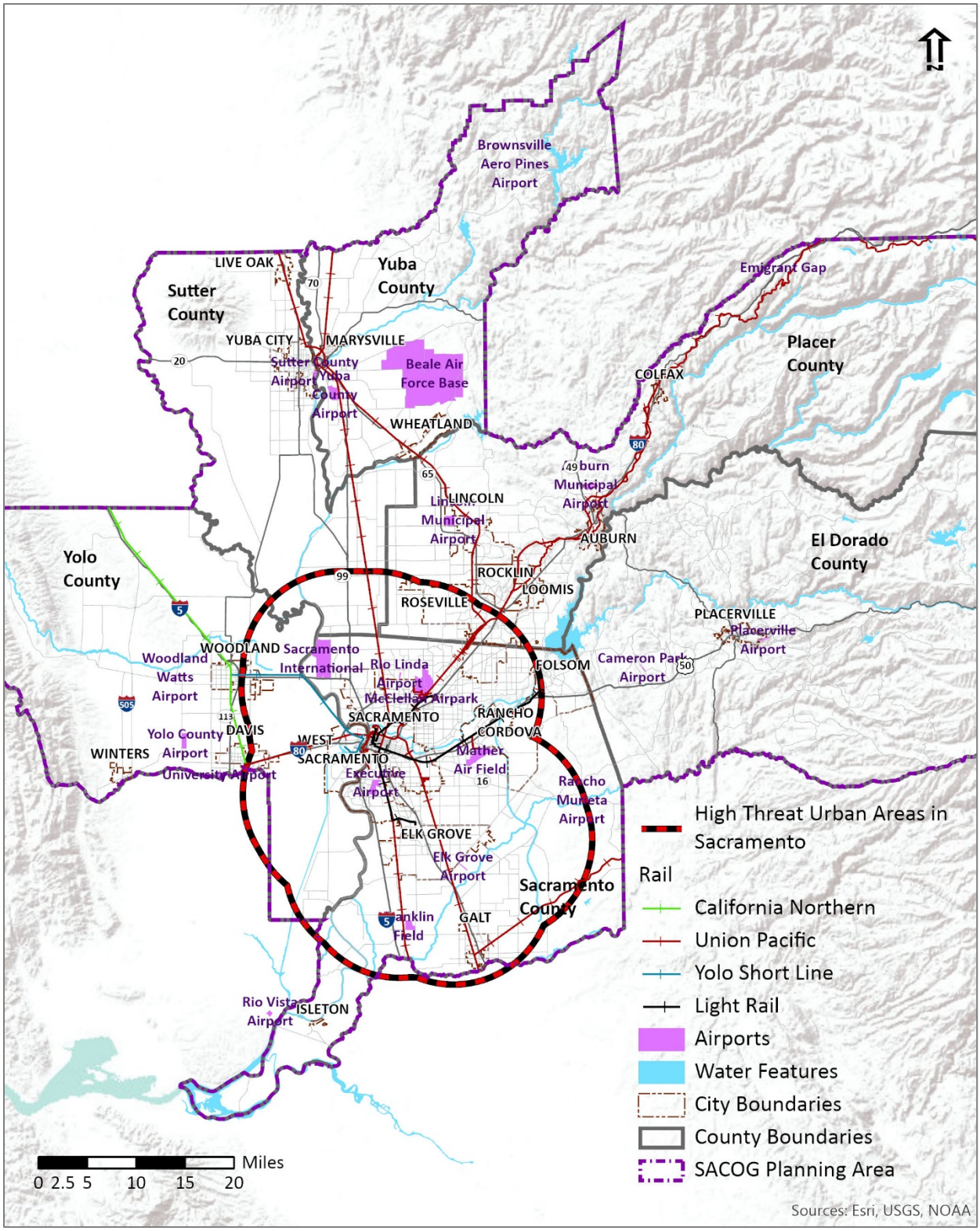
More than 500,000 people live and work within one-half mile of freight rail lines within the greater Sacramento region. Most of the track along the UPRR that could be used for crude oil transport in the plan area of the proposed MTP/SCS is designated as mainline tracks and long-haul freight service, which typically have lower accident rates than branch and spur tracks. The California Public Utilities Commission (CPUC) identified a number of local safety hazard sites (LSHS; Pub. Utilities Code Section 752d(1)) in 1997. LSHS were identified where derailments had occurred in clusters, not because of random chance, but due to local characteristics and terrain more difficult to traverse or rendering greater consequences as a result of derailment or where the operating railroad had determined that stricter operating practices were required. One such site follows 10 miles of track in Placer County (UPRR Roseville Subdivision), which had one derailment from 2013 to 2017 (CPUC 2018).

The U.S. Department of Homeland Security established high-threat urban areas (HTUAs) to reduce potential risk from an accident as shown in figure 10-3. An HTUA is an area "comprising one or more cities and surrounding areas including a 10-mile buffer zone" (49 CFR Section 1580). Trains transporting crude oil within these areas must adhere to 40 mile per hour speed limits and abide by additional security regulations. The HTUA in Sacramento covers a 10-mile radius around the cities of Elk Grove, Rancho Cordova, Roseville, and Sacramento that extends to include the southern edge of Rocklin to the north, the western edge of Folsom to the east, the city of Galt to the south, and the eastern half of Davis and the easternmost portion of Woodland to the west.



	Within 1/4-mile	Within 1/2-mile
Population	621767	869932
Dwelling Units	242617	333115
Employees	434459	540193
Health Facilites	45	72
# of Bed	830	1994
Schools	72	209
# of Students	25813	94124

Figure 10-2
Union Pacific Railroad Lines with Potential Crude Oil Transport in the Plan Area of the Proposed MTP/SCS



Source: Chemical Industry Council of California 2009

Figure 10-3
High Threat Urban Areas in Sacramento

California General Hazardous Materials Routing Requirements

The Federal Motor Carrier Safety Administration (FMCSA) maintains a Hazmat Route Registry that describes the highway routes that must be utilized for the transport of certain classes of hazardous materials. In California, this is monitored and regulated by the California Highway Patrol (CHP) and the California FMCSA Field Office. These routes are listed in Table 10-3 and shown in Figure 10-4.

Table 10-3
Designated Routes for Hazardous Materials Transport

Radioactive Hazmat Preferred Routes	
Interstate 5 (all segments within the region)	Interstate 80 (all segments within the region)
Non-Radioactive Hazmat Designated Routes[1]	
Interstate 5 (all segments within the region)	State Route 49 from State Route 70 to State Route 140
Interstate 80 (all segments within the region)	State 65 from State 70 [Olivehurst] to Interstate 80 [Roseville]
Interstate Business 80 from Interstate 80 [west of Sacramento] to US 50/State 99/Interstate Business 80 [east of Sacramento]	State Route 70 (all segments within region)
Interstate Business 80 from US 50/State 99 [east of Sacramento] to Interstate 80 [north of Sacramento]	State 16 from State 20 [Williams] to CR E7/County Road 98/Pedrick Rd. [Woodland]
Old Highway 65 / Lincoln Blvd from State 65 [Lincoln] to Riosa Rd. [Sheridan]	State Route 99 from US 50 to Interstate 5
CR E7/Pedrick Rd. from Interstate 80 [Dixon] to Interstate 5 [Woodland]	State Route 113 from State Route 99 to CR E8/Road 102
US 50 from US 50/State 99/Interstate Business 80 [east of Sacramento] to Prairie City Rd [Folsom]	State 193 from State 65 [Lincoln] to Interstate 80 [Newcastle]
Riosa Rd. from State 65 to Old Highway 65/Lincoln Blvd.	Twin Cities Rd./ E13 from State 99 [Galt] To Interstate 5 [MP 497- Elk Grove]
Road 102 from Interstate 5 to State Route 113	US 50 from Interstate 80 to Nevada
State Route 16 from US 50 to State Route 49 and from State 20 to County Road 98/Pedrick Road	W. El Camino Ave. from Interstate 80 to El Centro Rd.
State 20 from Meridian Road to Mooney Flat Road	State Highway 12 from Rio Vista to the Mokelumne River Bridge
Interstate 505 from Interstate 5 [Zamora] to Highway 128	State 89 from W. River Street to Alpine Meadows Rd.

[1] *Includes Non-Radioactive Hazardous Material (NRHM) Routes designated for the transport of Class 1- Explosive materials, the transport of Poisonous Inhalation Hazard (PIH) materials, and routes designated for transport of both sub-categories.*

Source: National Hazardous Materials Route Registry- California, Federal Motor Carrier Safety Administration Hazmat Route Registry, Updated February 19, 2019. Accessed May 22, 2019.

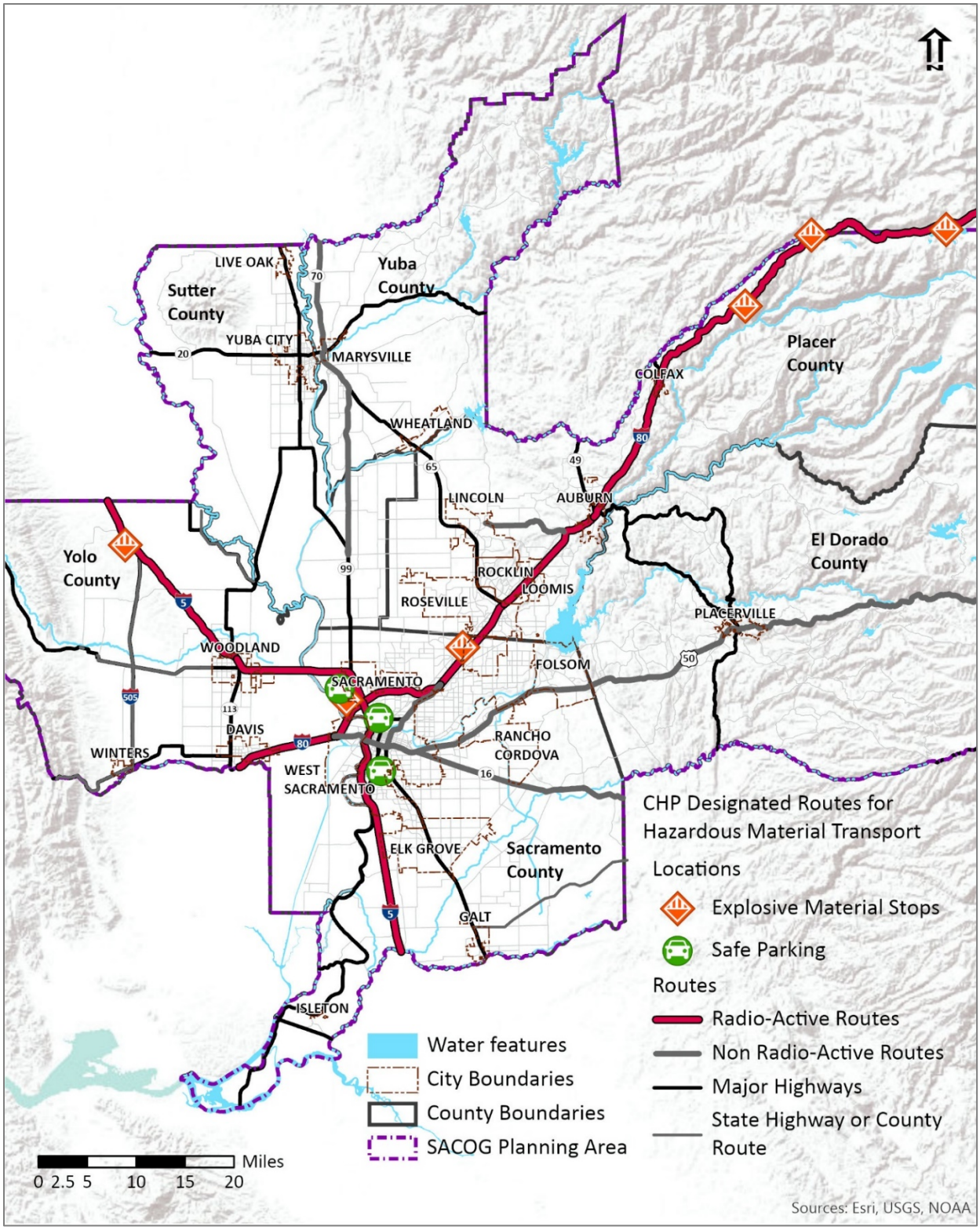


Figure 10-2
CHP Designated Routes for Hazardous Material Transport in the Plan Area of the Proposed MTP/SCS

Additionally, the Hazardous Materials Regulations prohibit parking of vehicles carrying Division 1.1, 1.2, or 1.3 explosives within five feet of the traveled part of the road. Except for short periods of time needed for vehicle operation necessities (e.g., fueling), parking is prohibited within 300 feet of a bridge, tunnel, or building; a place where people gather; or an open fire. Vehicles may be parked unattended in a safe haven. A safe haven is a government-approved place for parking unattended vehicles loaded with explosives. Authorized safe havens are usually designated by local authorities. In California, safe havens are designated by CHP and referred to as "safe parking places." As shown in Table 10-4, CHP has identified several routes as safe stopping places and safe parking places on the state highway system within or near the plan area of the proposed MTP/SCS.

Table 10-4
Safe Stops and Parking Places for Explosive Materials Transporters and Inhalation Hazard Shipments

Routes	Location	Type
Explosive Materials Transporters		
I-5	Dunnigan	Pilot Travel Center, at County Road 8
I-80	Sacramento County	Inspection Stop (both directions) - State of California platform scales, 0.8 miles west of Antelope Road. May be a safe parking place when the driver is given specific instruction by a member of the California Highway Patrol.
I-80	City of Sacramento	49er Auto/Truck Plaza, 2828 El Centro Road
I-80	Donner Summit Rest Area	Required inspection stop
I-80	Blue Canyon (westbound vehicles)	Required inspection stop
I-80	Cisco Grove Chevron	Safe Stopping Place, 90 Cisco Road, Cisco Grove
I-80	Nyack Shell, LLC	Safe Stopping Place, 41965 Nyack Road, Emigrant Gap
State Route 50	Echo Summit	Required inspection stop
Inhalation-Hazard Shipments		
I-5	Dunnigan	Rest Area I-5 north of County Road 6 (Inspection Stop, both directions)
I-5	Dunnigan	Pilot Truck Center, 30035 County Road 8 (Safe Stopping Place)
I-5	Sacramento (southbound only)	Elkhorn Rest Area near Sacramento International Airport (Inspection Stop)
I-80	Sacramento	49er Auto/Truck Plaza, 2828 El Centro Road (Safe Stopping Place)

California Highway Patrol, Transportation of Inhalation Hazards, Excerpts from Title 13 of the California Code of Regulations (Updated March 22, 2018), Accessed May 2019.

USE OF HAZARDOUS MATERIALS IN CONSTRUCTION

A variety of hazardous materials are used in the construction and maintenance of both the land use and transportation system, such as solvents and architectural coatings (paints). The use and storage of these materials is governed by the California Division of OSHA (Cal OSHA) and by local fire departments and disposal of these materials is regulated by the Department of Toxic Substances and Control (DTSC).

SITES CONTAMINATED BY HAZARDOUS MATERIALS

The plan area of the proposed MTP/SCS contains sites that were historically contaminated but have been remediated and sites that are known, or believed to be, contaminated that are currently being characterized or cleaned-up, as well as sites which are regulated because they use or store hazardous materials and wastes. Numerous sites throughout the SACOG region have become contaminated over the years by the operations of certain land uses and by improper disposal of hazardous waste, both legally and illegally. These wastes have affected groundwater and soils throughout the area. Until the 1980s, disposal of most chemical wastes on land was unregulated. As a result, many landfills and industrial sites became contaminated with toxic wastes. The largest and most contaminated of these are designated by the federal government as "Superfund" sites.

EPA maintains the list of national Superfund sites. In California, DTSC maintains a list of contaminated sites and provides a number of tools for tracking and monitoring the generation, transportation, and disposal of hazardous waste.

Several other agencies maintain lists of contaminated sites, including:

- **EPA:** Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); National Priorities List; Resource Conservation and Recovery Act (RCRA) Information; and the U.S. Brownfields Database;
- **California Department of Resources, Recycling, and Recovery (CalRecycle)**: Solid Waste Facilities and Landfills Database; and
- **SWRCB**: Cease and Desist Orders, Cleanup and Abatement Orders, Site Cleanup Program, and Toxic Pits Database.

In addition to information about investigations, evaluations, and permitted sites, DTSC's database, EnviroStor, lists Federal Superfund sites (which require state response) and voluntary and school cleanup sites. Overall, there are roughly 200 sites listed for the plan area of the proposed MTP/SCS, including 11 Superfund sites (over half of which are associated with McClellan Air Force Base), 19 active sites requiring state response, and 33 voluntary cleanup sites that are active or require action. The majority of contaminated sites (105) are located in Sacramento County. Table 10-5 shows a listing of sites in the SACOG region from EnviroStor. Sites appear on the database where DTSC has identified a concern that requires investigation. Sites remain in the database following remediation and closure. Contemporary listings can be prompted by investigations conducted as part of development proposals. Although not a comprehensive listing of all potentially hazardous site in the region, this list informs characterization of the plan area of the proposed MTP/SCS.

In the eastern portion of the plan area of the proposed MTP/SCS, sites of identified contamination tend to be associated with historical use of the properties that include timber processing and mining. In Placer County, sites are distributed throughout the county and occur primarily in the established communities of Auburn, Loomis, and Roseville. Sites in El Dorado County are generally near El Dorado Hills. On the eastern side of the plan area of the proposed MTP/SCS, sites represent a mix of former land uses, including industrial use, a manufactured gas plant, landfill, and airport. In Yolo County, sites are concentrated in the cities of Davis and West Sacramento. In Sutter and Yuba counties in the northern portion of the plan area of the proposed MTP/SCS, hazardous materials sites are primarily identified in Yuba City and Marysville.

Table 10-5
EnviroStor Sites in the Plan Area of the Proposed MTP/SCS

Site Name	Site Type	Cleanup Status	Address Description	City
El Dorado County				
HIGH SCHOOL NO. 5	SCHOOL CLEANUP	INACTIVE - NEEDS EVALUATION	GREEN VALLEY/BASS LAKE ROAD	RESCUE
LAKEVIEW ELEMENTARY SCHOOL	SCHOOL CLEANUP	CERTIFIED / OPERATION & MAINTENANCE	3371 BRITTANY WAY	EL DORADO HILLS
OAK RIDGE HIGH SCHOOL	SCHOOL CLEANUP	CERTIFIED / OPERATION & MAINTENANCE	1120 HARVARD WAY	EL DORADO HILLS
VALLEY VIEW ELEMENTARY SCHOOL (AKA VALLEY VIEW CHARTER MONTESSORI)	SCHOOL CLEANUP	CERTIFIED / OPERATION & MAINTENANCE	1665 BLACKSTONE PARKWAY	EL DORADO HILLS
WETSEL-OVIATT LUMBER COMPANY	VOLUNTARY CLEANUP	INACTIVE - ACTION REQUIRED	6000 LATROBE ROAD	EL DORADO HILLS
Placer County				
AMERICAN FOREST PRODUCTS - FORESTHILL	VOLUNTARY CLEANUP	CERTIFIED	23801 AUBURN-FORESTHILL ROAD	FORESTHILL
AMERICAN OLEAN TILE COMPANY	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	8250 INDUSTRIAL AVENUE	ROSEVILLE
BICKFORD RANCH PROPERTY	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	E. OF SIERRA COLLEGE BLVD & S. OF HWY 193	PENRYN
BOHEMIA SUBDIVISION	VOLUNTARY CLEANUP	INACTIVE - NEEDS EVALUATION	CANAL STREET - NORTH OF LUTHER ROAD	AUBURN
BRENNAN'S POINT	VOLUNTARY CLEANUP	ACTIVE	2360 BRENNAN ROAD	NEWCASTLE
BUNCH CREEK	VOLUNTARY CLEANUP	INACTIVE - NEEDS EVALUATION	APPROXIMATELY 2 MILES EAST OF HWY 80 BETWEEN THE TOWNS OF WEIMER AND COLFAX	COLFAX
COOPER PROPERTY	STATE RESPONSE	CERTIFIED	3025 VISTA WAY	MEADOW VISTA
ENGLISH COLONY ESTATES	VOLUNTARY CLEANUP	REFER: OTHER AGENCY	1797 ENGLISH COLONY WAY APN(S) 032-051-004 AND 032-051-005	PENRYN
FERRARI LEAVELL AND GREY PROPERTY	VOLUNTARY CLEANUP	NO FURTHER ACTION	ONE-FOURTH MILE SOUTHEAST OF LINCOLN	LINCOLN
FOREST PRODUCTS MANUFACTURING, PARCEL 5	STATE RESPONSE	CERTIFIED	ANTHONY COURT	ROCKLIN

Site Name	Site Type	Cleanup Status	Address Description	City
FORESTHILL - ROBINSON PROPERTY	VOLUNTARY CLEANUP	CERTIFIED	22990 FORESTHILL ROAD	FORESTHILL
FOX HILL LANE	VOLUNTARY CLEANUP	ACTIVE - LAND USE RESTRICTIONS	APN #S: 031-161-006-000, 031-161-007-000, 031-470-020-000	NEW CASTLE
FREED PROPERTY	VOLUNTARY CLEANUP	NO FURTHER ACTION	223 TAYLOR ROAD	NEWCASTLE
FRENCH MEADOWS POWERHOUSE	VOLUNTARY CLEANUP	NO FURTHER ACTION	1 MILE NORTH OF HELL HOLE DAM	HELL HOLE
GROVE SUBDIVISION	VOLUNTARY CLEANUP	ACTIVE	3342 HUMPHREY ROAD	LOOMIS
GRUBER MOUNTAIN ESTATES	VOLUNTARY CLEANUP	NO FURTHER ACTION	450 UNCLE JOE'S LANE	NEWCASTLE
HAAG PROPERTY	STATE RESPONSE	NO FURTHER ACTION	9232 BARTON ROAD	GRANITE BAY
KEMPER OAKS #2	VOLUNTARY CLEANUP	NO FURTHER ACTION	ALONG THE SOUTH SIDE OF KEMPER ROAD BETWEEN PEAR ROAD AND BEAN ROAD	AUBURN
KEMPER WOODS PROPERTY	VOLUNTARY CLEANUP	INACTIVE - ACTION REQUIRED	PROPERTY IS LOCATED AT THE INTERSECTION OF KEMPER ROAD AND BEAN ROAD	AUBURN
LAIRD PROPERTY	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	6287 LAIRD ROAD	LOOMIS
LAKE AT GRANITE BAY	VOLUNTARY CLEANUP	NO FURTHER ACTION	5867 EUREKA ROAD	GRANITE BAY
LIFEHOUSE CHURCH	VOLUNTARY CLEANUP	NO FURTHER ACTION	3055 AND 3131 DELMAR AVENUE	LOOMIS
LINCOLN AUXILIARY FIELD (J09CA0852)	STATE RESPONSE	NO FURTHER ACTION	1420 FLIGHTLINE DRIVE	LINCOLN
LOOMIS HILL ESTATES	VOLUNTARY CLEANUP	CERTIFIED	5337 LONE PINE LAND	LOOMIS
MAGGI ESTATES	VOLUNTARY CLEANUP	NO FURTHER ACTION	3918 AUBURN FOLSOM BLVD.	LOOMIS
MG PENRYN PROPERTY	VOLUNTARY CLEANUP	NO FURTHER ACTION	2851 & 2881 TAYLOR ROAD	PENRYN
MICHERRA PLACE	VOLUNTARY CLEANUP	NO FURTHER ACTION	SOUTHWESTCORNER OF EUREKA ROAD AND AUBURN FOLSOM ROAD	GRANITE BAY
MID SIERRA TOWING	VOLUNTARY CLEANUP	ACTIVE	841 NEVADA STREET	AUBURN
MORGAN'S ORCHARD	VOLUNTARY CLEANUP	NO FURTHER ACTION	SOUTH OF INTERSTATE HWY 80, APPROXIMATELY 1 MILE NORTHEAST OF THE CENTRAL BUSINESS DISTRICT	LOOMIS

Site Name	Site Type	Cleanup Status	Address Description	City
NELLIE JO RANCH	VOLUNTARY CLEANUP	NO FURTHER ACTION	SPRING GARDEN ROAD	FORESTHILL
NORTH RAVINE ESTATES	VOLUNTARY CLEANUP	NO FURTHER ACTION	KEMPER ROAD AND BEAN ROAD	AUBURN
OLIVE RANCH	VOLUNTARY CLEANUP	NO FURTHER ACTION	4977 OLIVE RANCH ROAD	GRANITE BAY
ORCHARD PLACE SUBDIVISION	VOLUNTARY CLEANUP	INACTIVE - NEEDS EVALUATION	3241 AND 3239 TAYLOR ROAD	LOOMIS
PENRYN DEVELOPMENT	VOLUNTARY CLEANUP	INACTIVE - ACTION REQUIRED	APN 043-060-052, 043-060-053 / IT IS BORDER BY PENRYN ROAD AND TAYLOR ROAD	LOOMIS
PLACER COUNTY WATER AGENCY - WARNER ROAD PROPERTY	VOLUNTARY CLEANUP	INACTIVE - NEEDS EVALUATION	10420 OPHIR ROAD, WEST OF THE INTERSECTION OF WERNER ROAD	AUBURN
QUALL RESIDENCE	VOLUNTARY CLEANUP	NO FURTHER ACTION	6303 EMERALD DRIVE	ROCKLIN
RANCHO DEL ORO	VOLUNTARY CLEANUP	NO FURTHER ACTION	OLIVE RANCH ROAD APN 046-090-012	GRANITE BAY
RIOLO VINEYARD SPECIFIC PLAN	VOLUNTARY CLEANUP	NO FURTHER ACTION	5280 PFE ROAD	ROSEVILLE
ROCKLIN FORMICA	VOLUNTARY CLEANUP	NO FURTHER ACTION	3500 CINCINNATI AVENUE	ROCKLIN
ROLLING GREENS GOLF COURSE	VOLUNTARY CLEANUP	NO FURTHER ACTION	5572 EUREKA ROAD	GRANITE BAY
SIERRA CENTER IMPROVEMENTS PROJECT	VOLUNTARY CLEANUP	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	240 FERGUSON ROAD, NORTHEAST AUBURN	AUBURN
SIERRA COLLEGE SURPLUS SITES EAST AND SOUTH	VOLUNTARY CLEANUP	ACTIVE	INTERSECTION OF SIERRA COLLEGE BLVD AND ROCKLIN ROAD	ROCKLIN
SILVER CREEK	VOLUNTARY CLEANUP	NO FURTHER ACTION	4300 PFE ROAD AND 9245 WALERGA ROAD (ADJOINING PROPERTIES)	ROSEVILLE
SNOW RANCH	VOLUNTARY CLEANUP	CERTIFIED	11600 EDGEWOOD ROAD	AURBURN
SP-ROSEVILLE: AREA A	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	SP ROSEVILLE RAILYARD	ROSEVILLE
SP-ROSEVILLE: NORTH YARD	STATE RESPONSE	ACTIVE	SP ROSEVILLE RAILYARD	ROSEVILLE
SP-ROSEVILLE-SOUTH YARD	STATE RESPONSE	ACTIVE	SP ROSEVILLE RAILYARD	ROSEVILLE
TURTON PARCEL	VOLUNTARY CLEANUP	CERTIFIED	2631 SHIRLAND TRACT ROAD	AUBURN
TWELVE BRIDGES GOLF CLUB	VOLUNTARY CLEANUP	CERTIFIED	TOWNSHIP 12N, RANGE 7E, SECT 30 AND 31	LINCOLN

Site Name	Site Type	Cleanup Status	Address Description	City
UAIC TRIBAL SCHOOL AKA THE GATHERING PLACE	VOLUNTARY CLEANUP	ACTIVE	3141 TAYLOR ROAD	LOOMIS
VACANT AGRICULTURAL LAND CLEANUP / PROPOSED COSTCO WHOLESALE WAREHOUSE AND FUEL FACILITY	VOLUNTARY CLEANUP	ACTIVE	SOUTHEAST CORNER OF BRACE ROAD AND SIERRA COLLEGE BOULEVARD	LOOMIS
VILLAGE AT GREEN HILL	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	ADJACENT TO: 3105 NEWCASTLE ROAD	NEWCASTLE
WHISPER CREEK SUBDIVISION	VOLUNTARY CLEANUP	NO FURTHER ACTION	3289 PFE ROAD AND OLY LANE	ROSEVILLE
WHITEBRIDGE SUBDIVISION	VOLUNTARY CLEANUP	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	8231 KING ROAD	LOOMIS
WINCHESTER ESTATES - PHASE 4	VOLUNTARY CLEANUP	NO FURTHER ACTION	SUGAR PINE ROAD	MEADOW VISTA
YAMASHIRO PROPERTY	VOLUNTARY CLEANUP	INACTIVE - NEEDS EVALUATION	TAYLOR ROAD	PENRYN
Sacramento County				
1031 ARDEN WAY	VOLUNTARY CLEANUP	REFER: RWQCB	1031 ARDEN WAY	SACRAMENTO
16TH STREET PLATING	STATE RESPONSE	CERTIFIED	1826 16TH STREET	SACRAMENTO
7UP BOTTLING FACILITY	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	2670 LAND AVE	SACRAMENTO
A SCHOOL TEST PROJECT	SCHOOL CLEANUP	ACTIVE	1001 I STREET	SACRAMENTO
A-1 PLATING COMPANY	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	2170 ACOMA ST	SACRAMENTO
ACE OIL COMPANY	STATE RESPONSE	CERTIFIED	323 A STREET	GALT
AEROJET GENERAL CORPORATION	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	HIGHWAY 50 AND AEROJET ROAD	RANCHO CORDOVA
B & J MANUFACTURING	STATE RESPONSE	CERTIFIED	11390 AMALGAM WAY	RANCHO CORDOVA
CADA WAREHOUSE REDEVELOPMENT PROJECT	VOLUNTARY CLEANUP	CERTIFIED	1108 R STREET	SACRAMENTO
CALIFORNIA ARMY NATIONAL GUARD	STATE RESPONSE	ACTIVE	CALIFORNIA JOINT FORCES HEADQUARTERS 10620 MATHER BLVD. (VARIOUS LOCATIONS-SEE COMMUNITY INVOLVEMENT SCREEN)	MATHER

Site Name	Site Type	Cleanup Status	Address Description	City
CALTRANS, I-5 Q STREET OFF-RAMP	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	I-5 Q STREET OFF-RAMP	SACRAMENTO
CHROMALLOY/GENERAL RADIATOR	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	7609 WILBUR WAY	SACRAMENTO
CITY OF FOLSOM CORPORATE YARD LANDFILL	VOLUNTARY CLEANUP	NO FURTHER ACTION	1300 LEIDERSDORFF STREET	FOLSOM
CIWMB-BURN DUMP AGREEMENT	STATE RESPONSE	NO FURTHER ACTION	NOT A SITE CLEANUP	NONE
DILLARD ELEMENTARY SCHOOL	SCHOOL CLEANUP	CERTIFIED	9721 DILLARD ROAD	WILTON
DOWNTOWN RAILYARD VENTURE, LLC	VOLUNTARY CLEANUP	ACTIVE - LAND USE RESTRICTIONS	PORTIONS OF THE FORMER SPTCO LOCOMOTIVE WORKS (AKA SACRAMENTO RAILYARDS). PORTIONS OF LAGOON, NORTHERN SHOPS, CENTRAL CORRIDOR, CAR SHOP NINE AND SACRAMENTO STATION STUDY AREAS (APN: 002-0010-049, -052, -056, AND -058).	SACRAMENTO
ESS LABORATORY	STATE RESPONSE	CERTIFIED	9613 OATES DR	SACRAMENTO
FEDERAL COURTHOUSE - SACRAMENTO	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	5TH AND I STREETS	SACRAMENTO
FOLSOM GUN CLUB	STATE RESPONSE	CERTIFIED	SIBLEY STREET AND GLENN DRIVE	FOLSOM
FOLSOM PRISON	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	N OF FOLSOM CITY; ADJ TO AMERICAN RIVER	REPRESA
FONTS PROPERTY	STATE RESPONSE	CERTIFIED	1822 16TH STREET	SACRAMENTO
FORMER GENUINE PARTS STORE	VOLUNTARY CLEANUP	CERTIFIED	4914 AUBURN BLVD.	SACRAMENTO
FORMER SUTTER MEMORIAL HOSPITAL	VOLUNTARY CLEANUP	NO FURTHER ACTION	5105 F STREET	SACRAMENTO
FUTURE SACRED HEART SCHOOL	VOLUNTARY CLEANUP	NO FURTHER ACTION	39TH STREET AND H STREET	SACRAMENTO
GEORGIA-PACIFIC CHEMICALS	VOLUNTARY CLEANUP	NO FURTHER ACTION	10399 E. STOCKTON BLVD.	ELK GROVE
GOLDEN WEST HOMES (GPM)	STATE RESPONSE	CERTIFIED	9998 OLD PLACERVILLE ROAD	SACRAMENTO
HARRIS AVENUE PCB SITE	STATE RESPONSE	CERTIFIED	627 HARRIS AVE	SACRAMENTO

Site Name	Site Type	Cleanup Status	Address Description	City
HAZEL AVENUE PONDS	STATE RESPONSE	NO FURTHER ACTION	HAZEL AVENUE AT NIMBUS FISH HATCHERY	RANCHO CORDOVA
INTERSTATE BATTERY	STATE RESPONSE	CERTIFIED	451 ANTELOPE ST	ELVERTA
JENSEN FLYING SERVICES	STATE RESPONSE	CERTIFIED	2080 BLAIR AVENUE	SACRAMENTO
JIBBOOM BUILDING	VOLUNTARY CLEANUP	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	240 JIBBOOM STREET	SACRAMENTO
JIBBOOM JUNKYARD	FEDERAL SUPERFUND - DELISTED	CERTIFIED	240-260 JIBBOOM STREET	SACRAMENTO
JOHNSON CONTROL	STATE RESPONSE	CERTIFIED	AREA WEST OF FRANKLIN ON SIMMS	SACRAMENTO
KALWANI PROPERTY	VOLUNTARY CLEANUP	NO FURTHER ACTION	8151 SHELDON ROAD	ELK GROVE
KEN'S BUFF AND PLATING	STATE RESPONSE	ACTIVE	1816 21ST STREET	SACRAMENTO
MATHER AIR FORCE BASE	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5,485 ACRES; 12 MI EA OF SACRAMENTO, CA	SACRAMENTO
MCCLELLAN AFB P. A5 SAC. CO. RECOVERY (VCA)	FEDERAL SUPERFUND - LISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	4450 ROSEVILLE ROAD	NORTH HIGHLANDS
MCCLELLAN AIR FORCE BASE	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	APPROX 5200 WATT AVE	SACRAMENTO
MCCLELLAN AIR FORCE BASE - BUILDING 7	FEDERAL SUPERFUND - LISTED	NO FURTHER ACTION	5200 WATT AVENUE	SACRAMENTO
MCCLELLAN BUSINESS PARK	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	APPROX 5200 WATT AVE	MCCLELLAN AFB
MCCLELLAN PARCEL C6	FEDERAL SUPERFUND - LISTED	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	MCCLELLAN AFB	MCCLELLAN
MCCLELLAN PARK MOA	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	CORNER OF BELL AVE AND PARKER STREET	SACRAMENTO
MCDONNELL DOUGLAS - INACTIVE TEST SITE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	11505 DOUGLAS RD	RANCHO CORDOVA
MERCY HOUSING CALIFORNIA	VOLUNTARY CLEANUP	CERTIFIED	3421 EAST COUNTRY CLUB LANE	SACRAMENTO
METALLOY STEEL FOUNDRY	VOLUNTARY CLEANUP	NO FURTHER ACTION	8588 THYS COURT	SACRAMENTO
MIXED USE TOWER AND CITY PARKING	VOLUNTARY CLEANUP	NO FURTHER ACTION	SE CORNER OF 5TH AND J STREETS	SACRAMENTO
NATOMAS AIRPORT	VOLUNTARY CLEANUP	REFER: EPA	3801 AIRPORT ROAD	SACRAMENTO

Site Name	Site Type	Cleanup Status	Address Description	City
NORTH HIGHLANDS AIR NATIONAL GUARD	STATE RESPONSE	NO FURTHER ACTION	8 ACRES;6 MI NORTHEAST OF SACRAMENTO, CA	SACRAMENTO
OBIE'S DUMP	VOLUNTARY CLEANUP	INACTIVE - NEEDS EVALUATION	8437 SHELDON ROAD	ELK GROVE
ORCHARD SUPPLY COMPANY	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	1731 17TH STREET	SACRAMENTO
ORCHARD SUPPLY COMPANY/WORLD OF GOOD TASTE	VOLUNTARY CLEANUP	NO FURTHER ACTION	THE BUILDING AT THE ORCHARD SUPPLY COMPANY SITE, 1731 17TH STREET	SACRAMENTO
PALM IRON WORKS	STATE RESPONSE	CERTIFIED	1515 S STREET	SACRAMENTO
PELL DRIVE	VOLUNTARY CLEANUP	INACTIVE - NEEDS EVALUATION	4220 PELL DRIVE	SACRAMENTO
PG&E - SACRAMENTO SITE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	2000 FRONT STREET	SACRAMENTO
PITTSBURG DES MOINES STEEL	STATE RESPONSE	REFER: OTHER AGENCY	9605 BUTTERFIELD	SACRAMENTO
PLEASANT GROVE HI/KATHERINE ALBIANI MID	SCHOOL CLEANUP	CERTIFIED	BOND ROAD/BRADSHAW ROAD	ELK GROVE
PROPOSED MANGINI RANCH ELEMENTARY SCHOOL	SCHOOL CLEANUP	ACTIVE	14640 SPARROW DRIVE	FOLSOM
PROPOSED RAILYARDS HOSPITAL	VOLUNTARY CLEANUP	ACTIVE	LOTS 2, 3, 5, AND 6 AT THE NW PORTION OF THE RAILYARDS	SACRAMENTO
PURITY OIL SALES - DELTA GUNITE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	WHITE ROCK ROAD & KILGORE ROAD	RANCHO CORDOVA
RETREAT AT SACRAMENTO, LLC	VOLUNTARY CLEANUP	ACTIVE	2601 REDDING AVENUE	SACRAMENTO
RUSSELL RANCH ELEMENTARY SCHOOL	SCHOOL CLEANUP	CERTIFIED / OPERATION & MAINTENANCE	375 DRY CREEK ROAD	FOLSOM
SACRAMENTO ARMY DEPOT	FEDERAL SUPERFUND - LISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	8350 FRUITRIDGE ROAD	SACRAMENTO
SACRAMENTO ARMY DEPOT - AREA I	STATE RESPONSE	CERTIFIED	8350 FRUITRIDGE ROAD	SACRAMENTO
SACRAMENTO ARMY DEPOT - AREA II	STATE RESPONSE	CERTIFIED	8350 FRUITRIDGE ROAD	SACRAMENTO
SACRAMENTO ARMY DEPOT (SUBSITE)	STATE RESPONSE	CERTIFIED	8350 FRUITRIDGE ROAD	SACRAMENTO

Site Name	Site Type	Cleanup Status	Address Description	City
SACRAMENTO CABLE	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	2175 PERKINS WAY	SACRAMENTO
SACRAMENTO COUNTY EXECUTIVE AIRPORT	STATE RESPONSE	CERTIFIED	6151 FREEPORT BLVD	SACRAMENTO
SACRAMENTO DOWNTOWN ARENA	VOLUNTARY CLEANUP	NO FURTHER ACTION	AREA BOUNDED BY 3RD, 7TH, J AND L STREETS	SACRAMENTO
SACRAMENTO HOUSING & REDEVELOP. AGENCY	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	1920 FRONT STREET	SACRAMENTO
SACRAMENTO PLATING INC.	STATE RESPONSE	ACTIVE	2809 S STREET	SACRAMENTO
SETZER FOREST PRODUCTS, INC.	VOLUNTARY CLEANUP	NO FURTHER ACTION	2570 3RD STREET AND 2630 5TH STREET	SACRAMENTO
SIERRA BATTERY SALES	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	977 LOCHBRAE ROAD	SACRAMENTO
SIMS METAL SITE	STATE RESPONSE	ACTIVE	130 NORTH 12 STREET; AT INTERSECTION OF NORTH B STREETS	SACRAMENTO
SMUD AT THE RAILYARDS	VOLUNTARY CLEANUP	ACTIVE	LOT 42 (GOVERNMENT ALLEY AND 6TH, 7TH, G STS) AND INTERSECTION OF 7TH ST AND RAILYARDS BLVD	SACRAMENTO
SMUD STATION E SUBSTATION	VOLUNTARY CLEANUP	REFER: IWMB	AT THE NORTHERN END OF 20TH STREET	SACRAMENTO
SMUD THORNTON AVENUE SITE	VOLUNTARY CLEANUP	ACTIVE	1610 THORNTON AVENUE	SACRAMENTO
SMUD, FRONT & T STREETS	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	FRONT & T STREETS	SACRAMENTO
SOCCER STADIUM	VOLUNTARY CLEANUP	INACTIVE - ACTION REQUIRED	AREA BOUNDED BY 8TH ST, NORTH B ST, 10TH ST, AND RAILYARDS BLVD	SACRAMENTO
SONOMA AVENUE SITE	STATE RESPONSE	CERTIFIED	1035 SONOMA AVENUE	SACRAMENTO
SOUTHERN PACIFIC SACTO DRUMS STORAGE	STATE RESPONSE	NO ACTION REQUIRED	NONE	NONE
SP-PURITY OIL	VOLUNTARY CLEANUP	CERTIFIED	1324 A STREET	SACRAMENTO
STRAWBERRY MANOR PCB SITE	STATE RESPONSE	CERTIFIED	188 OLMSTEAD DR	SACRAMENTO
SUNRISE RIVER INDUSTRIAL PARK	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	GOLD RIVER ROAD AND U.S. HIGHWAY 50	RANCHO CORDOVA

Site Name	Site Type	Cleanup Status	Address Description	City
THE DOCKS AREA SACRAMENTO EOA	VOLUNTARY CLEANUP	NO FURTHER ACTION	CITY OF SACRAMENTO RIVERFRONT	SACRAMENTO
U.S. COLD STORAGE	VOLUNTARY CLEANUP	INACTIVE - NEEDS EVALUATION	2338 9TH AVENUE	SACRAMENTO
UNION PACIFIC BANNON STREET PARCEL	VOLUNTARY CLEANUP	INACTIVE - ACTION REQUIRED	NORTH B STREET AND SEVENTH STREET	SACRAMENTO
UNION PACIFIC RAILROAD UNDERGROUND VAULT PROGRAM	VOLUNTARY CLEANUP	INACTIVE - NEEDS EVALUATION	28 SUSPECTED LOCATIONS THROUGHOUT THE STATE OF CALIFORNIA	SACRAMENTO
UNION PACIFIC RAILROAD, CURTIS PARK	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	3675 WESTERN PACIFIC AVENUE	SACRAMENTO
UP, DOWNTOWN SAC - CAR SHOP NINE	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO
UP, DOWNTOWN SAC - CENTRAL CORRIDOR	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO
UP, DOWNTOWN SAC - CENTRAL SHOPS	STATE RESPONSE	ACTIVE	401 I STREET	SACRAMENTO
UP, DOWNTOWN SAC - INLAND	VOLUNTARY CLEANUP	NO FURTHER ACTION	401 I STREET	SACRAMENTO
UP, DOWNTOWN SAC - LAGOON	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO
UP, DOWNTOWN SAC - MANUFACTURED GAS PLANT	STATE RESPONSE	ACTIVE	400 I STREET	SACRAMENTO
UP, DOWNTOWN SAC - NORTHERN SHOPS/DRUM S	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO
UP, DOWNTOWN SAC - PONDS AND DITCH	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO
UP, DOWNTOWN SAC - REDEVELOPMENT	VOLUNTARY CLEANUP	INACTIVE - ACTION REQUIRED	401 I STREET	SACRAMENTO
UP, DOWNTOWN SAC - SHOPS ABATEMENT	STATE RESPONSE	NO FURTHER ACTION	401 I STREET	SACRAMENTO
UP, DOWNTOWN SAC - SITE-WIDE	STATE RESPONSE	ACTIVE	401 I STREET	SACRAMENTO
UP, DOWNTOWN SAC - TRACK RELOCATION	STATE RESPONSE	NO FURTHER ACTION	401 I STREET	SACRAMENTO
UP, SAC - BATTERY SHOP YARD	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO

Site Name	Site Type	Cleanup Status	Address Description	City
UP, SAC - SACRAMENTO STATION	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO
UP, SAC - SAND PILES	STATE RESPONSE	CERTIFIED	401 I STREET	SACRAMENTO
VILLAGE OF ZINFINDEL	VOLUNTARY CLEANUP	NO FURTHER ACTION	3145 KILGORE ROAD	RANCHO CORDOVA
VISTA DEL LAGO HIGH SCHOOL	SCHOOL CLEANUP	CERTIFIED / OPERATION & MAINTENANCE	1970 BROADSTONE PARKWAY	FOLSOM
WHITE ROCK DUMPS 1 AND 2	STATE RESPONSE	ACTIVE	WHITE ROCK DUMPS (WRD) 1 AND 2 ARE LOCATED ON AEROJET PROPERTY. WRD 1, SOUTH OF WHITE ROCK ROAD ON THE INACTIVE RANCHO CORDOVA TEST SITE (IRCTS). WRD 2, NORTH SIDE OF WHITE ROCK ROAD.	RANCHO CORDOVA
Sutter County				
CUSTOM CHROME AND BUMPER	STATE RESPONSE	ACTIVE	335 GARDEN HIGHWAY	YUBA CITY
BEALE TITAN SITE 1B	STATE RESPONSE	REFER: RWQCB	46.7 ACRES; NO SIDE OF THE SUTTER BUTTES	YUBA CITY
GOLDEN GATE HOP RANCH	STATE RESPONSE	CERTIFIED	12035 GARDEN HIGHWAY	YUBA CITY
H & B MACHINERY (1)	VOLUNTARY CLEANUP	NO FURTHER ACTION	1781 COLUSA HWY	YUBA CITY
HELENA CHEMICAL	STATE RESPONSE	CERTIFIED	921 N GEORGE WASHINGTON BLVD	YUBA CITY
LOMO AIRSTRIP	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	1111 KOCH LANE	LIVE OAK
SUTTER-BY-PASS	STATE RESPONSE	CERTIFIED	NEAR JUNCTION OF TISDALE & SUTTER BYPASS	SUTTER
UNION PACIFIC RAILROAD RIGHT-OF-WAY YUBA CITY	VOLUNTARY CLEANUP	ACTIVE	RAILROAD RIGHT-OF-WAY FROM FEATHER RIVER EAST TO HARTER PARKWAY (A DISTANCE OF 2.8 MILES), INCLUDING A FORMER SWITCHING YARD AND RAILROAD SPUR LINES IN THE BLOCK BOUNDED BY COOPER AVENUE TO THE WEST, REEVES AVENUE TO	YUBA CITY

Site Name	Site Type	Cleanup Status	Address Description	City
			THE NORTH, AND BRIDGE STREET TO THE SOUTHEAST	
YUBA CITY STEEL PRODUCTS COMPANY	STATE RESPONSE	REFER: RWQCB	526 STEVENS AVE	YUBA CITY
Yolo County				
BORGES CLARKSBURG AIRPORT	VOLUNTARY CLEANUP	INACTIVE - ACTION REQUIRED	54254 SOUTH RIVER ROAD	CLARKSBURG
BRIDGEWAY LAKES NORTH - PHASE I B	VOLUNTARY CLEANUP	CERTIFIED	3695 MARSHALL ROAD	WEST SACRAMENTO
CAPITOL PLATING CORPORATION	STATE RESPONSE	INACTIVE - ACTION REQUIRED	319 3RD STREET	WEST SACRAMENTO
COTTONWOOD CLEANERS	VOLUNTARY CLEANUP	INACTIVE - NEEDS EVALUATION	628 COTTONWOOD STREET	WOODLAND
COURT GALVANIZING	STATE RESPONSE	REFER: RWQCB	SW OF DAVIS OFF COUNTY ROAD 32A	DAVIS
DAVIS TRANSMITTER SITE	STATE RESPONSE	REFER: RWQCB	INTERSECTION OF MACE BLVD AND ROAD 35	DAVIS
DELTA TRUCKING	STATE RESPONSE	CERTIFIED	1201 E KENTUCKY AVE	WOODLAND
DUNNIGAN GROUNDWATER	STATE RESPONSE	ACTIVE	29082 MAIN STREET	DUNNIGAN
ESPARTO HIGH SCHOOL	SCHOOL CLEANUP	CERTIFIED	HIGHWAY 85B	ESPARTO
FRONTIER FERTILIZER	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	SECOND STREET/BTWN PENA & MACE BLVD.	DAVIS
GAS'N'SAVE	STATE RESPONSE	REFER: RWQCB	504 L STREET	DAVIS
MOLLER CORPORATION	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	1222 RESEARCH PARK DRIVE	DAVIS
OLD BRYTE LANDFILL	VOLUNTARY CLEANUP	ACTIVE	50035 COUNTY ROAD 126	WEST SACRAMENTO
PG & E FORMER WOODLAND MGP	VOLUNTARY CLEANUP	ACTIVE	904-906 MAIN STREET AND 419-421 4TH STREET	WOODLAND
SAC ENGR AREA-WEIR AREA (J09CA0798)	STATE RESPONSE	NO FURTHER ACTION	STATE OLD RIVER/NORTH HARBOR ROAD	WEST SACRAMENTO
TARGET PROPERTY	VOLUNTARY CLEANUP	NO FURTHER ACTION	INTERSECTION OF SECOND STREET AND FARADAY AVENUE	DAVIS
THE RIVERS PHASE II PROPOSED SCHOOL	SCHOOL CLEANUP	ACTIVE	LIGHTHOUSE AND FOUNTAIN DRIVES	WEST SACRAMENTO
TOWER COURT	VOLUNTARY CLEANUP	ACTIVE	815 WEST CAPITOL AVENUE	WEST SACRAMENTO
UNION CHEMICAL	STATE RESPONSE	CERTIFIED	3961 CHANNEL DRIVE	WEST SACRAMENTO
WILBUR ELLIS	STATE RESPONSE	CERTIFIED	1962 HAYS LN	WOODLAND

Site Name	Site Type	Cleanup Status	Address Description	City
WINTERS HOTEL	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	12-14 ABBEY STREET	WINTERS
WOODLAND FAIRGROUNDS	VOLUNTARY CLEANUP	REFER: LOCAL AGENCY	1250 E GUM AVE	WOODLAND
Yuba County				
AMES ROAD	STATE RESPONSE	CERTIFIED	7237 AMES ROAD	MARYSVILLE
BEALE AFB - IR/MMRP	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	22,944 ACRES; 10MI EA OF MARYSVILLE, CA	BEALE AFB
CAMP BEALE (J09CA0136) - MMRP	STATE RESPONSE	ACTIVE	97.74 SQ MI; 40 MI N OF SACRAMENTO	MARYSVILLE
CECIL'S RADIATOR SHOP	VOLUNTARY CLEANUP	CERTIFIED	5174 LINDHURST AVENUE	OLIVEHURST
CLETUS ROGERS	STATE RESPONSE	CERTIFIED	MARYSVILLE LAPORO ROAD/ BLUE GRAVEL RD	BROWNS VALLEY
HAMMONTON SMARTSVILLE PROPERTY	SCHOOL CLEANUP	CERTIFIED	2176 HAMMONTON SMARTSVILLE ROAD	MARYSVILLE
KEYSTONE AUTOMOTIVE	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	5066 & 5079 POWERLINE ROAD	OLIVEHURST
LINDA ELEMENTARY SCHOOL	SCHOOL CLEANUP	NO FURTHER ACTION	6180 DUNNING AVENUE	MARYSVILLE
LOMA RICA ELEMENTARY SCHOOL	SCHOOL CLEANUP	INACTIVE - ACTION REQUIRED	5150 FRUITLAND ROAD	MARYSVILLE
PG&E, MARYSVILLE	VOLUNTARY CLEANUP	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	4TH AND A STREETS	MARYSVILLE
PLUMAS RANCH ELEMENTARY SCHOOL	SCHOOL CLEANUP	INACTIVE - WITHDRAWN	FEATHER RIVER BLVD./RIVER OAKS BLVD.	PLUMAS LAKE
YUBA GARDENS INTERMEDIATE SCHOOL	SCHOOL CLEANUP	CERTIFIED	1964 11TH AVENUE	OLIVEHURST
YUBA SUTTER FAIR	VOLUNTARY CLEANUP	REFER: LOCAL AGENCY	442 FRANKLIN AVE	YUBA CITY

Source: DTSC EnviroStar Database 2019.

In Sacramento County, hazardous materials sites are primarily identified in the City of Sacramento and are associated with industrial and manufacturing uses. Two of the largest and most well-known contaminated sites in the region are the downtown Sacramento railyards and the GenCorp (Aerojet) property south of the intersection of Folsom Boulevard and Hazel Avenue. Both of these sites, as well as other Superfund sites, are being remediated. The railyards site is in the process of reuse in the form of a major redevelopment project adhering to the safety statutes in place to protect public health and safety. Other key areas of concern in the county are Mather and McClellan Air Force Bases.

SCHOOLS

Children are particularly susceptible to long-term impacts from exposure to hazardous materials. The State CEQA Guidelines require EIRs to assess whether a project would emit hazardous air emissions or involve the handling of extremely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school (see Pub. Resources Code [PRC] Section 21151.4; Appendix G of the CEQA Guidelines). Figure 10-5 shows the 0.25-mile public school buffer zones in the SACOG region. In addition, state regulations require investigation of all sites proposed for development as public schools to determine if site soils are contaminated. These school cleanup sites are overseen by DTSC.

AIRPORTS

Potential hazards related to airport operations are generally regulated by the Federal Aviation Administration (FAA). Airport Land Use Commissions (ALUCs) have been established for all counties in California with public use airports for the purpose of local planning and evaluation of proposed projects' compatibility with air and ground operations and the safety of the public. The ALUC is responsible for preparing Airport Land Use Compatibility Plans (ALUCPs) for public use airports.

ALUCs establish airport influence areas (AIAs) through an ALUCP, which are usually defined as the area in which current or future airport-related noise, over flight, safety, and/or airspace protection factors may significantly affect land uses or necessitate restrictions on those land uses. An ALUC establishes its jurisdictional authority by designating one or more AIAs. SACOG is the ALUC for Sacramento, Sutter, Yolo, and Yuba counties, with the exception of the UC Davis airport, which is self-regulated by the University of California. The El Dorado County Transportation Commission (EDCTC) and Placer County Transportation Planning Agency (PCPTA) are the ALUCs for El Dorado and Placer counties, respectively. There are 22 public or public-serving airports in addition to the many private airports in the SACOG region. All of the public airports in region have AIAs defined in their ALUCPs (EDCTC 2019).

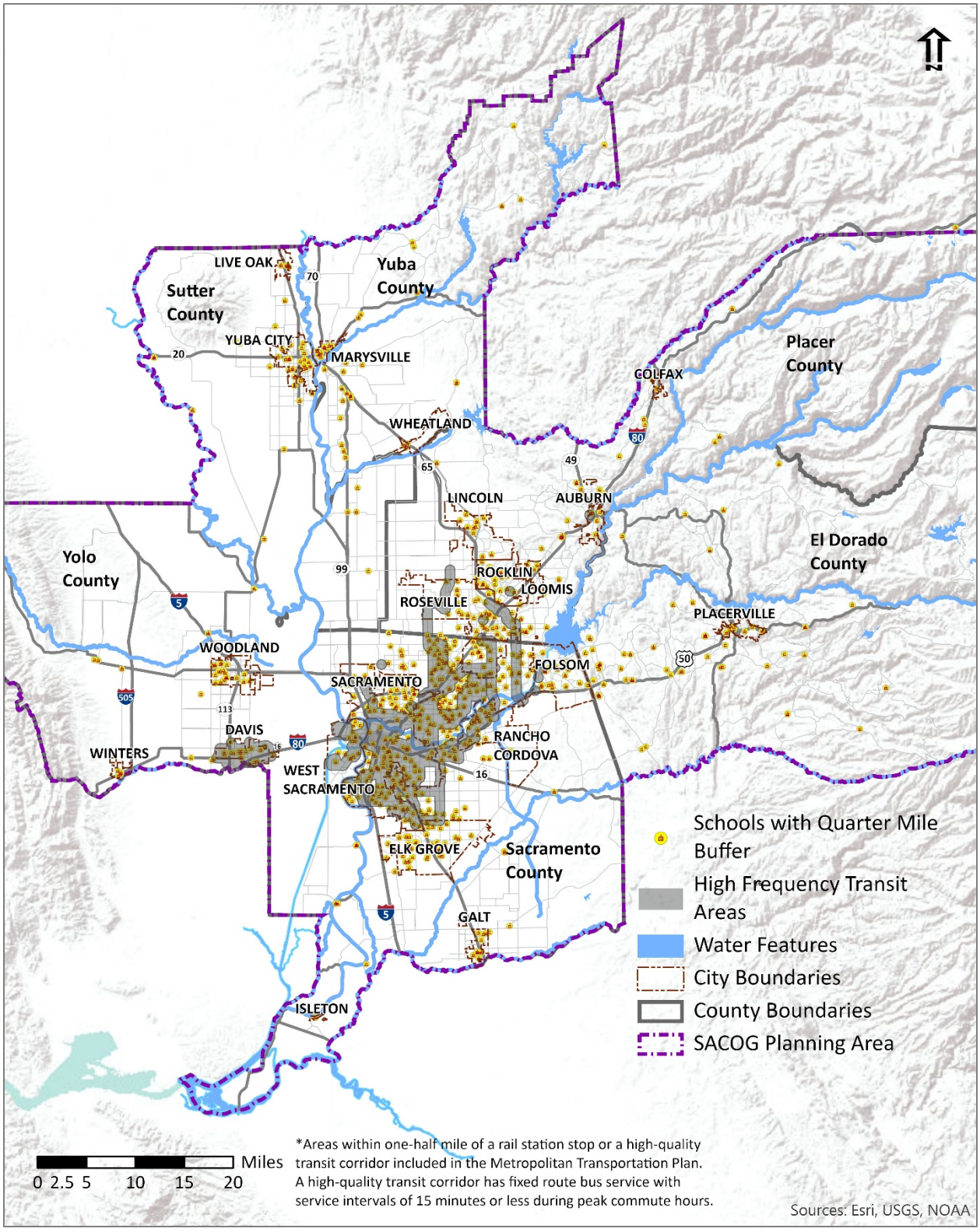


Figure 10-3
School Buffer Zones in the Plan Area of the Proposed MTP/SCS

Table 10-6 lists the public airports located within the SACOG region and Figure 10-6 illustrates the AIAs for the public airports in the SACOG region.

Table 10-6
Airports in the Plan Area of the Proposed MTP/SCS

ALUC	ALUCP Adoption Date
El Dorado County Transportation Commission ALUC	
Cameron Park Airport	2012
Georgetown Airport	2012
Placerville Airport	2012
Placer County Transportation Planning Agency ALUC	
Auburn Municipal Airport	2014
Blue Canyon Airport	2014
Lincoln Regional Airport	2014
Truckee-Tahoe Airport (primarily in Nevada County, with a small portion in Placer County; represented by both counties through a special ALUC)	2014
SACOG ALUC	
Sacramento County	
Franklin Field	1992
Mather Airport	1997
McClellan Airpark	1992
Rio Linda Airport	1992
Sacramento Executive Airport	1999
Sacramento International Airport	2013
Sunset Skyranch	1992
Sutter County	
Sutter County Airport	1994
Yolo County	
Borges-Clarksburg Airport	1994
Watts-Woodland Airport	1993
Yolo County Airport	1999
Yuba County	
Beale Air Force Base	2011
Brownsville Airport	1992
Yuba County Airport	2011
University of California	
UC Davis Airport (self-regulated)	N/A

Source: Source: El Dorado County Transportation Commission, 2019; Placer County Transportation Planning Agency, 2014; SACOG, 2019.

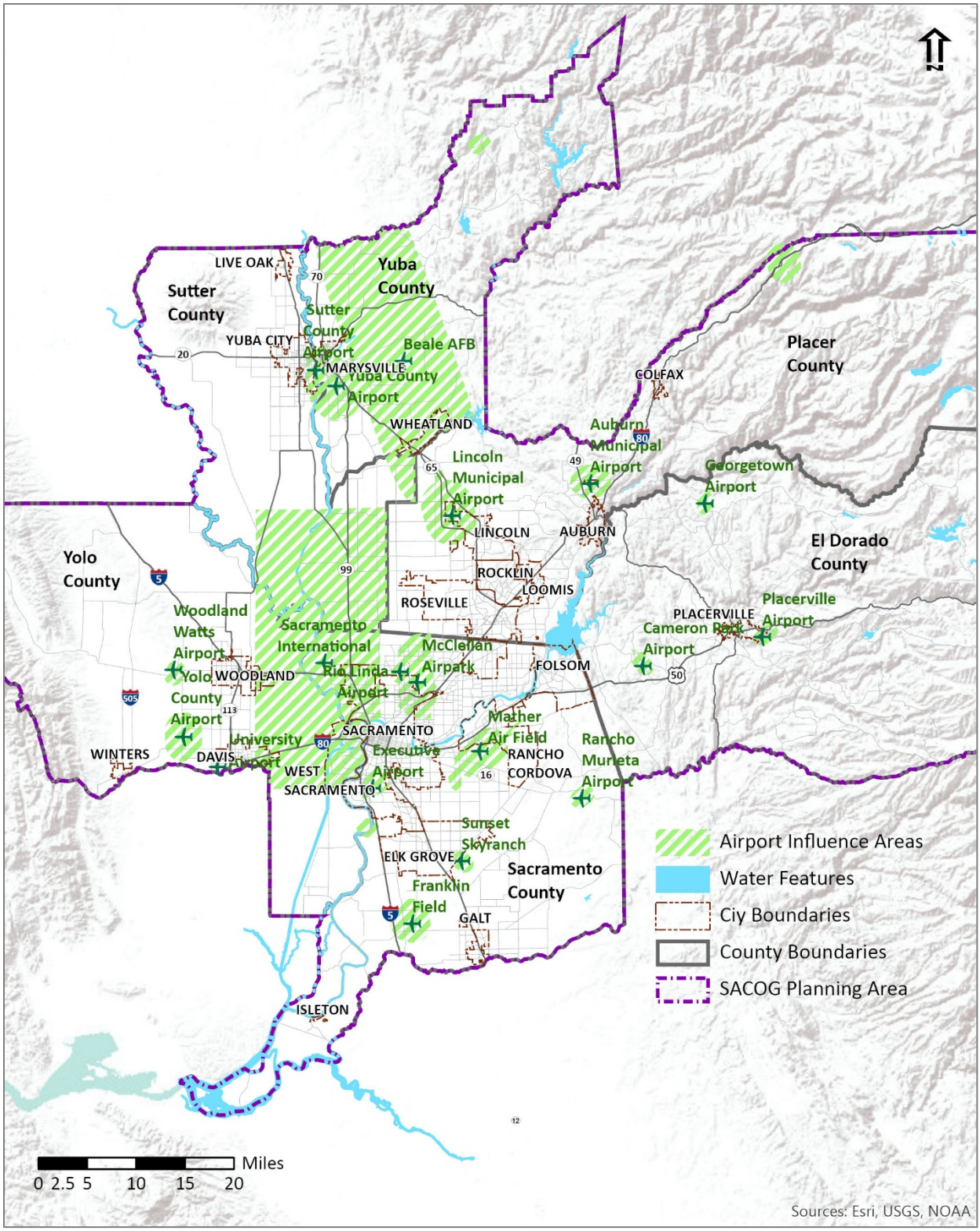


Figure 10-4
Airport Influence Areas in the Plan Area of the Proposed MTP/SCS

10.2.2 Emergency Services

This section provides information on emergency preparedness, existing emergency response services, disaster response services, and emergency plans in the plan area of the proposed MTP/SCS. The region potentially faces a number of emergency situations caused by events such as forest fires, flooding, and earthquakes. The programs listed below relate to planning for and responding to such emergencies. For a discussion of services related to other types of emergencies (i.e., police protection, fire protection, emergency medical services) see Chapter 15 – Public Services and Recreation.

Table 10-7
Acute Care and Hospital Facilities in the Plan Area of the Proposed MTP/SCS

El Dorado County	City
Barton Memorial Hospital	South Lake Tahoe
Marshall Medical Center	Placerville
Placer County	**City**
Kaiser Foundation Hospital - Roseville	Roseville
Sutter Auburn Faith Hospital	Auburn
Sutter Roseville Medical Center	Roseville
Sacramento County	**City**
Kaiser Foundation Hospital - Sacramento	Sacramento
Kaiser Foundation Hospital - South Sacramento	Sacramento
Mercy General Hospital	Sacramento
Mercy Hospital of Folsom	Folsom
Mercy San Juan Hospital	Carmichael
Methodist Hospital of Sacramento	Sacramento
Shriners Hospitals for Children Northern Calif.	Sacramento
Sutter Medical Center, Sacramento	Sacramento
University of California Davis Medical Center	Sacramento
Vibra Hospital of Sacramento	Folsom
Sutter County	**City**
Sutter Surgical Hospital-North Valley	Yuba City
Yolo County	**City**
Sutter Davis Hospital	Davis
Woodland Memorial Hospital	Woodland
Yuba County	**City**
Adventist Health and Rideout	Marysville

Source: Office of Statewide Health Planning and Development, Licensed Healthcare Facility Listing, California Health and Human Services Open Data (updated December 31, 2018), accessed May 2019.

EMERGENCY RESPONSE AND EVACUATION PLANS

Natural disasters, events resulting in the release of hazardous materials into the environment, or an accident resulting from a hazard, all necessitate an emergency response or evacuation plan. These plans facilitate coordination between government agencies to provide central management for effective response in an emergency situation within a given area. Various levels of government are responsible for applying resources and emergency relief to those in the emergency area to minimize the effects of the hazards or hazardous materials. These incidents can occur almost anywhere hazards or hazardous materials exist or are transported. However, certain areas of the state with large industrial areas

containing large quantities of hazardous materials such as anhydrous ammonia, aqua ammonia, and chlorine are at higher risk. The local OES for each county in the SACOG region designs the emergency plan to coordinate the available resources and to effectively respond to natural and other types of disasters. Emergency plans outline the critical factors necessary during an emergency, including communications, transportation, a command station, control, and shelter. Emergency plans also often identify designated evacuation routes and procedures. Table 10-8 lists designated emergency roadways and evacuation routes within the plan area of the proposed MTP/SCS.

Table 10-8
Jurisdiction-Designated Emergency Roadways/Evacuation Routes in the Plan Area of the Proposed MTP/SCS

El Dorado County	**Sacramento County *(cont.)***	**Sacramento County *(cont.)***
US 50	Elk Grove Blvd	Truxel Rd
Hwy 49	Elvas Avenue	Watt Avenue
Hwy 89	Florin Perkins Road	West El Camino Avenue
Hwy 193	Florin Road	**Sutter County**
County Road E-16	Folsom Boulevard	Bogue Rd.
Placer County	Franklin Blvd	Butte House Rd.
Interstate 80	Freeport Boulevard	Franklin Ave.
US 50	Fruitridge Road	Garden Hwy.
State Route 89	Garden Highway	George Washington Blvd.
State Route 267	Gateway Oaks Drive	Highway 113
Sacramento County	H Street	Highway 20
Roadways (County-Identified)	Howe Avenue	Highway 70
Interstate 5	I Street	Highway 99
Interstate 80	I-5	Interstate 5
US 50	I-80	Lincoln Rd.
Business 80	J Street	Pease Rd.
Highway 99	La Riviera Drive	Township Rd.
Highway 16	Mack Road	Tudor Rd.
Highway 160	Main Avenue	**Yolo County**
Roadways (City-Identified)[2]	Marysville Blvd.	Cacheville Rd.
14th Avenue	Meadowview Road	Coil Ln.
15th Street	Moddison Ave.	County Road 1
16th Street	North 12th Street	County Road 101
24th Street	Northgate Boulevard	County Road 102
47th Avenue	Norwood Avenue	County Road 105
65th Street	Pocket Road	County Road 12
Arcade - Marconi Ave.	Power Inn Road	County Road 12A
Arden Way	Raley Blvd	County Road 13
Bannon Street	Richards Boulevard	County Road 14
Broadway	Rio Linda Blvd	County Road 17
Center Parkway	Riverside Boulevard	County Road 18
Del Paso Blvd	San Juan Road	County Road 18C
Del Paso Road	Southland Park	County Road 19
El Camino Avenue	Stockton Blvd	County Road 2
Elder Creek Road	Sutterville Road	County Road 20

Yolo County *(cont.)*	Yolo County *(cont.)*	Yuba County *(cont.)*
County Road 22	E Kentucky Ave.	Eleventh Ave
County Road 23	E Main St.	Erle Rd
County Road 24	East St.	Feather River Blvd
County Road 25	Gibson Rd.	Forty Mile Rd
County Road 25A	Grant Ave.	Grand Ave
County Road 27	Harry Lorenzo Ave.	Griffith Ave
County Road 28H	Highway 128	Hammonton-Smartville Rd
County Road 29	Highway 16	Jack Slough Rd
County Road 29A	Highway 45	La Porte Rd
County Road 31	Hutchinson Dr.	Linda Ave
County Road 4	Interstate 5	Lindhurst Ave
County Road 6	Interstate 505	Loma Rica Rd
County Road 8	Interstate 80	Los Verjeles Rd
County Road 85	Kentucky Ave.	Marysville Rd
County Road 85B	Main St.	Mathews Ln
County Road 86	N East St.	Mcgowan Pky
County Road 87	N Pioneer Ave.	N Beale Rd
County Road 89	N West St.	Plumas Arboga Rd
County Road 89B	Pioneer	Powerline Rd
County Road 92	Pleasants Valley Rd.	Ramirez Rd
County Road 92E	Railroad Ave.	Ridge Rd
County Road 93	Russell Blvd.	Riverbank Dr
County Road 93A	W Grant Ave.	Rupert Ave
County Road 94B	W Kentucky Ave.	S Beale Rd
County Road 95	W Main St.	Seventh Ave
County Road 95A	West St.	Simpson Ln
County Road 96	Woodland Ave.	Smartsville Rd
County Road 97	Yolo Ave.	State Hwy 20
County Road 98	**Yuba County**	State Hwy 49
County Road 98B	Alicia Ave	State Hwy 65
County Road 99	Arboga Rd	State Hwy 70
County Road 99E	Avondale Ave	Willow Glen Rd
County Road 99W	Challenge Cutoff Rd	Woodruff Ln
E Gibson Rd.	Cottonwood Ave	
E Grant Ave.	Edgewater Cir	

[1] These are potential evacuation routes. Effective evacuation routes will be determined at the time of the emergency, based on the situation.

[2] Evacuation routes identified by the City of Sacramento include those listed for Sacramento County above.

Source: City of Sacramento Emergency Operations Plan, 2005; El Dorado County Sheriff's Office, 2019; Placer County, 2016; Sacramento County Evacuation Plan, 2018; Sutter County Evacuation Route Map, 2019; Yolo County Office of Emergency Services, 2019; Yuba County Public Works Department, 2019.

MUTUAL AID AGREEMENTS

California's mutual aid system is designed to ensure that adequate resources, facilities, and other support are provided to jurisdictions whenever their own resources prove to be inadequate to cope with a given situation. Mutual aid coordination is addressed in the emergency response or evacuation

plan. Each jurisdiction retains control of its own personnel and facilities, but can give and receive help whenever it is needed. State government, on the other hand, is obligated to provide available resources to assist local jurisdictions in emergencies.

To facilitate the coordination and flow of mutual aid, the state has been divided into six OES Mutual Aid Regions (and three administrative regions). Sutter and Yuba counties, and the jurisdictions therein, are in Region III. El Dorado, Placer, Sacramento, and Yolo counties, and the jurisdictions therein, are in Region IV. Through this mutual aid system, Cal OES can receive a constant flow of information from every geographic and organizational area of the state. This includes direct notification that a disaster exists or is imminent. In some cases, it also includes information that makes it possible to anticipate an emergency and mitigate its effects by accelerating preparations, or perhaps preventing a situation from developing to disaster proportions (California Emergency Management Agency 2011).

To further facilitate the mutual aid process, particularly during day-to-day emergencies involving public safety agencies, Fire and Rescue Law Enforcement Coordinators have been selected and function at the Operational Area (countywide), Mutual Aid Region (two or more counties), and at the Cal OES level.

Fire Threat

The region faces a number of fire threats, especially from wildfires in the oak and conifer forest areas in the east and the chaparral of the intercoastal range in the west. Table 10-9, below, identifies wildfire incidents responded to by the California Department of Forestry and Fire Protection (CAL FIRE) personnel and resources in the plan area of the proposed MTP/SCS. In 2016, El Dorado and Placer counties experienced the most fires, while Placer and Yolo counties had the most acreage affected by wildfire (CAL FIRE 2016). For a discussion of fire protection services, see Chapter 15 – Public Services and Recreation.

Table 10-9
Wildfires in the in the Plan Area of the Proposed MTP/SCS, 2016

County	Total Fires	Acres Burned
El Dorado	169	371
Placer	133	5,722
Sacramento	21	542
Sutter	0	0
Yolo	22	6,105
Yuba	61	602

Source: CAL FIRE 2016

WILDFIRES

While, typically the wildfire season has lasted from early spring to late fall, increasingly the wildlife season is starting earlier and ending later. Wildlife hazards derive primarily from a combination of hot weather, accumulation of dried vegetation, and low moisture content in the air. These conditions, if coupled with high winds and drought, can compound the risk and potential impact of a fire. In accordance with Public Resources Code Sections 4201-4204 and Government Code Sections 51175-51189, the California

Department of Forestry and Fire Protection (CAL FIRE) has mapped areas of significant wildfire hazards based on fuels, terrain, weather, and other relevant factors. These areas, referred to as Fire Hazard Severity Zones, represent the risks associated with wildland fires. Figure 10-7 shows the Fire Severity Zones in the SACOG region. The eastern and far western portions of the SACOG region are generally more rural and are more prone to wildfire hazards compared to the rest of the region.

Wildfire prevention and suppression is a shared responsibility among federal, state, and local agencies (Figure 10-8). Federal lands in Federal Responsibility Areas are the responsibility of federal agencies. Non-federal lands in unincorporated areas with watershed value are of statewide interest and are classified as State Responsibility Areas (SRAs), managed by CAL FIRE. All incorporated areas and other unincorporated lands are classified as Local Responsibility Areas (LRAs).

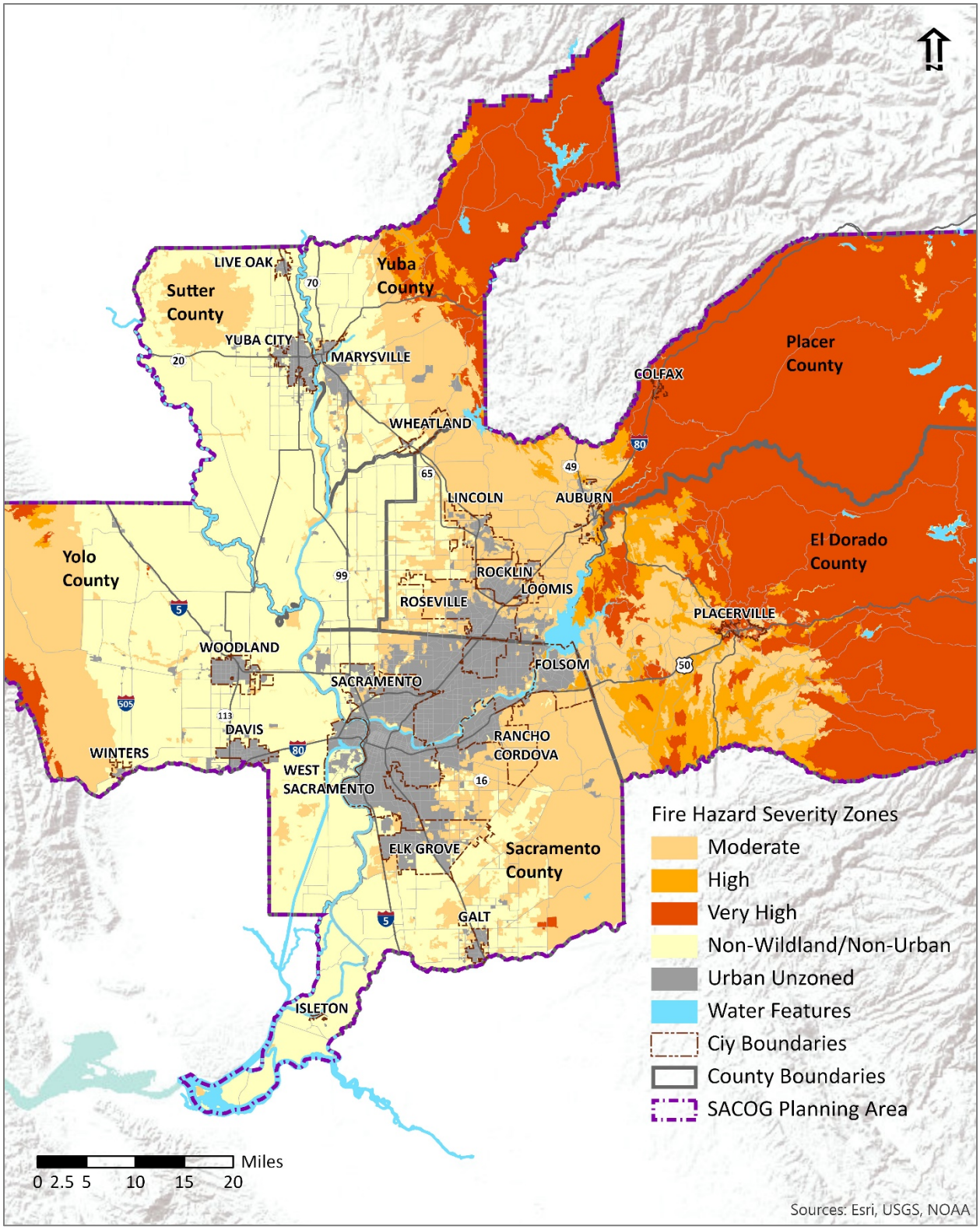
The combustion of wildfire results in emissions of particulates of various sizes (i.e., respirable, fine, and ultrafine) in addition to other pollutants that are precursors to ground-level ozone (i.e., reactive organic gases and oxides of nitrogen). These pollutants disperse regionally and may degrade air quality throughout an air basin depending on local meteorology and topography. Inhalation and exposure to air pollutants associated with wildfire can cause acute and chronic health impacts ranging from short-term coughing and throat and eye irritation to long-term immunological, cardiovascular, and respiratory impairment and cancer. Additional information related to health impacts related to exposure to high concentrations of air pollutants is discussed in Chapter 5 – Air Quality. Wildfire and its relation to global climate change is also discussed in Chapter 8 – Energy and Global Climate Change.

Wildfires also cause physical disruptions to electrical, transportation, and hydroelectric infrastructure. Wildfires directly and indirectly damage transmission lines from heat, smoke, and particulate matter. Additionally, firefighting activities can adversely affect transmission operation by aircraft dumping of fire retardant or through preventative shutdowns for safety measures. Erosion caused by heavy rain events following a wildfire event may also affect the production of hydropower systems as wildfire soot and residue collects in waterways that feed hydroelectric systems (Sacramento Municipal Utility District 2016). Wildfires also cause rutting and softening of roadways, block railways, weaken bridge infrastructure, clog drainage systems, and contribute to increased traffic through reducing visibility and causing power outages at intersections (SACOG 2015).

WILDLAND-URBAN FIRES

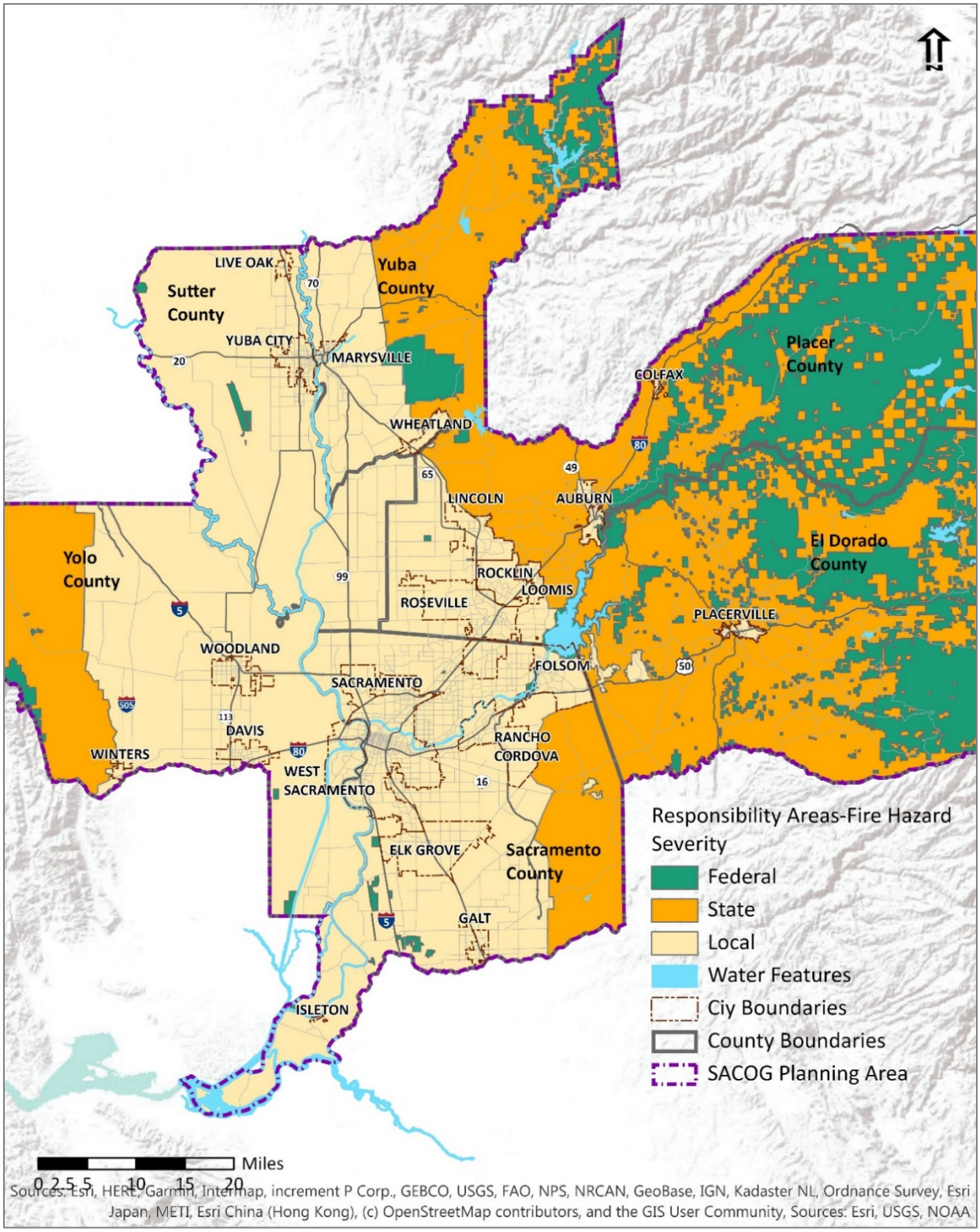
Fires are usually classified as either urban fires or wildland fires. However, growth into rural areas has increased the number of people living in heavily-vegetated areas where wildlands meet urban development, also referred to as the wildland-urban interface (WUI) (Figure 10-9). Certain areas in and surrounding the region are extremely vulnerable to fires as a result of dense, grassy vegetation combined with a growing number of structures being built near and within rural areas. The 2014 King Fire near Pollock Pines in El Dorado County and 2018 Camp Fire in Butte County are examples of fires in the WUI. A fire along the WUI can result in major losses of property and structures.

Wildland-Urban Interface Zones, areas within very-high fire hazard risk zones, must comply with specific building and vegetation management requirements intended to reduce potential property damage, loss of life, and resources within these areas. These requirements are contained in the California Building Code (CBC), Fire, Government, and PRC. Southwest Placer County and western El Dorado County include large areas of Wildland-Urban Interface Zones at risk for fires. Fire-threatened wildland-urban interface zones in the plan area of the proposed MTP/SCS are shown in Figure 10-9.



Source: CAL FIRE 2007

Figure 10-5
Fire Threats in the Plan Area of the Proposed MTP/SCS



Source: CAL FIRE 2007

Figure 10-6
New Fire Hazard Severity Zones in the Plan Area of the Proposed MTP/SCS

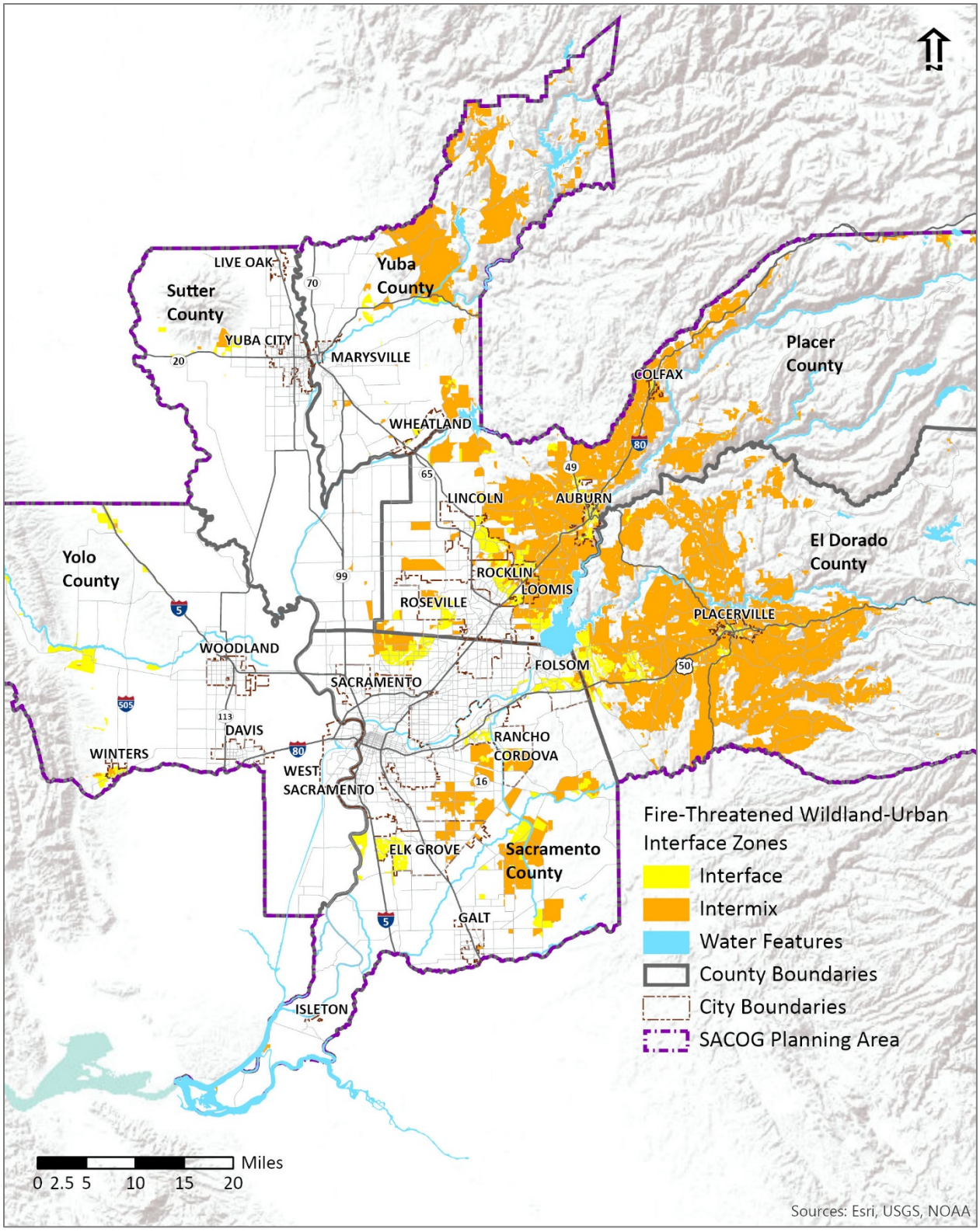


Figure 10-7
New Fire-Threatened Wildland-Urban Interface Zones in the Plan Area of the Proposed MTP/SCS

Additionally, urban areas may be affected by wildfires that occur in open space areas or on vacant land. For example, fires can occur in riparian areas adjacent to development, such as along the American River Parkway.

10.3 Regulatory Setting

10.3.1 Federal Regulations

Occupational Safety and Health Act of 1970

The Occupational Safety and Health Act (OSHA) (29 U.S. Code Section 15) establishes regulations for employers that provide employees with an environment free from recognized hazards, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. OSHA established regulations for asbestos abatement. Regulations for lead-based paint are contained in the Lead-Based Paint Elimination Final Rule (24 CFR Section 33), governed by the U.S. Department of Housing and Urban Development (HUD).

Hazardous Materials Transport Act of 1975

The Hazardous Material Transport Act (HMTA) (49 CFR Section 101 et seq.) regulates the transport of hazardous materials. DOT regulates the transportation of hazardous materials by truck and rail and governs every aspect of the movement of hazardous materials from packaging and labeling to shipping.

Resource Conservation and Recovery Act of 1976

The RCRA (42 U.S. Code Section 6901 et seq.) establishes a comprehensive program for identifying and managing hazardous waste, including reporting and record-keeping requirements of generators, a manifest system for transport of hazardous waste shipments, and standards for treatment and disposal facilities. Amendments in 1984 and 1986 established additional reporting requirements, restriction of landfill disposal, and a program regulating underground storage tanks (USTs). The RCRA regulates active facilities and does not address abandoned or historical sites.

Toxic Substances Control Act of 1976

The Toxic Substances Control Act (TSCA) (15 U.S. Code Section 2601 et seq.) grants EPA the authority to develop reporting, record-keeping, and testing requirements for, as well as restrictions on, the manufacture, use, and sale of chemical substances.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provides a federal "Superfund" designation to clean up uncontrolled or abandoned sites contaminated by releases of hazardous substances, as well as accidents, spills, and other releases of pollutants and contaminants into the environment. The CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 (42 U.S. Code Section 9601 et seq.), authorizes EPA to order the parties responsible for a release to take action to remediate the contaminated site or to conduct remediation itself and recover the costs from responsible parties.

Title III of SARA also authorized the Emergency Planning and Community Right-to-Know Act, which requires facility operators to undertake emergency planning and report on hazardous chemical inventories and toxic releases, to make this information available to local communities. Suspected hazardous waste sites throughout the U.S. are listed in the CERCLIS. This federal database contains information on preliminary assessments, potential and actual hazardous waste sites, site inspections, and cleanup activities. CERCLIS sites are candidates for addition to the federal and state Superfund lists. The database is updated periodically as new sites are discovered.

ASBESTOS BAN AND PHASE-OUT RULE OF 1989

EPA issued a final rule to phase out and ultimately ban the use and production of asbestos-containing products in 1989 (40 CFR Section 763), most of which was overturned in 1991. However, certain asbestos-containing products are still banned from use in the U.S. under the TSCA, including flooring felt, rollboard, and corrugated, commercial, or specialty paper. Additionally, products that have not historically contained asbestos cannot be reformulated to include asbestos. The Clean Air Act (CAA) also restricts the use of asbestos insulation and spray-applied surfacing and the Asbestos Hazard Emergency Response Act requires local educational agencies to prevent or reduce asbestos hazards and prepare asbestos management plans for schools.

COMMUNITY ENVIRONMENTAL RESPONSE FACILITATION ACT OF 1992

The Community Environmental Response Facilitation Act (CERFA) (42 U.S. Code Section 9601) requires that the U.S. government identify which portions of the land are not contaminated by hazardous waste or petroleum products when terminating its operations on federal property.

DISASTER MITIGATION ACT OF 2000

In 2000, the Disaster Mitigation Act of 2000 (42 U.S. Code Section 5121) was signed into law to amend the Robert T. Stafford Disaster Relief Act of 1988 (42 U.S. Code Sections 5121-5207). Among other things, this new legislation reinforces the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide, and is aimed primarily at the control and streamlining of the administration of federal disaster relief and programs to promote mitigation activities. Some of the major provisions of the Disaster Mitigation Act include:

- funding pre-disaster mitigation activities;
- developing experimental multi-hazard maps to better understand risk;
- establishing state and local government infrastructure mitigation planning requirements;
- defining how states can assume more responsibility in managing the Hazard Mitigation Grant Program (HMGP); and
- adjusting ways in which management costs for major disaster, emergency, or disaster preparedness projects are funded.

The mitigation planning provisions outlined in Section 322 of the Disaster Mitigation Act establish performance-based standards for mitigation plans and requires states to have a public assistance program (Advance Infrastructure Mitigation) to develop county government plans. The consequence for counties that fail to develop an infrastructure mitigation plan is the chance of a reduction in the federal share of damage assistance from the minimum federal share of 75 percent to

the reduced federal share of 25 percent, if the facility has been damaged on more than one occasion in the preceding ten-year period by the same type of event.

Federal Compliance with Pollution Control of 1978 (Executive Order 12088)

Executive Order 12088 mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Executive Order 12148, 1979—Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) was created by Executive Order 12148 in 1979 and became part of the U.S. Department of Homeland Security when it was established in 2003. FEMA's continuing mission within the department is to lead the effort to prepare the nation for all hazards and effectively manage federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation activities, trains first responders, and manages the National Flood Insurance Program and the U.S. Fire Administration.

Emergency Order 28, 2013

Emergency Order No. 28 establishes additional requirements for certain freight trains on mainline track or mainline siding outside of a yard or terminal (FRA 2013). Railroads must ensure that:

- no vehicle transporting hazardous materials is left unattended on a mainline track or mainline siding outside of a yard or terminal, until the railroad adopts and complies with a plan that identifies specific locations and circumstances where such trains or vehicles may be left unattended;
- if parking of vehicles transporting hazardous materials is permitted, processes are developed for the securement of unattended vehicles transporting hazardous materials on a mainline track or mainline siding outside of a yard or terminal as subject to additional safety requirements;
- existing procedures and processes related to the number of hand brakes are set on all unattended vehicles and are appropriately reviewed and verified;
- operating rules and practices are implemented that require the discussion of securement for any job that will impact the securement of any vehicle; and
- procedures are developed to ensure that a qualified railroad employee inspects all equipment that any emergency responder has been on, under, or between for proper securement before the train or vehicle is left unattended.

In addition, the Association of American Railroads (AAR) made an agreement with the DOT that by 2014 railroads would also do the following:

- comply with CFR Title 49, Section 172.820(c) - (f) and (i);
- adhere to a speed restriction of 40 miles per hour for any crude oil train with at least one DOT-111 tank car loaded with crude oil or one non-DOT specification tank car loaded with crude oil while traveling within the limits of any high-threat urban area;

- equip all crude oil trains operating on main track with either distributed power locomotives or an operative two-way telemetry end of train device;
- perform at least one additional internal rail inspection than is required by Code Fed. Regs. Title 49, Section 213.237 (c) and at least two track geometry inspections each calendar year on main line routes over which crude oil trains are operated;
- install wayside defective bearing detectors at least every 40 miles along main line routes over which crude oil trains are operated, unless track configuration or other safety considerations dictate otherwise;
- develop an inventory of emergency response resources along routes over which crude oil trains operate for responding to the release of large amounts of petroleum crude oil in the event of an incident;
- provide a hazardous material transportation training curriculum applicable to petroleum crude oil transport for emergency responders and to fund a portion of the cost of this training through the end of 2014; and
- continue to work with communities through which crude oil trains move to address on a location-specific basis concerns that the communities may raise regarding the transportation of petroleum crude oil (AAR 2014).

FEDERAL RAILROAD ADMINISTRATION REGULATION OF OIL TRANSPORTATION BY RAIL

FRA (CFR Title 49), which is part of DOT, is responsible for regulating the safety of the nation's railroad system. FRA promulgates railroad safety regulations and orders and enforces those regulations and orders, thus conducting a comprehensive railroad safety program. FRA inspects rail facilities throughout the country to ensure compliance with its own regulations, and those adopted by the PHMSA. The PHMSA regulations classify hazardous materials based on each material's hazardous characteristics. Crude oil is assigned to hazard Class 3, based on specified characteristics of flammability and combustibility (49 CFR Section 173.120). The key PHMSA regulations governing rail transport are summarized below:

- **CFR Title 49, Section 172:** Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans, addresses numerous aspects of safe rail transport, including requirements pertaining to the hazardous materials classification of crude oil.
- **CFR Title 49, Section 173:** General Requirements for Shipments and Packages, specifies requirements for bulk packaging including the type of tank car a hazardous material must be transported in based on its assigned Packing Group.
- **CFR Title 49, Section 174:** Carriage by Rail, specifies handling, loading, and unloading requirements for the safe transport and shipping of hazardous materials, which must be performed by qualified personnel. This part also addresses correct placarding of rail cars to indicate the hazard classifications of the materials, and segregation of incompatible materials.
- **CFR Title 49, Section 176:** Carriage by Vessel, provides further details on vessel carriage requirements for different classes of hazardous materials.

- **CFR Title 49, Section 179:** Specifications for Tank Cars, provides design standards and construction requirements for rail tank cars including tank wall thickness, tank mounting, welding certification, pressure relief devices, protection of fittings, loading/unloading valve requirements, coupler vertical restraints systems, tank-head puncture-resistance systems, and thermal protection systems.

Under PHMSA regulations, all crude oil must be shipped in tank cars built to DOT-111 specifications. DOT-111 tank cars are used to transport a variety of hazardous materials, including crude oil and ethanol. PHMSA regulations assign hazardous materials to "Packing Groups" based on the risks posed by the transport of each hazardous material: Packing Group I indicates great danger, Packing Group II indicates medium danger, and Packing Group III indicates minor danger (49 CFR Section 171.8).

DOT Proposed Revision to the Hazardous Materials Regulations for High-Hazard Flammable Trains

CFR Title 49 requires that DOT regulates the design standards for rail cars. All new DOT-111 tank cars for ethanol and crude oil service are required to have:

- increased head and shell thickness,
- normalized steel,
- ½-inch thick ½-height head shields, and
- top fitting protection.

On May 8, 2015, DOT issued a final rule covering enhanced tank car standards and operational controls for high-hazard flammable trains (HHFTs), which includes crude oil trains (49 CFR Section 130; 49 CFR Section 147). As part of the rulemaking, effective July 7, 2015, PHMSA, in coordination with FRA, adopted new operational requirements for certain trains transporting a large volume of Class 3 flammable liquids, improvements in tank car standards, and changes to the general requirements that ensure proper classification and characterization of mined gases and liquids. In addition, these code revisions establish additional testing requirements, routing risk assessment, state notification, reduced operating speeds, and enhanced breaking and safety features on crude oil tank cars. The rule is designed to lessen the frequency and consequences of train accidents transporting a large volume of flammable liquids.

Federal Aviation Administration – Federal Aviation Regulation, Part 77

The Federal Aviation Regulation Part 77 establishes standards for determining obstructions in navigable airspace and requires notice of proposed construction or alteration at an airport to the FAA Administrator. Federal Aviation Regulation Part 77 applies to alteration of any permanent or temporary existing structure by a change in its height (including appurtenances), or later dimensions, including equipment or materials used for construction.

Uniform Fire Code

The Uniform Fire Code (UFC) contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage

and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire safety requirements for new and existing buildings and the surrounding premises.

U.S. Department of Defense Air Installation Compatible Use Zone Program

The Department of Defense administers the U.S. Department of Defense Air Installation Compatible Use Zone (AICUZ) Program to evaluate the safety and compatibility for land adjacent to military airfields by working with local, state, and federal agencies. In addition, the AICUZ Program defines height and land use restrictions, procedures, and policies to protect the operations of military airfields.

10.3.2 State Regulations

Senate Constitutional Amendment No. 13, 1945

Senate Constitutional Amendment No. 13 (Cal. Stats. 1945, Res. Ch. 145) established CPUC. CPUC, through the Railroad Operations and Safety Branch (ROSB), is a state agency that ensures the safety of freight railroads, inter-city and commuter railroads, and highway-railroad crossings in California. ROSB personnel investigate rail accidents and safety related complaints, and recommend safety improvements to CPUC, railroad operators, and the federal government. CPUC is responsible for enforcing federal and state railroad safety requirements, including those governing railroad tracks, facilities, bridges, rail crossings, motive power and equipment, operating practices, and hazardous material shipping requirements. Public Utilities Code (PUC) Section 765.6 requires CPUC to report on all agency railroad-funded actions taken to ensure the safe operations of the railroads.

California State Aeronautics Act of 1951

At the state level, the California Department of Transportation (Caltrans) Division of Aeronautics administers FAA regulations (Stats. 1951, Ch. 764; PUC Section 21001 et seq.). The Division issues permits for hospital heliports and public-use airports, reviews potential and future school sites proposed within two miles of an airport, and authorizes helicopter landing sites at or near schools. In addition, the Division of Aeronautics administers noise regulation and land use planning laws, which regulate the operational activities and provides for the integration of aviation planning on a regional basis.

FAA regulations outline the statutory requirements for ALUCPs, including referencing the Division of Aeronautics ALUP Handbook. The California ALUP Handbook was most recently updated in 2011. Lead agencies utilize the ALUP Handbook as a technical resource with respect to airport noise and safety compatibility issues. The California ALUP Handbook provides examples of safety zones for five types of general aviation runways, an air carrier runway, and a military runway. The shapes and sizes of the zones are largely based on the spatial distribution of potential aircraft accidents. The handbook provides a qualitative description of the land use characteristics considered acceptable or unacceptable within each of the basic safety zones.

THE HAZARDOUS WASTE CONTROL ACT OF 1972

The Hazardous Waste Control Act (Health & Safety Code Section 25100 et seq.) is the seminal hazardous waste control law in California. It establishes standards for regulating the generation, handling, processing, storage, transportation, and disposal of hazardous wastes. The hazardous waste control program is administered by DTSC and local CUPAs.

THE HAZARDOUS MATERIALS RELEASE RESPONSE PLANS AND INVENTORY LAW OF 1986

The Hazardous Materials Release Response Plans and Inventory Law (Health & Safety Code Section 25500 et seq.) governs hazardous materials handling, reporting requirements, and local agency oversight programs.

HAZARDOUS WASTE AND SUBSTANCES SITES LIST

Government Code Section 65962.5 is commonly referred to as the "Cortese List" (after the Legislator who authored the legislation that enacted it). The list, or a site's presence on the list, has bearing on the local permitting process, as well as on compliance with CEQA. However, because this statute was enacted over twenty years ago, some of the provisions refer to agency activities that are no longer being implemented and, in some cases, the information to be included in the Cortese List does not exist. Further, while Government Code Section 65962.5 makes reference to the preparation of a "list," many changes have occurred related to web-based information access since 1992 and this information is now largely available on the internet sites of the responsible organizations. A centralized list is no longer compiled.

THE LEMPERT-KEENE-SEASTRAND OIL SPILL PREVENTION AND RESPONSE ACT OF 1990

The Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (Gov. Code Section 8670 et seq.) granted the Office of Spill Prevention and Response (OSPR) the authority to direct prevention, removal, abatement, response, containment, and cleanup efforts with regard to all aspects of any oil spill in marine waters of California. OSPR implements the California Oil Spill Contingency Plan, consistent with the National Contingency Plan, which pays special attention to marine oil spills and impacts to environmentally- and ecologically-sensitive areas. Various criminal and administrative civil penalties may be imposed on those violating specified provisions of the act related to an oil spill.

Oil spill planning and response must be coordinated with local, state, and federal governments, along with industry and non-governmental organizations. OSPR provides training and certification for a local spill response manager within any jurisdiction directly adjacent to waters of the state. Additionally, OSPR maintains the Oil Spill Prevention Administration Fund (OSPA) fee charged for each barrel received at marine terminals. The fee provides funding for oil spill prevention and response by the State.

Senate Bill (SB) 861 of 2014 (Gov. Code Section 12351) expanded OSPR's authority to cover all statewide surface waters at risk of oil spills from any source, including pipelines and the increasing shipments of oil transported by railroads, and also provided additional statutory and regulatory authority in new inland areas of responsibility. OSPR must amend the California Oil Spill Contingency Plan to provide for the best achievable protection of all state waters by January 1, 2017. Under the new regulations, violators will be subject to the same penalties for both marine or inland

oil spills, and OSPA fees are already charged for each barrel received in California refineries or marine terminals by any mode of transportation, as of July 1, 2014.

Railroads, pipelines, and oil production facilities transporting crude oil are required to prepare oil spill contingency plans. Further, the legislation also requires announced and unannounced drills to test response and cleanup operations, equipment, contingency plans, and procedures. Facility operators must be able to demonstrate sufficient financial resources to pay for spill response and damages, based upon a reasonable worst-case spill volume, by obtaining a certificate of financial responsibility from the state.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Executive Order W-5-91 established the California Environmental Protection Agency (CalEPA) in 1991 to oversee state environmental research and regulations. CalEPA designates specific local agencies as CUPAs, typically at the county level. Each designated CUPA is responsible for the implementation of six statewide programs within its jurisdiction. These programs include:

- underground storage of hazardous substances;
- Hazardous Materials Business Plan (HMBP) requirements;
- Hazardous Waste Generator requirements;
- California Accidental Release Prevention (CalARP) program;
- UFC hazardous materials management plan; and
- Above Ground Storage Tanks (Spill Prevention Control and Countermeasures Plan only).

Implementation of these programs involves:

- permitting and inspection of regulated facilities;
- providing educational guidance and notice of changing requirements stipulated in state or federal laws and regulations;
- investigations of complaints regarding spills or unauthorized releases; and
- administrative enforcement actions levied against facilities that have violated applicable laws and regulations.

The CalEPA designated CUPAs for the six-county SACOG region are:

- El Dorado County – Environmental Management Department;
- Placer County – Environmental Health Services Department;
- City of Roseville – Fire Department;
- Sacramento County – Environmental Management Department;
- Sutter County – Environmental Health Services Department;
- Yolo County – Environmental Health Department; and
- Yuba County – Environmental Health Department.

ASSEMBLY BILL 380 OF 2014

Assembly Bill (AB) 380 of 2014 (Gov. Code Section 11552) requires rail carriers to report specified information regarding the transportation of hazardous materials, including area traveled and estimated volume, to the Cal OES beginning January 31, 2015. Rail carriers are required to notify Cal OES if there will be more than a 25 percent increase in the estimated volume of Bakken oil transported. Each rail carrier is required to maintain a response management communications center and prepare an emergency response plan with guidance provided by Cal OES. Cal OES is required to provide confidential copies of the emergency response plan to the appropriate CUPA impacted by an oil or hazardous material spill.

CALIFORNIA CODE OF REGULATIONS

Title 8 of the California Code of Regulations

Title 8 contains Construction Safety Orders pertaining to hazardous materials, including, but not limited to, lead. In addition to Construction Safety Order 1532.1 from Title 8 of the California Code of Regulations (CCR), lead-based paint exposure guidelines are provided by the Department of Housing and Urban Development. In California, lead-based paint abatement must be performed and monitored by contractors with appropriate certification from the California Department of Health Services.

Cal OSHA has established minimum standards for fire suppression and emergency medical services in accordance with CCR Title 8, Sections 1270, "Fire Prevention," and Section 6773 "Fire Protection and Fire Equipment." The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hosing sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

Title 14 of the California Code of Regulations

Title 14 of the CCR, Division 1.5 establishes regulations for CAL FIRE, in areas where CAL FIRE is responsible for wildfire protection. Development in areas under CAL FIRE's responsibility must comply with the regulations in Division 1.5. CAL FIRE adopts fire hazard severity zone maps designating state responsibility areas (PRC Sections 4201–4204 et seq.) and establishes zones reflecting degree of hazard severity. The CBC includes specific standards for construction materials and methods for new buildings located in Fire Hazard Severity Zones within SRAs, Local Agency Very-High Fire Hazard Severity Zones, or Wildland-Urban Interface Fire Areas mapped by CAL FIRE or the local enforcing agency.

These regulations constitute the basic wildland fire protection standards of CAL FIRE. They have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction, and development in state responsibility areas. Title 14 regulates that the future design and construction of structures, subdivisions, and developments in a state responsibility area shall provide for basic emergency access and perimeter wildfire protection measures. Additionally, Title 14 sets forth the minimum standards for emergency access, fuel modification, setback, signage, and water supply.

Title 17 of the California Code of Regulations

Title 17 of the CCR, Section 93105 establishes the Asbestos Airborne Toxic Control Measure (ATCM) for construction, grading, quarrying, and surface mining operation. The regulations require preparation and implementation of an Asbestos Dust Mitigation Plan for construction or grading activities on sites greater than one acre in size with known NOA soils. The air districts in all five counties with geographic ultramafic rock units enforce this regulation.

Title 19 of the California Code of Regulations

The CalARP (CCR Title 19, Division 2, Chapter 4.5) covers certain businesses that store or handle more than a specified volume of regulated substances at their facilities.

Title 19 of the CCR, Division 2 established the California Emergency Management Agency (Cal EMA) and authorizes the agency to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. Non-compliance with a SEMS could result in the state withholding disaster relief from the non-complying jurisdiction in the event of an emergency disaster.

Cal EMA serves as the lead agency for emergency management in the state. Cal EMA coordinates state response to major emergencies in support of local government. The primary responsibility for emergency management resides with local government. Local jurisdictions first use their own resources and, as these resources are exhausted, obtain additional resources from neighboring cities and special districts, the county in which they are located, and other counties throughout the state through the statewide mutual aid system. In California, the SEMS provides the mechanism by which local government requests assistance. Cal EMA serves as the lead agency for mobilizing the state's resources and obtaining federal resources and also maintains oversight of the state's mutual aid system. During an emergency, Cal EMA coordinates the state's response efforts. The agency is also responsible for collecting, verifying, and evaluating information about the emergency, facilitating communication with local government, and providing affected jurisdictions with additional resources when necessary. Cal EMA may task state agencies to perform work outside their day-to-day and statutory responsibilities.

Title 22 of the California Code of Regulations

DTSC regulates hazardous waste under the authority of the Federal RCRA and the California Health and Safety Code. California has enacted legislation pertaining to the management of hazardous waste that is equivalent to, and in some cases more stringent than, corresponding federal laws and regulations. DTSC, a department of CalEPA, is responsible for the enforcement and implementation of hazardous waste laws and regulations. The state's hazardous waste regulations are codified in Title 22 of the CCR, which addresses hazardous materials and wastes. A valid registration issued by DTSC is required (22 CCR Division 4.5), unless specifically exempted, to transport hazardous wastes.

Title 24 of the California Code of Regulations

The 2019 California Building Standards Code (Cal. Code Regs., Title 24) was published July 1, 2019, with an effective date of January 1, 2020. Part 9 is the California Fire Code, which is based on the 2018 International Fire Code and is designed to establish minimum requirements to safeguard public

health, safety, and general welfare from fire hazards. The code requires permits for certain activities within wild fire risk areas.

Title 26 of the California Code of Regulations

In California, transportation of hazardous materials and wastes is regulated by Caltrans (26 CCR). CHP and Caltrans enforce both federal and state regulations and respond with the county fire department to hazardous materials transportation emergencies. Emergency responses are coordinated as necessary between federal, state, and local governmental authorities and private persons through the state-mandated Emergency Response Plan.

Title 27 of the California Code of Regulations

Along with DTSC, the RWQCB is responsible for implementing regulations pertaining to management of soil and groundwater investigation and cleanup. RWQCB regulations are contained in Title 27 of the CCR.

Title 49 of the California Code of Regulations

The Hazardous Materials (HAZMAT) Regulations (49 CCR) advise shippers on safe handling and identification of potential risk through the classification of hazardous materials, packaging (including manufacture, continuing qualification, and maintenance), hazard communication (e.g., package marking, labeling, placarding, and shipping documentation), transportation, handling, HAZMAT employee training, and incident reporting.

Worker and Workplace Hazardous Materials Safety

Cal OSHA is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. California standards for workers dealing with hazardous materials are contained in Title 8 of the CCR and include practices for all industries (General Industrial Safety Orders), and specific practices for construction and other industries. Workers at hazardous waste sites (or working with hazardous wastes as might be encountered during excavation of contaminated soil) must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations. Additional regulations have been developed for construction workers potentially exposed to lead and asbestos. Cal OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices. Among other requirements, Cal OSHA obligates many businesses to prepare Injury and Illness Prevention Plans and Chemical Hygiene Plans. The Hazard Communication Standard requires that workers be informed of the hazards associated with the materials they handle. For example, manufacturers are to appropriately label containers, material safety data sheets are to be available in the workplace, and employers are to properly train workers.

California Business and Profession Code

California statutes (Bus. and Profession Code Section 11010 and Civil Code Section 1103 and 1353) now require disclosure for most residential real estate transactions, including new subdivisions, within two miles of an airport or within an ALUCP-defined AIA.

California Education Code

The environmental review process for the proposed acquisition and construction of public education facilities that use state funding must involve DTSC per the Education Code. Environmental review includes a Phase 1 Environmental Site Assessment (ESA) before acquisition of the site and, pending the outcome, a Phase II ESA may be necessary. The Phase II ESA may require soil and groundwater testing and remediation before construction, if necessary.

For new schools, the state school-siting process requires that emissions of hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school be addressed (PRC Section 21151.2; Edu. Code Section 17210 et seq.). Additionally, individual hazardous materials emitters or handlers must adhere to permitting requirements regarding construction or alteration of a facility within one quarter-mile of an existing school (PRC Section 21151.4).

The Caltrans Division of Aeronautics is required to review proposals for acquisition of a school site situated within two miles of an existing or planned airport runway (Edu. Code Section 17215 and 81033).

California Health and Safety Code

CalEPA oversees the regulation and management of hazardous materials on a statewide level through the DTSC. In 1995, legislation went into effect that required CalEPA to consolidate permitting, inspection, and enforcement activities in several hazardous material and hazardous waste program areas. Additionally, Section 65962.5 of the Government Code directs DTSC to compile a list of all hazardous-waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.

CalARP (Health and Safety Code Sections 25531–25543.3) is implemented by CalEPA and the state CUPAs. CalARP applies to a wide variety of facilities that contain regulated substances, which are chemicals that pose a threat to public health and safety or the environment because they are highly toxic, flammable, or explosive, and to mitigate the effects of an accidental release. The CalARP Program is the federal "Risk Management Program" or "Federal Accidental Release Prevention Program" established in regulation by EPA, with additional requirements specific to the State of California, in accordance with the Health and Safety Code.

Section 19827.5 of the Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos.

State fire regulations are set forth in Health and Safety Code Section 13000 et seq., which include regulations for building standards (as set forth in the California Building Code), fire protection and notification systems, fire protection devices, and fire suppression training.

California Vehicle Code

The California Department of Motor Vehicles (DMV) requires all hazardous materials transporters to possess a commercial driver's license with a hazardous materials endorsement under the following circumstances:

- Hazardous materials shipments (unless specifically exempted) for which the display of placards is required (Vehicle Code Section 27903); and
- Hazardous materials shipments in excess of 500 lbs., transported for a fee, which would require placarding if shipped in greater amounts in the same manner.

In addition, the following general routing and parking restrictions (Vehicle Code Section 31303) apply to hazardous material and hazardous waste shipments for which the display of vehicle placards and/or markings is required (Vehicle Code Section 27903), except for those shipments subject to, and in conformance with, special routing and related requirements:

- unless specifically restricted or prohibited, use state or interstate highways which offer the least transit time whenever possible (Vehicle Code Section 31304).
- avoid, whenever practicable, congested highways, places where crowds are assembled, and residential districts (Vehicle Code Section 515).
- deviation from designated routes is not excusable on the basis of operating convenience.
- a loaded vehicle is not to be left unattended or parked overnight in a residential district.
- except for specifically restricted or prohibited highways, other highways may be used that provide necessary access for pickup or delivery consistent with safe vehicle operation.
- highways that provide reasonable access to fuel, repairs, rest, or food facilities that are designed to and intended for commercial vehicle parking may be used, when that access is safe and when the facility is within one-half mile of the points of exit and/or entry to the designated route.
- restricted or prohibited routes may only be used when no other lawful alternative exists. CHP also publishes a list of restricted or prohibited highways (Vehicle Code Section 31304).

STATE OF CALIFORNIA EMERGENCY PLAN

The Cal OES Emergency Plan outlines a state-level strategy to support local government efforts during a large-scale emergency (OES 2017). In accordance with the California Emergency Services Act, the State Emergency Plan describes methods for carrying out emergency operations, mutual aid processes, emergency services of governmental agencies, resource mobilization, emergency public information, and continuity of government.

California also has a Master Mutual Aid Agreement between all state departments, established in 1950, and a separate Law Enforcement Mutual Aid Plan and California Fire Service and Rescue Emergency Mutual Aid Plan, both published in 2014 by Cal OES.

GOVERNMENT CODE SECTION 66474.02

Before approving a tentative map (or a parcel map where a tentative map is not required) for an area located in a SRA or a very high fire hazard severity zone, the legislative body of the county must: find that the design and location of each lot in the subdivision, and the subdivision as a whole, are consistent with applicable regulations adopted by CAL FIRE pursuant to PRC Sections 4290 and 4291; ensure that structural fire protection and suppression services will be developed; and find that points of ingress and egress meet the road standards for fire equipment access adopted pursuant to PRC Section 4290 and any applicable local ordinance.

10.3.3 Local Regulations

CITY AND COUNTY GENERAL PLANS

Local planning policies related to hazards and hazardous materials are established in each jurisdiction's general plan, generally in the Safety Element or equivalent chapter. Safety Elements are required to address geologic hazards, fire hazards, dam failure, evacuation routes, flooding, and emergency response among other issues (see Chapter 9 – Geology, Soils, and Seismicity for more information on geologic hazards and see Chapter 11 – Hydrology and Water Quality for more information on dam failure and flooding).

For emergency services, some of the relevant policies may include coordinating with other agencies that are responsible for planning medical facilities to meet the health care needs of residents in the region, retaining hospitals, evaluating medical facility proposals, providing emergency response services, and participating in mutual-aid agreements.

As of January 1, 2014, SB 1241 (Statutes of 2012) requires that, upon the next revision of the housing element, jurisdictions review and update the Safety Element as necessary to address the risk of fire in state responsibility areas and very-high fire hazard severity zones. These revisions must take into account specified considerations, including the provisions outlined in "Fire Hazard Planning" by the Office of Planning and Research (OPR).

ALUCS AND ALUCPS

An ALUC is an agency that is required by state law in counties where there is an airport operated for the benefit of the general public. The purpose of an ALUC is to protect public health, safety, and welfare by ensuring the orderly development of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses. An ALUC is responsible for developing and maintaining ALUCPs for areas around each airport.

ALUCs may request that all or selected land use actions (e.g., General Plan, Specific Plan, Zoning Ordinance, building regulation, land acquisition, annexation, large development project) within an AIA be submitted for review for consistency with the ALUCP. An AIA is the area in which current or future airport-related noise, over flight, safety, and/or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses. The ALUC establishes its jurisdictional authority by designating one or more AIAs. If the ALUC has not designated an AIA, then a boundary within two miles of a public airport must be used instead (Public Utilities Code Section 21675.1(b)). City and county zoning and planning are required to conform to the ALUCP unless the city or county governing body specifically overrides the ALUCP by supermajority vote.

EMERGENCY OPERATIONS PLANS

Local jurisdictions maintain emergency operations plans that detail how emergency and disaster situations are to be handled within that jurisdiction. Jurisdictions may also have Multi-Hazard Emergency Plans that address various threats to the jurisdiction.

Many jurisdictions and fire districts in the region have adopted or are planning to adopt Fire District Master Plans. A master plan addresses staffing needs, facility needs, and service goals for the service area and serves as a guiding document for the organization and daily functions of the department.

10.4 Impacts and Mitigation Measures

10.4.1 Methods and Assumptions

This program-level impact analysis generally evaluates how implementation of the proposed MTP/SCS, including changes to the land use pattern and transportation network, may produce adverse impacts related to hazards, hazardous materials, and wildfire.

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions," in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count, and vehicle miles traveled data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS. An exception to the 2016 baseline is the list of sites with potential contamination, which uses the most current information available from DTSC's database to most accurately describe current conditions. This data is dynamic as sites are remediated and new sites of concern develop or are discovered.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

For most of the impacts below, the land use and transportation improvements analysis is based on an assessment of the amount of growth (i.e., population, housing, and employment) and types of transportation projects projected for the region, in each Community Type and in the HFTAs by 2040, and an analysis of how that growth will impact hazards and hazardous materials. Although the proposed project sites within the plan area of the proposed MTP/SCS were not physically surveyed, a brief description of the types of typical hazards and hazardous materials issues found within the region is given above in the settings section.

For Impacts HAZ-8 and HAZ-9, the footprints of the projected land use pattern and planned transportation improvements anticipated in the proposed MTP/SCS were overlaid with very high fire risk areas. Road widenings, new roads, new or expanded interchanges were analyzed by calculating a 100-foot buffer area around the center line of the proposed projects and measuring the area overlapping various farmland and forestry data because details about the planned transportation improvements identified in the proposed MTP/SCS, such as precise alignment, width, and location

in relation to agricultural and forestry resources, are not known at this time. Only road widenings, new roads, new or expanded interchanges were spatially analyzed this way, and the analysis overestimates potential impacts because many planned transportation improvements, such as road widenings, would not use the entire buffer area. Planned transportation improvements that would be constructed within the footprint of existing roadways (e.g. re-paving; new transit service; bicycle lanes added within existing developed right-of-way) and projects without physical characteristics (e.g. programs) are not analyzed because they would not contribute to adverse effects. New transit infrastructure, Class II (bike lanes) and Class III (bike routes) bicycle projects were included in the roadway buffer analysis because such projects are part of the roadway right-of-way. A buffer analysis was not performed for Class I (separate, multi-use trails) projects. Because Class I trails are much narrower than roadways, performing a programmatic buffer analysis with meaningful results is not feasible, as even small shifts in alignment can result in varying outcomes. However, a majority of new Class I trails in the plan area of the MTP/SCS run parallel to new, expanded, or existing roadways or along waterways and levees. Class I trails that run parallel to new or expanded roadways would be captured by the 100-foot buffer around new or expanded roadway and light rail projects that was used to calculate potential impacts on agricultural lands. Class I trails not covered by the 100-foot buffer are addressed qualitatively in the impact analysis.

The analysis assumes implementing agencies will ensure hazards, hazardous materials, and wildfires are treated in accordance with applicable federal, state, and local laws and regulations as part of project planning, design, and engineering.

10.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in a significant impact under CEQA, if one or more of the following would occur:

HAZ-1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

HAZ-2a Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

HAZ-2b Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of asbestos into the environment.

HAZ-3 Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

HAZ-4 Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment.

HAZ-5 For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.

HAZ-6 Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

HAZ-7 Result in construction impacts that would cause a hazard to the public or the environment.

HAZ-8 Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

HAZ-9 Result in the following if located in or near state responsibility areas or lands classified as very high fire hazard severity zones:

a. Substantially impair an adopted emergency response plan or emergency evacuation plan;

b. Exacerbate wildfire risk due to slope, prevailing winds, and other factors, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;

c. Require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or

d. Expose people or structures to significant risk, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Impacts related to noise are discussed in Chapter 13 – Noise and Vibration.

10.4.3 Impacts and Mitigation Measures

IMPACT HAZ-1: CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT THROUGH THE ROUTINE TRANSPORT, USE, OR DISPOSAL OF HAZARDOUS MATERIALS.

Regional Impacts

Regional development would increase density and population, and it would include a variety of land uses ranging from residential areas to commercial or industrial areas. New developments could include uses such as residential, dry cleaners, gas stations, service stations, industrial uses, and agricultural uses that could require additional routine transport, use, and disposal of hazardous materials like household hazardous waste from cleaning supplies, solvents, and commercial and industrial hazardous waste. Proposed land uses are identified in general terms, as the specific, parcel-level land uses are unknown. Routine transportation, use, or disposal of hazardous materials poses a risk to residents within the project area by using trucks, rail, and other modes that are shared with the public and have the potential to be involved in an accident.

The operation of businesses that use, create, or dispose of hazardous materials is regulated and monitored by federal, state, and local regulations and policies that provide a high level of protection to the public and the environment from the hazardous materials manufactured within, transported to, and disposed within the SACOG region. Hazardous materials transported by truck use many of the same freeways, arterials, and local streets as other traffic. This creates a risk of accidents and associated release of hazardous materials for other drivers and for people along these routes. Although the transport of hazardous materials could result in accidental spills, leaks, toxic releases, fire, or

explosion, the DOT Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the CFR.

DOTDPH regulates the haulers of hazardous waste (20 Health & Safety Code, Chapter 6.5). A valid registration issued by DTSC is required (22 CCR Division 4.5), unless specifically exempted, to transport hazardous wastes and DMV requires all hazardous materials transporters to possess a commercial driver's license with a hazardous materials endorsement. These standard accident and hazardous materials recovery requirements and procedures are enforced by the state and followed by private state-licensed, certified, and bonded transportation companies and contractors.

Vehicle Code Section 31303 outlines general routing and parking restrictions for hazardous material and hazardous waste shipments and CHP publishes a list of restricted or prohibited highways. FMCSA also maintains a Hazmat Route Registry that describes the highway routes that must be used for the transport of certain classes of hazardous waste that is monitored and regulated by the FMCSA field office and CHP (see Table 10.3).The generation and handling of hazardous waste in the region is monitored by EPA; Central Valley RWQCB; SMAQMD; and the Environmental Health and Hazardous Materials Control divisions of the six counties in the plan area. CalEPA oversees the regulation and management of hazardous materials at a statewide level through DTSC. Use of hazardous materials on-site requires permits and monitoring to avoid hazardous waste release through the local CUPA. DTSC is responsible for the enforcement and implementation of hazardous waste laws and regulations, codified in Title 22 of the CCR. EPA maintains the list of national Superfund sites and, in the state of California, DTSC maintains a list of contaminated sites, and provides a number of tools for tracking and monitoring the generation, transportation, and disposal of hazardous waste.

Additionally, businesses that generate hazardous waste are required to have an EPA identification number to monitor and track hazardous waste activities.

The operation of businesses that use, create, or dispose of hazardous materials is regulated and monitored by federal, state, and local regulations that provide a high level of protection to the public and the environment from the hazardous materials manufactured within, transported to, and disposed within the region. As an example, many uses in the plan area of the proposed MTP/SCS, including commercial and industrial operations, must prepare and implement hazardous materials plans, such as the following, to avoid occurrences, and minimize the effects of, hazardous materials spills and releases:

- California hazardous materials business plan (pursuant to HSC Section 25500), which specifies requirements for material inventory management, inspections, training, recordkeeping, and reporting.
- Spill prevention, containment, and countermeasures plan (pursuant to 40 CFR 112) or, for smaller quantities, a spill prevention and response plan, which identifies best management practices for spill and release prevention and provides procedures and responsibilities for rapidly, effectively, and safely cleaning up and disposing of any spills or releases.

Implementation of federal, state, and local requirements such as CalARP, the RECP, DOT, and Caltrans regulations would minimize potential exposure to the public and the environment from accidental releases. Therefore, although projected land use pattern would occur in proximity to major

transportation corridors that are used to transport hazardous and flammable materials, construction and operation of these projects would not increase the hazard associated with their operation.

Because of the above-described regulation and oversight, the hazardous materials impacts related to projected land use pattern from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-1. No mitigation is required.

Planned transportation improvements planned as a part of the proposed MTP/SCS, include new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Roadway improvements in the proposed MTP/SCS would also improve road safety, as well as pedestrian and bicycle safety, thereby reducing the potential for transportation related hazardous materials risks. Based on the requirements of Title 49 of the CFR Parts 171–180, construction and operation of transportation projects would provide for the safe transport and disposal of hazardous waste.

Planned transportation improvements projects planned as a part of the proposed MTP/SCS involve the expansion or extension of the transportation system, which may increase the capacity to transport hazardous materials. For example, gas or oil spilling from vehicle accidents or a tanker overturning on a highway could release hazardous materials. Transportation improvements that expand the transportation system and extend it to new areas expose more adjoining land uses to risks associated with upset on the roadway, highway, or railroad. These impacts are addressed through CalARP, which manages risks associated with accidental release. To prevent or minimize the accidental release of hazardous materials into the environment, precautions, such as proper securing of the materials and proper container design, are required by CalARP. California Vehicle Code Section 31303 outlines general routing and parking restrictions (Table 10-3) for hazardous material and hazardous waste shipments and CHP publishes a list of restricted or prohibited highways. FMCSA also maintains a Hazmat Route Registry that describes the highway routes that must be used for the transport of certain classes of hazardous waste that is monitored and regulated by the FMCSA field office and CHP. Roadway improvements in the proposed MTP/SCS will improve road safety, thereby reducing the potential for accidents related to hazardous materials.

Where hazardous materials are transported by rail, rupture of train cars is a safety hazard because the spilled material could explode if exposed to an ignition source. Future development associated with the proposed MTP/SCS would include development in existing urban locations and near existing rail infrastructure and would likely add people to the initial evacuation zone adjacent to operating rail lines. Standard safety procedures would result in evacuation of these individuals immediately following derailment of a railcar carrying flammable liquid or gas, while standard response to release of other potentially hazardous materials (e.g., organophosphates, fertilizers) is to shelter in place. Contemporary building standards require construction of residences that are sufficiently contained (e.g., with doors and windows that seal) to allow sheltering in place to occur without substantial potential for harm to residents.

The projected land use pattern is not anticipated to increase the potential for train accidents because they would not affect the alignment of the tracks and would not change sight lines or visibility. New or improved rail crossings would be subject to review by the affected railroads. Further, regulations are in place through which the railroads would address the potential hazards associated with unauthorized use or pedestrian crossing of the track, changes to volume of train transport that may

indirectly result from the proposed MTP/SCS, and necessary changes to the speed of travel on segments of track adjacent to areas where changes in land use occur.

In addition, as noted above, FRA and PHMSA closely regulate the rail transport of crude oil and other hazardous materials. The transport of hazardous materials by rail is subject to requirements for handling, loading and unloading, and the placement of placards to alert emergency response teams as to the contents of each car. FRA routinely inspects the facilities of shippers and railroads to ensure that all regulatory requirements are being met. The DOT Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the CFR.

Based on the increasing number of shipments and general volatility of Bakken crude oil, the greatest concern is the risk of a train accident, which can be caused by malfunction, derailment, or impact because of human or equipment error. Accidents create the potential for a release of hazardous materials into the environment with the added potential risk for fires and explosions. The potential consequences of an accident are related to the size of the release (the volume of hazardous substance plus the failure type), the population density at the location of the accident, the specific release scenario, the physical and chemical properties of the hazardous material, and local weather conditions. While a HTUA is defined for Sacramento and Elk Grove, the other urban and suburban areas in the region did not receive this designation and may therefore be subject to greater potential risk from a crude oil train accident.

In California, SB 861 expanded OSPR's authority to cover all statewide surface waters at risk of oil spills from any source, including pipelines and railroads, and provided additional statutory and regulatory authority in new inland areas of responsibility. Railroads, pipelines, and oil production facilities involved in the transport of crude oil are required to prepare oil spill contingency plans. Announced and unannounced drills are required to test these contingency plans, as well as implementation of response and cleanup operations, equipment, and procedures. Further, facility operators must be able to demonstrate sufficient financial resources to pay for spill response and damages by obtaining a "certificate of financial responsibility" from the state based on a reasonable worst case spill volume.

Additionally, AB 380 requires rail carriers to report specified information regarding the transportation of hazardous materials, including area traveled and estimated volume, to Cal OES beginning January 31, 2015. Rail carriers are required to notify Cal OES if there will be more than a 25 percent increase in the estimated volume of Bakken oil transported. Each rail carrier is required to maintain a response management communications center and prepare an emergency response plan with guidance provided by OES. OES is required to provide confidential copies of the emergency response plan to the appropriate CUPA impacted by an oil or hazardous material spill.

Because of the above-described regulation and oversight, regional impacts associated with the routine transport, use, or disposal of hazardous materials related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-1. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are generally the same in each of the Community Types as described in the discussion of regional impacts above. However, where there is a greater concentration of people and development, such as Center and Corridor Communities, Established Communities, and to some extent Developing Communities, there would be more people and land uses potentially exposed to impacts associated with the routine transport, use, or disposal of hazardous materials than in Rural Residential Communities or Lands Not Identified for Development in the proposed MTP/SCS.

The projected land use patterns and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are regulated by the various state and federal regulations discussed in the regional analysis. Because of the above-described regulation and oversight, the local impacts associated with the routine transport, use, or disposal of hazardous materials related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS in the Community Types are considered less than significant (LS) for Impact HAZ-1. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS would be the same in each of the HFTAs as described in the regional impacts discussion. However, there may be a greater concentration of people and development in HFTAs, so there would be more people and land uses potentially exposed to impacts associated with the routine transport, use, or disposal of hazardous materials than in less populated areas in the proposed MTP/SCS.

Because of the above-described regulation and oversight, the impacts associated with the routine transport, use, or disposal of hazardous materials in HFTAs related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-1. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT HAZ-2A: CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT THROUGH REASONABLY FORESEEABLE UPSET AND ACCIDENT CONDITIONS INVOLVING THE RELEASE OF HAZARDOUS MATERIALS INTO THE ENVIRONMENT.

Regional Impacts

Regional development would increase density and population, and it would include a variety of land uses, ranging from residential to commercial or industrial, that could increase the potential for upset or accident conditions involving the release of hazardous materials into the environment. Specific,

parcel-level land uses are unknown, but regional development would generally increase the number of land uses that require the use, storage, and transport of hazardous materials. Such land uses could include residential, dry cleaners, gas stations, service stations, and industrial uses. Businesses that store large quantities of hazardous materials (e.g., gas storage facility or chemical warehouse), and accidents that result from transporting, pumping, pouring, emptying, injecting, spilling, and dumping or disposing, could release hazardous materials into the environment. The severity of potential effects varies with the activity conducted and the concentration and type of waste present. However, as discussed in Impact HAZ-1, above, the effects of routinely handling and transporting hazardous materials in compliance with existing regulations is not anticipated to result in a significant hazard.

During operation, businesses that store hazardous materials could potentially experience accidents or upset conditions that result from their routine use. These businesses are required to prepare spill prevention, containment, and countermeasures plans (pursuant to 40 CFR 112) or, for smaller quantities, a spill prevention and response plan, that identify best management practices for spill and release prevention and provide procedures and responsibilities for rapidly, effectively, and safely cleaning up and disposing of any spills or releases. Oversight is provided by the CUPA. As discussed above, the severity of potential effects varies with the activity conducted and the concentration and type of hazardous materials involved; however, most minor spills associated with vehicle maintenance would be remediated immediately pursuant to the requirements and liabilities of applicable regulations and would not pose a substantial hazard to the public or the environment. The possible adverse effects on the public or environment from these and other activities would more likely be acute (immediate, or of short-term severity) as a result of short-term exposure.

Because of the above-described regulation and oversight, regional impacts associated with the foreseeable upset and accident conditions involving the release of hazardous materials into the environment related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-2a. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS would be the same in each of the Community Types as described in the regional impact discussion above. However, where there is a greater concentration of people and development, such as Center and Corridor Communities, Established Communities, and to some extent Developing Communities, there would be more people and land uses potentially exposed to impacts associated with the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment than in Rural Residential Communities or Lands Not Identified for Development in the proposed MTP/SCS. The proposed MTP/SCS would not create conditions that would be anticipated to result in hazardous materials upset or accident. Although the SCS proposes accommodating anticipated growth within dense communities, such development would not create conditions that increase the potential for hazards. Moreover, the transportation improvements are anticipated to improve the flow of traffic and reduce the potential for traffic accidents.

Therefore, local impacts associated with the foreseeable upset and accident conditions involving the release of hazardous materials into the environment in the Community Types related to the projected land use pattern and planned transportation improvements from the implementation of the proposed MTP/SCS are less than significant (LS) for Impact HAZ-2a. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS would be the same in each of the HFTAs as described in the regional impacts discussion above.

Development of the HFTAs could result in increased urbanization along transportation corridors. Construction and operation of land use projects adjacent to new roadway segments would not increase the hazard associated with operation of highways and railroads, but could increase the number of people potentially exposed to hazardous conditions. To be declared a sustainable communities project under PRC Section 21155.1, projects in HFTAs must demonstrate that there would not be an "unusually high" risk of fire or explosion from materials stored or used on or near the property and the project would not result in a risk of exposure to a potentially hazardous material at levels that exceed state and federal standards. This would occur on a project-specific basis, and would not affect the other streamlining strategies and statutes under the Sustainable Communities Act.

Therefore, impacts associated with the foreseeable upset and accident conditions involving the release of hazardous materials into the environment in HFTAs related to the projected land use pattern and planned transportation improvements from the implementation of the proposed MTP/SCS would be a less-than-significant impact (LS) for Impact HAZ-2a. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT HAZ-2B: CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT THROUGH REASONABLY FORESEEABLE UPSET AND ACCIDENT CONDITIONS INVOLVING THE RELEASE OF ASBESTOS INTO THE ENVIRONMENT.

Regional Impacts

As described in the Environmental Setting section of this chapter, NOA is a carcinogen. People exposed to low levels of asbestos may be at elevated risk of lung cancer and mesothelioma. The risk is proportional to the cumulative inhaled dose (i.e., quantity and characteristics of fibers) and increases with the time since first exposure. Airborne exposure to soil dust containing asbestos can occur under a variety of scenarios, including children playing in the dirt, dust raised from unpaved roads and driveways covered with crushed serpentine, grading and earth disturbance associated with construction activity, rock blasting, quarrying, gardening, and other human activities.

The California Geological Survey (CGS) has prepared reports on the relative likelihood for the presence of NOA in California. As shown in Figure 10-1, NOA can be found in El Dorado, Placer, Sacramento, Yolo, and Yuba counties. With the amount and general location of regional growth, the implementation of the land use and transportation projects in the proposed MTP/SCS could disturb the NOA in the plan area, and release asbestos into the environment.

The state Asbestos ATCM requires preparation and implementation of an asbestos dust mitigation plan for construction or grading activities on sites greater than 1 acre in size with known NOA soils, as determined through the geotechnical investigations discussed in Chapter 9 – Geology, Soils, Seismicity, and Mineral Resources the asbestos dust mitigation plan would incorporate the recommendations of the geotechnical investigation to avoid effects to nearby populations. Typical aspects of the plan would include provisions for sampling soils exported to the project site during construction, prohibition of rock crushing where materials may contain asbestos, standard track-out control measures, and limits on fugitive dust. In addition, HSC Section 19827.5 requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos.

NOA is less of a concern during operation because soil with 0.25 to less than 1 percent asbestos cannot be used for surfacing in California. Soils containing 1 percent or more asbestos are considered to be asbestos containing material and, if disposed of offsite, must be managed as a hazardous waste with transport subject to Caltrans regulations. Compliance with CARB regulations and local policies for control of NOA would reduce the exposure of sensitive receptors during operation.

Therefore, based on the above-described regulation and oversight, regional asbestos impacts related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-2b. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS

Land use projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities, and transportation improvement projects in all of the Community Types, would be regulated by the various state and federal regulations discussed in the regional analysis. Most of the identified NOA occurs in Rural Residential Communities that would undergo limited growth under the proposed MTP/SCS. The exception is the area around El Dorado Hills, which is a Developing Community in an area where NOA has been found. However, based on the above-described regulation and oversight, the local asbestos impacts in the Community Types related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the localized level are considered less than significant (LS) for Impact HAZ-2b. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Land use and transportation projects in the HFTAs would be regulated by the various state and federal regulations discussed in the regional analysis. In addition, with the exception of the HFTA in the Auburn area, the HFTAs are not located in areas where NOA is a concern. Therefore, based on the above-described regulation and oversight, the asbestos impacts in HFTAs related to land use and transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-2b. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT HAZ-3: EMIT HAZARDOUS EMISSIONS OR HANDLE HAZARDOUS OR ACUTELY HAZARDOUS MATERIALS, SUBSTANCES, OR WASTE WITHIN 0.25 MILE OF AN EXISTING OR PROPOSED SCHOOL.

Regional Impacts

Regional development would increase density and population, and it would include a variety of land uses, ranging from residential to commercial or industrial, that will increase the potential for hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. Specific, parcel-level land uses are unknown, but regional development will generally increase the number of land uses that require the use, storage, and transport of hazardous materials (e.g., gas, chemical) by truck or rail. Such land uses could include residential, dry cleaners, gas stations, service stations, industrial uses, and agricultural uses. Businesses that store large quantities of hazardous materials (e.g., gas storage facility or chemical warehouse), and accidents that result from transporting, pumping, pouring, emptying, injecting, spilling, and dumping or disposing, could release hazardous materials into the environment near schools.

There are approximately 810 existing schools within the proposed MTP/SCS land use area (Figure 10-5) and a variety of land uses are assumed in proximity to those schools. Impacts HAZ-1, HAZ-2a, and HAZ 2b above document an extensive set of existing federal and state regulations controlling emissions and the handling of hazardous materials. In addition, the potential effects on sensitive land uses, including schools, associated with potentially hazardous emissions from stationary sources and exposure to air contamination related to roadways is addressed in Chapter 5 – Air Quality.

Any new commercial or industrial operations in proximity to existing schools would be required to comply with regulations related to the routine use, storage, and transport of hazardous materials. Proposed projects that would generate emissions or involve the handling of extremely hazardous materials, substances, or waste within 0.25 mile of an existing school would notify the affected school district (pursuant to PRC Section 21151.4). As discussed in detail above, compliance with existing regulations would reduce the exposure to potential hazards associated with these land uses.

Roadway improvements in the proposed MTP/SCS would improve road safety, thereby reducing the potential for accidents in proximity of schools related to hazardous materials. For new schools, that

may be developed to serve the projected land use pattern that result from implementation of the proposed MTP/SCS, the California Education Code, including *Education Code* Section 17213(b), establishes requirements for assessments and approvals that address the potential for existing contamination on the site, and whether nearby land uses might reasonably be anticipated to emit hazardous air emissions or handle hazardous materials. Assessment of existing contamination is conducted in coordination with DTSC's School Property Evaluation and Cleanup Division, which is responsible for assessing, investigating, and cleaning up proposed school sites. This Division ensures that selected properties are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who will occupy a new school.

All proposed school sites that will receive state funding for acquisition or construction are required to go through a rigorous environmental review and cleanup process under DTSC's oversight. The state school siting process requires that emissions of hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school be addressed (PRC Section 21151.2; Edu. Code Section 17210 et seq.). Additionally, individual hazardous materials emitters or handlers must adhere to permitting requirements (PRC Section 21151.4) that require evaluation and notification of where potential materials handling and emissions could occur within 0.25-mile proximity of existing or proposed schools.

The planned transportation improvements under the proposed MTP/SCS could include transportation system expansions or extensions near schools; this is addressed through California PRC Section 21151.4. These transportation improvements may increase the capacity to transport hazardous materials. These impacts are addressed through CalARP, which manages risks associated with accidental release. To prevent or minimize the accidental release of hazardous materials into the environment, precautions such as proper securing of the materials and container design are required by CalARP. California Vehicle Code Section 31303 outlines general routing and parking restrictions (Table 10.3) for hazardous material and hazardous waste shipments and CHP publishes a list of restricted or prohibited highways. FMCSA also maintains a Hazmat Route Registry that describes the highway routes that must be utilized for the transport of certain classes of hazardous waste that is monitored and regulated by the California field office and CHP. Additionally, roadway improvements in the proposed MTP/SCS will improve road safety, thereby reducing the potential for accidents in proximity of schools related to hazardous materials.

Therefore, the regional impacts of hazardous materials within 0.25 miles of an existing school related to the projected land use pattern or planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-3. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above (except land use development in Lands Not Identified for Development, which is not expected to have impacts because the proposed MTP/SCS does not forecast any development in these areas by 2040). Land use and transportation projects in Center and Corridor Communities, Established Communities,

Developing Communities, Rural Residential Communities, and transportation projects in Lands Not Identified for Development are regulated by the various state and federal regulations discussed in the regional analysis.

Therefore, based on the above-described regulation and oversight, localized impacts of hazardous materials affecting schools in the Community Types related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-3. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS would be the same in each of the HFTAs as described in the regional impacts discussion above. Therefore, based on the above-described regulation and oversight, impacts of hazardous materials affecting schools in HFTAs related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-3. No mitigation is required.

Mitigation Measures

None required.

IMPACT HAZ-4: RESULT IN DEVELOPMENT ON A SITE WHICH IS INCLUDED ON A LIST OF HAZARDOUS MATERIALS SITES COMPILED PURSUANT TO GOVERNMENT CODE SECTION 65962.5 AND, AS A RESULT, CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR ENVIRONMENT.

Regional Impacts

The projected land use pattern and planned transportation improvements under the proposed MTP/SCS that are located on sites within the region where hazardous materials could potentially be present and could, therefore, result in a s hazard to the public or the environment. As indicated above, there are approximately 200 documented sites of contamination in some stage of DTSC oversight in the plan area. These sites range from small releases that have had localized effects on private property and have already been remediated to large scale releases from long-term historical industrial practices that have had wider ranging effects on groundwater. Specific sites of documented contamination are not evaluated in this analysis because this is a programmatic level document. Further, because the precise locations of future land use projects are unknown, an evaluation of the potential for specific sites of known contamination within the plan area to be affected by project activities cannot be conducted at this time.

However, it is possible to generally characterize the potential for release of hazardous materials based on land use information (i.e., hazardous materials releases are more likely to have occurred in areas that currently or historically supported industrial uses).

For those sites that are included on a state or local hazardous materials list and/or have a historic land use that might suggest the site should or could be included on such a list, common practice is for a Phase I ESA to be prepared to research and disclose the prior uses of the site and the

likelihood that residual hazardous materials and/or waste would be present. This may be required by lending institutions when properties change hands. In many instances, implementing agencies also require submittal of a Phase I ESA before approval or implementation of a project.

Preparation of Phase I ESAs involves research of a variety of government databases to determine whether the site has had prior underground tanks or other industrial uses that could result in hazardous materials on or below the ground surface. The American Society for Testing and Materials (ASTM) has developed widely-accepted practice standards for the preparation of Phase I ESAs. These include an on-site visit to determine current conditions; an evaluation of possible risks posed by neighboring properties; interviews with persons knowledgeable about the site's history; an examination of local planning files to check prior land uses and permits granted; file searches with appropriate agencies having oversight authority relative to water quality and/or soil contamination; examination of historic aerial photography of the site and adjacent properties; a review of current topographic maps to determine drainage patterns; and an examination of chain-of-title for environmental lines and/or activity and land use limitations. Preparation of and compliance with a Phase I ESA for properties at risk of potential hazardous materials and/or waste contamination will avoid adverse impacts associated with build-out of land uses and transportation improvements in the proposed MTP/SCS. If a Phase I ESA indicates the presence, or potential presence of contamination, a site-specific Phase II ESA could be required to test soil and/or groundwater. Based on the outcome of a Phase II ESA, remediation of contaminated sites under federal and state regulations, administered at the local level, could be required before development.

However, because not all proposed MTP/SCS projects will necessarily include a Phase I ESA or Phase II ESA, the potential for the projected land use pattern and planned transportation investments from the implementation of the proposed MTP/SCS at the regional level to result in hazards due to development on a site with known contamination is considered potentially significant (PS) for Impact HAZ-4. Mitigation is required. See Mitigation Measure HAZ-1 below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of these Community Types as described in the regional impact discussion above. Where there is a greater concentration of people and development, such as Center and Corridor Communities, Established Communities, and to some extent Developing Communities, there would be a greater potential for implementation of the project to result in development on a known hazardous materials site.

Existing development in Lands Not Identified for Development in the proposed MTP/SCS consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands (such as waste water treatment facilities), and other rural uses. Although some housing and employment growth may occur in this Community Type within the proposed MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. With respect to planned transportation improvements in Lands Not Identified for Development, there would be limited planned transportation improvements in this community type by 2040. The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between

urban areas. Planned transportation improvements in Lands Not Identified for Development have the potential to result in development on a site that could create a significant hazard to the public or environment.

Land use projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities and transportation projects in all Community Types have the potential to result in development on a site which is included on a list of hazardous materials sites. Therefore, localized impacts associated with the potential to cause a public hazard in the Community Types related to the projected land use pattern and planned transportation impacts from implementation of the proposed MTP/SCS is considered potentially significant (PS) for Impact HAZ-4. Mitigation is required. See Mitigation Measure HAZ-1 below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs, as described in the regional impact discussion above. Because HFTAs are generally located in urban areas, they may disturb sites that were previously developed for industrial or urban uses commonly associated with use and disposal of hazardous materials. There may also be a greater concentration of people and development in HFTAs, so there would be more people and land uses potentially exposed to impacts associated with the disturbance of these sites.

To be declared a sustainable communities project under PRC Section 21155.1(a)(3), projects in HFTAs must demonstrate that they are not located on any list of facilities and sites compiled pursuant to Section 65962.5 of the Government Code. State law also requires the preparation of a Preliminary Endangerment Assessment (PEA) to characterize existing and future risk exposure. A PEA is a type of environmental document typically prepared for sites with DTSC oversight. Overall, PEA requirements are more comprehensive than the requirements for Phase I ESAs. Although they require similar background information, they also include site-specific human health and ecological screening evaluations, public participation requirements, data collection, and scoping activities. The PEA requirement is only applicable to potential exemptions under the sustainable communities strategy provisions of CEQA and does not affect the other streamlining strategies under SB 375.

Land use and transportation projects in HFTAs have the potential to result in development on a site which is included on a list of hazardous materials sites. Therefore, impacts associated with the potential to cause a public hazard in HFTAs related to the projected land use pattern and planned transportation impacts from implementation of the proposed MTP/SCS at the localized level is considered potentially significant (PS) for Impact HAZ-4. Mitigation is required. See Mitigation Measure HAZ-1 below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measure(s) at a project-level would reduce the impacts related to development on a site included on a list of hazardous materials sites, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure HAZ-1: Conduct site-specific investigation to characterize the potential presence of hazardous wastes.

The project proponent shall perform a records review to determine whether there is existing, permitted use of hazardous materials or documented evidence of hazardous waste contamination on the project site and provide the results of this investigation to the implementing agency.

For any listed sites or sites that have the potential for residual hazardous materials as a result of historic land uses, project proponents shall prepare a Phase I ESA that meets ASTM standards.

For any sites that are not listed and do not have the potential for residual hazardous materials as a result of historic land uses, no action is required unless unknown hazards are discovered during development. In that case, the implementing agency shall discontinue development until DTSC, RWQCB, local air district, and/or other responsible agency issues a determination, which would likely require a Phase I ESA as part of the assessment.

Projects preparing a Phase I ESA, where required, shall fully implement the recommendations contained in the report. If a Phase I ESA indicates the presence or likely presence of contamination, the project proponent shall prepare a Phase II ESA, and recommendations of the Phase II ESA shall be fully implemented.

SIGNIFICANCE AFTER MITIGATION

If an implementing agency adopts this mitigation measure, Impact HAZ-4 would be reduced to less than significant (LS). Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require an implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, Impact HAZ-4 remains significant and unavoidable (SU).

IMPACT HAZ-5: FOR A PROJECT LOCATED WITHIN AN AIRPORT LAND USE PLAN, OR WHERE SUCH A PLAN HAS NOT BEEN ADOPTED, WITHIN TWO MILES OF A PUBLIC AIRPORT OR PUBLIC USE AIRPORT, RESULT IN A SAFETY HAZARD EXCESSIVE NOISE FOR PEOPLE RESIDING OR WORKING IN THE PROJECT AREA.

Regional Impacts

Regional development could include a variety of land uses, ranging from residential to commercial or industrial, to provide increased goods and services to the region. The proposed land uses are identified in general terms, but specific, parcel-level land uses are unknown. As a result, it is unknown whether specific land uses would create a safety hazard within an AIA. Additionally, on the transportation side, a variety of improvements are included in the proposed MTP/SCS, such as new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Regional development could increase the number of new developments within an AIA and within airport hazard zones, creating hazards from tall structures, glare-producing objects, bird and wildlife attractants, radio waves from communication centers, or other features that have the potential to interfere with take-off or landing procedures or impact safety.

The projected land use pattern associated with implementation of the proposed MTP/SCS would predominately occur in existing urban areas and may result in the development of residential and non-residential land uses in and near airport flight corridors and within areas subject to policies contained in an ALUCP. Development that is not compatible with aviation activity (e.g., tall structures, land uses that produce light/glare, land uses that attract wildlife that can be hazardous to aircraft, noise sensitive land uses) may lead to conflict between an airport operator and surrounding communities, as well as create long-term operational problems for the airport. To prevent incompatible uses in areas of higher aircraft hazard potential, the ALUC has adopted ALUCPs with land use policies and criteria. The policies identify what types of land uses are allowed around airports and are intended to protect the safety of people, property, and aircraft on the ground and in the air in the vicinity of the airport. The policies also protect airports from encroachment by new incompatible land uses that could restrict their operations. Structure replacement and infill development are generally permitted under ALUCPs. Implementing agencies are responsible for analyzing compliance with ALUCPs as a part of their land use approval authority.

ALUCs may request that all or selected land use actions (e.g., General Plan, Specific Plan, Zoning Ordinance, Building Regulation, land acquisition, annexation, large development project) within the AIA be submitted for review for consistency with the ALUCP. City and county zoning and planning are required to conform to the ALUCP unless the city or county governing body specifically overrides the ALUCP by supermajority vote. Additionally, California statutes (Bus. and Profession Code Section 11010; Civ. Code Sections 1103 and 1353) now require disclosure for most residential real estate transactions, including new subdivisions, within two miles of an airport or within an ALUCP-defined AIA. The Caltrans Division of Aeronautics is also required to review proposals for acquisition of a school site by school districts that are situated within two miles of an existing or planned airport runway (Edu. Code Sections 17215 and 81033). FAA evaluates projects located within two miles of a public use airport, and other projects that may pose a potential hazard or excessive noise for people residing or working in the project area, due to height, visual hazard, or the attraction of wildlife.

Public Utilities Code, Section 21001 outlines the statutory requirements for ALUCPs including referencing the Division of Aeronautics ALUP Handbook. The 1994 ALUP Handbook requires that when preparing an environmental impact report for any project situated within an AIA as defined in an ALUC compatibility plan (or, if a compatibility plan has not been adopted, a boundary within two miles of a public-use airport is used), lead agencies shall utilize the California ALUP Handbook as a technical resource with respect to airport noise and safety compatibility issues. The California ALUP Handbook was most recently updated in 2011. Military airfields, such as Beale Air Force Base, are required to adopt AICUZ studies to evaluate compatible land uses in the vicinity of military airfields. Hazards associated with development in the proximity of military airports would be reduced through California Public Resources Code, Section 21098.

The public airports and air bases in the region are listed by ALUC in Table 10.6. Figure 10.9 depicts the airport AIAs overlaid on the proposed MTP/SCS community type map. SACOG is the ALUC for Sacramento, Sutter, Yolo, and Yuba counties, with the exception of the UC Davis airport. The UC Davis Airport is self-regulated by the University of California, which also controls the surrounding land uses on University-owned land. Most SACOG ALUCPs use self-defined safety zones, runway boundary height restrictions (FAR Part 77), and noise boundary restrictions (Cal. Admin. Code, Title 21, Chapter 6) to define the AIA. FAR Part 77 defines specific boundaries in certain safety zones with a minimum approach surface of 5,000 feet for utility and visual

runways,10,000 feet for non-precision instrument runways other than utility or visual runways, and 16,000 feet for precision instrument runways. Safety zones generally cover the majority of the AIA, although noise contours do extend beyond the safety zone boundaries for some airports (for more information about noise contours see Chapter 13 – Noise).

Airports with a safety overflight zone extending 5,000 feet from the runway include Borges-Clarksburg Airport, Brownsville Aero Pines Airport, Rancho Murieta Airport, Rio Linda Airport, Sunset Skyranch Airport, Sutter County Airport, and Watts-Woodland Airport. Airports with a safety overflight zone extending 10,000 feet from the runway include Franklin Field Airport, Mather Airport, and Yolo County Airport. Additionally, the McClellan Air Force Base AIA extends 14,000 feet from the runway to the west and 4,000 feet from the runway to the east. The Sacramento Executive Airport AIA generally extends one mile from the runway with a second approach/departure reaching about 2,500 feet past the southwest overflight boundary.

The Yuba County Airport AIA and Beale Air Force Base AIA include two review areas, one including the noise contours and safety zones and the other including the recorded overflight notification area. The Yuba County AIA generally extends two miles from the runway with additional area in the north. The Beale Air Force Base AIA extends to the north and south edges of Yuba County, to the west edge of the Yuba County Airport AIA, and to the east edge of the base itself. The SMF AIA is much larger than two miles. With the exception of a small area in Placer County, SMF aircraft regularly fly at heights above those requiring recorded overflight notification outside of the AIA (below 3,000 feet). FAA has determined that overflight exposure is not significant where aircraft are flying at an altitude of 3,000 feet or more above ground level.

EDCTC is the ALUC for El Dorado County. The Cameron Park Airport AIA extends 900 feet from the runway and the Georgetown Airport and Placerville Airport AIAs extend 9,000 feet from the runway. Similarly, PCPTA is the ALUC for Placer County. The Auburn Municipal Airport AIA and Blue Canyon Airport extend 9,000 feet from the runway and the Lincoln Regional Airport extends 14,000 feet from the runway.

There are also several military airfields in the Bay Area, which support planes whose air travel may affect residents of the plan area of the proposed MTP/SCS. The Department of Defense requires military airfields to adopt Air Installation Compatibility Use Zone studies, which assess compatible land uses in the vicinity of a military air station in a way equivalent to ALUCPs. PRC Section 21098 reduces hazards associated with development near military airports by requiring lead agencies to submit a notice to the military service that would be affected by a proposed general plan amendment or significant project located within specific boundaries of a low-level flight path, military impact zone, or special use airspace.

The proposed MTP/SCS land uses and transportation projects that fall within AIA and ALUCP boundaries could potentially result in adverse safety hazard impacts. For example, new electric bus service connecting downtown Sacramento to the Sacramento International Airport is part of the proposed MTP/SCS. However, airport regulations are not intended to preclude access to and from the airport and are therefore not applicable to the transportation improvements included in the proposed MTP/SCS. Additionally, the improvements included in the proposed MTP/SCS are more likely to improve safety through improvements to the roadway network and decrease trips through improvements to public transportation than cause hazards or interfere with airport operations.

Implementing agencies are responsible for analyzing compliance with ALUCPs as a part of their land use approval authority. Upon acceptance of completed applications for development within the plan area, the implementing agency would send the project information to the ALUC for consistency review. ALUC staff would identify the land use compatibility standards that apply to the project and determine whether the project is compatible, compatible subject to specific conditions, or incompatible. A formal consistency review would be subsequently transmitted to the implementing agency. If the project is determined to be incompatible with the CLUP, it cannot be approved by the implementing agency unless action is taken to overrule the ALUC determination. This review process would ensure that development would not interfere with the safe and efficient use of navigable air space.

Therefore, in reliance on that regulatory environment, regional hazard impacts associated with airports related to the projected land use pattern or planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-5. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS would be the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are regulated by the various state and federal regulations discussed in the regional analysis. Therefore, localized hazard impacts associated with airports in the Community Types related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-5. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS would be the same in each of the HFTAs as described in the regional impacts discussion above. Land use and transportation projects in the HFTAs are regulated by the various state and federal regulations discussed in the regional analysis. Therefore, hazard impacts in HFTAs associated with airports related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-5. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT HAZ-6: IMPAIR IMPLEMENTATION OF, OR PHYSICALLY INTERFERE WITH, AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN.

Regional Impacts

Emergency response and emergency evacuation plans are designed by the OES for each county in the SACOG region for the purpose of responding to potential emergency situations (e.g., fires, floods, or earthquakes). OES plans encompass the entire plan area of the proposed MTP/SCS, including incorporated and unincorporated areas, special districts, and university and tribal lands. These plans provide a process for evacuating people from danger, therefore preventing or minimizing loss of life and property. Implementation of the proposed MTP/SCS does not include any changes to the policies or requirements within any of the established emergency plans discussed above in Section 10.2.2 Emergency Services. In addition, although increased projected development and changes in land use are proposed, emergency response plans are regularly updated to reflect changing conditions. However, depending on growth and housing patterns from implementation of the proposed MTP/SCS (see Chapter 2 – Project Description for more information on the projected land use pattern in the proposed MTP/SCS), implementation of the proposed MTP/SCS could impair implementation of an adopted emergency response or emergency evacuation plan.

The projected land use pattern and subsequent development activities in the proposed MTP/SCS may occur in areas where existing emergency response and evacuation plans may not have accounted for the same level of growth. Development that proposes large concentrations of people or special needs individuals (such as stadiums or hospitals) in an area with increased hazards (such as a dam inundation area) could cause adverse effects related to the implementation of countywide and jurisdictional emergency plans and could overburden adopted evacuation routes and other emergency response resources. Certain tall structures can physically interfere with the implementation of emergency response if the height of the structure or tower interferes with the ability of emergency air support services to carry out missions associated with an emergency response. Additional impacts could occur if the authorities are not properly notified, or if multiple projects are constructed at the same time, and therefore result in concurrent blockage of multiple roadways used for emergency routes. Failure to provide reasonable access for emergency equipment and evacuation of civilians can result in the major loss of life, property, and natural resources.

SACOG has no land use authority to adopt local land use plans or approve local land use projects and, therefore, the projected land use pattern included in the proposed MTP/SCS serve as local land use plans and are a foundation for its land use forecast in consultation with local jurisdictions. As required by OES, emergency and evacuation plans are revisited for frequent updates to adequately plan for growth within the region and ensure consistency with general plans. The projected land use pattern under the proposed MTP/SCS would increase population and residential densities, which would be reflected in updated emergency and evacuation plans. Emergency plans and programs are in place on a state, regional, countywide, individual jurisdiction, and special district level that contain measures to reduce impacts associated with conflicts with emergency response and evacuation plans. The proposed MTP/SCS land use forecast assumes an increase in emergency service needs as the population increases, which the jurisdiction provides for through the OES and these local regulations and procedures.

However, it is possible that the projected land use pattern in the proposed MTP/SCS occur where existing emergency response and evacuation plans may not have accounted for the same level of growth. Therefore, the potential for adverse emergency evacuation plan impacts related to the projected land use pattern from the implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HAZ-6. Mitigation is required. See Mitigation measures HAZ-2 and HAZ-3 below.

Planned transportation improvements in the proposed MTP/SCS include projects planned for many of the roadways and highways designated as evacuation routes or potential evacuation routes in the emergency plans identified in Table 10-8 above (see Chapter 2 – Project Description for more information on transportation changes in the proposed MTP/SCS). Implementation of the transportation network improvements in and of themselves would not impair or physically interfere with the implementation of any adopted emergency response plan or emergency evacuation plan. However, there is the potential for traffic delays and roadway blockages during construction of individual improvements. Expansion of transit infrastructure may also cause traffic congestion during construction activities, which would temporarily hinder emergency vehicle response or evacuation in the event of an emergency. Projects requiring encroachment permits for temporary construction activities in public roadways that could be used for emergency response or evacuation are generally required to prepare traffic mitigation plans that address traffic control during the period the project is occurring within public right of way. To address any temporary road closures that would be required during construction, standard construction mitigation includes notification of emergency responders.

In addition, as described above and in Section 10.2.2 Emergency Services, emergency plans and programs are in place on a state, regional, countywide, individual jurisdiction, and special district level that contain measures to reduce impacts associated with conflicts with emergency response and evacuation plans. These existing measures ensure transportation network improvement projects would not impair implementation of or physically interfere with an emergency response or evacuation plan.

Although the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS could interfere with emergency response and evacuation during construction, implementing agencies would require compliance with state and local requirements regarding evacuation planning. Therefore, regional emergency evacuation plan impacts related to the projected land use pattern and planned transportation improvements from the implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-6. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS would be the same in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities as described in the regional impact discussion above. Land use and transportation projects in these Community Types have the potential to impair implementation of or physically interfere with an emergency response or evacuation plan. Transportation investments in Lands Not Identified for Development may also temporarily impair the

implementation of these plans during construction. There would be no effect on emergency evacuation plans in Lands Not Identified for Development, because no projected land use pattern is forecasted for these areas under the proposed MTP/SCS.

Development would be completed in compliance with established state and local regulations, which would address potential effects associated with the development patterns different than those assumed in the emergency plan and notifying emergency service providers where construction could substantially limit a potential evacuation route. Therefore, local emergency evacuation plan impacts in the Community Types related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-6. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the MTP/SCS would be the same in each of the HFTAs as described in the regional impact discussion above. The projected land use pattern and planned transportation improvements in the HFTAs have the potential to impair implementation of or physically interfere with an emergency response or evacuation plan. However, this potential would be adequately addressed through compliance with existing regulations. Therefore, emergency evacuation plan impacts in HFTAs related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-6. No mitigation is required.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project-level would reduce the impacts on emergency response and evacuation plans, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure HAZ-2: Implement Mitigation Measure HAZ-4

Mitigation Measure HAZ-3: Implement Mitigation Measure HAZ-6

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts these mitigation measures, Impact HAZ-6 would be reduced to a less than significant level (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Section 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, this impact remains significant and unavoidable (SU). Therefore, Impact HAZ-6 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT HAZ-7: RESULT IN CONSTRUCTION IMPACTS THAT WOULD CAUSE A HAZARD TO THE PUBLIC OR THE ENVIRONMENT.

Regional Impacts

Regional development could include a variety of land uses, ranging from residential to commercial or industrial uses, to provide increased goods and services to the region. Short-term construction related impacts could cause hazards to the public or the environment from transportation improvements and other transportation projects, as well as from urban infill and redevelopment to the new construction of structures and buildings.

Development of the projected land use patterns and planned transportation improvements in the proposed MTP/SCS would likely involve a variety of hazardous materials and potential hazards from construction activities. Construction-related activities would require the use of construction equipment and materials that include hazardous substances that could increase hazards to the public or environment. Common hazardous materials used in construction include fuels, solvents, caulking, tar, concrete curing compounds, asphalt products, paints, asbestos-containing building materials, architectural coatings, light bulbs, mercury switches, and batteries. Construction-related activities such as pumping, pouring, emptying, injecting, spilling, and dumping could also release hazardous materials into the environment. The severity of potential effects varies with the activity conducted, and the concentration and type of waste present. Additionally, while many hazardous construction materials remaining after project construction can likely be reused on other projects, those materials that cannot be or are not reused would require disposal. Hazardous waste generated during construction may consist of welding materials, fuel and lubricant containers, paint and solvent containers, and cement products containing strong basic or acidic chemicals.

Generally, incidents involving construction-related hazardous materials are small fuel or oil spills that would have a negligible impact on public health. All hazardous materials would be stored, handled, and disposed of according to the manufacturers' recommendations, and spills would be cleaned up in accordance with applicable regulations. Hazardous materials spills or releases, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of quantity spilled, must be immediately reported if the spill has entered or threatens to enter a water of the State, including a stream, lake, wetland, or storm drain, or has caused injury to a person or threatens injury to public health. Immediate notification must be made to the local emergency response agency, or 911, and the Governor's Office of Emergency Services Warning Center. For non-petroleum products, additional reporting may be required if the release exceeds federal reportable quantity thresholds over a release period of 24 hours as detailed in HSC Section 25359.4 and Title 40, Section 302.4 of the CFR.

In addition, grading and excavation activities may expose construction workers and the public to hazardous substances present in the soil or groundwater, but which may not have been anticipated based on information about existing conditions. Potential hazards to human health include ignition of flammable liquids or vapors, inhalation of toxic vapors in confined spaces such as trenches, and skin contact with contaminated soil or water. Land adjacent to roadways may also contain elevated concentrations of lead in exposed surface soils, which could pose a health hazard to construction workers and users of the properties. Lead is a state-recognized carcinogen and reproductive toxicant. Exposure of construction workers or future site occupants to lead in soil could result in adverse health effects, depending on the duration and extent of exposure. Substantial quantities of aerially-

deposited lead are understood to be generally confined to within 30 feet of a roadway. Other potential contaminants, including herbicides associated with weed abatement and contaminated ballast rock, are generally confined to the immediate transportation right-of-way. As with land use projects and development, exposure to these hazardous materials and wastes from construction of transportation projects could cause adverse effects to construction workers, the public, or the environment.

As discussed above, the routine transport, use, and disposal of hazardous materials during construction (Impact HAZ-1); potential for accidents during construction that result in hazardous materials release (Impact HAZ-2a); and effects of disturbing asbestos (Impact HAZ-2b) would be a less-than-significant impacts.

Therefore, based on the above-described regulation and oversight, the potential for regional adverse construction impacts related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS would be the same in each of the Community Types as described in the regional impact discussion above.

The construction of land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development would be regulated by the various federal and state regulations discussed above and detailed in Impacts HAZ-1 through HAZ-6. Therefore, implementation of the proposed MTP/SCS would not result in construction impacts that would cause a hazard to the public or the environment. The potential for local adverse construction impacts in the Community Types related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Impacts associated with implementation of the proposed MTP/SCS would be the same in each of the HFTAs as described in the regional impact discussion above.

The construction of the projected land use pattern and planned transportation improvements in the HFTAs would be regulated by the various federal and state regulations discussed above and detailed in Impacts HAZ-1 through HAZ-6. Therefore, implementation of the proposed MTP/SCS would not result in construction impacts that would cause a hazard to the public or the environment. The potential for adverse construction impacts in HFTAs related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT HAZ-8: EXPOSE PEOPLE OR STRUCTURES TO A SIGNIFICANT RISK OF LOSS, INJURY, OR DEATH INVOLVING WILDLAND FIRES.

Regional Impacts

The proposed MTP/SCS could pose a hazard if it results in the loss, injury, or death and damage to property adjacent to wildlands where residences are intermixed with wildlands or are in areas with high fire risk. Regional development could include a variety of land uses, ranging from residential to commercial or industrial uses, to provide increased goods and services to the region. Specific, parcel-level land uses are unknown, but regional development could increase the number of structures adjacent to wildlands. For this analysis, areas within the State Responsibility Areas (SRA) or Local Responsibility Areas (LRA) zoned as Very High Risk that overlaps with the projected land use pattern and planned transportation improvements of the proposed MTP/SCS are considered. The potential overlap of the proposed MTP/SCS projected land use pattern and planned transportation improvements in Very High Fire Risk zones is shown below in Table 10-10. For this analysis, new housing units and employees are a better representation of the projected land use pattern than acres developed since this impact considers exposure of people or structures to significant risk. Planned transportation improvements were analyzed by calculating a 100-foot buffer area around the center line of the planned transportation improvements for new roads, road widenings, and interchange improvements.

The proposed MTP/SCS encourages compact growth within established communities and away from this wildfire-prone open space. For these reasons, the proposed MTP/SCS limits exposure to wildfire. New construction would be subject to Title 24 of the CCR, which includes safety measures to minimize the threat of fire. In addition, Title 14 of the CCR sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent damage to structures or people by reducing wildfire hazards within SRAs. Local jurisdictions' general plan policies and building codes enforce and expand on these requirements at the local level. Projects would not be approved by local agencies until project design plans demonstrate compliance with applicable fire safety requirements.

Additionally, on the transportation side, a variety of improvements are included in the proposed MTP/SCS, such as new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. These transportation improvements would not affect fuel loading or defensible space and would not include habitable structures. Although there could be an elevated risk of accidental ignition of a wildland fire during construction in forested areas, the potential for standard construction practices to result in wildland fire would not be substantially increased because of the planned transportation investments of the proposed MTP/SCS. Projects that involve the expansion or extension of the transportation system may expose more land uses to risks associated with wildland fires, particularly at the urban edge. However, transportation improvements, especially capacity improvements, also generally improve the transportation network to move people more efficiently, which is beneficial for emergency access and evacuation due to a wildfire.

Table 10-10
Potential Impacts in State and Local Responsibility Areas with Very High Fire Hazard Severity Zone by Community Type

	Center and Corridor Communities			Established Communities			Developing Communities			Rural Residential Communities			Lands Not Identified for Development		
	Land Use Impacts		Transp. Impacts	Land Use Impacts		Transp. Impacts	Land Use Impacts		Transp. Impacts	Land Use Impacts		Transp. Impacts	Land Use Impacts		Transp. Impacts
	HU	Emp.	Acres	HU	Emp.	Acres	HU	Emp.	Acres	HU	Emp.	Acres	HU	Emp.	Acres
State Responsibly Areas with Very High Hazard Severity Zone	0	0	0	728	1,264	94	0	0	0	481	426	0	0	0	0
Local Responsibly Areas with Very High Hazard Severity Zone	34	644	0	571	247	8	0	0	0	0	0	0	0	0	0
Total	34	644	0	1,299	1,511	102	0	0	0	481	426	0	0	0	0

Notes: HU = Housing Units, Emp. = Employees

Sources: CAL FIRE adopted Fire Hazard Severity Zone maps for State Responsibility Areas, November 2007. CAL FIRE Recommended maps for Very High Fire Hazard Severity Zones in Local Responsibility Areas, June to Sept 2008. CAL FIRE has determined that Yuba County has no Very High Hazard Severity Zones in Local Responsibility Areas.

By 2040, the projected land use pattern of the proposed MTP/SCS includes 1,814 new homes, 2,581 new employees, and 102 acres of transportation improvements in SRAs and LRAs zoned as Very High Risk. In total, this impact amount represents less than 0.01 percent of new housing and employment growth and acres of planned transportation improvements. While these impacts appear relatively small and there are existing federal, state, and local regulations that would substantially lessen the inherent wildfire hazard risk, due to the importance of wildfire risk at the state and regional level, the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HAZ-8. Mitigation is required. Mitigation Measure HAZ-4 is described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
Table 10-10 above shows the risk within Center and Corridor Communities, Established Communities, and Rural Residential Communities. However, most of the plan area identified as high or very high fire hazard covers the Rural Residential Communities and Lands not Identified for Development. Some Developing Communities, particularly in El Dorado County near El Dorado Hills and Placer County near Lincoln have elevated risk of wildfire. Therefore, even though the spatial analysis does not show a potential impact, there is a potential risk from wild land fires in these communities.

Therefore, the potential for local adverse wild land fires hazard impacts in the Community Types related to projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact HAZ-8. Mitigation is required. Mitigation Measure HAZ-4 is described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
HFTAs are located within established communities and are not generally in areas subject to wildland fires. Furthermore, when the projected land use pattern and proposed transportation investments within HFTAs was analyzed against the SRA and LRA Very High Fire Risk zones, no impacts where identified. As described in the regional impact discussion above, land use and transportation projects in the HFTAs are regulated by Title 14 of the California Code of Regulations, Division 1.5 discussed in the regional analysis. Therefore, implementation of the proposed MTP/SCS would not expose people or structures to a significant risk of loss, injury, or death involving wild land fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Therefore, the potential for adverse wild land fires hazard impacts in HFTAs related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-8. No mitigation is required.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measure(s) at a project-level

would reduce the impacts of fire hazard risk, and agencies with jurisdiction to adopt these measures can and should do so.

Mitigation Measure HAZ-4: Minimize the risk of loss, injury, or death to people or structures as a result of wildland fires.

The implementing agency shall mitigate for impact resulting from wildland fires by adopting measures that include but are not limited to:

- Ensure structures in high fire risk areas are built to current state and federal standards which serve to greatly increase the chances the structure will survive a wild fire and also allow for people to shelter-in-place.
- Improve road access for emergency response and evacuation so people can evacuate safely and timely when necessary.
- Improve, and educate regarding, local emergency communications and notifications with residents and businesses.
- Enforce defensible space regulations to keep overgrown and unmanaged vegetation, accumulations of trash and other flammable material away from structures.
- Provide public education about wildfire risk and fire prevention measures, and safety procedures and practices to allow for safe evacuation and/or options to shelter-in-place.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact HAZ-8 would be reduced to a less than significant level (LS). Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require an implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation. Therefore, Impact HAZ-8 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT HAZ-9: RESULT IN PROJECTS LOCATED IN OR NEAR STATE RESPONSIBILITY AREAS OR LANDS CLASSIFIED AS VERY HIGH FIRE HAZARD SEVERITY ZONES THAT COULD SUBSTANTIALLY IMPAIR AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN, EXACERBATE WILDFIRE RISK, OR POST-FIRE CREATE FLOODING OR LANDSLIDE HAZARDS.

Regional Impacts

As discussed under Impact HAZ-8, the proposed MTP/SCS would focus the projected land use pattern in established communities and away from SRAs and LRAs with very high fire hazard severity zones. As shown in Table 10-10 above, by 2040, the projected land use pattern of the proposed MTP/SCS includes 1,814 new homes, 2,581 new employees, and 102 acres of transportation improvements in SRAs and LRAs zoned as Very High Risk. In total, this impact amount represents less than 0.01 percent of new housing and employment growth and acres of planned transportation improvements. A primary objective of the proposed MTP/SCS is to increase

the density and intensity of land uses in primarily existing communities through infill development, which would occur outside of these areas.

Because of the limited instances where the proposed land use pattern and planned transportation investments of the proposed MTP/SCS may result in growth in or near these areas, substantial wildfire-related effects are unlikely to result. Furthermore, for the limited plan areas that are in an SRA or WUI area, the CBC includes specific standards for construction materials and methods for new buildings located in Fire Hazard Severity Zones within SRAs, Local Agency Very-High Fire Hazard Severity Zones, or Wildland-Urban Interface Fire Areas mapped by CAL FIRE or the local enforcing agency. These regulations have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction, and development in SRA. Title 14 sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which are intended to result in development that avoids or minimizes the hazards associated with development in wildfire-prone areas. For these reasons, the proposed MTP/SCS limits exposure to wildfire and is not anticipated to exacerbate wildlife risk.

Wildfire risk in California has been exacerbated in recent years due to the physical effects of anthropogenic climate change. On average, global temperatures have increased. This, combined with changes in precipitation in the state and historical fire suppression methods, has produced conditions that support wildfire within rural communities in the state, including those located in the plan area of the proposed MTP/SCS. As discussed in Chapter 2 – Project Description, a primary objective of the proposed MTP/SCS is to reduce greenhouse gas (GHG) emissions associated with passenger vehicles through focusing development in denser, more urban environments. The projected land use pattern under the proposed MTP/SCS would result in fewer emissions of GHGs as compared to baseline conditions, which would ultimately serve to minimize the impacts of global climate change and its relation to increase wildfire risk. For a more detailed discussion regarding the proposed MTP/SCS's relationship to climate change, see Chapter 8 – Energy and Global Climate Change.

Additionally, as discussed under Impacts HAZ-6 and HAZ-8, the planned transportation improvements proposed under the MTP/SCS would enhance the capacity of communities within the plan area to evacuate in cases of emergency through roadway widening and investments in infrastructure that would improve transportation performance. These transportation improvements would further enhance evacuation speed and efficiency in portions of those less developed Community Types in the plan area where projected land use pattern do occur. For these reasons, the proposed MTP/SCS is not anticipated to substantially impair an adopted emergency response plan or emergency evacuation plan.

When hillsides are denuded of their surface vegetation and soil cover following a fire, resulting increases in runoff and erosion may occur. Mulch or other surface cover can be applied to help protect soil from rainfall, but mulching over large areas may not be feasible. Debris basins can be constructed to capture runoff and sediment but finding locations and adequately sizing capacity in advance of an event is highly speculative. Burned areas generally regenerate naturally within a few (2 to 4) years, and these post-fire risks are significantly reduced as the bare soil revegetates. For these reasons, secondary effects related to post-fire flooding and landslide hazard could occur. However, this risk exists currently and determining whether the proposed land use pattern and planned transportation improvements would worsen this possible post-fire condition would be speculative.

The proposed MTP/SCS is not anticipated to substantially impair emergency response or evacuation plans, exacerbate wildfire risk, or result in secondary effects related to post-fire flooding and landslides. Please also see discussion in Impact HYDRO-4. Nevertheless, in light of the uncertainty, and due to the importance of wildfire risk in the state and regional level, the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HAZ-9. Mitigation is required. Mitigation Measures HAZ-5 and HAZ-6 are described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS would be the same in each of the Community Types as described in the regional impact discussion above. Therefore, the potential for local adverse wild land fires hazard impacts in the Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development Community Types related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS to potentially contribute to secondary effects during or following a wildfire would be (PS) for Impact HAZ-9 Mitigation is required. Mitigation Measures HAZ-5 and HAZ-6 are described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The projected land use pattern and proposed transportation investments within HFTAs was analyzed against the SRA and LRA Very High Fire Risk zones and no impacts where identified. Land use and transportation projects in the HFTAs would be regulated by Title 14 of the California Code of Regulations, Division 1.5 discussed in the regional analysis. Therefore, the potential for adverse wildland fires hazard impacts in HFTAs related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact HAZ-9. No mitigation is required.

Mitigation Measures

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measure(s) at a project-level would reduce the potential for impacts from impacts related to substantially impaired emergency response or evacuation plans, exacerbated wildfire risk, or secondary effects related to post-fire flooding and landslides of fire hazard risk; agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure HAZ-5: Implementation Mitigation Measure HAZ-4

Mitigation Measure HAZ-6: Minimize the risk of impairing an adopted emergency response plan or evacuation plan, exacerbating wildfire risk, or post-fire hazards.

The implementing agency shall mitigate for these impacts by adopting measures that include but are not limited to:

- Plan for and promote rapid revegetation of burned areas to help prevent erosion and protect bare soils.
- Prepare a Community Wildfire Protection plan for development in very high risk fire zones.
- Ensure through the planning and approval process that new land use or transportation projects do not impair emergency response plans or evacuation plans.
- Proactively plan for alternative evacuation routes in very high risk fire zones.
- Develop a regulatory mechanism for permitting an aggressive hazardous fuels management program.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact HAZ-9 would be reduced to a less than significant level (LS). Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact HAZ-9 remains significant and unavoidable (SU) for purposes of this program-level review.

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Chapter 11—Hydrology and Water Quality

11.1 Introduction

This chapter describes the existing conditions (environmental and regulatory) relevant to hydrology and water quality, and assesses the potential hydrology and water quality impacts of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data, analysis and findings provided in this chapter were considered and prepared at a programmatic level. Refer to Chapter 8 – Energy and Global Climate Change, for discussion of increased drought, flooding, and sea-level rise, as a result of hydrologic effects of climate change. Refer to Chapter 17 – Utilities and Service Systems, for discussion of available surface and groundwater supplies, and the capacity of water supply infrastructure and wastewater treatment infrastructure.

In response to the Notice of Preparation (NOP), SACOG received comments related to water quality from the Central Valley Regional Water Quality Control Board. The commenter expressed that the Draft EIR should consider the following:

- Basin Plan Water Quality Objectives
- Construction Storm Water General Permit requirements
- Phase I and II MS4 Permit requirements
- Industrial Storm Water General Permit requirements
- Clean Water Act 404 Permit requirements
- Clean Water Act 401 Permit requirements
- Waste Discharge Requirements for discharge into state wetlands and other waters
- Dewatering Permit requirements
- Regulatory Compliance for Commercially Irrigated Agriculture
- Limited General Threat NPDES Permit requirements
- NPDES requirements

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, these comments have been carefully reviewed and considered by SACOG and are reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

11.2 Environmental Setting

11.2.1 Climate

In general, the plan area of the proposed MTP/SCS experiences a Mediterranean climate with hot, dry summers and cool, wet winters. Average high temperatures during the summer range from 80 to 90 degrees Fahrenheit in the coastal and Sierra Nevada foothills to 90 to 100 degrees Fahrenheit in the Sacramento Valley. During winter, average low temperatures range from approximately the low 30s degrees Fahrenheit in the Sierra Nevada foothills to the low 50s degrees Fahrenheit in the Sacramento Valley (NOAA 2019).

The climatic history of the region reflects a pattern of long dry periods, interrupted with wet, rainy periods. Tree ring research indicates that historic droughts have lasted over a hundred years during the Middle Ages. Droughts of several year duration are common. During rain events, large storms can cause severe flooding. Runoff events can be especially pronounced when warm, wet storms initiate snowpack melt. Snow accumulation in the Sierra Nevada is a primary repository for winter precipitation that is then released during the dry summer (Carle 2004).

Precipitation varies in the plan area. Average precipitation for the 2-year, 24-hour storm event is shown in Figure 11-1 (NOAA 2014). As illustrated, precipitation is generally highest in the northeast of the plan area and lowest in the southwest.

11.2.2 Watersheds and Hydrology

A watershed is an area of land that drains to a common outlet; all the land that drains water to the outflow point is the watershed for that outflow location. The watershed consists of surface water--lakes, streams, reservoirs, and wetlands--and all the underlying groundwater. Larger watersheds contain many smaller watersheds.

Major watersheds in the plan area of the proposed MTP/SCS include the American River; Bear River; Cache Creek; Cosumnes River; Feather River; Putah Creek; Sacramento River; and Yuba River (Figure 11-2). Ultimately, most of the watersheds drain to the Sacramento-San Joaquin River Delta. The northeast corner of the plan area of the proposed MTP/SCS is in the Truckee River watershed, which terminates at Pyramid Lake in Nevada. These watersheds and their major surface waters, including average annual flows are summarized in Table 11-1.

The American River watershed is one of the largest watersheds in the plan area of the proposed MTP/SCS and overlies Placer, El Dorado, and Sacramento counties. This watershed originates in the high Sierra Nevada, west of Lake Tahoe, and drains west until it ultimately discharges into the Sacramento River near the city of Sacramento. Major rivers and tributaries draining the watershed include the North, Middle, and South Forks of the American River; the Rubicon River, and Silver Fork Creek. Several major reservoirs in this watershed provide water storage and flood control, including Folsom Lake, Lake Natoma, Lake Clementine, Hell Hole Reservoir, Stumpy Meadows Reservoir, Caples Lake, Silver Lake, Loon Lake, Union Valley Reservoir, and Ice House Reservoir (DWR 2019).

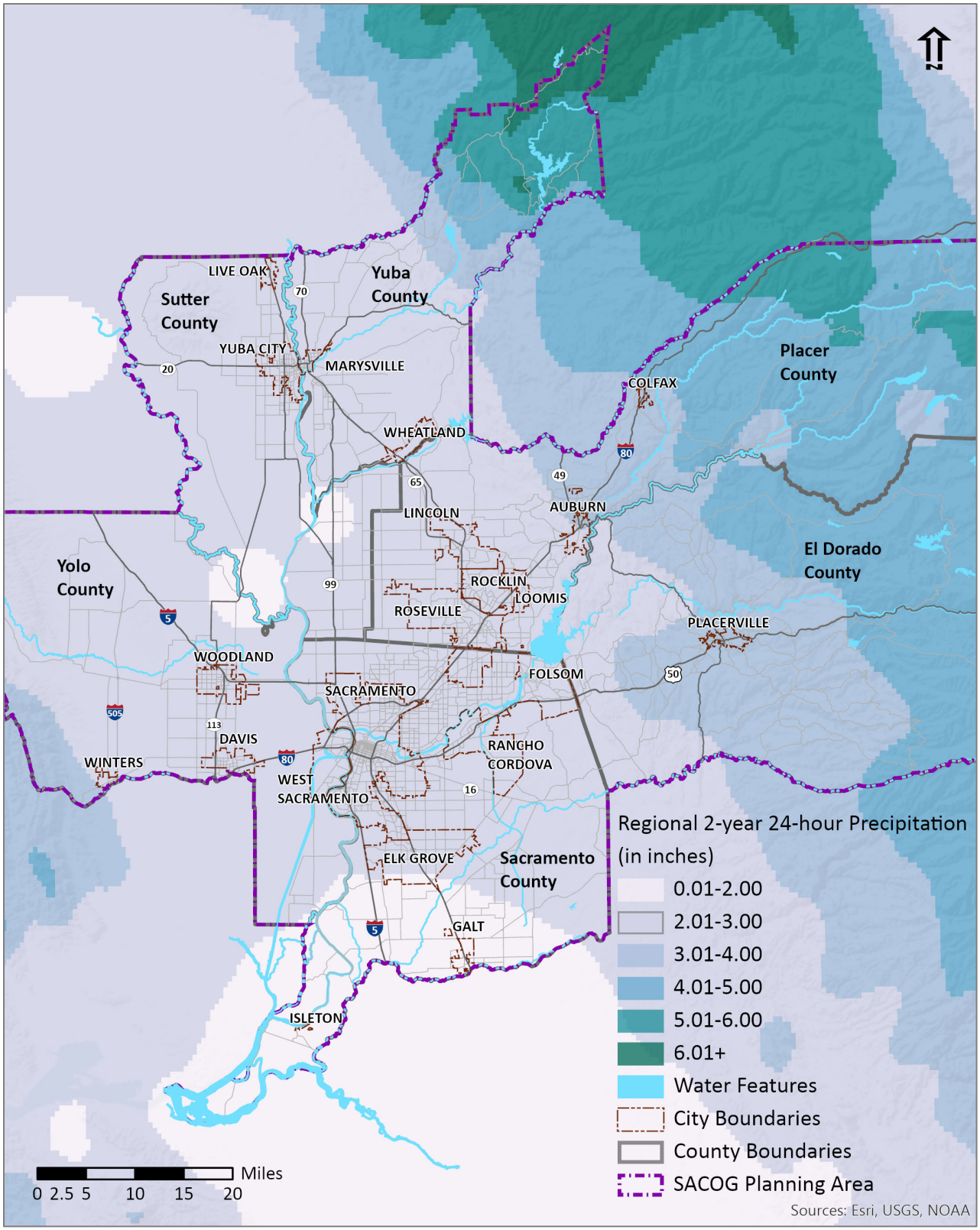


Figure 11-1
Regional 2-year 24-hours Precipitation

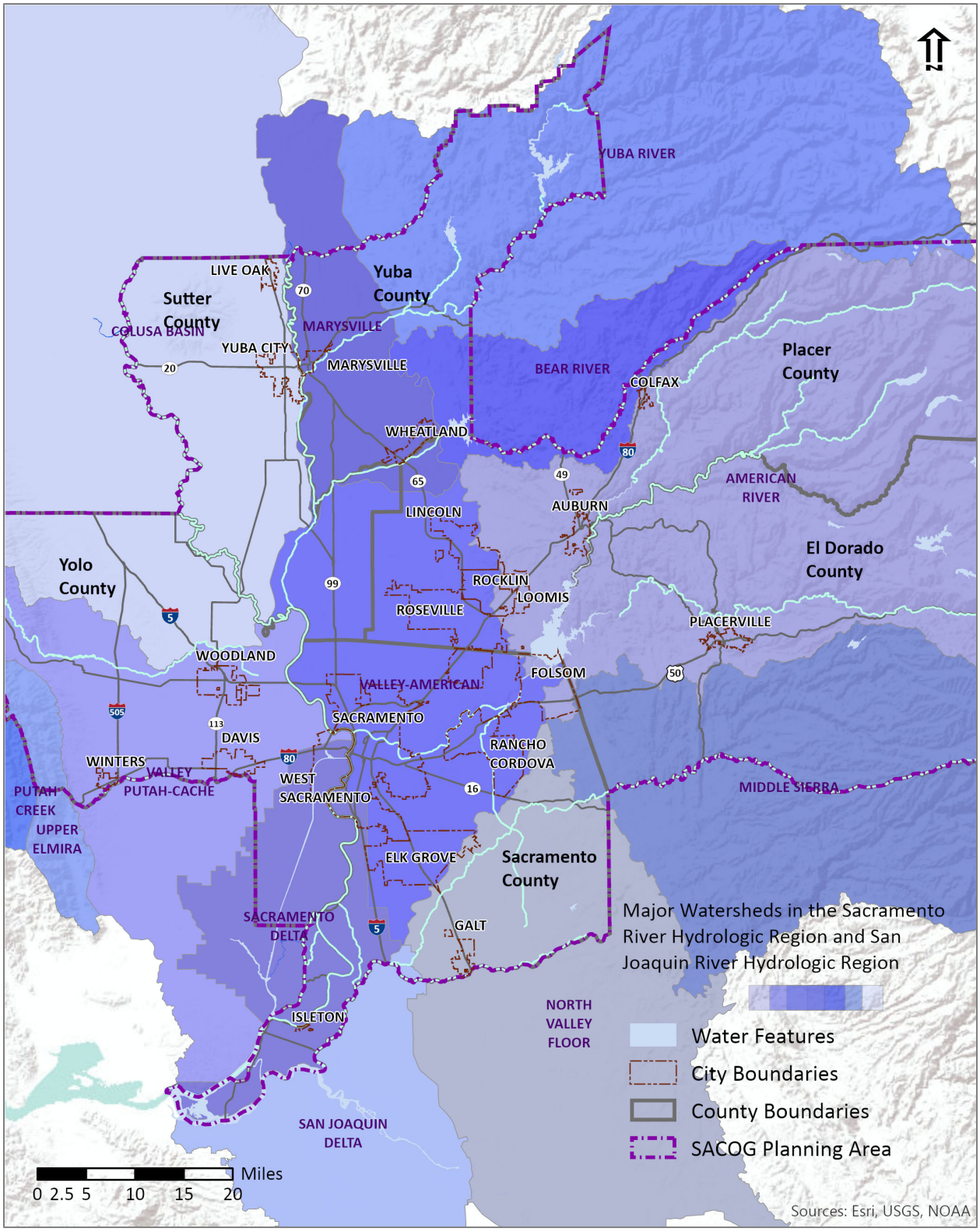


Figure 11-2
Major Watersheds in the Sacramento River Hydrologic Region and San Joaquin River Hydrologic Region

Table 11-1
Major Rivers and Creeks in the Plan Area of the Proposed MTP/SCS

Watershed and Watercourse	Annual Average Flows (cfs)	Outlet
American River Watershed		
North Fork American River	205,005	Main Branch American River
Middle Fork American River	67,436	Main Branch American River
Rubicon River	24506	Middle Fork American River
South Fork American River	44,339	Main Branch American River
Silver Fork of the South Fork American River	17,023	South Fork American River
Main Branch American River	206,006	Sacramento River
Bear River Watershed		
Bear River	87,132	Feather River
Cache Creek Watershed		
Cache Creek	55,256	Sacramento River/Yolo Bypass
Colusa Basin Watershed		
Sacramento River	752,006	Sacramento-San Joaquin Delta
Marysville Watershed		
Feather River	20,230	Sacramento River
Honcut Creek	457	Feather River
Yuba River	362,006	Feather River
Bear River	87,132	Feather River
Middle Sierra Watershed		
Cosumnes River	9,180	Mokelumne River
North Valley Floor Watershed		
Cosumnes River	9,180	Mokelumne River
Dry Creek	269,486	Sacramento River
Sacramento Delta Watershed		
Sacramento River	752,006	Sacramento-San Joaquin Delta
Valley-American Watershed		
American River	206,006	Sacramento River
Arcade Creek	856	Sacramento River
Dry Creek	269,486	Sacramento River
Feather River	20,230	Sacramento River
Laguna Creek	377	Sacramento River
Morrison Creek	862	Sacramento River
Sacramento River	752,006	Sacramento-San Joaquin Delta
Valley Putah-Cache Watershed		
Cache Creek	55,256	Sacramento River/Yolo Bypass
Putah Creek	7,356	Sacramento River/Yolo Bypass
Yuba River Watershed		
Yuba River	362,006	Feather River
Dry Creek	269,486	Yuba River

Note: Data are for 2016 stream flows except where denoted with an asterisk (*) symbol. For those noted exceptions, flow figures are for the most recent available data year.
Source: USGS 2019

The Bear River watershed's boundary forms a portion of the northern border for the plan area of the proposed MTP/SCS. The watershed overlies portions of Nevada, Placer, and Yuba counties. This watershed originates in the lower Sierra Nevada foothills and drains to the Feather River. Bear River flows are impounded by Camp Far West Reservoir, which is located on the northwestern border of Placer County (DWR 2016).

The Cache Creek watershed is located in the western portion of the plan area of the proposed MTP/SCS and is within Yolo County. Cache Creek originates in the Coastal Range. It drains to the Sacramento River and, during heavy storms, to the Yolo Bypass (DWR 2016).

The Cosumnes River watershed overlies the southern portion of the plan area of the proposed MTP/SCS and is located in El Dorado, Amador, and Sacramento counties. Major surface waters in this watershed include the Cosumnes River and Laguna Creek. The Cosumnes River originates on the western slopes of the central Sierra Nevada and converges with the Mokelumne River in San Joaquin County before draining to the Sacramento-San Joaquin River Delta. Laguna Creek is a major tributary to the lower Cosumnes River. (DWR 2016).

The Colusa Basin watershed overlies the northeast portion of the plan area of the proposed MTP/SCS and is located in Solano and Yolo counties. The Sacramento River comprises the major surface water body. The Sacramento River originates in the Klamath Mountains and flows south for 400 miles before reaching the Sacramento-San Joaquin River Delta and San Francisco Bay (DWR 2016).

The Marysville watershed is located in the portion of the plan area of the proposed MTP/SCS in Yuba County. Major surface waters in this watershed include the Feather, Yuba, and Bear rivers and Honcut Creek. Honcut Creek and Yuba and Bear rivers are tributaries to the Feather River, which ultimately drain into the Sacramento River (DWR 2016).

The Middle Sierra watershed overlies the eastern portion of the plan area of the proposed MTP/SCS and is located in Placer and Sacramento counties. The Cosumnes River comprises the watershed's only major surface water body. Flows originate in the western slope of the Sierra Nevada Mountain Range and empty into the Mokelumne River (DWR 2016).

The North Valley Floor watershed spans the southern portion of the plan area of the proposed MTP/SCS and is located in Sacramento County. The Cosumnes River and Dry Creek are the two major surface waters in the watershed. As discussed above, the Cosumnes River originates in the western slope of the Sierra Nevada Mountain Range and ends at the Mokelumne River (DWR 2016).

The Sacramento Delta watershed is located in the southeast portion of the plan area of the proposed MTP/SCS within Sacramento and Yolo counties. As is the case with the Colusa Basin watershed, the Sacramento River, which originates in the Klamath Mountains and ends at the Sacramento-San Joaquin River Delta, comprises the single major body of surface water in the watershed (DWR 2016).

Valley American watershed is located in the central portion of the plan area of the proposed MTP/SCS. The watershed overlies Sacramento, Placer, Yolo, and Yuba counties and contains the American, Feather, and Sacramento rivers in addition to the Arcade, Dry, Laguna, and Morrison creeks. The Sacramento River absorbs the flows of the remaining rivers and creeks, which eventually flows into the Sacramento-San Joaquin River Delta (DWR 2016).

Valley Putah Cache watershed is located in the eastern portion of the plan area of the proposed MTP/SCS and exists primarily in Yolo County. Cache and Putah creeks comprise the major bodies of water in the watershed. Both creeks drain in to the Sacramento River/Yolo Bypass (DWR 2016). The Yuba River watershed originates in the Sierra Nevada and drains to the Feather River near Yuba

City. The portion of the watershed in the plan area of the proposed MTP/SCS is in Yuba County. Reservoirs impounding flows of the Yuba River include Dry Creek, Collins Lake, Englebright Reservoir, and New Bullard's Bar Reservoir (DWR 2016).

The Putah Creek watershed overlies a portion of the western border of the plan area of the proposed MTP/SCS and is located in Yolo County. Putah Creek originates in the Coastal Range. The creek is a major tributary to the Yolo Bypass (DWR 2016).

The largest watershed in the plan area of the proposed MTP/SCS is the Sacramento River watershed, which encompasses almost the entire plan area. The Sacramento River originates near Mount Shasta in the Cascades Range (Domagalski 2000). Tributaries to the Sacramento River include the Feather River, Cache Creek, Putah Creek, Dry Creek, American River, Arcade Creek, Morrison Creek, and Laguna Creek. The Sacramento River drains an area of approximately 43,500 square miles including all or parts of six landforms or physiographic provinces—the Great Basin, the Middle Cascade Mountains, the Sierra Nevada, the Klamath Mountains, the Coast Ranges, and the Sacramento Valley (Domagalski 2000). It flows south from the northern mountain ranges through the plan area of the proposed MTP/SCS before discharging into the Sacramento-San Joaquin River Delta (DWR 2016).

The Sacramento-San Joaquin River Delta receives runoff from approximately 40 percent of the state's land area, including surface waters traversing the plan area of the proposed MTP/SCS (as described above), and covers an area of approximately 738,000 acres. Generally, lands in the Delta are at or below sea level and are protected from flooding by over 1,000 miles of levees. The Sacramento-San Joaquin River Delta provides unique aquatic and riparian habitat; supports agriculture; provides recreational activities; and is key for water distribution throughout the state (DWR 2007).

11.2.3 Flooding

Flooding can occur during large run-off events or when water impoundment structures, such as levees and dams, fail. The Federal Emergency Management Agency (FEMA) requires that urban areas have flood protection levels to withstand a 100-year flood event (i.e., a flood with a 1-in-100 chance of occurring in any year). In addition, the Central Valley Flood Protection Act of 2008 requires that land use agencies use the 200-year flood event to establish the minimum level of flood protection required for urban and urbanizing areas. Portions of the plan area of the proposed MTP/SCS are in the 100-year and 200-year floodplains, as shown in Figure 11-3.

Flood hazards include erosion of infrastructure, inundation of buildings, injury or loss of human and animal life, and the spread of waterborne diseases. Standing floodwater can destroy agricultural crops and contaminate groundwater. Flooding can also contribute to mudslides and slope instability. Because of the presence of regional flood hazards, flood protection features have been implemented both upstream and downstream of the plan area of the proposed MTP/SCS. A system of flow bypasses, dams, levees, and reservoirs controls flooding within the region. Two key elements of the flood protection system within the plan area are the Yolo and Sutter Bypasses, which function as flood basins and divert floodwaters away from populated areas when river levels rise. The Sacramento River, Putah Creek, and Cache Creek drain floodwaters into these bypasses. Several dams in and around the plan area of the proposed MTP/SCS provide flood protection by regulating river and stream flows during wet periods. The most significant of these dams are Folsom, Natoma, Englebright Narrows, Sly Park, Ice House, Camp Far West, North Fork, Union Valley, and New Bullard's Bar dams.

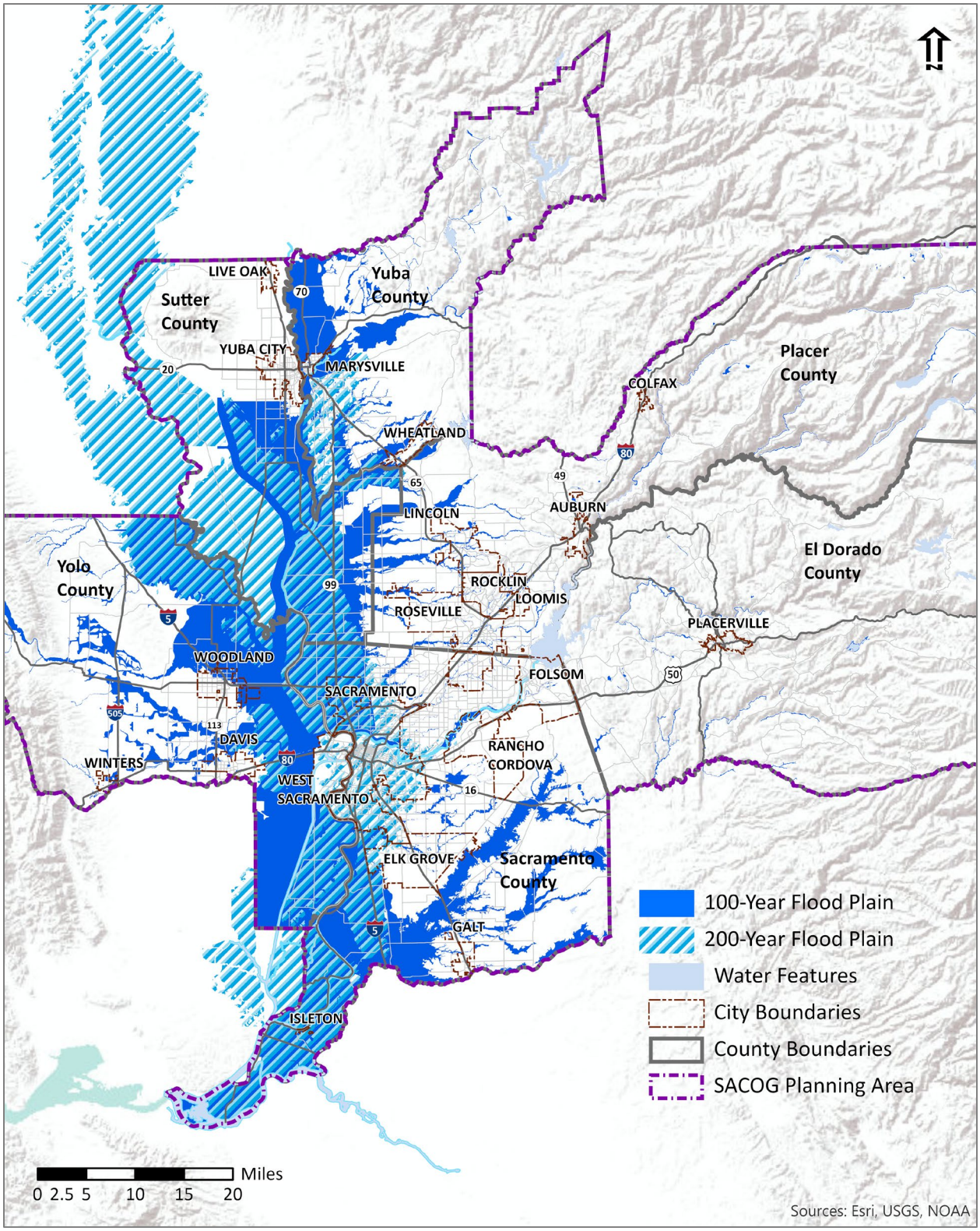


Figure 11-3
100-Year and 200-Year Flood Plains in the Plan Area of the Proposed MTP/SCS

Reclamation districts and local flood management agencies are also responsible for flood control and maintenance activities. These agencies include the Placer County Flood Control and Water Conservation District; Sacramento Area Flood Control Agency (SAFCA); Sacramento County Department of Water Resources; multiple reclamation districts; American River Flood Control District; West Sacramento Flood Control Agency; Sutter County Flood Control and Water Conservation District; American River Flood Control District; Yolo County Flood Control and Water Conservation District; and Yuba County Water Agency. In addition to the special flood management agencies, the local cities and counties in the SACOG region are also responsible for developing and enforcing local drainage standards.

TSUNAMIS AND SEICHES

A tsunami is a series of waves generated in a body of water by a rapid disturbance (e.g., submarine seismic, volcanic, or landslide event) that vertically displaces water. The California Department of Conservation has prepared tsunami inundation maps in coordination with the California Office of Emergency Services (OES), the California Geological Survey, and the Tsunami Research Center at the University of Southern California. These official maps are developed for all populated areas at risk to tsunamis in California and represent a combination of the maximum considered tsunamis for each area. The plan area of the proposed MTP/SCS is outside of the areas of California that the California Department of Conservation considers at risk for tsunamis (California Department of Conservation 2019).

Seiches are oscillations of enclosed and semi-enclosed bodies of water, such as bays, lakes or reservoirs that are caused by strong ground motion from seismic events, wind stress, volcanic eruptions, large landslides and local basin reflection of tsunamis. Large, enclosed or partially enclosed water bodies, such as Folsom Lake and Lake Tahoe, are potentially susceptible. As described further in Chapter 9 – Geology, Soils, Seismicity, and Mineral Resources, the plan area of the proposed MTP/SCS is in a region of California characterized by few faults and a generally low ground-shaking hazard. There is a greater potential for landslides, particularly at the eastern edge of the plan area in Placer and El Dorado counties and the western edge of the plan area in Yolo County. There have not been any recorded large seiches in the plan area of the proposed MTP/SCS.

11.2.4 Groundwater Basins

Surface water infiltrates into porous soil materials and accumulates in aquifers creating groundwater basins. Generally, groundwater levels will rise as the large inputs from spring snowmelt or storm floods recharge the basins. Aquifer water levels may drop if pumping rates exceed recharge rates, especially when groundwater use increases substantially during dry years. The plan area of the proposed MTP/SCS overlies 10 groundwater basins in the Sacramento Hydrologic Region, one basin in the San Joaquin Hydrologic region, and two in the Lahontan Hydrologic Region. Figure 11-4 is a map of groundwater sub-basins in the plan area of the proposed MTP/SCS. Table 11-2 provides information on the size, location and priority status of the 10 groundwater basins.

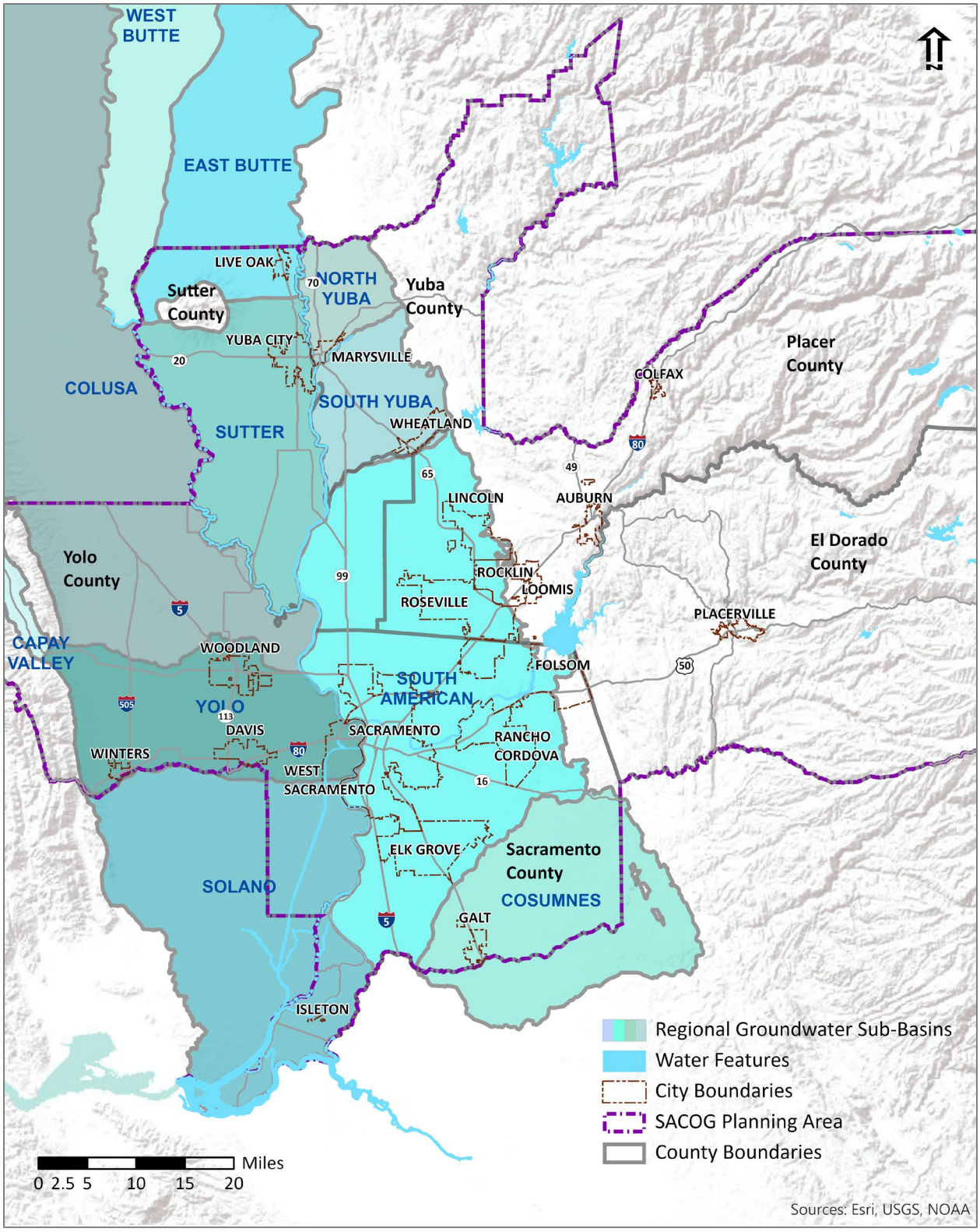


Figure 11-4
Groundwater Sub-Basins in the Plan Area of the Proposed MTP/SCS

Table 11-2
Groundwater Basin Physical Properties

Groundwater Basin	Size (square miles)	Average Flow Rate (gallons per minute)	Hydrologic Region	Overall Basin Priority
North Yuba	95	1,439-1,629	Sacramento	Medium
South Yuba	170	1,439-1,629	Sacramento	High
Butte	415	1,439-2,540	Sacramento	Medium
Sutter	447	1,630-2,540	Sacramento	Medium
North American	535	1,439-1,629	Sacramento	High
South American	388	1,630-2,540	Sacramento	High
Solano	554	1,249-1,438	Sacramento	High
Yolo	845	1,439-1,629	Sacramento	High
Colusa	1,131	1,439-1,629	Sacramento	High
Capay Valley	39	unknown	Sacramento	Low
Cosumnes	329	1,058-1,248	San Joaquin	Medium
Martis Valley	57	150	North Lahontan	Very Low
Olympic Valley	1	unknown	North Lahontan	Very Low

Source: DWR Water Data Library, Bulletin 118, 2004(a-e), 2006(a-e); CASGEM 2014

DWR prioritizes California groundwater basins to help identify, evaluate, and determine the need for additional groundwater level monitoring using eight weighted criteria. These include: overlying population; the rate of current and projected growth of overlying population; the number of public supply wells; total wells that draw from the basin; overlying irrigated acreage; reliance on groundwater as the primary source of water; documented overdraft, subsidence, saline intrusion, or other water quality degradation; and any other information determined to be relevant by DWR (i.e., adverse effects on habitat and streamflow (DWR 2019).

There are currently six high priority groundwater basins in the plan area: the South Yuba, North American, South American, Solano, Yolo and Colusa groundwater basins (see Table 11-2).

Figure 9-4 in Chapter 9 – Geology, Soils, Seismicity, and Mineral Resources shows subsidence risk associated with groundwater overdraft in the plan area of the proposed MTP/SCS. In general, the western Sacramento Valley has a high potential for future subsidence due to groundwater extraction (DWR 2014). However, none of the groundwater basins in the plan area of the proposed MTP/SCS are designated as critically over drafted by DWR (DWR 2016).

11.2.5 Mudflow

A mudflow is a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, soil profile, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result of this super-saturation, soil and rock materials become unstable and eventually slide away from their existing location. Soils most susceptible to mudflow are saturated, loose, non-plastic, uniformly graded, and fine-grained sand deposits.

11.2.6 Water Quality

SURFACE WATER QUALITY

The State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) develop and enforce water quality standards within their boundaries. As shown in Figure 11-5, the CVRWQCB is responsible for water quality standards in most of the plan area of the proposed MTP/SCS. The northeast corner of the plan area is under the jurisdiction of the Lahontan Regional Water Quality Control Board (LRWQCB).

Generally, surface water quality in the plan area of the proposed MTP/SCS is considered sufficient for municipal, agricultural, wildlife, and recreational uses. However, several of the larger water bodies in the plan area of the proposed MTP/SCS are listed as impaired according to Section 303(d) of the Clean Water Act (CWA) of 1972 (33 U.S.C. Section 1251 et seq.) (See Regulatory setting section below). Beneficial use impairments can result from several factors but are generally a result of pollutant discharges from point and non-point sources. Point sources include discharges of treated effluent from municipal wastewater treatment plants and wastewater discharges from industrial and commercial facilities. Non-point source pollutants are generally a result of stormwater runoff from urban, construction, and agricultural areas.

Water quality is expected to reflect the land uses in the watershed. Land uses within and surrounding the plan area of the proposed MTP/SCS include open space, urban, and agricultural uses. Open space uses include grazing, timber harvesting, mining, and recreation and typically contribute sediment, nutrients, and minerals. Urban and agricultural land uses include residential and commercial development and small to large-lot farms and typically contribute sediment, hydrocarbons, metals, pesticides, nutrients, bacteria, and trash. Figure 11-6 shows impaired waterways in the plan area. Table 11-3 summarizes water quality impairments in surface waters in the plan area of the proposed MTP/SCS and the sources of these impairments.

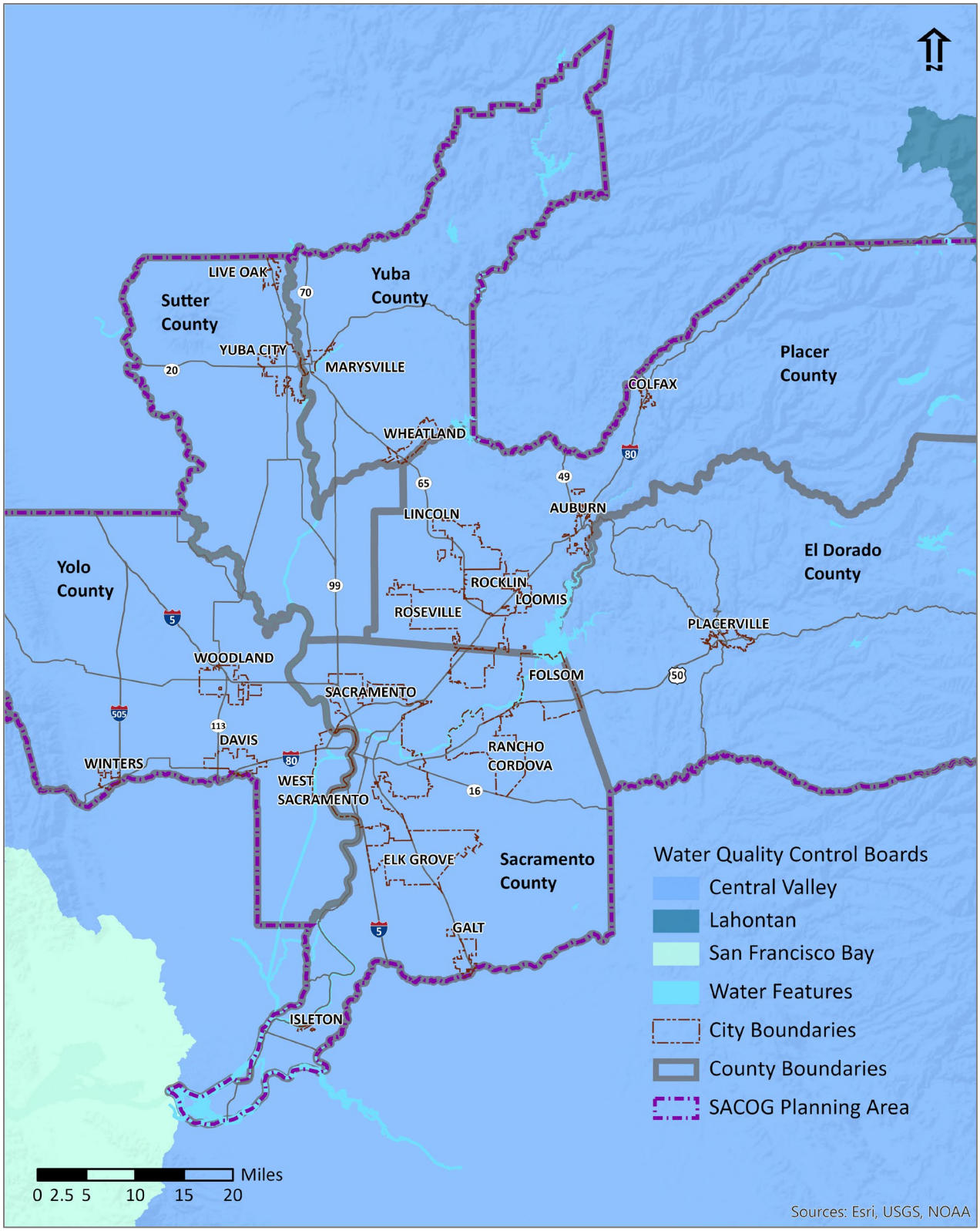


Figure 11-5
Regional Water Quality Control Boards in the Plan Area of the Proposed MTP/SCS

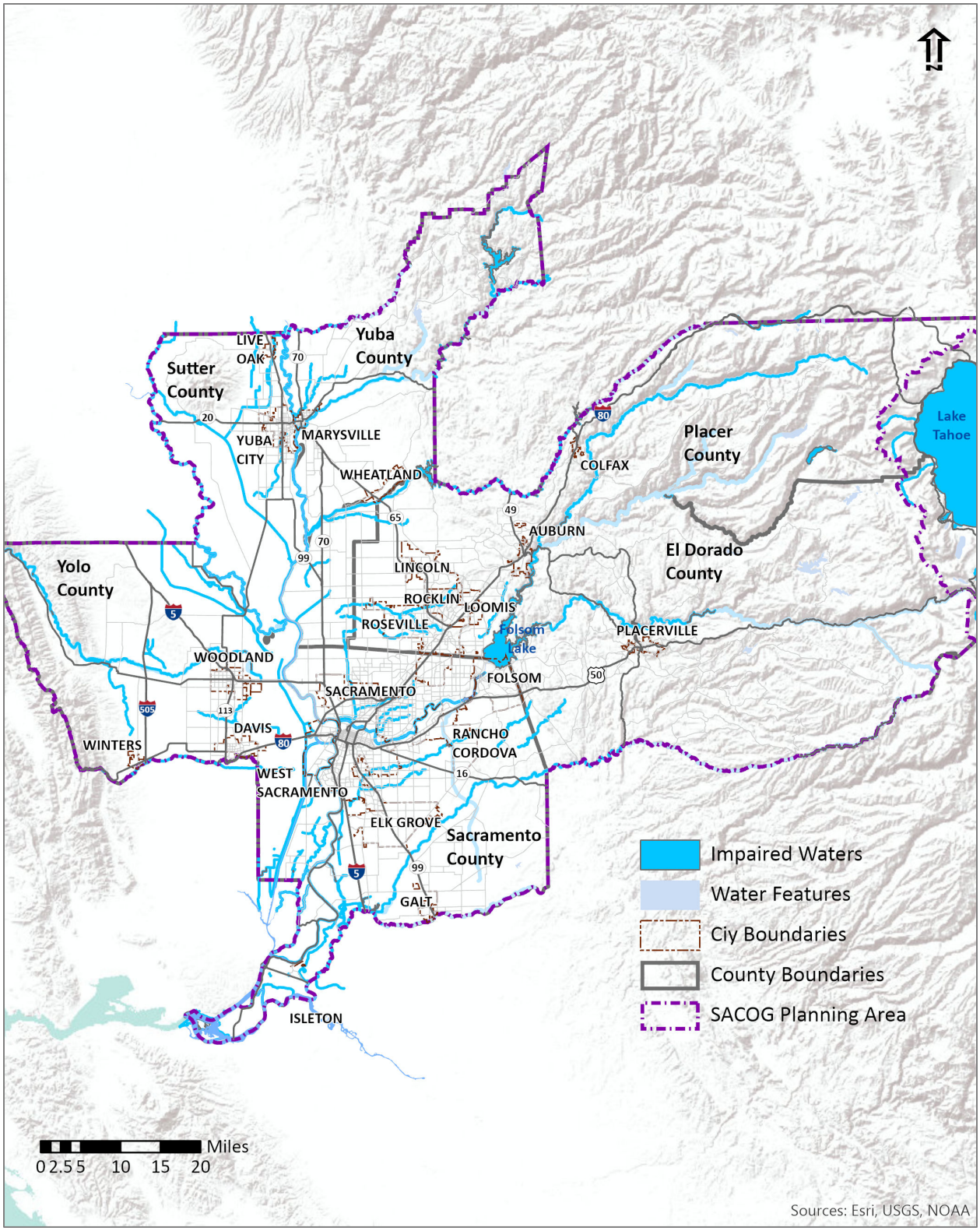


Figure 11-6
Impaired Waterways in the Plan Area of the Proposed MTP/SCS

Table 11-3
CWA Section 303(d)-Listed Impairments in the Plan Area of the Proposed MTP/SCS

Surface Water	Water Quality Impairments	Suspected Sources
American River, Lower (Nimbus Dam to confluence with Sacramento River)	Mercury	Source Unknown
American River, North Fork	Mercury	Source Unknown
American River, South Fork (below Slab Creek Reservoir to Folsom Lake)	Mercury	Source Unknown
Arcade Creek	Diazinon	Urban Runoff/Storm Sewers
Bear River, Lower (below Camp Far West Reservoir)	Copper	Source Unknown
Bear River, Upper (from Combie Lake to Camp Far West Reservoir, Nevada and Placer Counties)	Mercury	Source Unknown
Butte Creek (Butte County)	pH	Source Unknown
Butte Slough	Dichlorvos	Source Unknown
Cache Creek, Lower (Clear Lake Dam to Cache Creek Settling Basin near Yolo Bypass)	Toxicity	Source Unknown
Camp Far West Reservoir	Mercury	Source Unknown
Chicken Ranch Slough	Chlorpyrifos	Urban Runoff/Storm Sewers
Colusa Basin Drain	Diazinon	Agriculture
Combie, Lake	Mercury	Source Unknown
Coon Creek (from confluence of Orr and Dry Creeks to East Side Canal, Placer and Sutter Counties)	Indicator Bacteria	Source Unknown
Coon Creek, Lower (from Pacific Avenue to Main Canal, Sutter County)	Toxicity	Source Unknown
Coon Hollow Creek (El Dorado County)	DDE (Dichlorodiphenyldichloroethylene)	Source Unknown
Cosumnes River, Lower (below Michigan Bar; partly in Delta Waterways, eastern portion)	Indicator Bacteria	Source Unknown
Curry Creek (Placer and Sutter Counties)	Toxicity	Source Unknown
Davis Creek (downstream from Davis Creek Reservoir, Yolo County)	Mercury	Source Unknown
Davis Creek (upstream from Davis Creek Reservoir, Yolo County)	Mercury	Source Unknown
Davis Creek Reservoir	Mercury	Source Unknown
Delta Waterways (central portion)	DDT (Dichlorodiphenyltrichloroethane)	Source Unknown
Delta Waterways (eastern portion)	DDT (Dichlorodiphenyltrichloroethane)	Source Unknown
Delta Waterways (northern portion)	Invasive Species	Source Unknown
Delta Waterways (northwestern portion)	Diazinon	Source Unknown
Delta Waterways (western portion)	DDT (Dichlorodiphenyltrichloroethane)	Source Unknown
Dry Creek (Placer and Sacramento Counties)	Indicator Bacteria	Source Unknown

Surface Water	Water Quality Impairments	Suspected Sources
Duck Slough (in Delta Waterways, northern portion)	Chlorpyrifos	Agriculture
Elder Creek	Chlorpyrifos	Urban Runoff/Storm Sewers
Elk Grove Creek	Diazinon	Urban Runoff/Storm Sewers
Englebright Lake	Mercury	Source Unknown
Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)	PCBs (Polychlorinated biphenyls)	Source Unknown
Folsom Lake	Mercury	Source Unknown
Gilsizer Slough (from Yuba City to downstream of Township Road, Sutter County)	pH	Source Unknown
Gordon Slough (from headwaters and Goodnow Slough to Adams Canal, Yolo County)	Oxygen, Dissolved	Source Unknown
Hell Hole Reservoir	Mercury	Source Unknown
Honcut Creek (Butte and Yuba Counties)	Oxygen, Dissolved	Source Unknown
Jack Slough	Diazinon	Agriculture
Kaseberg Creek (tributary to Pleasant Grove Creek, Placer County)	Toxicity	Source Unknown
Kaseberg Creek, unnamed eastern tributary (from Green Grove Ln to Del Webb Blvd)	Bifenthrin	Source Unknown
Kaseberg Creek, unnamed southeastern tributary (from Silverado Middle School to Timber Creek Golf Course, Placer County)	Bifenthrin	Source Unknown
Kaseberg Creek, unnamed southern tributary (from Baseline Road to Timber Creek Golf Course, Placer County)	Bifenthrin	Source Unknown
Knights Landing Ridge Cut (Yolo County)	Oxygen, Dissolved	Source Unknown
Laguna Creek (tributary to Cosumnes River, Sacramento County)	Toxicity	Source Unknown
Live Oak Slough	Oxygen, Dissolved	Source Unknown
Loon Lake	Mercury	Source Unknown
Main Drainage Canal	Oxygen, Dissolved	Source Unknown
Meadows Slough (Sacramento County)	Mercury	Source Unknown
Merle Collins Lake	Mercury	Source Unknown
Miners Ravine (Placer County)	Oxygen, Dissolved	Source Unknown
Mokelumne River, Lower (in Delta Waterways, eastern portion)	Zinc	Source Unknown
Morrison Creek	Diazinon	Urban Runoff/Storm Sewers
Morrison Slough	Diazinon	Agriculture
Natoma, Lake	Mercury	Source Unknown
Natomas Cross Canal (Sutter County)	Mercury	Source Unknown
Natomas East Main Drainage Canal (aka Steelhead Creek, downstream of confluence with Arcade Creek)	PCBs (Polychlorinated biphenyls)	Source Unknown

Surface Water	Water Quality Impairments	Suspected Sources
Natomas East Main Drainage Canal (aka Steelhead Creek, upstream of confluence with Arcade Creek)	PCBs (Polychlorinated biphenyls)	Source Unknown
New Bullards Bar Reservoir	Mercury	Source Unknown
North Canyon Creek (El Dorado County)	Indicator Bacteria	Source Unknown
Oregon Creek (Yuba and Sierra Counties)	Copper	Source Unknown
Oxbow Reservoir (Ralston Afterbay, El Dorado and Placer Counties)	Mercury	Source Unknown
Pleasant Grove Creek	Pyrethroids	Source Unknown
Pleasant Grove Creek, South Branch	Pyrethroids	Source Unknown
Pleasant Grove Creek, South Branch, unnamed southeastern tributary (from east of Sierra View Country Club to confluence with Pleasant Grove Cr, South Branch)	Bifenthrin	Source Unknown
Pleasant Grove Creek, unnamed northern tributary (from Greywood Circle to confluence with Pleasant Grove Creek)	Bifenthrin	Source Unknown
Pleasant Grove Creek, unnamed northern tributary (from Mt Tamalpais Dr to confluence with Pleasant Grove Creek)	Bifenthrin	Source Unknown
Putah Creek (Solano Lake to Putah Creek Sinks; partly in Delta Waterways, northwestern portion)	Mercury	Resource Extraction
Rock Creek (Placer County)	Indicator Bacteria	Source Unknown
Rollins Reservoir	Mercury	Source Unknown
Sacramento River (Red Bluff to Knights Landing)	Mercury	Source Unknown
Sacramento River (Knights Landing to the Delta)	Mercury	Source Unknown
Sacramento San Joaquin Delta	Chlordane	Source Unknown
Sacramento Slough	Mercury	Source Unknown
Simmerly Slough (Yuba County)	Toxicity	Source Unknown
Slab Creek Reservoir (El Dorado County)	Mercury	Source Unknown
Snake River (Butte and Sutter Counties)	Chlorpyrifos	Agriculture
Solano, Lake	Mercury	Source Unknown
Squaw Creek	Sedimentation/Siltation	Construction/Land Development
Strong Ranch Slough	Chlorpyrifos	Urban Runoff/Storm Sewers
Sutter Bypass	Mercury	Source Unknown
Sycamore Slough (Yolo County)	Oxygen, Dissolved	Source Unknown
Truckee River	Sedimentation/Siltation	Channel Erosion
Tule Canal (Yolo County)	Boron	Source Unknown
Wadsworth Canal	Diazinon	Agriculture
Willow Slough (Yolo County)	Toxicity	Source Unknown
Willow Slough Bypass (Yolo County)	Indicator Bacteria	Source Unknown
Winters Canal (Yolo County)	Diazinon	Agriculture
Wolf Creek (Nevada County)	Indicator Bacteria	Source Unknown
Yankee Slough (Placer and Sutter Counties)	Chlorpyrifos	Agriculture

Surface Water	Water Quality Impairments	Suspected Sources
Yuba River (confluence of North and Middle Yuba Rivers to Englebright Lake)	Mercury	Source Unknown
Yuba River (Englebright Lake Dam to Feather River, Lower)	Mercury	Source Unknown
Yuba River, North Fork	Mercury	Source Unknown
Yuba River, South Fork (Headwaters to Spaulding, Lake)	pH	Source Unknown

Source: CalEPA 2019

GROUNDWATER QUALITY

Generally, groundwater quality in the plan area of the proposed MTP/SCS is considered sufficient for municipal and agricultural uses, despite several localized areas with documented contamination, as discussed above. Constituents of concern to public water purveyors include total dissolved solids (TDS), radon, and various species of arsenic, nitrogen, iron, manganese, and chromium. These pollutants may result from both anthropogenic and natural inputs. Table 11-4 describes the general water quality concerns in specific basins.

Table 11-4
Groundwater Basin Quality

Sub-basin	Overall Quality	Number of Wells Tested for Contaminants	Constituents with MCL Exceedances (Contaminated Wells)
North Yuba	Good – Excellent	27	Radiological (1), nitrates (1), VOCs (2)
South Yuba	Good	38	Primary organics (2), VOCs (1)
East Butte	Not Characterized	30	Primary organics (1), nitrates (2)
Sutter	Good – Excellent		None
North American	Acceptable	265	Primary inorganics (7), Radiological (2), VOCs and SVOCs (6)
South American	Good - Excellent	144	Primary inorganics (2), Radiological (1), nitrates (1), VOCs and SVOCs (8)
Solano	Good	71	Primary inorganics (1), nitrates (8), pesticides (3), VOCs and SVOCs (1)
Yolo	Good	61	Primary inorganics (3), nitrates (1), VOCs (1)
Colusa	Good	Localized areas have high manganese, fluoride, magnesium, sodium, iron, chloride, total dissolved solids, ammonia, and phosphorous.	
Capay Valley	Good	Several	None
Cosumnes	Good	26	Pesticides (1)
Martis Valley	Good - Excellent		None
Olympic Valley	Good - Excellent		None

MCL = Maximum Contaminant Level allowed in drinking water
VOC = Volatile Organic Chemical
SVOC = Semi-volatile Organic Chemical
Source: DWR 2006a; DWR 2006b; DWR 2006c; DWR 2006d; DWR 2006e; DWR 2004a; DWR 2004b; DWR 2004c; DWR 2004d; DWR 2004e

11.3 Regulatory Setting

11.3.1 Federal Regulations

NATIONAL FLOOD INSURANCE PROGRAM

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations that limit development in floodplains. FEMA issues flood insurance rate maps (FIRMs) for communities participating in the NFIP. These maps delineate flood hazard zones in the community. The locations of FEMA-designated flood zones in the plan area of the proposed MTP/SCS are illustrated in Figure 11-3.

FEDERAL ENERGY REGULATORY COMMISSION (FERC) LICENSING

FERC licenses hydroelectric power projects. These projects divert impounded water to generate electricity. They affect the hydrological system by altering the volume, timing, and temperature of river flows. FERC has issued licenses for hydroelectric projects on Deadwood Creek; Butte Creek; Sacramento River; Middle and South Forks of American River; South Fork, North Fork, West Branch, and Mainstem Feather River; Oregon Creek; South Yuba River; Putah Creek; Bear River; and, Mokelumne River. Several of these rivers have multiple projects (FERC 2019).

CLEAN WATER ACT (CWA) OF 1972

USEPA is the federal agency responsible for water quality management and administration of the Clean Water Act (CWA). The USEPA has delegated most of the administration of the CWA in California to SWRCB. Much of the responsibility for implementation of the SWRCB's policies is delegated to the RWQCBs, as described below.

The CWA of 1972 (33 U.S.C. Section 1251 et seq. mandates cooperative effort by federal, state, and local governments to implement pollution control measures. Except for Section 404 fill or dredge discharge permits, the U.S. EPA has delegated implementation and enforcement of the CWA sections below to the SWRCB and its nine RWQCBs. The CWA is intended to improve the quality of the nation's waters using a framework of standards, technical tools, and financial assistance to address pollution and poor water quality.

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool.

Section 303(d) – Total Maximum Daily Load (TMDL)

Section 303(D) requires states, territories, and authorized tribes to develop a list of water-quality limited segments of rivers and other water bodies under their jurisdiction. The SWRCB, Lahontan RWQCB, and Central Valley RWQCB identify waters that do not meet water quality standards and develop plans to address polluted bodies (CWA Section 303(d) and California Porter-Cologne Water Quality Control Act). Section 303(d) establishes the total maximum daily load (TMDL) process to assist in guiding the application of California water quality standards. It requires the water board to

identify streams with impaired water quality (i.e., streams that are affected by the presence of pollutants or contaminants) to establish the TMDL or the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects. CWA Section 303(d) also requires the state to identify water bodies that do not meet water quality standards and thus exhibit impaired beneficial uses. Impaired waterbodies in the plan area of the proposed MTP/SCS are listed in Table 11-3

Section 401 – Water Quality Certification

The SWRCB, CVRWQCB, and LRWQCB issue CWA Section 401 permits when dredged or fill materials will be discharged in navigable waters or surface waters that are hydrologically connected to navigable waters. The Regional Water Quality Control Board often issues Section 401 permits in connection with USACE's issuance of Section 404 permits. Under the Section 401 program, the SWRCB must protect all waters, but has special responsibility for wetlands, riparian areas, and headwaters, because these waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. The SWRCB also has primary Section 401 jurisdiction related to licensing and re-licensing of hydroelectric projects under the Federal Power Act. Under the Section 401 program, the SWRCB also regulates hydromodification impacts. The Section 401 program encourages basin-level analysis and protection, because some functions of wetlands, riparian areas, and headwater streams—including pollutant removal, flood water retention, and habitat connectivity—are expressed at the basin or landscape level (SWRCB 2015).

Section 402 – National Pollutant Discharge Elimination System Permit

The CWA requires that National Pollutant Discharge Elimination System (NPDES) permits be obtained for any discharges to surface waters by a point source and for municipal and industrial stormwater discharges. The CWA prohibits discharging pollutants through a point source into a water of the United States without an NPDES permit. NPDES permits contain limits on types of discharge, monitoring and reporting requirements, and other provisions to ensure that the discharge does not impair water quality or public health. In California, the SWRCB and its RWQCBs administer the NPDES Program, as discussed below.

The SWRCB has been delegated permit authority for the NPDES Program from the U.S. EPA. The following paragraphs provide additional details on NPDES permits and specific sections of the CWA that apply to specific activities related to projects in the plan area of the proposed MTP/SCS, including construction and effluent discharge.

Municipal Permit Program

Water agencies serving more than 100,000 residents are required to have a Municipal Separate Storm Sewer Systems (MS4) Stormwater Program Phase I permit. The CVRWQCB has issued a unified Municipal Stormwater NPDES permit for stormwater discharge from the County of Sacramento and cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova, and Sacramento (CVRWQCB 2019a). CVRWQCB has also issued MS4 Phase II permits, which address discharges not covered by Phase I, to areas with fewer than 100,000 residents (CVRWQCB 2019a). Jurisdictions with Municipal Stormwater Phase I or Phase II permits must develop and enforce ordinances and regulations to reduce the discharge of sediments and other pollutants in runoff, including developing a Comprehensive Stormwater Management Program. Permit holders must also verify compliance through monitoring, recording, and reporting on effluent. The LRWQCB has

issued an MS4 permit to Placer County, which includes the small municipalities in the plan area of the proposed MTP/SCS (SWRCB 2013).

The Sacramento Stormwater Quality Partnership, which includes the County of Sacramento and the Cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova and Sacramento, has prepared a Stormwater Quality Design Manual for the Sacramento Region (Sacramento Stormwater Quality Partnership 2018). This manual is intended to satisfy the regulatory requirements of each jurisdiction's respective municipal stormwater permits. The manual outlines planning tools and requirements to reduce urban runoff pollution to the maximum extent practicable from new development and redevelopment projects.

Caltrans Stormwater Program
The SWRCB issued a special statewide permit (Order No. 99-06-DWQ, re-issued September 19, 2012 under Order No. 2012-0011-DWQ) regulating all stormwater discharges from Caltrans-owned conveyances (e.g., roads, catch basins, curbs, gutters, ditches, man-made channels, storm drains), maintenance facilities, and construction activities. Caltrans also has a Storm Water Management Plan (SWMP) that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters (SWRCB 2012a).

Construction Storm Water General Permit
The SWRCB requires dischargers whose projects disturb one or more acres of soil, or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order No. 2012-0006-DWQ. The Regional Water Quality Control Board enforces the permits (SWRCB 2012b).

Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The General Permit requires project proponents to implement specific sampling and analytical procedures to determine whether the BMPs used at permitted construction sites are effective. The project proponent must propose control measures consistent with the state's permit, and develop a Storm Water Pollution Prevention Plan (SWPPP) for each site, which includes BMPs to reduce potential impacts.

Industrial Storm Water General Permit
Industries such as mining, lumber and wood products facilities, petroleum refining, metal industries, and some agricultural product facilities such as dairies are subject to the NPDES program Industrial Storm Water General Permit Order 2014-0057-DWQ. New industrial activities are required to comply with the requirements of the Industrial General Permit, which include preparing a SWPPP, monitoring, and reporting (SWRCB 2014).

Section 404 – Discharge of Dredge or Fill Material

USACE issues Section 404 permits when dredged or fill materials will be discharged in navigable waters or surface waters hydrologically connected to navigable waters, including oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project applicants must obtain a permit from USACE for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. Before any actions that may adversely affect surface waters are

carried out, a delineation of jurisdictional waters of the United States must be completed, following USACE protocols, to determine whether the permit study area encompasses wetlands or other waters of the United States that qualify for CWA protection. These include areas within the ordinary high water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned; as well as seasonal and perennial wetlands, including coastal wetlands.

Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR Section 328.3, 40 CFR Section 230.3). Refer to Chapter 6 – Biological Resources for more information on wetland regulation.

California Toxics Rule

In 2000, EPA established the California Toxics Rule, which sets water quality criteria for priority toxic pollutants and other provisions for water quality standards to be applied to inland surface waters, enclosed bays and estuaries for all purposes and programs under the Clean Water Act (EPA 2014).

Section 10 of the Rivers and Harbors Act of 1889

Section 10 of the Rivers and Harbors Appropriation Act of 1889 (33 U.S.C. Sections 401, 403, 407) requires a permit for constructing structures, working in, or affecting waters of the United States, including wetland habitats subject to inundation by ordinary high waters (33 C.F.R. Section 329.11 (a)).

Federal and State Wild and Scenic Rivers Act of 1968

The Wild and Scenic Rivers Act of 1968 (16 U.S.C. Sections 1271–1287) prohibits federal agencies from assisting in the construction of water resources projects that would have a direct and adverse effect on the protected rivers. This includes construction in the bed or on the banks of the river. The following designated river sections are located in the plan area of the proposed MTP/SCS (Caltrans 2014):

- American River, Lower: Nimbus Dam to Sacramento River confluence. Length: 23 miles. Management: State of California Resources Agency and Sacramento County. It was designated as "recreational" in 1981.
- American River, North Fork: Near Heath Springs to the Iowa Hill-Colfax Road bridge crossing. Length: 38.3 miles. Management: Tahoe National Forest and BLM. It was designated as "wild" in 1978.

The two rivers listed above are also components of the California Wild and Scenic Rivers System. The California System also contains a section of Cache Creek from 1/4 mile below Cache Creek Dam to Camp Haswell, and the North Fork of Cache Creek from the Highway 20 Bridge to the confluence with the main stem (Caltrans 2014).

SAFE DRINKING WATER ACT OF 1974

The Safe Drinking Water Act of 1974 (42 U.S.C. Section 300(f) et seq.) is the principal federal law protecting drinking water quality. It empowers U.S. EPA to set drinking water quality standards and oversee water providers that implement the standards. It includes provisions for protecting surface waters and wetlands to support drinking water quality.

EXECUTIVE ORDER 11990 – PROTECTION OF WETLANDS

The objective of Executive Order 11990 is to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. It requires federal agencies to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. The Order applies to: acquisition, management, and disposition of federal lands and facilities construction and improvement projects that are undertaken, financed or assisted by federal agencies; and federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities. The procedures require the determination of whether or not the proposed project will be in or will affect wetlands. If so, a wetlands assessment must be prepared that describes the alternatives considered (FEMA 2010a). This order would apply to any proposed future projects, if construction related to the CWA Section 404 permit falls under any of the applicable categories listed above, or if federal funds are used for construction.

EXECUTIVE ORDER 11988 – FLOODPLAIN MANAGEMENT

The objectives of Executive Order 11988 are to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by flood plains. It applies to federal agencies for the following actions: acquiring, managing, and disposing of federal lands and facilities; providing federally-undertaken, financed, or assisted construction and improvements; conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities. It requires that federal agencies complete the following steps for projects that have potential impacts to or within floodplains:

1. Determine if a proposed action is in the base floodplain (that area which has a one percent or greater chance of flooding in any given year).
2. Conduct early public review, including public notice.
3. Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain.
4. Identify impacts of the proposed action.
5. If impacts cannot be avoided, develop measures to minimize the impacts and restore and preserve the floodplain, as appropriate.
6. Reevaluate alternatives.
7. Present the findings and a public explanation.
8. Implement the action.

This order would apply to any proposed future projects, if construction related to the CWA Section 404 permit falls under any of the applicable categories listed above, or if federal funds are used for construction (FEMA 2010b).

NATIONAL FLOOD INSURANCE ACT OF 1968/FLOOD DISASTER PROTECTION ACT OF 1973

Alarmed by increasing costs of disaster relief, Congress passed the National Flood Insurance Act of 1968 (42 U.S.C. Section 4001 et seq.) and the Flood Disaster Protection Act of 1973 (42 U.S.C. Section 4002 note). The intent of these acts was to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains. The National Flood Insurance Act requires FEMA to maintain the FIRM, which defines areas of federal flood hazard. The maps are based on Army Corps of Engineers studies and indicate the location of 100- and 500-year flood areas, as well as the base flood elevation. Rural and wilderness areas are typically not mapped by FEMA (Sacramento County 2010).

To document FIRM amendments, FEMA releases a Letter of Map Revision (LOMR) and includes a full description of any modifications. LOMRs are based on the implementation of physical measures that affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations, or the Special Flood Hazard Area (FEMA 2019).

FLOODPLAIN MANAGEMENT ORDINANCES

Once FEMA provides a community with the flood hazard information upon which floodplain management regulations are based, the community is required to adopt a floodplain management ordinance that meets or exceeds the minimum NFIP regulations. The purpose of the floodplain management regulations is to ensure that participating communities take into account flood hazards, to the extent that they are known, in all official actions relating to land management and use.

11.3.2 State Regulations

CENTRAL VALLEY FLOOD PROTECTION PLAN (CVFPP)

AB 5 (Stats. 2007, ch. 366) and SB 5 (Stats. 2008, ch. 302) renamed the Department of Water Resources Reclamation Board as the Central Valley Flood Protection Board (CVFPB), and expanded its size, duties, and powers, including a requirement that the CVFPB prepare and adopt a Central Valley Flood Protection Plan by 2012. The CVFPB works together with State and local agencies to reduce the risk of catastrophic flooding in California's Central Valley. The CVFPB adopted the Central Valley Flood Protection Plan (CVFPP), which guides California's participation in managing flood risk along the Sacramento River and San Joaquin River systems, in 2012. The CVFPP proposes a systemwide investment approach for sustainable, integrated flood management in areas currently protected by facilities of the State Plan of Flood Control (SPFC) and must be updated every 5 years. The 2017 CVFPP Update refines the overall near-term and long-term investment needs established in the CVFPP and includes recommendations on policies and financing that aim to support comprehensive flood risk management actions locally, regionally, and system-wide.

In addition, the program required that cities and counties in the Sacramento-San Joaquin Valley amend their general plans and zoning ordinances to be consistent with a newly adopted flood plan

within 36 months of flood plan adoption and established other flood protection regulations for local land-use decisions consistent with the Central Valley Flood Protection Plan. Further, SB 5 established higher standards of flood protection (generally 200-year protection) for urban and urbanizing areas (defined as areas of at least 10,000 residents, or which will grow to 10,000 by the year 2022). Other non-urban areas remain subject to the pre-existing 100-year standard for protection (Yolo County 2009). The CVFPB works with USACE to control flooding along the Sacramento and San Joaquin rivers and tributaries (DWR 2012).

ASSEMBLY BILL (AB) 162

AB 162 (Stats. 2007, ch. 369) requires local governments to consider flood risks in their general plans (after January 1, 2009), including:

- annually review areas covered by the general plan that are subject to flooding as identified by FEMA or the DWR;
- include flood hazards in the safety element of their general plan, with goals, policies, and objectives for the protection of the community;
- for communities/counties within the Central Valley, submit the safety element to the CVFPB for review; and
- consider flood risk in evaluating the available land suitable for urban development if the flood protection infrastructure required for development would be impractical due to cost or other considerations.

PORTER-COLOGNE WATER QUALITY CONTROL ACT (PORTER-COLOGNE ACT) OF 1969

Water quality in California is governed by the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) of 1969 (Wat. Code Section 13000 et seq.). This law implements the CWA and assigns overall responsibility for water rights and water quality protection to the SWRCB. It also directs the nine statewide RWQCBs to develop and enforce water quality standards within their boundaries (Wat. Code Section 13000 et seq.).

BASIN PLANS

The Porter-Cologne Act provides for the development and tri-annual review of Water Quality Control Plans (Basin Plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. Basin Plans are primarily implemented by using the NPDES permitting system to regulate waste discharges so that water quality objectives are met. Basin Plans provide the technical basis for determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. The plan area of the proposed MTP/SCS is covered by the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin (CVRWQCB 2018) and by the Water Quality Control Plan for the Lahontan Region North and South Basins (LRWQCB 2016).

ANTIDEGRADATION POLICY

California's antidegradation policy, formally known as the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (SWRCB Resolution No. 68-16), restricts degradation of surface and

ground waters. It protects waters where existing quality is higher than necessary for the protection of beneficial uses. Any actions that can adversely affect water quality in all surface and ground waters must 1) be consistent with maximum benefit to the people of the State, 2) not unreasonably affect present and anticipated beneficial use of the water, and 3) not result in water quality less than that prescribed in water quality plans and policies. Any actions that can adversely affect surface waters are also subject to the federal antidegradation policy (40 C.F.R. Section 131.12) developed under the Clean Water Act (SWRCB 1968).

STATE WATER BOARD MANAGEMENT MEASURES

The SWRCB has adopted Management Measures to address nonpoint source pollution. These are 1) voluntary implementation of Best Management Practices (BMPs), 2) regulatory based encouragement of BMPs, and 3) adopted effluent limits.

Management Measure 3.1A requires development of a watershed protection program to: (1) avoid conversion, to the extent practicable, of areas that are particularly susceptible to erosion and sediment loss; (2) preserve areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota; (3) protect, to the extent practicable, the natural integrity of water bodies and natural drainage systems associated with site development—including roads, highways, and bridges; (4) limit increased impervious surfaces; and (5) provide education and outreach to address sources or nonpoint pollution. Management Measure 3.1A is supported by state Water Code Section 13000 et seq. (TMDL), and federal Clean Water Act Sections 303 (TMDL), 401 (water quality certification for watershed-level developments, such as HCPs, planned community developments), and 402 (NPDES).

Management Measure 3.1B requires that project proponents plan, design, and develop sites to: (1) protect areas that provide important water quality benefits, necessary to main riparian and aquatic biota, and/or are particularly susceptible to erosion and sediment loss; (2) limit increases of impervious areas; (3) limit land disturbance activities such as clearing and grading, and cut-and-fill to reduce erosion and sediment loss; and (4) limit disturbance of natural drainage features and vegetation. Management Measure for Urban Areas 3.1B is supported by federal Clean Water Act Section 401.

Management Measure 3.1C (New Development) requires: (1): by design or performance: (a) after construction has been completed and the site is permanently stabilized, reduce the average annual TSS loadings by 80 percent (for the purposes of this measure, an 80 percent TSS reduction is to be determined on an average annual basis); or (b) reduce the post-development loadings of TSS so that the average annual TSS loadings are no greater than pre-development loadings; and (2): to the extent practicable, maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels. Management Measure 3.1C is supported by federal Clean Water Act Section 402(p), which regulates post-construction impacts.

Management Measure 3.2A requires that project proponents: (1): reduce erosion and, to the extent practicable, retain sediment on site during and after construction; and (2): prepare and implement, prior to land disturbance, an effective, approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions. Management Measure for Urban Areas 3.2A is supported by federal Clean Water Act Sections 303, 401, and 402, and state Fish and Game Code sections 1 et seq., and 1600-1607.

Management Measure 3.2B (Construction Site Chemical Control) requires lead agencies to: (1) limit application, generation, and migration of toxic substances; (2) ensure proper storage and disposal of toxic materials; (3) apply nutrients at rates necessary to establish and maintain vegetation without causing nutrient runoff to surface waters; and (4) prepare and implement, before the use or storage of toxic materials on site, an effective, approved chemical control plan or similar administrative document that contains chemical control provisions. Management Measure 3.2B is supported by the same laws as Management Measure 3.1C, in addition to state Health and Safety Code Sections 58000 and 251000, which give the California Department of Toxic Substances Control authority to permit and regulate the storage, treatment and disposal of hazardous waste.

Management Measure 3.3A (Existing Development) requires development and implementation of watershed management programs to reduce runoff pollutant concentrations and volumes from existing development. Management Measure 3.3A is supported by the same state and federal laws as 3.1A. Additionally, Government Code sections 65000 et seq. and 66410 et seq. authorize cities and counties to adopt ordinances and rules, including enforcement via inspection, fines, infractions, misdemeanors, stop work orders, and police powers to protect public health, safety and welfare, and declare, prohibit and abate nuisances.

Management Measure 3.4A (New Onsite Disposal Systems (OSDSs)) and 3.4B (Operating OSDSs) relate to the prevention of discharge of pollutants to the surface, and to the extent practicable, into groundwater. Management Measures 3.4A and 3.4B are supported by the state Porter-Cologne Water Quality Control Act, which requires basin plans. Cities and counties determine OSDS criteria and set permit and inspection requirements. Cities and counties may also use enforcement tools described under 3.3A.

Management Measure 3.5A (Planning, Siting and Developing Roads and Highways) requires that lead agencies plan, site, and develop roads and highways to: (1) protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss; (2) limit land disturbance such as clearing and grading and cut and fill to reduce erosion and sediment loss; and (3) limit disturbance of natural drainage features and vegetation. Management Measure 3.5A is supported by the federal Clean Water Act Sections 401, 402, state Government Code Sections 65000 et seq. and 66410 et seq., and the state Fish and Game Code Sections 1 et seq., and Section 1600-1607 (streambed alteration permits to control for erosion and sedimentation).

Management Measure 3.5B (Bridges) requires that lead agencies site, design, and maintain bridge structures so that sensitive and valuable aquatic ecosystems and areas providing important benefits are protected from adverse effects. Management Measure 3.5B is supported by the same state and federal laws as Management Measure 3.5A.

Management Measure 3.5C (Construction Projects [Roads, Highways and Bridges]) requires that lead agencies: (1) reduce erosion and, to the extent practicable, retain sediment on site during and after construction; and (2) before land disturbance, prepare and implement an approved erosion control plan or similar administrative document that contains erosion and sediment control provisions. Management Measure 3.5C is supported by the same state and federal laws as Management Measure 3.5A.

Management Measure 3.5D (Construction Site Chemical Controls [Roads, Highways and Bridges]) requires that lead agencies: (1) limit application, generation, and migration of toxic substances; (2)

ensure the proper storage and disposal of toxic materials; and (3) apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water. Management Measure 3.5D is supported by the same state laws as Management Measure 3.2B, described above.

Management Measure 3.5E requires lead agencies to incorporate pollution prevention procedures into the operation and maintenance of roads, highways, and bridges to reduce pollutant loadings to surface waters. Management Measure 3.5E is supported by federal Clean Water Act Section 402, which the SWRCB uses to require Construction General permits and SWPPPs; and Government Code sections 65000 et seq, Section 66410 et seq.

Management Measure 3.5F requires lead agencies to develop and implement runoff management systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters by: (1) identifying priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures), and (2) establishing schedules for implementing appropriate controls. Management Measure 3.5F is supported by the same state and federal laws as Management Measure 3.5E.

Management Measures 5.1A (Physical and Chemical Characteristics of Surface Waters), 5.1B (Instream and Riparian Habitat Restoration), and 5.1C (Eroding Streambanks and Shorelines) require project proponents to study the potential impacts of proposed channelization and channel modification, and then develop and implement plans to protect against undesirable impacts, including erosion. These Management Measures for hydromodification are supported by federal Clean Water Act Section 401 and state Fish and Game Code sections 1 et seq., and 1600–1607.

STATE IMPLEMENTATION POLICY

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California of 2005 (State Implementation Policy) addresses a gap in water quality standards covering priority toxic pollutants. The SIP established the policy for development of new standards for a variety of toxic pollutants, as required by the Clean Water Act. It applies to discharges of toxic pollutants into California's inland surface waters, enclosed bays, and estuaries subject to regulation under the Porter-Cologne Water Quality Control Act of 1969 (Wat. Code Section 13000 et seq.) and the CWA. Such regulation may occur through the issuance of NPDES permits, the issuance or waiver of waste discharge requirements, or other regulatory approaches.

CALIFORNIA FISH AND GAME CODE

Under Sections 1600–1616 of the California Fish and Game Code, CDFW regulates projects that affect the flow, channel, or banks of rivers, streams, and lakes. Projects that involve construction near or across a river, stream, or lake are required to comply with these regulations. Section 1602 requires public agencies and private individuals to notify and enter into a streambed or lakebed alteration agreement with CDFW before beginning construction of a project that will:

- divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake; or
- use materials from a streambed.

- section 1602 contains additional prohibitions against the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

Sections 1601–1607 may apply to any work undertaken within the 100-year floodplain of any body of water or its tributaries, including intermittent stream channels. In general, however, it is construed as applying to work within the active floodplain and/or associated riparian habitat of a wash, stream, or lake that provides benefit to fish and wildlife. Sections 1601–1607 typically do not apply to drainages that lack a defined bed and banks, such as swales, or to very small bodies of water and wetlands such as vernal pools.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT OF 2014

The Sustainable Groundwater Management Act (SGMA) provides a framework for sustainable management of groundwater supplies by local authorities, with a limited role for state intervention only if necessary, to protect the shared aquifer and its groundwater resources. The act requires the formation of local groundwater sustainability agencies (GSAs) that must assess conditions in their local water aquifer basins and adopt locally-based management plans by 2022 that address sustainable groundwater levels.

California's 515 groundwater basins are classified into one of four categories; high-, medium-, low-, or very low-priority based on components identified in the California Water Code Section 10933(b). Basin priority determines which provisions of California Statewide Groundwater Elevation Monitoring (CASGEM) and SGMA apply in a basin. SGMA requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge.

CALIFORNIA BUILDING CODE, FLOOD RELATED COMPONENTS

As required by SB 5 (Stats. 2007, ch. 364.) (SB 5), the California Building Standards Commission adopted regulations for new construction, changes of use and substantial improvements and restoration of substantial damage to certain building types in the Central Valley Flood Protection plan area where flood levels are anticipated to exceed three feet for the 200-year flood event (California Building Code 2010). These requirements are consistent with FEMA requirements for non-residential development in a 100-year flood plain.

Section 3106 of the California Building Code applies to new or replacement mechanical and electrical systems proposed within flood hazard areas. This section only allows the placement of mechanical and electrical systems below the base flood elevation if properly protected to prevent water from entering or accumulating within the system components. Section 3107 of the California Building Code applies to structures in the FEMA designated "A" Zones. All floors below the base flood elevation must be constructed and engineered to be flood-resistant, or the floor must only be used for storage, parking, access or foyers.

CALIFORNIA GREEN BUILDING STANDARDS CODE

Chapters 4 and 5 of the California Green Building Standards Code (CALGreen) include mandatory measures for residential and nonresidential development, respectively. For residential projects that disturb less than 1 acre and are not part of a larger common plan of development, Section 4.106.2

requires that stormwater drainage during construction be managed through use of on-site retention basins and filtration systems where stormwater is conveyed to a public drainage system, and/or via compliance with a stormwater management ordinance. Section 5.106.1 requires newly constructed nonresidential projects and additions of less than 1 acre to prevent the pollution of stormwater runoff because of construction through compliance with a local ordinance or implementing BMPs that address soil loss and good housekeeping to manage equipment, materials, and wastes.

POTENTIAL FLOODING – DAM INUNDATION ACT

California Code Section 8589.4, commonly referred to as the PFDI Act, requires that sellers of real property disclose to prospective buyers of real property if the property is located within an area of potential flooding as shown on an inundation map prepared by the local organization, utility or owner of the dam and approved by the California OES. Disclosure must be made if a seller has knowledge that the property is located within an area of potential flooding, or inundation, or if the local jurisdiction has compiled a list of properties that are within an area of potential flooding or inundation, and a notice has been posted at the offices of the county recorder, county assessor, and county planning agency that identifies the location of the parcel list. The PFDI Act also requires local governmental organization, utility, or owner of a designated dam to submit dam inundation maps. The OES is required to review and approve maps that have been prepared and submitted to ensure that the maps meet all requirements before providing approved copies to appropriate public safety agencies of any local jurisdiction likely to be affected so that emergency procedures can be adopted for the evacuation and control of populated areas.

CAL EMA DAM INUNDATION MAPPING

Pursuant to the California Code of Regulations Title 19, Division 2, Chapter 2, Subchapter 4, dam owners must submit flood routing information, land surveys to delineate the floodplain, and a technical report to support a dam failure inundation map to the California Emergency Management Agency. The purpose of the program is to provide decision support for emergency preparedness planning, mitigation, response to, and recovery from potential damage to life and property from dam inundation flood waves. Based upon approved inundation maps, or the delineated areas, cities and counties with territory in the mapped areas are required to adopt emergency procedures for the evacuation and control of populated areas below the dams. The technical study must contain information about dam specifications, physical conditions affected by the dam, including downstream areas and floodwater routing, and the areas that could be affected by a dam failure. The requirements of the technical study can also include modeling of worst-case breaching parameters and identification of the downstream hazard potential from partial or complete failure of the dam. The technical study and dam inundation map must be updated when a dam is enlarged. Figure 11-7 in the Environmental Setting section is a map showing dam inundation in the plan area.

DELTA PROTECTION COMMISSION

The Delta Protection Act of 1992 (PRC Section 29760 et seq.) recognized the Sacramento-San Joaquin Delta as a natural resource of statewide, national, and international significance, containing irreplaceable resources. It created the policy to recognize, preserve, and protect those resources, and established the Delta Protection Commission (DPC). DPC was charged with creating the Land Use and Resources Management Plan for the Primary Zone, which was adopted in 1995 (DPC 2015). The Primary Zone is the legally designated portion of the Delta that has statewide significance; it falls under the principal

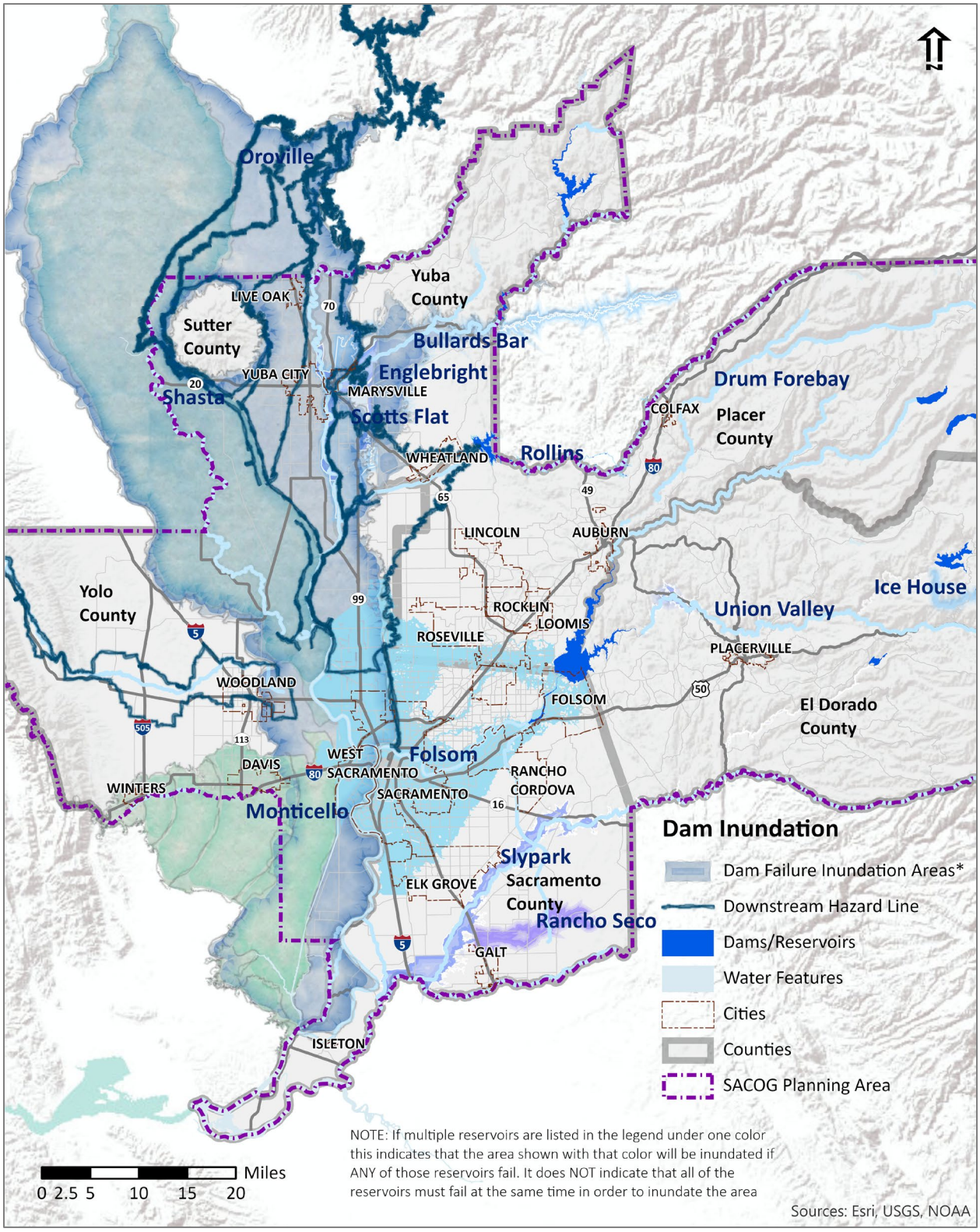


Figure 11-7
Dam Failure Inundation Areas in the Plan Area of the Proposed MTP/SCS

jurisdiction of DPC. Local jurisdictions with lands in the Primary Zone have amended their general plans to incorporate the management plan (Sacramento County 2010; Yolo County 2009). In 2010, DPC amended the management plan to reflect changes since adoption, such as newly identified endangered species, effects of climate change, flood control issues, increased recreational use, water quality changes, habitat loss, road and utility construction, and urbanization. DPC has initiated an update to the plan.

11.3.3 Regional and Local Regulations

INTEGRATED REGIONAL WATER MANAGEMENT PLANS

An Integrated Regional Water Management Plan (IRWMP) is a comprehensive planning document to encourage regional strategies for management of water resources. According to the rules developed in the DWR's Region Acceptance Program, the stakeholders within a region may apply to become an IRWM region. An adopted IRWMP is a prerequisite for achieving grant funds that are distributed by the DWR.

The following IRWMPs have been developed in the plan area of the proposed MTP/SCS:

- IRWM Region No. 1 - American River Basin.
- IRWM Region No. 6 – Cosumnes, American, Bear, Yuba.
- IRWM Region No. 22 - North Sacramento Valley.
- IRWM Region No. 34 – Tahoe-Sierra.
- IRWM Region No.45 - Westside (Yolo, Solano, Napa, Lake, Colusa).
- IRWM Region No. 46 - Yuba County.

The only part of the plan area of the proposed MTP/SCS that is not included in an IRWM Plan is the southwestern "panhandle" of Sacramento County. This area is the Primary Zone of the Delta; therefore, its water resources planning will be closely aligned with Delta Vision implementation (RWA 2009).

FLOOD CONTROL AND STORMWATER MANAGEMENT

In addition to flood levees and other facilities managed by the USACE and DWR, local cities, counties, and flood control agencies in the plan area of the proposed MTP/SCS are responsible for designing, constructing, and maintaining local flood management facilities, as well as evaluating the flood hazard of construction projects in their jurisdiction. Cities and counties also have local codes and ordinances that meet FEMA flood insurance and State flood protection regulations intended to limit flood risk. To be eligible for federal emergency management agency flood insurance, project funding and post flood assistance, each geographic area must conform to FEMA flood management requirements as well as state requirements for continued participation in the National Flood Insurance Program. The City of Roseville, El Dorado County, and Special Districts such as Sacramento's SAFCA and all others have flood management programs, zone districts and regulations that are reviewed and found acceptable to FEMA using FEMA definitions and standards.

City and county drainage and stormwater management manuals are intended to provide specific hydrology and hydraulic criteria for a region. The purpose of these manuals is to provide consistent, specific guidance and requirements for stormwater management, including regulation of the development process, to achieve stormwater management objectives. Each individual manual provides criteria for how increases in runoff and stormwater volume due to development must be mitigated. In general, all increases in runoff must be appropriately mitigated back to existing peak flows. Some jurisdictions such as Placer County require more stringent mitigation where the flows must be mitigated to less than existing conditions. Flows may be reduced through use of a combination of Low Impact Development (LID) techniques and detention/retention basins (Placer County 2016). The Drainage or Stormwater Management Plan of the city or county where a specific transportation or land use project occurs will have applicable policies, programs, and mitigation measures.

GENERAL PLANS

Local planning policies related to hydrology and water quality are also established in each jurisdiction's general plan. In general, jurisdictions have policies in place that establish objectives and policies related to flood protection and safety, water quality, water conservation, and wastewater runoff. General plans must generally contain seven elements: 1) land use, 2) circulation, 3) housing, 4) conservation, 5) open space, 6) noise, and 7) safety. The Conservation, Open Space and Safety elements are the most relevant to hydrology and water quality:

- *Conservation*. Applies to conservation, development, and use of natural resources (e.g., soils, forests, rivers and other water bodies, and harbors). May also cover watershed protection, land or water reclamation, prevention or control of the pollution of streams and other coastal waters, regulation of land uses along stream channels and in other areas required to implement the conservation plan (e.g., buffer areas), to control or correct soil erosion, and for flood control.
- *Open Space*. Applies to the preservation of natural resources, including fish and wildlife habitat, rivers, streams, bays and estuaries, and open space.
- *Safety*. Applies to the potential risk of death, injuries, property damage, and economic and social dislocation resulting from floods and other hazards. Other locally relevant safety issues, such as emergency response, may also be included.

11.4 Impacts and Mitigation Measures

11.4.1 Methods and Assumptions

This program-level analysis assesses the potential environmental impacts related to hydrology and water quality that could result from implementation of the proposed MTP/SCS. This impact analysis looks at each significance criterion individually, assessing how implementation of the proposed MTP/SCS, including components of the projected land use pattern and planned transportation improvements, such as impervious surfaces, pollutant sources, and construction activities. may impact existing hydrology and water quality. It compares the general location of the projected land use pattern and transportation improvements to existing resources, such as 303-d listed water bodies, groundwater basins, flood hazard areas, levees, dam inundation areas, and seiche zones, and describes how the proposed MTP/SCS would be subject to existing federal, State, and

local laws, regulations, and plans that are in place to avoid adverse changes in existing hydrology and avoid or substantially lessen contaminants within stormwater and non-stormwater flows and within surface and groundwaters in the plan area of the proposed MTP/SCS

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count and vehicle miles traveled (VMT) data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline year for the proposed MTP/SCS. Exceptions to the 2016 baseline include the following:

- **Listed Water Bodies.** The SWRCB Clean Water Act Section 303(d) List of Water Quality Limited Segments was last updated in 2010. Therefore, the 2010 dataset is used in the analysis.
- **Basin Plans.** The Central Valley Regional Water Quality Control Board Sacramento River and San Joaquin River Basin Plans are updated on a continuing basis, with the most recent update published in 2016 and 2018. The updates are the most reliable source of documented information on hydrological conditions within the groundwater and surface water basins in the MTP/SCS plan area.
- *Housing in Flood Hazard Areas.* The data related to projected housing units that would be located in designated flood hazard areas was generated from SACOG's projections for housing units in the region. Using GIS, SACOG extracted unit counts of projects within 100-year flood hazard areas (FEMA Effective Flood Plains) and 200-year flood hazard areas (USACE Comprehensive Study –Floodplains developed from 2002 Sacramento and San Joaquin River Basins Comprehensive Study).

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

The analysis assumes implementing agencies would ensure hydrology and water quality resources are treated in accordance with applicable federal, state, and local laws and regulations as part of project planning, design and engineering.

11.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

HYD-1 Violate any water quality standards or wastewater requirements or otherwise substantially degrade surface or ground water quality.

HYD-2 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management.

HYD-3A Substantially alter existing drainage patterns, including alteration of the course of a stream or river or addition of impervious surfaces, in a manner that would result in substantial erosion or siltation.

HYD-3B Substantially alter existing drainage patterns, including alteration of the course of a stream or river or addition of impervious surfaces, in a manner that would substantially increase rates or amounts of surface runoff and result in flooding.

HYD-3C Substantially alter existing drainage patterns, including alteration of the course of a stream or river or addition of impervious surfaces, in a manner that would create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems, such that the construction of new, expanded, or relocated facilities that could cause significant effects is required, or provide substantial additional sources of polluted runoff.

HYD-4 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

HYD-5 Conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan.

HYD-6 Violate any water quality standards or waste discharge requirements resulting from construction or other soil disturbance activities.

11.4.3 Impacts and Mitigation Measures

IMPACT HYD-1: VIOLATE WATER QUALITY STANDARDS OR WASTEWATER REQUIREMENTS OR OTHERWISE SUBSTANTIALLY DEGRADE SURFACE OR GROUNDWATER QUALITY.

Regional Impacts

The following addresses two potentially substantial adverse impacts to water quality due to implementation of the proposed MTP/SCS: urban runoff caused by increased impervious surfaces and discharges of constituents to federal Clean Water Act Section 303(d)-listed waters. Impacts related to runoff due to drainage pattern alterations and construction activities are also analyzed in Impacts HYD-3A (with respect to erosion), HYD-3B (with respect to rates and amounts of runoff), HYD-3C (with respect to polluted runoff and exceeding the capacity of stormwater drainage systems), and HYD-6 (regarding potential violation of water quality standards).

The projected land use pattern of the proposed MTP/SCS would increase the volume of stormwater and non-stormwater runoff by adding impervious surfaces, such as new paved areas, building rooftops, and parking lots, to the region, including areas underlain by groundwater basins. Development under the projected land use pattern would also increase the amount of managed landscaping areas in the region that could provide a source of nutrients, weed abatement herbicides, and irrigation runoff. Anticipated runoff contaminants include sediment and common urban pollutants (e.g., pesticides, herbicides, fertilizers, oil and grease, nutrients, metals [generated by the wear of automobile parts]), bacteria, and trash. Contributions of these contaminants to stormwater and non-stormwater runoff could degrade the quality of receiving waters (surface water and

groundwater) if not properly managed. During the dry season, vehicles and other urban activities release contaminants on impervious surfaces and in landscaped areas, where they can accumulate until the first storm event. During this initial storm event, or first flush, the concentrated pollutants would be transported via runoff to stormwater drainage systems. Contaminants can also be released during the dry season due to over-irrigation and other urban water uses (e.g., car washing, hosing down paved surfaces). Runoff during storm events and non-stormwater flows (e.g., over-irrigation) can transport contaminants into stormwater drainage systems that discharge into rivers, agricultural ditches, sloughs, and channels and ultimately could degrade the water quality of any of these water bodies. Contaminated runoff can also infiltrate into groundwater basins and negatively affect groundwater quality.

The Section 402 NPDES MS4 Phase I and Phase II permits required under the CWA, which cover all local jurisdictions as well as large institutional users, require agencies and developments to implement SWMPs, which in turn require the implementation of source and treatment control measures. Proponents (public agencies and private developers) of construction projects that disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain a Construction General Permit from SWRCB. The project proponent must propose control measures consistent with the state's permit and develop a SWPPP for each site, which includes BMPs to address potential effects on water quality. These control measures may include conserving natural areas, protecting slopes and channels, and minimizing impervious areas. Selection and implementation of these measures would occur on a project-by-project basis depending on project size and stormwater treatment needs. NPDES MS4 permittees are also required to develop and enforce ordinances and regulations to reduce the discharge of sediments and other pollutants in runoff and must verify compliance. New development that would introduce 10,000 or more square feet of new impervious surfaces would be required under Provision C.3 of the NPDES program to incorporate LID strategies such as stormwater reuse, onsite infiltration, and evapotranspiration. Most development under the projected land use pattern of the proposed MTP/SCS would be subject to these requirements.

In addition, all projects, including those that would disturb less than one acre, would be subject to the CALGreen requirements related to stormwater drainage that have been designed to prevent or reduce discharges of sediments, chemicals, and wastes through BMPs that include on-site retention and filtration. Smaller projects may also be subject to additional requirements, which vary by local jurisdiction. In many cases, stormwater drainage measures and compliance with RWQCB Municipal Regional Stormwater Permit Order No. 2011-0083 Provision C.3 may be required by local jurisdictions as standard conditions of approval for building permit applications.

Typical BMPs used to meet regulatory standards during project operation, as required by CALGreen, are described below. These measures protect surface and groundwater quality by removing or substantially lessening the amount of pollutants that flow off-site and into surface or groundwater.

- Design roadway and parking lot drainage to run through grass median strips that are contoured to provide adequate storage capacity and to provide overland flow, detention, and infiltration before runoff reaches culverts or detention basins. Oil and sediment separators or absorbent filter systems may also be installed within the storm drainage system to provide filtration of stormwater before discharge to reduce the potential for water quality impacts.

- Use integrated pest management techniques (i.e., methods that minimize the use of potentially hazardous chemicals) in landscaped areas.
- Handle, store, and apply potentially hazardous chemicals in accordance with all applicable laws and regulations.
- Implement an erosion control and revegetation program designed to allow re-establishment of native vegetation on slopes in undeveloped areas as part of the long-term sediment control plan.
- Use alternative discharge options to protect sensitive fish and wildlife populations in areas where habitat for fish and other wildlife would be threatened by facility discharge.

Several waterbodies in the study area, including major rivers, creeks, and tributaries have been identified under Clean Water Act Section 303(d) as being impaired by a variety of contaminants, including pesticides (chlorpyrifos, DDT, diazinon, and Group A pesticides), mercury, copper, zinc, pathogens, and exotic species. These constituents originate from a variety of sources, but generally include agricultural activities, such as irrigation runoff, and urban non-point sources of runoff from landscaping, rooftops, trash, and illegal dumping.

Under Section 303(d) of the CWA, states evaluate water quality-related data and information to develop a list of waters that do not meet established water quality standards (impaired) and develop a TMDL for every pollutant/waterbody combination on the list. This includes the development of a loading capacity that is allocated among various point sources and non-point sources. Table 11-3 shows waters in the plan area of the proposed MTP/SCS with Clean Water Act Section 303(d)-listed impairments. Permits for point sources are issued through the NPDES program. Where TMDLs have been established, compliance with the standards (which is required through the NPDES permitting process) would substantially address the potential to contribute additional pollutants to 303(d)-listed water bodies. As such, projects associated with the projected land use pattern would not be expected to contribute to violations of water quality standards.

Under the CWA listing, these water bodies have no remaining assimilative capacity or ability to accommodate additional quantities of these contaminants, irrespective of concentration. To address impaired waters, the SWRCB has several permit processes for municipal stormwater and construction runoff. In addition, several jurisdictions in the plan area of the proposed MTP/SCS have adopted BMPs and ordinances that address runoff resulting from new development. Although the waterways are listed as impaired, development of the of the proposed MTP/SCS consistent with NPDES regulations would not result in a net increase of the pollutants for which the waterways are listed.

Although the projected land use pattern would result in a net increase of impervious surfaces, regional growth and the projected land use pattern associated with the proposed MTP/SCS would not substantially degrade water quality in violation of water quality standards or otherwise substantially degrade surface or groundwater quality because existing federal, state, and local regulations and oversight are in place to specify mandatory actions that reduce, treat, infiltrate, and manage stormwater runoff and would adequately address potential for projects to result in violation of water quality standards, or wastewater requirements. Compliance with the applicable regulatory requirements outlined above and in Section 11.2 would eliminate or substantially lessen pollutants in runoff that would impact surface or groundwater quality. Therefore, the regional impacts associated with violating any water quality standards or wastewater requirements or otherwise substantially

degrading surface or groundwater quality from implementation of the projected land use pattern of the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

Planned transportation improvements would include a variety of improvements such as new express lanes, auxiliary lanes, roadway widening, increased transit service, and other maintenance and rehabilitation projects that would increase the amount of impervious surface in the region. Planned transportation improvements would require similar drainage control measures as those described above for land development, including LID measures. Projects such as the creation of express lanes, or repaving projects where there is no substantial change in the drainage patterns or exposure to stormwater pollutants, would have minimal-to-no adverse effect on water quality in stormwater and non-stormwater runoff during operation.

New impervious surfaces required for streets or highways could have minor effects on the receiving waters, water that filters into the ground, and groundwater basins, all of which could be affected by pollutants in the runoff from proposed future projects. Table 11-5 is a list of planned transportation improvements crossing 303(d) impaired bodies of water. As discussed above for the projected land use pattern of the proposed MTP/SCS, specific regulations are in place to substantially reduce the adverse water quality effects of construction and operational activities on receiving waters.

Table 11-5
Proposed MTP/SCS Planned Transportation Improvements Crossing Impaired Bodies of Water

Improvement	Type	Impaired Water Body
Latrobe Rd/White Rock Rd Connector (New Road)	Road New	Carson Creek (from wastewater treatment plant to Deer Creek)
I-5 and I-80 HOV Connectors and Lanes to Downtown	Highway HOV Lanes	American River, Lower
I-80 HOV Across the Top (Longview Drive to Sacramento River)	Highway HOV Lanes	Sacramento River (Knights Landing to the Delta)
SR 51 Transition Lane (American River Bridge to Exposition Boulevard)	Highway Auxiliary Lanes	American River, Lower
SR 51 Transition Lane (Exposition Boulevard to E Street)	Highway Auxiliary Lanes	American River, Lower
Wilton Rd (Grant Line Road to City limit)	Road Widening	Deer Creek (Sacramento County)
Lower American River Crossing	Bridge Project	American River, Lower
Main Ave. (Sacramento City limit to Norwood Avenue)	Road Widening	Natomas East Main Drainage Canal (Steelhead Creek, downstream of confluence with Arcade Cr.)
Sutter's Landing Bridge	Bridge Project	American River, Lower
Elkhorn Blvd. (Sacramento City limit to Watt Avenue)	Road Widening	Natomas East Main Drainage Canal (Steelhead Creek, downstream of confluence with Arcade Cr.)
Elverta Road (Rio Linda Boulevard to Sacramento International Airport)	Road Widening	Natomas East Main Drainage Canal (aka Steelhead Creek, downstream of confluence with Arcade Cr.)
Hazel Ave Widening, Phase 1 (US 50 Interchange to Curragh Downs Drive)	Road Widening	American River, Lower

Improvement	Type	Impaired Water Body
Sunrise Blvd. (Madison Avenue to Gold Country Boulevard)	Road Widening	American River, Lower
Winding Way (Auburn Boulevard to Garfield Avenue)	Road Widening	Arcade Creek
I-80 / U.S. 50 Bus/Carpool Lanes (Mace Boulevard in Davis to Downtown Sacramento)	Highway HOV Lanes	Tule Canal; Sacramento River (Knights Landing to the Delta)
Sacramento River Crossing (Sacramento to West Sacramento)	Bridge Project	Sacramento River (Knights Landing to the Delta)
Sacramento River Crossing (Sacramento to West Sacramento)	Bridge Project	Sacramento River (Knights Landing to the Delta)
Sutter SR-99 Corridor Widening (Nicholas Avenue/Garden Highway to Sacramento Ave.)	Highway Capacity	Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)
Pease Rd. (North Township Road to SR 99)	Road Widening	Live Oak Slough
Riego Rd Widening (SR 99 to Placer County)	Road Widening	Main Drainage Canal
SR 20 10th St. Bridge Improvements	Bridge Project	Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)
Feather River Bridge at 5th St (SR 99 to SR 65/70)	Bridge Project	Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)
Lake Washington Blvd. (Jefferson Boulevard to Palamidessi Bridge)	Road Widening	Sacramento Deep Water Ship Channel
South River Rd. (US 50 on-ramp to Stonegate Drive)	Road Widening	Sacramento River (Knights Landing to the Delta); Sacramento Deep Water Ship Channel
Feather River Parkway (3rd Street to SR 70)	Road Realignment / Bypass	Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)
Wheatland Pkwy. (Future north terminus of SR 65 to SR 65 near South Beal Road)	Road Realignment / Bypass	Bear River, Lower (below Camp Far West Reservoir)
Route 70 at Feather River Blvd. (SR 70 / Feather River Boulevard interchange)	Highway Safety, Operations & ITS	Bear River, Lower (below Camp Far West Reservoir)

Source: SACOG, State Water Board 2011

Planned transportation improvements where Caltrans is the lead agency are covered by the Caltrans Stormwater Program. This permit regulates all stormwater discharges from Caltrans-owned conveyances, maintenance facilities and construction activities. Caltrans also has a Storm Water Management Plan that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters. Guidance documents have also been developed by Caltrans to implement stormwater BMPs in the design, construction, and maintenance of highway facilities. The need for, and design of, BMPs would be dictated by the project-level SWPPP and the presence of surrounding sensitive resources. During the SWPPP development process, BMPs aimed at reducing erosion and subsequent sediment transport, such as silt fencing, fiber rolls, sandbag barriers, and slope stabilization, would be identified to substantially reduce or eliminate the discharge of pollutants into receiving waters, including 303(d)-listed water

bodies. SWPPP requirements also would apply to other implementing agencies for planned transportation network improvements.

During operations and maintenance of planned transportation improvements, operational BMPs would prevent substantial water quality degradation in compliance with applicable stormwater runoff discharge permits. Operation-phase BMPs would be evaluated during the development of drainage designs and would consider factors such as permanent stabilization of disturbed soil and natural stormwater quality treatment. They may include LID, hydromodification measures, and erosion control/revegetation efforts. Planned transportation improvements where local agencies are the lead agency are subject to local and state regulations for runoff prevention. Adherence to local and state regulations would ensure that development would not otherwise substantially degrade water quality.

For projects that discharge to 303(d)-listed impaired water bodies, compliance with established TMDLs that target the removal of the pollutants causing the impairment would be required. Transportation network improvements and programs associated with the proposed plan would not substantially degrade water quality in violation of applicable water quality standards. Therefore, the regional impacts associated with violating any water quality standards or wastewater requirements or otherwise substantially degrading surface or groundwater quality from implementation of the planned transportation improvements of the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the proposed MTP/SCS
As described above at the regional scale, there are existing regulations that protect water quality, preventing the release of stormwater and other discharges that could degrade surface or groundwater quality. Development within the Community Types would adhere to federal, state, and local regulations. This includes adherence to NPDES permit requirements and SWRCB Management Measures for Urban Areas (described in the state regulatory settings section of this chapter), as well as the LID requirements that apply to smaller developments.

Planned transportation improvements where Caltrans is the lead agency are covered by the Caltrans Stormwater Program, as described under regional impacts. Planned transportation improvements where local agencies are the lead agency are subject to local and state regulations for runoff prevention, as described above for regional impacts and Impact HYD-6. Adherence to local and state regulations would ensure that development would not otherwise substantially degrade surface or groundwater quality.

Therefore, water quality impacts in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development associated with violating any water quality standards or wastewater requirements or otherwise substantially degrading surface or groundwater quality from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
HFTAs are located near public transportation opportunities. Because HFTAs are highly urbanized, most of the land development and transportation improvements would occur in areas where there are existing impervious surfaces and engineered water conveyance infrastructure is in place. The potential to contribute stormwater runoff or other discharges that would violate water quality standards or otherwise substantially degrade surface or groundwater quality would be addressed through adherence to existing regulations and compliance with established permitting processes.

Planned transportation improvements where Caltrans is the lead agency are covered by the Caltrans Stormwater Program, as described under regional impacts. Planned transportation improvements where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention, as described under regional impacts and Impact HYD-6. Adherence to local and state regulations would ensure that development would not otherwise substantially degrade water quality. In addition, Placer County HFTAs within the city of Roseville would be subject to strict standards outlined in the Stormwater Quality Design Manual for the Sacramento Region (Sacramento Stormwater Quality Partnership 2018).

Therefore, the water quality impacts in HFTAs associated with violating any water quality standards or wastewater requirements or otherwise substantially degrading surface or groundwater quality from implementation of the projected land use pattern of the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

MITIGATION MEASURES

No mitigation is required.

IMPACT HYD-2: SUBSTANTIALLY DECREASE GROUNDWATER SUPPLIES OR INTERFERE SUBSTANTIALLY WITH GROUNDWATER RECHARGE SUCH THAT THE PROJECT MAY IMPEDE SUSTAINABLE GROUNDWATER MANAGEMENT

Regional Impacts

Urbanized areas in the plan area of the proposed MTP/SCS depend upon a combination of surface water, groundwater, recycled water, and water conservation to provide water supplies for existing and planned residents and businesses. Groundwater pumping typically increases during dry years and is less in wet years when surface water supplies are more available. Groundwater supplies are decreased when use outpaces recharge. Urban development could interfere with groundwater recharge by creating additional impervious surfaces that interfere with infiltration of precipitation, which can result in decreased groundwater supplies. The following analysis addresses the potential for the proposed MTP/SCS to draw groundwater at a rate that outpaces recharge or result in development that would inhibit recharge such that the project would be in conflict with plans to manage groundwater in a sustainable fashion. The capacity for water purveyors to provide adequate water supply through this conjunctive management to meet water demand associated with anticipated development is analyzed in Chapter 17 – Utilities and Service Systems. However, it should be noted that concentrating development within urban cores would likely inhibit the development of suburban areas, which could be located on permeable areas that facilitate recharge of groundwater, resulting in beneficial groundwater recharge effects. As discussed above, SGMA

requires the formation of GSAs to manage local groundwater basins; this includes the development of Groundwater Sustainability Plans by 2022. Many of the larger groundwater basins, which cover most of the plan area where development could occur, have been classified as high or medium priority basins under SGMA (see Table 11-2). Under SGMA, agencies managing high and medium priority basins are required to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge.

GSAs formed within the plan area include the Sacramento Groundwater Authority, the Sacramento Central Groundwater Authority, the West Placer GSA, Northern Delta GSA, Reclamation District 1001, South Sutter Water District, Sutter County GSA, Yolo Subbasin Groundwater Agency, and the Yuba Water Agency. Groundwater management plans in the plan area of the proposed MTP/SCS include the Sacramento Groundwater Authority Groundwater Management Plan (2014), Olympic Valley Groundwater Management Plan (Squaw Valley Public Utilities District 2007) and the Yuba County Water Agency Groundwater Management Plan (2010).

Given the relatively recent legislation, many GSAs are currently developing sustainability plans. The five GSAs in the North American Subbasin are preparing a joint groundwater sustainability plan (with a planned release date of 2021). In Yolo County, the Yolo Subbasin Groundwater Sustainability Plan is also being prepared. The Sacramento Central Groundwater Authority has prepared a South American Subbasin Alternative Submittal, as authorized by SGMA for basins compliant with the CASGEM program. An Alternative Submittal has also been provided to DWR by the Truckee Donner Public Utility District for the Martis Valley Sub basin. In Sacramento County, the Cosumnes Subbasin SGMA Working Group has formed to discuss developing a roadmap for creating a groundwater sustainability plan (Cosumnes Groundwater 2019).

The projected land use pattern that could result from implementation of the proposed MTP/SCS, such as residences, commercial buildings and parking lots, could increase demands for groundwater pumping, add new impervious surfaces, reduce rainwater infiltration, and adversely affect groundwater recharge.

Infiltration rates vary depending on the overlying soil types. In general, sandy soils have higher infiltration rates and can contribute to groundwater recharge; clay soils tend to have lower percolation potentials; and impervious surfaces such as pavement reduce infiltration capacity and increase surface water runoff. The amount of new pavement and the extent to which it affects infiltration depends on the site-specific soil type.

Throughout the region, 10 groundwater basins could be affected by development in the land use growth footprint (Table 11-2). These basins are generally large, and the land use growth footprint where development is expected to increase impervious surfaces is generally a small portion of the basin. Therefore, even relatively large increases in the developed area within the land use growth footprint would not substantially affect the infiltration conditions of the basins as a whole.

Projects located in existing urban areas would have less of an impact on groundwater infiltration than projects converting undeveloped land. The proposed MTP/SCS would guide the projected land use pattern away from undeveloped locations that may be well suited to facilitating groundwater recharge. Much of the proposed MTP/SCS growth would occur in urban areas and along existing highways, streets, and roads in which most of the surfaces are already paved or impervious. Extensive storm drainage systems present in these areas currently intercept rainfall and

runoff waters, thus limiting the amount of groundwater recharge that occurs. As new development and redevelopment occurs, onsite drainage plans would be designed to retain, capture, and convey increased runoff in accordance with the city or county design standards and State requirements such as Provision C.3 site control features. These standards and regulations generally require or encourage the use of LID features such as vegetated swales, permeable paving, use of landscaping for infiltration, and other measures that would retain runoff as much as possible and allow for onsite infiltration.

Land development projects would increase the total amount of impervious surfaces in the region and, as a result, redirect precipitation that might otherwise recharge groundwater. However, existing regulatory requirements at the local, State, and federal level include measures to minimize any increases in offsite stormwater runoff by encouraging onsite infiltration, which would effectively minimize the potential reduction in groundwater recharge to an acceptable level. Activities would be implemented under California regulations governing use of groundwater, including the Groundwater Management Act, as well as groundwater provisions of applicable local general plans. Taken as a whole, these regulations are intended to reduce groundwater use and subsequent overdraft of groundwater basins. Further, as discussed above under Impact HYD-1, Provision C.3 of the NPDES program and CalGreen require new development to incorporate LID strategies, including onsite infiltration, as initial stormwater management strategies. Therefore, the regional impacts of implementation of the projected land use pattern of the MTP/SCS on groundwater supplies or groundwater recharge such that sustainable groundwater management would be impeded are considered less than significant (LS) for Impact HYD-2. No mitigation is required.

Some planned transportation improvements, such as the addition of new lanes to a roadway or highway, could also increase impervious surfaces, but would have limited demands for additional groundwater pumping. With regard to groundwater recharge, many of the proposed MTP/SCS transportation facilities are on or adjacent to existing highways, streets, and roads in which most of the surfaces are already paved or impervious. However, the proposed MTP/SCS would result in the implementation of 1,250 new lane miles of highways, arterials, and expressways throughout the region. These new impervious surfaces, while planned for by local implementing agencies, could contribute to limiting regional groundwater recharge. Extensive storm drainage systems present in these areas currently intercept rainfall and runoff waters, thus limiting the amount of groundwater recharge that occurs. Local agency and Caltrans standards, combined with state and federal regulations and BMPs, require drainage studies for planned transportation improvements. These studies address drainage issues, including incorporation of infiltration systems where appropriate to limit offsite runoff volumes. Because of the regulations discussed above that address drainage issues, the planned transportation improvements would not substantially decrease groundwater supplies or interfere with groundwater recharge such that sustainable groundwater management would be impeded. Therefore, the regional impacts of the planned transportation improvements of the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-2. No mitigation is required.

Localized Impacts

Center and Corridor, Established, and Developing Communities
Within Center and Corridor, Established, and Developing Communities land development would occur near existing and planned infrastructure in areas that may already be impervious. By concentrating growth in these Community Types, the proposed MTP/SCS would guide the

projected land use pattern away from undeveloped locations that may be well suited to facilitating groundwater recharge. As described above, this development would increase consumption of groundwater by increasing water demand and introduce impervious surfaces that could interfere with groundwater recharge. However, because of conjunctive management practices described in Chapter 17 – Utilities and Service Systems, established LID requirements, and ongoing development of sustainable management plans at the basin-level, these growth areas are unlikely to interfere with sustainable groundwater management.

As described above, there are established regulations intended to reduce groundwater use and subsequent overdraft of groundwater basins that development in Center and Corridor, Established, and Developing Communities would be obligated to comply with. Where sustainable groundwater management plans are adopted, development in these Community Types would be required to demonstrate consistency. Further, Provision C.3 of the NPDES program and CALGreen would require new development to incorporate LID strategies, including onsite infiltration, as initial stormwater management strategies. Therefore, the impacts of implementation of the projected land use pattern of the proposed MTP/SCS on groundwater supplies or groundwater recharge such that sustainable groundwater management would be impeded are considered less than significant (LS) in Center and Corridor, Established, and Developing Communities for Impact HYD-2. No mitigation is required.

Planned transportation improvements in Center and Corridor, Established, and Developing Communities may increase impervious surfaces, but would have limited demand for groundwater pumping. With regard to groundwater recharge, many of the proposed MTP/SCS transportation facilities are on or adjacent to existing highways, streets, and roads in which most of the surfaces are already paved or impervious. However, the proposed MTP/SCS would result in the implementation of new roadways throughout these community types. These new impervious surfaces, while planned for by implementing agencies, could contribute to limiting regional groundwater recharge. Extensive storm drainage systems present in these areas currently intercept rainfall and runoff waters, thus limiting the amount of groundwater recharge that occurs. Local agency and Caltrans standards, combined with state and federal regulations and BMPs, require drainage studies for planned transportation improvements. These studies address drainage issues, including incorporation of infiltration systems where appropriate to limit offsite runoff volumes. Because of the regulations discussed above that address drainage issues, the planned transportation improvements would not substantially decrease groundwater supplies or interfere with groundwater recharge such that sustainable groundwater management would be impeded. Therefore, the impacts of the planned transportation improvements of the proposed MTP/SCS in Center and Corridor, Established, and Developing Communities are considered less than significant (LS) for Impact HYD-2. No mitigation is required.

Rural Residential Communities

Implementation of the proposed MTP/SCS would result in limited development in Rural Residential Communities that would convert previously undeveloped land to developed uses; about one percent of forecasted regional housing growth and less than one percent of employment growth under the proposed MTP/SCS would occur in Rural Residential Communities. Such development would have incremental demands for new or expanded water supplies, all or a portion of which would be provided by groundwater. Further, this development would also introduce new impermeable surfaces that could impede groundwater recharge in these communities. However, because of conjunctive management practices described in Chapter 17 – Utilities and Service

Systems, established LID requirements, and ongoing development of sustainable management plans at the basin-level, the incremental growth identified in Rural Residential Communities is unlikely to interfere with sustainable groundwater management

As described above, there are established regulations intended to reduce groundwater use and subsequent overdraft of groundwater basins that development in Rural Residential Communities would be obligated to comply with. Where sustainable groundwater management plans are adopted, development would be required to demonstrate consistency. Many of the larger groundwater basins, which cover most of the plan area where development could occur, have been classified as high or medium priority basins under SGMA. Under SGMA, agencies managing high and medium priority basins are required to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Further, Provision C.3 of the NPDES program and CALGreen require new development to incorporate LID strategies, including onsite infiltration, as initial stormwater management strategies. Therefore, the impacts of implementation of the projected land use pattern of the MTP/SCS on groundwater supplies or groundwater recharge such that sustainable groundwater management would be impeded are considered less than significant (LS) in Rural Residential Communities for Impact HYD-2. No mitigation is required.

Planned transportation improvements within Rural Residential Communities generally consist of a limited number of new or widened roadway or freeway improvements, as well as maintenance and rehabilitation projects and safety improvements (e.g., new shoulders, guardrails, rumble strips, and traffic signals).

Those improvements that are on existing facilities, such as paved shoulders converted to lanes, maintenance and rehabilitation activities, and safety improvements would not substantially increase the amount of impermeable surfaces in the area. However, the proposed MTP/SCS would result in the limited implementation of new or widened roadways in Rural Residential communities. These new impervious surfaces, while planned for by implementing agencies, could contribute to limiting groundwater recharge. Extensive storm drainage systems present in these areas currently intercept rainfall and runoff waters, thus limiting the amount of groundwater recharge that occurs. Local agency and Caltrans standards, combined with state and federal regulations and BMPs, require drainage studies for planned transportation improvements. These studies address drainage issues, including incorporation of infiltration systems where appropriate to limit offsite runoff volumes. Because of the regulations discussed above that address drainage issues, the planned transportation improvements would not substantially decrease groundwater supplies or interfere with groundwater recharge such that sustainable groundwater management would be impeded. Therefore, the impacts of implementation of the planned transportation improvements of the MTP/SCS on groundwater supplies or groundwater recharge such that sustainable groundwater management would be impeded are considered less than significant (LS) in Rural Residential Communities for Impact HYD-2. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Therefore, it is unlikely that development in this Community Type would exacerbate land subsidence associated with groundwater use.

Therefore, the impacts of implementation of the projected land use pattern of the MTP/SCS on groundwater supplies or groundwater recharge such that sustainable groundwater management would be impeded are considered less than significant (LS) in Lands Not Identified for Development for Impact HYD-2. No mitigation is required.

The proposed MTP/SCS would result in a variety of planned transportation improvements in this Community Type by 2040. The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Planned transportation improvements in these communities would have very limited demands for water supplies; therefore, they would not substantially affect groundwater resources such that that they would result in land subsidence or create groundwater overdraft conditions.

This Community Type covers over 2.6 million acres of land in the plan area of the proposed MTP/SCS. However, there are a limited number of planned transportation improvements in this Community Type, and many projects would be improvements to existing impervious structures. These new impervious surfaces, while planned for by implementing agencies, could contribute to limiting groundwater recharge. Extensive storm drainage systems present in these areas currently intercept rainfall and runoff waters, thus limiting the amount of groundwater recharge that occurs. Local agency and Caltrans standards, combined with state and federal regulations and BMPs, require drainage studies for planned transportation improvements. These studies address drainage issues, including incorporation of infiltration systems where appropriate to limit offsite runoff volumes. Because of the regulations discussed above that address drainage issues, the planned transportation improvements would not substantially decrease groundwater supplies or interfere with groundwater recharge such that sustainable groundwater management would be impeded. Therefore, the impacts of the planned transportation improvements of the proposed MTP/SCS are considered less than significant (LS) in Lands Not Identified for Development for Impact HYD-2. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As described above, Placer, Sacramento, and Yolo Counties overlay groundwater basins for which for which GSAs are preparing sustainable groundwater management plans or alternative submittals. Where these basins have been categorized by DWR as high or medium priority, SGMA requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. These conditions would limit the potential for development within HFTAs to substantially interfere with sustainable groundwater management. Further, because HFTAs are already urbanized, most of the development in these areas would be redevelopment, infill, and intensification of existing land uses.

Existing regulatory requirements at the local, state, and federal level include measures to minimize any increases in offsite stormwater runoff by encouraging onsite infiltration, which would effectively minimize the potential reduction in groundwater recharge to an acceptable level. Activities would be implemented under California regulations governing use of groundwater, including the Groundwater Management Act, as well as groundwater provisions of applicable local general plans. Taken as a whole, these regulations are intended to reduce groundwater use and subsequent overdraft of groundwater basins. Further, as discussed above under Impact HYD-1, Provision C.3 of the

NPDES program requires new development with 10,000 or more square feet of new impervious surfaces to incorporate LID strategies, including onsite infiltration, as initial stormwater management strategies. Therefore, the impacts of implementation of the projected land use pattern of the MTP/SCS on groundwater supplies or groundwater recharge such that sustainable groundwater management would be impeded are considered less than significant (LS) in HFTAs for Impact HYD-2. No mitigation is required.

Because HFTAs are urbanized, most of the planned transportation improvements would be on or adjacent to existing facilities. Improvements that are on existing facilities, such as paved shoulders converted to lanes, would not likely add impermeable surfaces. Even in these built out areas, however, there could be new impervious surfaces added by improvements to vacant areas that may slow the rate of groundwater recharge. Local agency and Caltrans standards, combined with state and federal regulations and BMPs, often require drainage studies for planned transportation improvements. These studies address drainage issues, including incorporation of infiltration systems where appropriate.

Therefore, impacts of the planned transportation improvements of the proposed MTP/SCS are considered less than significant (LS) in HFTAs for Impact HYD-2. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT HYD-3A: SUBSTANTIALLY ALTER EXISTING DRAINAGE PATTERNS, INCLUDING ALTERATION OF THE COURSE OF A STREAM OR RIVER OR ADDITION OF IMPERVIOUS SURFACES, IN A MANNER THAT WOULD RESULT IN SUBSTANTIAL EROSION OR SILTATION.

Regional Impacts

As described above, implementation of the projected land use pattern of the proposed MTP/SCS would result in new development that would increase the total amount of impervious surfaces and result in an incremental reduction in the amount of natural soil surfaces available for filtration of rainfall and runoff, potentially generating additional runoff during storm events. In addition, developments may alter local drainage patterns through ground disturbance or construction of drainage channels.

While erosion is being analyzed as an indirect impact of alterations to the existing drainage pattern in the impact discussion below, please refer also to Chapter 9 – Geology, Seismicity, Soils, and Mineral Resources, which provides a description of direct impacts related to erosion under Impact GEO-2.

Erosion and sedimentation in the watershed as a result of urban development is generally controlled through compliance with applicable NPDES permits and local drainage and erosion design and standards. To receive an NPDES Construction General Permit (as described in state regulatory setting of this chapter), project proponents must develop a stormwater maintenance plan with an erosion control plan that includes appropriate BMPs and hydrologic and hydraulic calculations for storm drains and rock riprap energy dissipaters at storm drains can reduce the velocity of runoff. They must also prepare a SWPPP. BMPs that are required under a SWPPP would include erosion prevention measures that have proven effective in limiting soil erosion and loss of topsoil. Projects

that would disturb less than one acre would be subject to the CALGreen requirements related to stormwater drainage that have been designed to prevent or reduce discharges of sediments through BMPs that include on-site retention and filtration.

NPDES MS4 permittees including but not limited to the cities and counties of the plan area must develop standard urban runoff mitigation plans and manuals. For example, the Sacramento Stormwater Quality Partnership has developed runoff mitigation plans for Sacramento County and South Placer County (Sacramento Stormwater Quality Partnership 2018). The Sacramento Stormwater Quality Partnership hydromodification management plan also requires project proponents to maintain preconstruction hydrological conditions. The plans and manuals specify BMPs and additional regulations to mitigate runoff, thereby reducing the likelihood of substantial erosion or siltation.

In addition to the requirements on NPDES permittees, several SWRCB Management Measures for Urban Areas uniquely apply to impacts related to erosion and are discussed below. Also discussed in the state regulatory setting section of this chapter are SWRCB Management Measures for Hydromodification. These Management Measures address Hydromodification affecting state waters (SWRCB 2012c). The Management Measures are intended to address nonpoint source pollution in three ways: (1) voluntary implementation of BMPs, (2) regulatory based encouragement of BMPs, and (3) adopted effluent limits. Management Measures 3.1B, 3.2A and 5.1A apply to this impact.

Generally, earthwork and ground-disturbing activities require a grading permit, compliance with which minimizes erosion, and local grading ordinances ensure that construction practices include measures to protect exposed soils - such as limiting work to dry seasons, covering stockpiled soils, and use of straw bales and silt fences to minimize off-site sedimentation. Additional reports, such as a soil engineering report, engineering geology report, or plans and specifications for grading may be required by local building or engineering departments, depending on the proposal. The application, plans, and specifications (if any) would be checked by the appropriate building official or engineer and may be reviewed by other departments of the county or city to ensure compliance with the laws and ordinances under their jurisdiction. Earthwork recommendations for improved erosion controls, based on site conditions, would be incorporated into the project construction documents. Even projects that are less than one acre in size are required under CALGreen to prevent the pollution of stormwater runoff through compliance with a local ordinance or implementing BMPs that address soil loss.

As described in Chapter 9 – Geology, Soils, Seismicity, and Mineral Resources, compliance with existing regulations such as the NPDES permit requirements and CALGreen, would substantially address the potential for land development projects under implementation of the proposed MTP/SCS to alter existing drainage patterns in a manner that would result in substantial erosion. Generally, once construction is complete and exposed areas are revegetated or covered by buildings, asphalt, or concrete, the erosion hazard is substantially eliminated or reduced.

At the regional level, implementation of the proposed MTP/SCS would result in development beyond the existing urban footprint. Drainage systems are designed on a site-specific basis in accordance with site specific conditions and applicable flood control design criteria. Local, state and federal policies and regulations specified above are in place to provide adequate analysis of potential impacts and preventative measures to limit or avoid substantial alteration of the existing drainage pattern of the plan area. In addition, as described in Chapter 9 – Geology, Soils, Seismicity, and

Mineral Resources, local governments may require preparation of a site-specific geotechnical study to examine the stability of soils at the site. Therefore, based on existing regulations, implementation of the proposed MTP/SCS is not anticipated to increase the rate or amount of surface runoff in a manner that would result substantial erosion or siltation.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to implementation of the projected land use pattern of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HYD-2. No mitigation is required.

The Planned transportation improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may alter existing drainage patterns, including the course of streams and rivers, which may result in erosion or siltation. Planned transportation improvements would be required to adhere to the same regulatory requirements as described above for land use projects where impervious surfaces are constructed or replaced. The SWRCB Management Measures for Urban Areas and Hydromodification (3.1B, 3.2A, 3.5A 3.5B, 3.5C, 5.1A, 5.1B and 5.1C) described under the state regulatory setting, also apply to transportation impacts for HYD-3A. Projects that fall under Caltrans' jurisdiction would also adhere to the Caltrans Stormwater Program, which includes measures to control stormwater quality.

Caltrans regulations combined with federal and state regulations require that engineered conveyances integrate energy dissipation protection, streambank erosion protection, and other design controls to minimize erosion or the transport of sediment or silt to downstream areas. The Caltrans Highway Design Manual (2010) requires that: road storm drain systems are designed to safely drain the 25-year return interval storm; cross-culverts are designed to safely drain the 10-year interval storm; and the headwater depth for the 100-year interval storm must not overtop freeways. Specifically, Caltrans projects are subject to the Caltrans NPDES Construction General Permit. The Caltrans Storm Water Management Plan sets the maintenance practices for controlling erosion and siltation. These existing regulatory requirements substantially address the potential for impacts to drainage patterns and rates.

Planned transportation improvements where local agencies are the lead agency are subject to local and State regulations for construction and non-construction runoff prevention. Non-Caltrans projects are subject to the NPDES Construction General Permit, and the hydromodification management plan in certain jurisdictions, as discussed in the state regulatory setting section of this chapter.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to implementation of the planned transportation improvements of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HYD-3A. No mitigation is required.

Localized Impacts

Center and Corridor, Established, Developing, Rural Residential Communities and Lands Not Identified for Development in the Proposed MTP/SCS

The localized effects of land development and planned transportation improvements related to erosion due to alteration of drainage patterns would be consistent with the regional effects of implementing the MTP/SCS. As described above, implementation of the proposed Plan could result

in new development that would increase the total amount of impervious surfaces and result in an incremental reduction in the amount of natural soil surfaces available for filtration of rainfall and runoff, potentially generating additional runoff during storm events. BMPs that are required under a SWPPP would include erosion prevention measures that have proven effective in limiting soil erosion and loss of topsoil.

Projects that would disturb less than one acre would be subject to the CALGreen requirements related to stormwater drainage that have been designed to prevent or reduce discharges of sediments through BMPs that include on-site retention and filtration. In addition, developments may alter local drainage patterns through ground disturbance or construction of drainage channels. In addition, several there are several SWRCB Management Measures for Urban Areas and Hydromodification. If development is consistent with established regulations, it would be designed such that the effects of altering drainage patterns would be managed onsite and the potential for erosion and siltation would be reduced. Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS in Center and Corridor, Established, Developing, Rural Residential Communities and Lands Not Identified for Development are considered less than significant (LS) for Impact HYD-3A. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
HFTAs are urban environments and the projects anticipated in these areas would be primarily redevelopment or infill. Due to the existing development in these areas, they are generally dominated by impervious surfaces and served by constructed drainage conveyance. These conditions limit the potential for projects to alter drainage patterns in a manner that results in substantial erosion. Moreover, land development and planned transportation improvements in HFTAs would be subject to the regulations described above in the discussion of regional impacts. Impacts associated with substantial alteration of the existing drainage pattern related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS in HFTAs are considered less than significant (LS) for Impact HYD-3A. No mitigation is required.

Mitigation Measure

None required.

IMPACT HYD-3B: SUBSTANTIALLY ALTER EXISTING DRAINAGE PATTERNS, INCLUDING ALTERATION OF THE COURSE OF A STREAM OR RIVER OR ADDITION OF IMPERVIOUS SURFACES, IN A MANNER THAT WOULD SUBSTANTIALLY INCREASE RATES OR AMOUNTS OF SURFACE RUNOFF AND RESULT IN FLOODING.

Regional Impacts

At the regional level, the projected land use pattern of the proposed MTP/SCS has the potential to adversely affect the rate and amount of surface runoff through increased impervious surfaces and structures in the watershed that could result in on- or off-site flooding. The increased runoff could also discharge at a greater rate, leading to higher peak flows during storm events that could increase the potential for stormwater to cause flood conditions. However, local and state drainage control

requirements would apply to most improvements where both rates and volumes of runoff would be required to meet minimum thresholds, such that potential flood hazards would be minimized.

Planned transportation improvements would involve grading, recontouring, installation of bridge pilings, and new impervious surfaces, which may substantially alter existing drainage patterns, including the course of streams and rivers, and stormwater flow volumes and/or velocity. Planned transportation improvements are subject to local and state regulations for construction and non-construction runoff prevention. The NPDES permit requirements described in the state regulatory setting section of this chapter also would apply to transportation impacts. Projects that fall under Caltrans jurisdiction would adhere to the Caltrans Stormwater Program, which includes measures to control stormwater volumes. The Caltrans Highway Design Manual also requires that: road storm drain systems are designed to safely drain the 25-year return interval storm; cross- culverts are designed to safely drain the 10-year interval storm; and the headwater depth for the 100-year interval storm must not overtop freeways. The Sacramento Stormwater Quality Partnership hydromodification management plan also applies to projects within the boundaries of the partnership's member jurisdictions in Sacramento County and South Placer County.

As discussed in Impact HYD-3A, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria. Adherence to local and state regulations would help prevent substantial alterations to the existing drainage pattern of the site or area and avoid substantial increases in the rate or amount of surface runoff in a manner that would result in on- or offsite flooding. Therefore, regional impacts associated with substantial alteration of the existing drainage pattern related implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-3B. No mitigation is required.

Localized Impacts

Center and Corridor Communities and Established Communities
Because Center and Corridor Communities and Established Communities are already largely built out, most of the development in these areas would be redevelopment, infill, and intensification of existing land uses. These types of development usually do not substantially alter the existing drainage pattern of the areas where they locate, especially when they do not add substantial amounts of additional impervious surfaces. Where projects are proposed, implementing agencies would make project-specific decisions regarding whether existing infrastructure can accommodate the project, or upgraded or new infrastructure is required. In some cases, infrastructure improvements do change the drainage patterns of the site by redirecting flows into engineered conveyances, and therefore reducing the rate or amount of surface runoff.

Federal, state, and local policies and regulations specified above are in place to provide adequate analysis of potential impacts and preventative measures to limit or avoid substantial alteration of the existing drainage pattern of the plan area, so implementation of the proposed MTP/SCS would not be anticipated to increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern from implementation of the projected land use pattern of the proposed MTP/SCS in Center and Corridor

Communities are considered less than significant (LS) for Impact HYD-3B. No mitigation is required.

Because Center and Corridor Communities and Established Communities are urbanized, most of the planned transportation improvements would be on or adjacent to existing facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, would not likely alter drainage patterns because the facilities are already served by drainage systems. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and on- and off-site flooding without proper controls.

As discussed under regional impacts, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria. Planned transportation improvements where Caltrans or local agencies are the lead agency are subject to local and state regulations previously mentioned in this chapter for construction and non-construction runoff prevention and flood control.

Use of LID guidance provided by the Environmental Protection Agency, the Governor's Office of Planning and Research as well as other resources including the West Placer Post Construction Stormwater Design Manual can help address impacts related to drainage patterns and rates (OPR 2009; Placer County et al. 2018).

Therefore, the impacts associated with substantial alteration of the existing drainage pattern resulting in increased flood risk from the implementation of the planned transportation improvements of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact HYD-3B. No mitigation is required.

Developing Communities
Developing Communities may have some existing development, but for the most part they are undeveloped. Implementation of the proposed MTP/SCS would facilitate urban changes that would result in the conversion of previously undeveloped land to urban uses. Greenfield development may substantially alter the existing drainage pattern of the areas where they locate, especially when grading and other changes are made to the site or area by grading or other methods of alteration. Increased development does increase stormwater flows, which may result in increased volume and/or velocity. Such increases in development raise the potential for on- or off-site flooding, erosion, or siltation. However, the required stormwater drainage capacity infrastructure, as described in Impact HYD-3A, combined with adherence to NPDES permit requirements and SWRCB Management Measures for Urban Areas and Hydromodification (described in the state regulatory setting section of this chapter) would avoid or substantially lessen these potential impacts. In many cases, infrastructure improvements change the drainage patterns of a site by redirecting flows into engineered conveyances and reducing the rate or amount of surface runoff.

Federal, state, and local policies and regulations specified above are in place to provide adequate analysis of potential impacts and preventative measures to limit or avoid substantial alteration of the existing drainage pattern of the plan area, so implementation of the proposed MTP/SCS would not be expected to increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern resulting in increased flood risk from the implementation of the projected land use pattern of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact HYD-3B. No mitigation is required.

Because Developing Communities are not fully urbanized, many of the planned transportation improvements would be new facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, would not likely alter drainage patterns because the facilities are already served by drainage systems. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- and off-site flooding.

As discussed under regional impacts, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria.

Planned transportation improvements where Caltrans or local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention. The following regulations, described under the regional impacts, also apply at the localized level: NPDES permit requirements, Sacramento Stormwater Quality Partnership hydromodification management plan requirements, SWRCB Management Measures for Urban Areas and Hydromodification (3.1B, 3.2A, 3.5A 3.5B, 3.5C, 5.1A, 5.1B and 5.1C), and Caltrans regulations (including Highway Design Manual, NPDES Construction General Permit, Storm Water Management Plan).

Therefore, the impacts associated with substantial alteration of the existing drainage pattern resulting in increased flood risk from the implementation of the planned transportation improvements of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact HYD-3B. No mitigation is required.

Rural Residential Communities

Where impervious surfaces are added in Rural Residential Communities, or changes are made to the site or area by grading or other methods of alteration, there may be substantial alterations to the existing drainage pattern. Increased development increases stormwater flows, which may result in increased volume and/or velocity. Such increases raise the potential for on- or off-site flooding, but the development in this Community Type assumed as a part of the MTP/SCS would be limited. Additionally, requirements for stormwater drainage capacity infrastructure, as described in Impact HYD-3A, combined with adherence to NPDES permit requirements and SWRCB Management Measures for Urban Areas and Hydromodification (described in the land use discussion under regional impacts) apply to land development in this Community Type.

Federal, state, and local policies and regulations specified above are in place to provide adequate analysis of potential impacts and preventative measures to limit or avoid substantial alteration of the existing drainage pattern of the plan area, so implementation of the proposed MTP/SCS would not be expected to increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding, or substantial erosion or siltation.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern resulting in increased flood risk from the implementation of the projected land use pattern of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-3B. No mitigation is required.

Because Rural Residential Communities are not urbanized, many of the planned transportation improvements would be new facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, would not likely alter drainage patterns. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- and off-site flooding.

As discussed under regional impacts, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria. Planned transportation improvements where Caltrans or local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern from the implementation of the planned transportation improvements of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-3B. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS

Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040.

The impacts associated with substantial alteration of the existing drainage pattern resulting in increased flood risk from the implementation of the projected land use pattern of the proposed MTP/SCS on Lands Not Identified for Development in the MTP/SCS are, therefore, considered less than significant (LS) for Impact HYD-3B. No mitigation is required.

The focus for planned transportation improvements in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Because planned transportation improvements in this Community Type would be primarily on or adjacent to existing transportation facilities, they would not likely alter drainage patterns because the facilities are already served by drainage systems. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- and off-site flooding. As discussed under regional impacts, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria. Planned transportation improvements where Caltrans or local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern resulting in increased flood risk from the implementation of the projected land use pattern of the proposed MTP/SCS on Lands Not Identified for Development in the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-3B. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Because HFTAs are already urbanized, most of the development in these areas would be redevelopment, infill, and intensification of existing land uses. These types of development usually do not alter the existing drainage pattern of the area because they do not usually add impervious surfaces beyond what already exists and they are served by existing infrastructure. Increased development does increase stormwater flows, which may result in increased volume and/or velocity. Such increases raise the potential for on- or off-site flooding. However, the required stormwater drainage capacity infrastructure, as described in Impact HYD-3A, combined with adherence to NPDES permit requirements and SWRCB Management Measures for Urban Areas and Hydromodification (described in the state regulatory setting section of this chapter) would be implemented.

Federal, state, and local policies and regulations specified above are in place to provide adequate analysis of potential impacts and preventative measures to limit or avoid substantial alteration of the existing drainage pattern of the plan area, so implementation of the proposed MTP/SCS would not be expected to increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding, or substantial erosion or siltation.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern resulting in increased flood risk from the implementation of the projected land use pattern of the proposed MTP/SCS in HFTAs are considered less than significant (LS) for Impact HYD-3B. No mitigation is required.

Because HFTAs are urbanized, most of the planned transportation improvements would be on or adjacent to existing facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, would not likely alter drainage patterns because the facilities are already served by drainage systems. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- and off-site flooding. However, as discussed under regional impacts, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria. These studies are required and implemented under established regulations, as discussed above.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern resulting in increased flood risk from the implementation of the planned transportation improvements of the proposed MTP/SCS in HFTAs are considered less than significant (LS) for Impact HYD-3B. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT HYD-3C: SUBSTANTIALLY ALTER EXISTING DRAINAGE PATTERNS, INCLUDING ALTERATION OF THE COURSE OF A STREAM OR RIVER OR ADDITION OF IMPERVIOUS SURFACES, IN A MANNER THAT WOULD CREATE OR CONTRIBUTE RUNOFF, WATER THAT WOULD EXCEED THE CAPACITY OF EXISTING OR PLANNED STORMWATER DRAINAGE SYSTEMS, SUCH THAT THE CONSTRUCTION OF NEW, EXPANDED, OR RELOCATED FACILITIES THAT COULD CAUSE SIGNIFICANT EFFECTS IS REQUIRED, OR PROVIDE SUBSTANTIAL ADDITIONAL SOURCES OF POLLUTED RUNOFF.

Regional Impacts

The implementation of the projected land use pattern of the proposed MTP/SCS would result in an incremental reduction in the amount of natural soil surfaces available for filtration of rainfall and runoff between 2016 and 2040, potentially generating additional runoff during storm events. Additionally, the increased runoff could discharge at a greater rate than the existing condition, leading to higher peak flows during storm events. Greater runoff volume and intensity both increase the potential for stormwater to cause flood conditions that could transport urban pollutants (e.g. oil and grease, petroleum hydrocarbons, and metals from non-point sources) if not properly controlled.

New development that could contribute runoff would be concentrated in portions of the region that are already built out. In these areas, increases would either be accommodated by existing infrastructure, or project proponents would be required by local ordinances and state regulations to make infrastructure improvements. Where new, expanded, or relocated facilities are required, it can be assumed that they would occur within the growth footprint analyzed in this EIR and potential environmental effects would be within the scope of this analysis. The infrastructure upgrades of individual development projects would accommodate the stormwater and water quality treatment needs of the development and, thus, these projects would not be expected to create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff at the regional scale. Where infrastructure is upgraded to facilitate development, local and State regulations would require developments to comply with CEQA, apply BMPs, implement control measures, adhere to NPDES permit requirements, and comply with local drainage standards. In some cases, adherence to NPDES Provision C.3 requirements may result in improved retention of stormwater rates and volumes, compared to existing conditions, through implementation of LID drainage control measures.

Clean Water Act Section 402 NPDES MS4 Phase I and Phase II permits, which cover all jurisdictions as well as large institutional users (as further described under the state regulatory settings discussion above), require agencies and developments to implement stormwater management plans, which in turn require the implementation of source and treatment control measures. Clean Water Act Section 402 NPDES Construction General permits require project proponents to incorporate general site design control measures into project design. These control measures may include conserving natural areas, protecting slopes and channels, and minimizing impervious areas. Treatment control measures may include use of vegetated swales and buffers, grass median strips, detention basins, wet ponds, or constructed wetlands, infiltration basins, and other measures. Filtration systems may be either mechanical (e.g., oil/water separators) or natural (e.g., bioswales and settlement ponds). Selection and implementation of these measures would occur on a project-by-project basis depending on project size and stormwater treatment needs.

NPDES MS4 permittees are also required to develop and enforce ordinances and regulations to reduce the discharge of sediments and other pollutants in runoff, and must verify compliance. NPDES Construction General permittees are also required to develop a SWPPP for each site, which includes BMPs to reduce potential construction impacts. The Central Valley and Lahontan Regional Water Quality Control Boards enforce the SWPPP requirement.

In addition to the requirements on NPDES permittees, the SWRCB has developed 15 Management Measures for Urban Areas to reduce potential impacts on hydrology from urban development. These Management Measures are intended to address nonpoint source pollution in three ways: (1) voluntary implementation of BMPs, (2) regulatory based encouragement of BMPs, and (3) adopted effluent limits. Management Measures 3.1A, 3.1C, 3.2B, 3.3A and 3.4A discussed in the state regulatory setting section of this chapter apply to land use impacts.

As discussed further in Impact HYD-1, implementing agencies would require project sponsors to comply with State and federal water quality regulations for all projects that would alter existing drainage patterns. Erosion control measures would be consistent with NPDES General Construction Permit requirements, including preparation and implementation of a SWPPP, and final drainage plans would be consistent with the Regional MS4 NPDES permit or any applicable local drainage control requirements that exceed or reasonably replace any of these measures to protect receiving waters from pollutants. Projects would also generally comply with the design guidelines established in the *California Stormwater Best Management Practice Handbook for New Development and Redevelopment* (CASQA 2003) to minimize both increases in the volume and rate of stormwater runoff, and the amount of pollutants entering the storm drain system. Once constructed, the NPDES Provision C.3 requirements for new development would include source control measures in site designs to address both soluble and insoluble stormwater runoff pollutant discharges.

Also as discussed above, operational phases of new development and redevelopment generally require drainage control measures in accordance with local, state, and federal regulatory requirements. These requirements include measures to limit the potential sources of pollution in non-point stormwater runoff sources, as well as point sources. Post-construction measures that are required under Provision C.3 of the regional NPDES MS4 permit would include implementation of LID drainage control features. LID features ultimately reduce impervious surfaces within a project compared to projects without LID features, which can reduce the volume of new stormwater runoff created by development projects. LID features include creating bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. The creation of these features correspondingly reduces the potential for stormwater pollution (CASQA 2015). The LID approach to stormwater management overlaps with NPDES site control measures that include conserving natural areas, protecting slopes and channels, and minimizing impervious areas.

Additionally, the Sacramento Stormwater Quality Partnership has developed a hydromodification management plan to require project to maintain preconstruction hydrological conditions for its member jurisdictions in Sacramento County and South Placer County.

Although there is potential for the projected land use pattern to cause or contribute to a long-term increase in discharges of urban contaminants into the stormwater drainage system compared to existing conditions, subsequent projects would be required to incorporate BMPs and LID stormwater management principles. In accordance with federal, State, and local stormwater management regulations, new construction must maintain pre-project hydrology and incorporate

proper pollutant source controls, minimize pollutant exposure outdoors, and treat stormwater runoff through proper BMPs when source control or exposure protection are insufficient for reducing runoff pollutant loads. Modifications to stormwater drainage systems, where required, would occur within the plan area and would be consistent with the potential effects evaluated throughout this EIR. Therefore, regional impacts associated with the potential for implementation of the projected land use pattern of the proposed MTP/SCS to result in additional sources of polluted runoff, or result in environmental effects due to the construction or modification of stormwater drainage systems are considered less than significant (LS) for Impact HYD-3C. No mitigation is required.

Planned transportation improvements could increase alter drainage patterns such that there are additional sources of polluted runoff or an increase in stormwater runoff such that existing or planned stormwater infrastructure capacity is exceeded. Paving required for streets and highways could increase runoff, and divert polluted road runoff directly into streams if not properly controlled.

The operation of planned transportation improvements could increase non-point pollution of stormwater runoff because of litter, fallout from airborne particulate emissions, or discharges of vehicle residues, including petroleum hydrocarbons and metals, that could impact the quality of receiving waters. During the dry season, vehicles and other urban activities release contaminants onto the impervious surfaces, where they can accumulate until the first storm event. During a storm event, the concentrated pollutants would be transported via runoff to stormwater drainage systems that discharge into rivers, agricultural ditches, sloughs, and channels and ultimately could degrade the water quality of any of these water bodies. As new roads, lanes, or other new impervious surfaces are added to accommodate projected vehicular traffic, the potential also increases for associated stormwater pollutants to enter receiving waters because of the increase in impervious surfaces and the anticipated increase in vehicle travel. For further discussion of pollutants commonly associated with transportation corridors, refer to Chapter 10 – Hazards, Hazardous Materials, and Wildfire

Existing regulations would ensure that the planned transportation improvements of the proposed MTP/SCS are designed to properly manage resulting increases in runoff water volumes and potential additional sources of pollutants. Planned transportation improvements in the proposed MTP/SCS where Caltrans is the lead agency would be covered by the Caltrans Stormwater Program. As described in the regulatory settings, this permit regulates all stormwater discharges from Caltrans-owned conveyances, maintenance facilities, and construction activities. Caltrans also has a Storm Water Management Plan that describes the procedures and practices it implements to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters. SWRCB Management Measures for Urban Areas 3.1A, 3.1C and 3.5A – 3.5F discussed in the state regulatory setting section of this chapter apply to transportation impacts.

Operational phases of new planned transportation improvements generally require drainage control measures in accordance with local, State, and federal regulatory requirements. These requirements include measures to limit the potential sources of pollution from both non-point and point sources of stormwater runoff. NPDES permit requirements would also apply to transportation impacts (project design including general site design control measures, treatment control measures, ordinances and regulations to reduce the discharge of sediments and other pollutants, SWPPP including BMPs). In addition, planned transportation improvements where Caltrans is the lead

agency are covered by the Caltrans Stormwater Program. Caltrans also has a SWMP that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters.

The planned transportation improvements have the potential to increase volumes of runoff water and stormwater pollutants in runoff. Individual projects under the proposed plan would be subject to regulations that provide adequate analysis of potential impacts and preventative measures to substantially lessen or avoid substantial release of pollutants during project operation or potential exceedances of stormwater drainage system capacity. Therefore, regional impacts associated with the potential for implementation of the planned transportation improvements of the proposed MTP/SCS to result in additional sources of polluted runoff, or exceed the capacity of existing or planned stormwater drainage systems are considered less than significant (LS) for Impact HYD-3C. No mitigation is required.

Localized Impacts

Center and Corridor Communities and Established Communities
Because Center and Corridor Communities and Established Communities are already largely built out, most of the development in these areas would be redevelopment, infill, and intensification of existing land uses. These types of developments usually require infrastructure upgrades to existing facilities. Similarly, the planned transportation improvements would be to existing facilities with stormwater drainage infrastructure in place. In cases where the infrastructure would not adequately handle stormwater drainage or control polluted runoff, lead agencies would be required to make infrastructure upgrades. This work would be consistent with the types of the projected land use pattern anticipated in the proposed MTP/SCS and the growth footprint analyzed throughout this EIR includes the land required for infrastructure upgrades. As such, the anticipated effect of these upgrades has been evaluated at a program level throughout this EIR. Individual development projects within Center and Corridor Communities and Established Communities and the infrastructure to serve them, would be subject to project-level CEQA analysis. Where infrastructure is upgraded to facilitate development, local and state regulations would require developments to apply BMPs, implement control measures, adhere to NPDES permit requirements, and comply with local drainage standards.

Therefore, the impacts associated with the potential for implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS to result in additional sources of polluted runoff, or exceed the capacity of existing or planned stormwater drainage systems are considered less than significant (LS) in Center and Corridor Communities and Established Communities for Impact HYD-3C. No mitigation is required.

Developing Communities
Greenfield development in Developing Communities could result in either less potential to exceed the capacity of a stormwater drainage system due to proximity to recent development that anticipated additional growth when sizing infrastructure, or greater potential effects if there is no such adjacent development. The infrastructure in developing communities is typically designed to handle additional growth that would occur within the area, because large infrastructure such as stormwater systems are typically only constructed once to meet long-term buildout demands. In these areas, some projects may only require simple connections to the trunk stormwater drainage system. Where adequate local or trunk stormwater drainage does not exist, expansion of the system

capacity would be required by local cities and counties as part of development approval. This work would be consistent with the types of the projected land use pattern anticipated in the proposed MTP/SCS and the growth footprint analyzed throughout this EIR includes the land required for infrastructure upgrades. As such, the anticipated effect of these upgrades has been evaluated at a program level throughout this EIR. Further, individual projects within Developing Communities and the infrastructure to serve them would be subject to project-level CEQA analysis.

In comparison to Center and Corridor Communities and Established Communities, the Developing Communities would support a greater proportion of proposed transportation improvement projects proposed under the MTP/SCS because a greater number of road widening projects and new roads would be required to provide appropriate access to the new residential and employment developments that would be built by 2040. While some road maintenance and rehabilitation projects would be implemented in the Developing Communities, these types of planned transportation improvements would not be as prevalent as in Center and Corridor Communities and Established Communities because less existing transportation infrastructure is present. Developing Communities generally are not currently served by transit (or if they are, service is limited), but new transit service would be added incrementally to align with the completion of new housing and employment centers. Similarly, pedestrian and bicycle infrastructure would be implemented with housing and employment development.

Adherence to NPDES permit requirements and SWRCB Management Measures for Urban Areas (described in the state regulatory section of this chapter) in Developing Communities would ensure that projects do not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, Therefore, the impacts associated with the potential for implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS to result in additional sources of polluted runoff, or exceed the capacity of existing or planned stormwater drainage systems are considered less than significant (LS) in Developing Communities are considered less than significant (LS) for Impact HYD-3C. No mitigation is required.

Rural Residential Communities
The dispersed, predominantly residential, development in this Community Type is anticipated to have less impact overall on stormwater runoff than other types of development because Rural Residential Communities are forecasted to receive about one percent of future residential growth under the proposed MTP/SCS and one-half of one percent of future employment growth. In addition, they are generally on larger sites which can accommodate site run-off from impervious surfaces, and they would be built subject to local, state, and federal requirements for storm drainage and water quality.

While adherence to NPDES permit requirements and SWRCB Management Measures for Urban Areas (described in the state regulatory settings section of this chapter) would generally ensure that projects do not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff, these requirements do not apply to projects on less than one acre of land. For new projects on individual sites under one acre, management of runoff and associated water quality is regulated primarily through CALGreen. If new or expanded stormwater infrastructure is required to serve development in rural residential communities, this work would be consistent with the types of the

projected land use pattern anticipated in the proposed MTP/SCS. Further, the growth footprint analyzed throughout this EIR includes the land required for infrastructure upgrades. As such, the anticipated effect of these upgrades has been evaluated at a program level throughout this EIR. Individual projects within Rural Residential Communities and the infrastructure to serve them would be subject to project-level CEQA analysis.

Therefore, the impacts associated with the potential for implementation of the projected land use pattern of the proposed MTP/SCS to result in additional sources of polluted runoff, or exceed the capacity of existing or planned stormwater drainage systems are considered less than significant (LS) in Rural Residential Communities for Impact HYD-3C. No mitigation is required.

Because Rural Residential Communities are not urbanized, many of the planned transportation improvements would be new facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, would not likely alter drainage patterns because the facilities are already served by drainage systems. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may alter existing drainage patterns, which may result in increased stormwater flow volumes and/or velocity. However, because local, state, and federal policies and regulations specified in the regional discussion above are in place to address stormwater drainage capacity and control polluted runoff, implementation of the proposed MTP/SCS would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with the potential for implementation of the planned transportation improvements of the proposed MTP/SCS to result in additional sources of polluted runoff, or exceed the capacity of existing or planned stormwater drainage systems are considered less than significant (LS) in Rural Residential Communities for Impact HYD-3C. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040.

The proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040. The focus for investments in these areas would be on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. The proposed MTP/SCS would not result in land use or transportation changes that would generate runoff that exceeds system capacity and/or contribute polluted runoff.

Adherence to NPDES permit requirements and SWRCB Management Measures for Urban Areas (described in the state regulatory setting section of this chapter) would further ensure that any projects do not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or result in substantial additional sources of polluted runoff. Therefore, the impacts associated with the potential for implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS to result in additional sources of polluted runoff, or exceed the capacity of existing or planned stormwater drainage

systems in Lands Not Identified for Development are considered less than significant (LS) for Impact HYD-3C. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Because HFTAs are already urbanized, most of the projected land use pattern that would occur in these areas would be redevelopment, infill, and intensification of existing land uses. These types of development usually require infrastructure upgrades. The infrastructure upgrades would accommodate the stormwater and water quality treatment needs of the individual development and, thus, these projects would not be expected to create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Where infrastructure is upgraded to facilitate development, local and state regulations would require developments to apply BMPs, implement control measures, adhere to NPDES permit requirements, and comply with local drainage standards. This work would be consistent with the types of the projected land use pattern anticipated in the proposed MTP/SCS and the growth footprint analyzed throughout this EIR includes the land required for infrastructure upgrades. As such, the anticipated effect of these upgrades has been evaluated at a program level throughout this EIR. Further, individual projects within HFTAs and the infrastructure to serve them would be subject to project-level CEQA analysis. Those HFTAs within the city of Roseville and Sacramento County (incorporated and unincorporated) are subject to strict standards outlined in the Stormwater Quality Design Manual (Sacramento Stormwater Quality Partnership 2018).

Combined with the application of BMPs, implementation of control measures, adherence to NPDES permit requirements, and SWRCB Management Measures for Urban Areas (described in the state regulatory section of this chapter), implementation of the proposed MTP/SCS in HFTAs may reduce net polluted runoff and improve water quality.

Because HFTAs are urbanized, most of the planned transportation improvements would be to existing facilities with stormwater drainage infrastructure in place. In cases where the infrastructure would not adequately handle stormwater drainage or control polluted runoff, lead agencies would be required to make infrastructure upgrades and bring the system into compliance with current drainage standards. For example, development in HFTAs within the city of Roseville and Sacramento County (incorporated and unincorporated) would be subject to standards outlined in the Stormwater Quality Design Manual for the Sacramento Region (Sacramento Stormwater Quality Partnership 2018). Development within all of the HFTAs would be subject to locally-implemented NPDES and other regulations for management of runoff and water quality.

Adherence to NPDES permit requirements and SWRCB Management Measures for Urban Areas (described in the state regulatory setting of this chapter) in HFTAs would ensure that projects do not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with the potential for implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS to result in additional sources of polluted runoff, or exceed the capacity of existing or planned stormwater drainage systems are considered less than significant (LS) in HFTAs are considered less than significant (LS) for Impact HYD-3C. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT HYD-4: IN FLOOD HAZARD, TSUNAMI, OR SEICHE ZONES, RISK RELEASE OF POLLUTANTS DUE TO PROJECT INUNDATION.

Regional Impacts

The proposed MTP/SCS includes the projected land use pattern and planned transportation improvements that would be located in areas potentially subject to inundation during a flood, levee failure, dam failure, or seiche. Figure 11-3 shows 200-year and 100-year flood hazard areas in the plan area. While the majority of the projected land use pattern would be located outside these hazard areas, some the projected land use pattern in flood hazard areas are necessary to avoid leapfrog development because a sizable portion of the region's existing housing units (236,082) and jobs (307,475) are in the 200-year flood hazard areas. Table 11-7 shows planned transportation improvements that would be located in flood hazard areas. Similarly, there is existing development near rivers and the proposed MTP/SCS could result in additional development in areas that could experience levee failures (see Figure 11-8). Dam inundation areas (shown in Figure 11-9) are geographically large and portions of the projected land use pattern and planned transportation improvements fall within these areas. Seiches could occur adjacent to large bodies of water, such as Folsom Lake and Lake Tahoe, but there is no history of these events and the potential for contributing factors, such as earthquake and landslide, is somewhat limited. For the proposed MTP/SCS to result in release of pollutants due to inundation, development would need to occur in immediate proximity to these waterbodies. The plan area of the proposed MTP/SCS is outside of the areas of California at risk for tsunamis, as mapped by the California Department of Conservation, so impacts from tsunamis are not analyzed further (California Department of Conservation 2019).

However, numerous existing federal, state, and local laws and regulations are in place to address the management and control of pollutants, including regulations addressing the proper disposal, transportation, storage, and handling of potentially hazardous materials (refer to Chapter 10 – Hazards, Hazardous Materials, and Wildfire) and regulations removing or substantially lessening the amount of pollutants within stormwater and non-stormwater flows (refer to Impact HYD-1). The projected land use pattern and planned transportation improvements under the proposed MTP/SCS would be subject to these regulations for the management of pollutants, which would limit the release of pollutants in the event of inundation due to flood, levee or dam failure, or seiche.

Moreover, subsequent development would be subject to existing regulations intended to limit the potential for flooding to affect development. These include FEMA flood insurance and State flood protection regulations intended to limit flood risk, as well as local flood management programs, zone districts, and regulations; California Building Code requirements, and the PFDI Act. These regulations would guide growth away from hazardous areas. Therefore, the regional impacts associated with the potential for implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS to risk release of pollutants due to inundation during a flood, dam or levee failure, or seiche are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

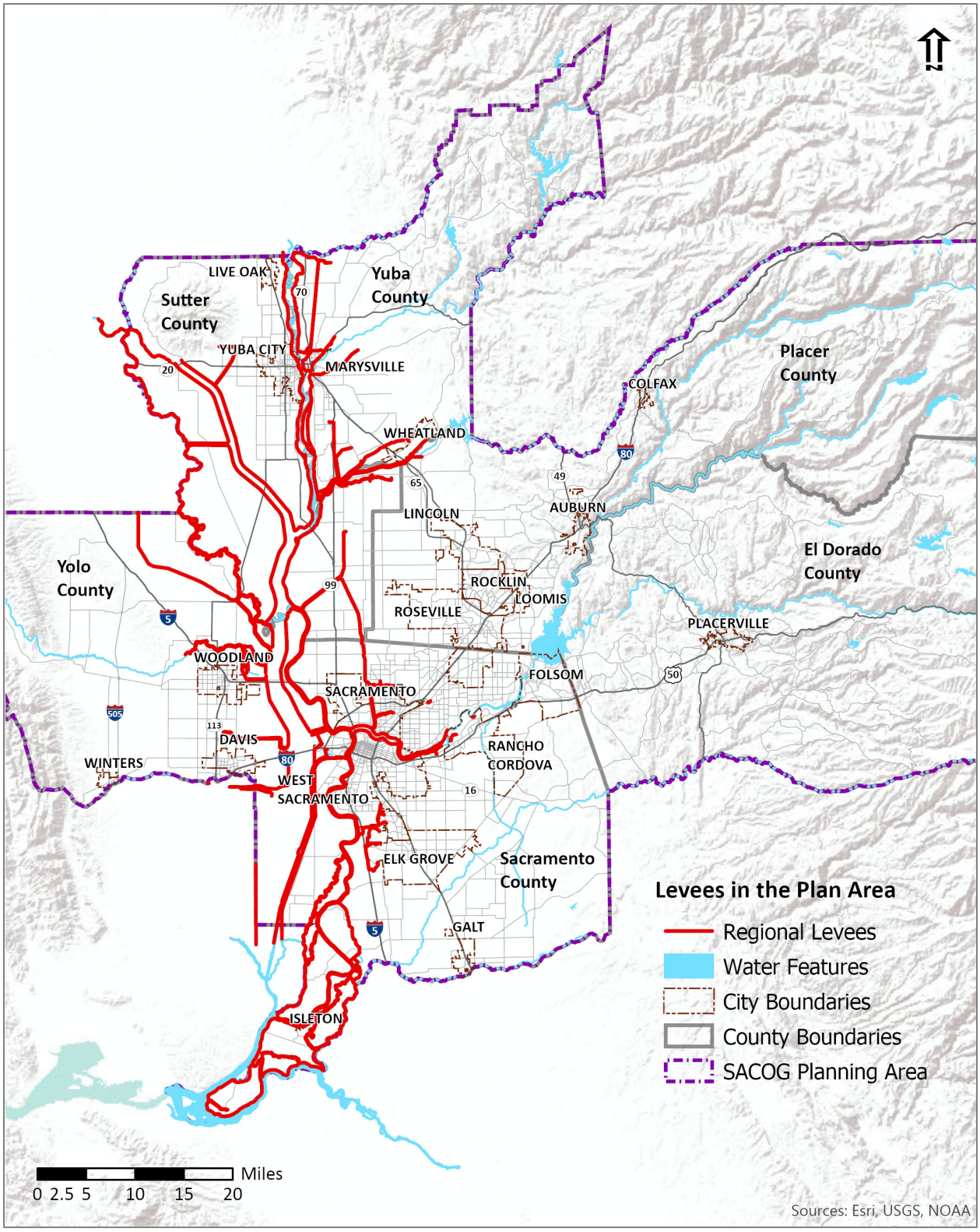


Figure 11-8
Levees in the Plan Area of the Proposed MTP/SCS

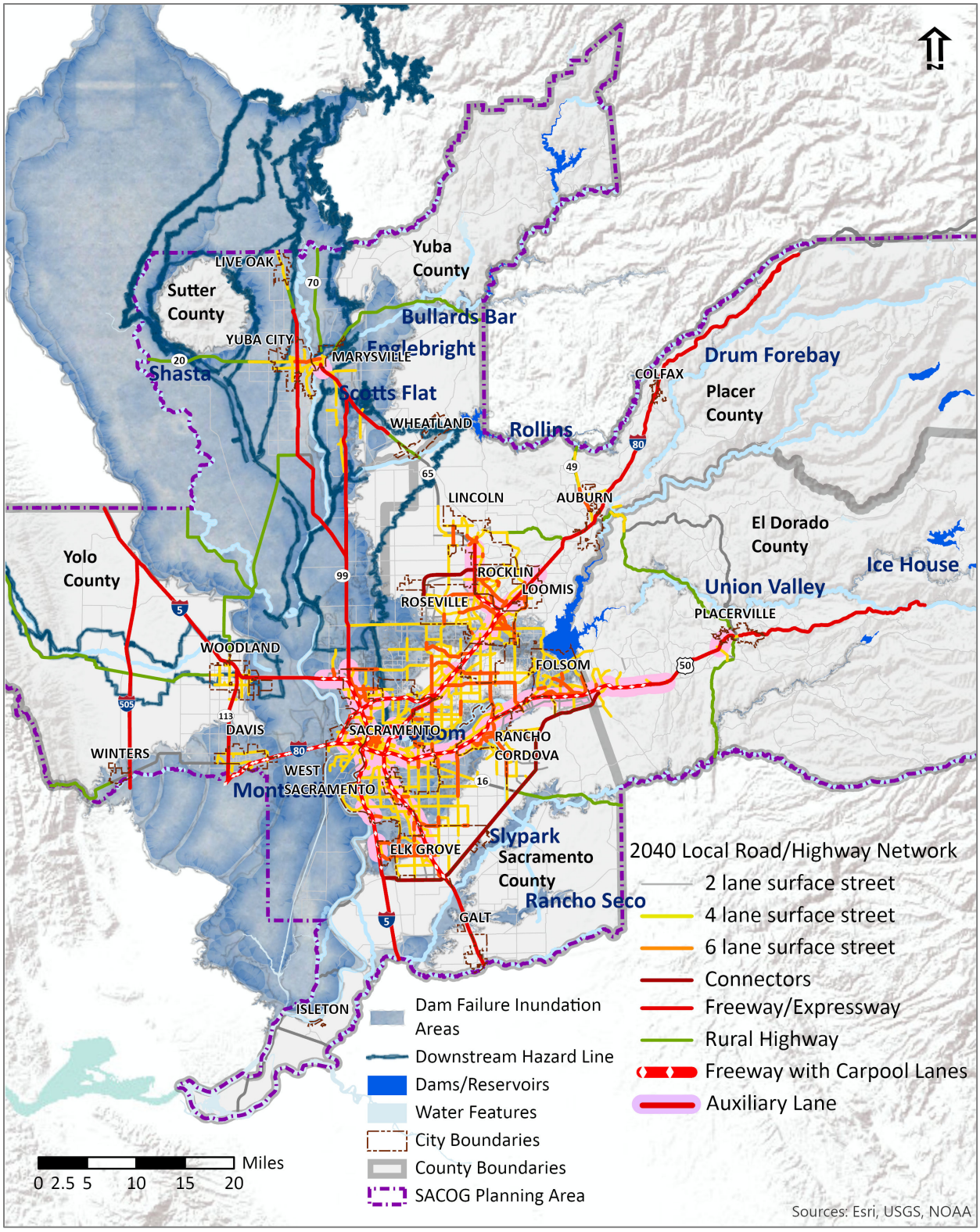


Figure 11-9
Planned Transportation Improvements in Dam Inundation Areas

Localized and High Frequency Transit Area Impacts

Center and Corridor, Established, Developing Communities, Rural Residential Communities, Lands Not Identified for Development in the MTP/SCS, and Placer County, Sacramento County, and Yolo County High Frequency Transit Areas

As described in the regional discussion above, the proposed MTP/SCS would include the projected land use pattern and planned transportation improvements in locations potentially subject to inundation during a flood, dam or levee failure, or seiche, including within Center and Corridor, Established, Developing, and Rural Residential Communities, Lands Not Identified for Development, and HFTAs. There is no potential in the plan area of the proposed MTP/SCS for inundation during a tsunami.

Numerous existing federal, State, and local laws and regulations are in place to address the management and control of pollutants, including regulations addressing the proper disposal, transportation, storage, and handling of potentially hazardous materials (refer to Chapter 10 – Hazards, Hazardous Materials, and Wildfire) and regulations removing or substantially lessening the amount of pollutants within stormwater and non-stormwater flows (refer to Impact HYD-1). The projected land use pattern and planned transportation improvements under the proposed MTP/SCS in areas with the potential for flooding would be subject to these regulations for the management of pollutants, which would limit the release of pollutants in the event of inundation due to flood, levee or dam failure, or seiche. Moreover, the proposed MTP/SCS does not include any components that would substantially increase the potential risk for release of pollutants during inundation relative to the existing level of risk in the plan area of the proposed MTP/SCS. Therefore, the impacts associated with the potential for implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS to risk release of pollutants due to inundation during a flood, dam or levee failure, or seiche in Center and Corridor, Established, Developing, and Rural Residential Communities, Lands Not Identified for Development, and HFTAs are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT HYD-5: CONFLICT WITH OR OBSTRUCT THE IMPLEMENTATION OF A WATER QUALITY CONTROL PLAN OR SUSTAINABLE GROUNDWATER MANAGEMENT PLAN.

Regional Impacts

As described above, Basin Plans designate beneficial uses of California's groundwater basins and establish narrative and numerical water quality objectives. Basin Plans are primarily implemented by using the NPDES permitting system to regulate waste discharges so that water quality objectives are met. Basin Plans provide the technical basis for determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. The plan area of the proposed MTP/SCS is covered by the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin (CVRWQCB 2018) and by the Water Quality Control Plan for the Lahontan Region North and South Basins (LRWQCB 2016). Sustainable groundwater management plans are currently being developed throughout the plan area, as described in Impact HYD-2, and must be in place by 2022.

Objectives of the proposed MTP/SCS include: an orderly growth pattern that directs growth toward urban centers; reduction of vehicle miles traveled; increased travel by transit, bike, and walking; and minimization of direct and indirect land use and transportation impacts on agriculture and natural resources. These objectives, if realized, would be anticipated to avoid and lessen adverse impacts to surface and groundwater quality that could be associated with regional growth.

As described in Impact HYD-1, the projected land use pattern and planned transportation improvements of the proposed MTP/SCS would be subject to existing federal, state, and local laws and regulations protecting water quality, including adopted regulatory provisions of Basin Plans. The projected land use pattern and planned transportation improvements under the proposed MTP/SCS would also be subject to sustainable groundwater management plans once they are in place. As described above, consistency with these plans would be determined at the project-level and enforced through the permitting process. There is no attribute of the proposed MTP/SCS that would obstruct the implementation of this process. The proposed MTP/SCS would provide a guiding vision and strategy for the manner in which the SACOG region could accommodate growth but would not supplant established regional plans for the protection of water quality and water supply. Individual projects would be required to demonstrate compliance with the applicable water quality or groundwater management plan in place at the time of the application through the permitting process. Therefore, the projected land use pattern and planned transportation improvements of the proposed MTP/SCS would not conflict with or obstruct implementation of water quality control plans or sustainable groundwater management plans. The regional impacts of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-5. No mitigation is required.

Localized and High Frequency Transit Area Impacts

Center and Corridor, Established, Developing, Rural Residential Communities, Lands Not Identified for Development in the proposed MTP/SCS, and Placer County, Sacramento County, and Yolo County High Frequency Transit Areas

As described above, the projected land use pattern and planned transportation improvements would be subject to federal, State, and local laws, regulations, and plans governing surface and groundwater quality and groundwater management, including adopted regulatory provisions of Basin Plans. There are no aspects of the projected land use pattern or planned transportation improvements of the proposed MTP/SCS that would conflict with or obstruct implementation of the Basins Plans or sustainable groundwater management plans. At the local level, individual projects would be required to demonstrate compliance with the applicable water quality or groundwater management plan in place at the time of the application through the permitting process. Therefore, impacts of the projected land use pattern and planned transportation improvements in Center and Corridor, Established, Developing, Rural Residential Communities, Lands Not Identified for Development, and Placer County, Sacramento County, and Yolo County HFTAs are considered less than significant (LS) for Impact HYD-5. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT HYD-6: VIOLATE ANY WATER QUALITY STANDARDS OR WASTE DISCHARGE REQUIREMENTS RESULTING FROM CONSTRUCTION AND OTHER SOIL DISTURBANCE ACTIVITIES.

Regional Impacts

Construction-related earth-disturbing activities of the projected land use pattern and planned transportation improvements under the proposed MTP/SCS would introduce the potential for increased erosion and sedimentation, with subsequent effects on water quality and storm drain capacity. During site grading, trenching, and other construction activities, areas of bare soil are exposed to erosive forces during rainfall events. Bare soils are much more likely to erode than vegetated areas because of the lack of dispersion, infiltration, and retention properties created by covering vegetation. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and/or grading could result in increased erosion and sedimentation to surface waters. The extent of the impacts is dependent on soil erosion potential, type of construction practice, extent of disturbed area, timing of precipitation events, and topography and proximity to drainage channels. In addition, construction equipment and activities would have the potential to leak hazardous materials, such as oil and gasoline, and potentially affect surface water or groundwater quality. Improper use or accidental spills of fuels, oils, and other construction-related hazardous materials, such as pipe sealant, solvents, and paints, could also pose a threat to the water quality of local waters. If precautions are not taken to contain or capture sediments and/or accidental hazardous spills, construction activities could produce substantial pollutants in stormwater runoff and degrade surface water quality.

Soil erosion is probable during construction activities associated with the projected land use pattern and planned transportation improvements, and the resulting water quality impairments could include turbidity, increased algal growth, oxygen depletion, or sediment buildup, thereby degrading aquatic habitats. Sediment from project-induced erosion could also accumulate in downstream drainage facilities and interfere with streamflow, thereby aggravating downstream flooding conditions. Construction could also affect local storm drain catch basins, culverts, flood control channels, waters of the United States, streams, and the Sacramento-San Joaquin Delta. Most runoff in urban areas is eventually directed to either a storm drain or bodies of water, unless allowed to stand in a detention area and filter into the ground.

Depending on the location and need for trenching and excavation, construction activities may reach depths that could expose the groundwater table and create a direct path through which contaminants could enter the groundwater system. Primary construction-related contaminants that could reach groundwater would include oil and grease, and construction-related hazardous materials and dewatering effluent. Some transportation projects in the proposed MTP/SCS would require extensive foundational support. Overpasses, underpasses, grade separations, highway interchanges, and other rail crossing structures would require excavation below the ground surface or support structures or foundations secured deep into the ground. Projects that excavate or secure foundations deep in the ground may encounter groundwater.

In addition to complying with applicable local ordinances and requirements, construction sites disturbing one or more acres are required to comply with the State's General Stormwater Permit for Construction Activities. The Construction General Permit is issued by SWRCB and enforced by the RWQCB. Coverage is obtained by submitting a NOI to SWRCB before construction. The General Permit requires preparation and implementation of a site-specific SWPPP that must always be kept

on site for review by the State inspector. Stormwater quality sampling and reporting requirements outlined as a Construction Site Monitoring and Reporting Plan are also part of the SWPPP. The SWPPP could include BMP erosion control measures such as those listed in the discussion of Impact HYD-1, above. Applicable projects applying for a County grading permit must show proof that an NOI has been filed and must submit a copy of the SWPPP.

New development that would introduce 10,000 or more square feet of new impervious surfaces would be required under Provision C.3 of the NPDES program to incorporate LID strategies such as stormwater reuse, onsite infiltration, and evapotranspiration. Most development related to land use under the plan would be subject to these requirements. Projects that would disturb less than 1 acre would be subject to the CALGreen requirements related to stormwater drainage that have been designed to prevent or reduce discharges of sediments, chemicals, and wastes through BMPs that include on-site retention and filtration. In addition, local jurisdictions may have additional requirements for smaller projects. In many cases, stormwater drainage measures and compliance with RWQCB Municipal Regional Stormwater Permit Order No. 2011-0083 Provision C.3 may be required by local jurisdictions as standard conditions of approval for building permit applications.

Typical BMPs used to meet regulatory standards include:

- Limit excavation and grading activities to the dry season (April 15 to October 15) to the extent possible to reduce the chance of severe erosion from intense rainfall and surface runoff, as well as the potential for soil saturation in swale areas.
- Cover stockpiles of loose material; diverting runoff away from exposed soil material; locating and operating sediment basin/traps to minimize the amount of offsite sediment transport and dissipate energy; and removing any trapped sediment from the basin/trap for placement at a suitable location onsite, away from concentrated flows, or removal to an approved disposal site.
- Provide erosion protection on all exposed soils either by revegetation or placement of impervious surfaces after completion of grading.
- Store hazardous materials such as fuels and solvents used on the construction sites in covered containers that are protected from rainfall, runoff, and vandalism.

Before discharging any dewatered effluent to surface water, project proponents are required to obtain an NPDES permit (as described under Impact HYD-1) and Waste Discharge Requirement from the CVRWQCB or LVRWQCB. Depending on the volume and characteristics of the discharge, coverage under the NPDES General Construction Permit may be permissible. If coverage under the NPDES Construction General Permit is not allowed, projects must conform to requirements of the General Dewatering Permit, issued by the CVRWQCB or LVRWQCB.

The Caltrans Stormwater Program covers planned transportation improvements where Caltrans is the lead agency. As described in the regulatory settings and Impact HYD-1, this permit regulates all stormwater discharges from Caltrans-owned conveyances, maintenance facilities and construction activities. Caltrans also has a Storm Water Management Plan that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters.

Planned transportation improvements where local agencies are the lead agency are subject to local and state requirements for construction runoff prevention. Adherence to local and state regulations would mitigate against violation of any water quality standards or waste discharge requirements.

Planned transportation improvements that disturb more than one acre would be required to adhere to the same NPDES General Construction Permit requirements as land development projects discussed above. The permit requirements include preparation and implementation of a SWPPP detailing BMPs that would be employed to control onsite stormwater drainage during construction. Components of SWPPPs typically include project risk determination (categorized into Risk Levels 1, 2, and 3), visual inspection requirements, identification of sampling locations, collection and handling procedures (for Risk Level 2 and Risk Level 3 projects), and specifications for BMPs to be implemented during project construction for the purpose of minimizing the discharge of pollutants in stormwater from the construction area. Projects that fall under Caltrans jurisdiction are also required to adhere to the Caltrans NPDES permit. Projects that would disturb less than 1 acre would be subject to the CALGreen requirements related to stormwater drainage for nonresidential projects, including BMPs designed to prevent soil loss and release of contaminants.

At the regional scale, the proposed MTP/SCS projects would not violate any water quality standards or waste discharge requirements if they comply with existing local, state, and federal regulations. Before commencement of major construction activities, project applicants would submit a SWPPP to the SWRCB that identifies the BMPs that would be used in construction of the planned project. The applicant must receive approval of the SWPPP and submit a Notice of Intent before initiating construction. Individual development and planned transportation improvements are expected to adopt BMPs appropriate to local conditions.

Therefore, the construction-related water quality impacts associated with implementation of the projected land use pattern and planned transportation improvements in the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HYD-6. No mitigation is required.

Localized Impacts

Center and Corridor Communities and Established Communities
Because Center and Corridor Communities and Established Communities are already largely built out, most of the development in these areas would be redevelopment, infill and intensification of existing land uses. These types of developments usually require infrastructure upgrades to existing facilities, which are subject to current water quality standards and waste discharge requirements, and the application of BMPs, implementation of control measures, and adherence to local and state regulations. As a result, they may improve water quality.

The Caltrans Stormwater Program, as described earlier, covers planned transportation improvements where Caltrans is the lead agency. Planned transportation improvements where local agencies are the lead agency are subject to local and state regulations for construction runoff prevention. Adherence to local and state regulations would ensure that development would not violate water quality standards or waste discharge requirements.

The construction-related water quality impacts associated with implementation of the land use and transportation changes in the proposed MTP/SCS in Center and Corridor Communities and

Established Communities are considered less than significant (LS) for Impact HYD-6 for the same reasons provided at the regional level. No mitigation is required.

Developing Communities
Developing Communities may have some existing development, but they are generally primarily undeveloped. Implementation of the proposed MTP/SCS would convert previously undeveloped land to urban uses. New development and its associated infrastructure would be subject to current water quality standards and waste discharge requirements, and the application of BMPs, implementation of control measures, and adherence to local and state regulations, described above at the regional scale.

The Caltrans Stormwater Program, as described earlier, covers planned transportation improvements where Caltrans is the lead agency. Planned transportation improvements where local agencies are the lead agency are subject to local and state regulations for construction runoff prevention. Adherence to local and state regulations would ensure that development would not violate water quality standards or waste discharge requirements. Therefore, the construction-related impacts associated with implementation of the land use and transportation changes in the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact HYD-6. No mitigation is required.

Rural Residential Communities
The dispersed, predominantly residential, development in this Community Type is anticipated to have less impact overall on water quality related to construction than other types of development because there are projected to be comparatively fewer numbers of these units, they are generally on larger sites that can accommodate site run-off from impervious surfaces, and they are built subject to local requirements for water quality.

While adherence to NPDES permit requirements and SWRCB Management Measures for Urban Areas (described in the state regulatory settings section of this chapter) would generally ensure that projects do not violate water quality standards or wastewater discharge requirements, these requirements do not apply to projects on less than one acre of land. For new projects on individual sites under one acre, management of water quality is regulated through CALGreen, as well as grading ordinances, requirements for geo-technical analyses, and other local standards for control and management of run-off.

Therefore, the water quality construction-related impacts associated with the projected land use pattern from the implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-6. No mitigation is required.

Because Rural Residential Communities are not urbanized, many of the planned transportation improvements would be new facilities. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may alter existing drainage patterns, which may result in increased stormwater flow volumes and/or velocity.

Planned transportation improvements where Caltrans is the lead agency are covered by the Caltrans Stormwater Program, as described under regional impacts. Planned transportation improvements where local agencies are the lead agency are subject to local and state regulations for construction

runoff prevention. Adherence to local and state regulations would ensure that development would not violate water quality standards or waste discharge requirements.

Therefore, the water quality construction-related impacts associated transportation changes from the implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-6. No mitigation is required.

Lands Not Identified for Development in the proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040.

The proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040. The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Planned transportation improvements where Caltrans is the lead agency are covered by the Caltrans Stormwater Program, as described under regional impacts. Planned transportation improvements where local agencies are the lead agency are subject to local and state regulations for construction runoff prevention. Adherence to local and state regulations would ensure that development would not violate water quality standards or waste discharge requirements.

Therefore, the construction-related water quality impacts associated with implementation of the land use and transportation changes in the proposed MTP/SCS on Lands Not Identified for Development in the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-6. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Because HFTAs are already largely built out, most of the development in these areas would be redevelopment, infill, and intensification of existing land uses. These types of developments usually require infrastructure upgrades, which are subject to current water quality standards and waste discharge requirements, and the application of BMPs, implementation of control measures, and adherence to local and state regulations may improve water quality. For example, those HFTAs within the city of Roseville and Sacramento County (incorporated and unincorporated) are subject to standards outlined in the Stormwater Quality Design Manual for the Sacramento Region (Sacramento Stormwater Quality Partnership 2018).

The Caltrans Stormwater Program, as described earlier, covers planned transportation improvements where Caltrans is the lead agency. Planned transportation improvements where local agencies are the lead agency are subject to local and state regulations for construction runoff prevention. Adherence to local and state regulations ensure that development would not violate water quality standards or waste discharge requirements. Those HFTAs within the city of Roseville and Sacramento County (incorporated and unincorporated) are subject to standards outlined in the Stormwater Quality Design Manual for the Sacramento Region (Sacramento Stormwater Quality Partnership 2018).

Therefore, the construction-related water quality impacts associated with implementation of the land use and transportation changes in the proposed MTP/SCS in HFTAs are considered less than significant (LS) for Impact HYD-6. No mitigation is required.

MITIGATION MEASURES

None Required.

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Chapter 12—Land Use and Planning

12.1 Introduction

This chapter describes the existing conditions (environmental and regulatory) and assesses the potential land use and planning impacts of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data, analysis, and findings provided in this chapter were considered and prepared at a programmatic level. In response to the Notice of Preparation (NOP), SACOG received comments related to land use and planning from the Sierra Club (Placer County), Yolo LAFCO, University of California, Davis (UCD), ECOS, Delta Protection Commission (DPC), and Delta Stewardship Council (DSC). The commenters expressed that the Draft EIR should consider the following:

- Different land use assumptions for Placer County as part of the proposed MTP/SCS
- Consideration of Placer County Conservation Plan (PCCP)
- Relationship of growth areas to city and service provider boundaries, and spheres of influence
- Growth within the UCD Long Range Development Plan and related campus documents as part of the proposed MTP/SCS
- Improved implementation of MTP/SCS by member jurisdictions
- Different land use assumptions for Sacramento County as part of the proposed MTP/SCS
- Delta Land Use and Resources Management Plan (LURMP)
- Early consultation and SCS review by the DSC
- Consistency with Delta Plan policies

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines, Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

12.2 Environmental Setting

The Sacramento Area Council of Governments (SACOG) is a voluntary association of governments, a federally-designated metropolitan planning organization (MPO), and a state-designated regional transportation planning agency (RTPA). Member jurisdictions include: the

County of El Dorado (including the City of Placerville); the County of Placer (including the cities of Auburn, Colfax, Lincoln, Rocklin, and Roseville and the Town of Loomis); the County of Sacramento (including the cities of Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, and Sacramento); the County of Sutter (including the cities of Live Oak and Yuba City); the County of Yolo (including the cities of Davis, West Sacramento, Winters, and Woodland); and the County of Yuba (including the cities of Marysville and Wheatland). SACOG's designated RTPA status does not include the unincorporated areas and cities within El Dorado and Placer counties which have their own RTPAs: the El Dorado County Transportation Commission and the Placer County Transportation Planning Agency.

The plan area of the proposed MTP/SCS encompasses the entire 28-jurisdiction area (except for the portions of El Dorado and Placer counties within the Lake Tahoe Basin), totaling approximately 6,193 square miles (3,963,626 acres). See Figure 12-1 for a map of the plan area plan area of the proposed MTP/SCS which spans a diverse geography, including productive agricultural lands, the rapidly growing urban core and foothill communities, and the sparsely populated forestlands of the western Sierra Nevada Mountains. Existing development is heavily concentrated near the geographic center of the region in Sacramento County and southwest Placer County, with outlying development occurring mainly along major freeways such as I-80, I-5, US-50, and Highway 99. Near the edges of the region, outside of some small incorporated cities, most land is either productive agricultural land (Yolo, Sutter, and southwest Sacramento counties) or protected forests and open space in the Sierra Nevada foothills (eastern Placer, El Dorado, and Yuba counties).

12.2.1 Existing Land Uses by County

The plan area of the proposed MTP/SCS currently contains approximately 686,847 acres of developed land. Tables 12-1 and 12-2 summarize, existing housing units, employees, and land uses by county within the plan area of the proposed MTP/SCS. The following paragraphs describe the existing land use conditions in each of the region's six counties.

Table 12-1
Summary of 2016 Housing and Employment by County

County (incorporated and unincorporated areas)	Dwelling Units		Employment	
	2016 Dwelling Units[1,2]	Percent of Total	2016 Employees[1,2]	Percent of Total
El Dorado	63,793	6.9%	48,690	4.6%
Placer	146,701	15.9%	162,577	15.3%
Sacramento	570,360	61.9%	688,895	64.9%
Sutter	34,186	3.7%	34,417	3.2%
Yolo	77,705	8.4%	104,771	9.9%
Yuba	28,378	3.1%	21,401	2.0%
Region Total	921,123	100%	1,060,751	100%

[1] Totals may not match due to rounding.
[2] Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.
Source: Data compiled by SACOG, MTP/SCS Land Use Forecast, in June 2019

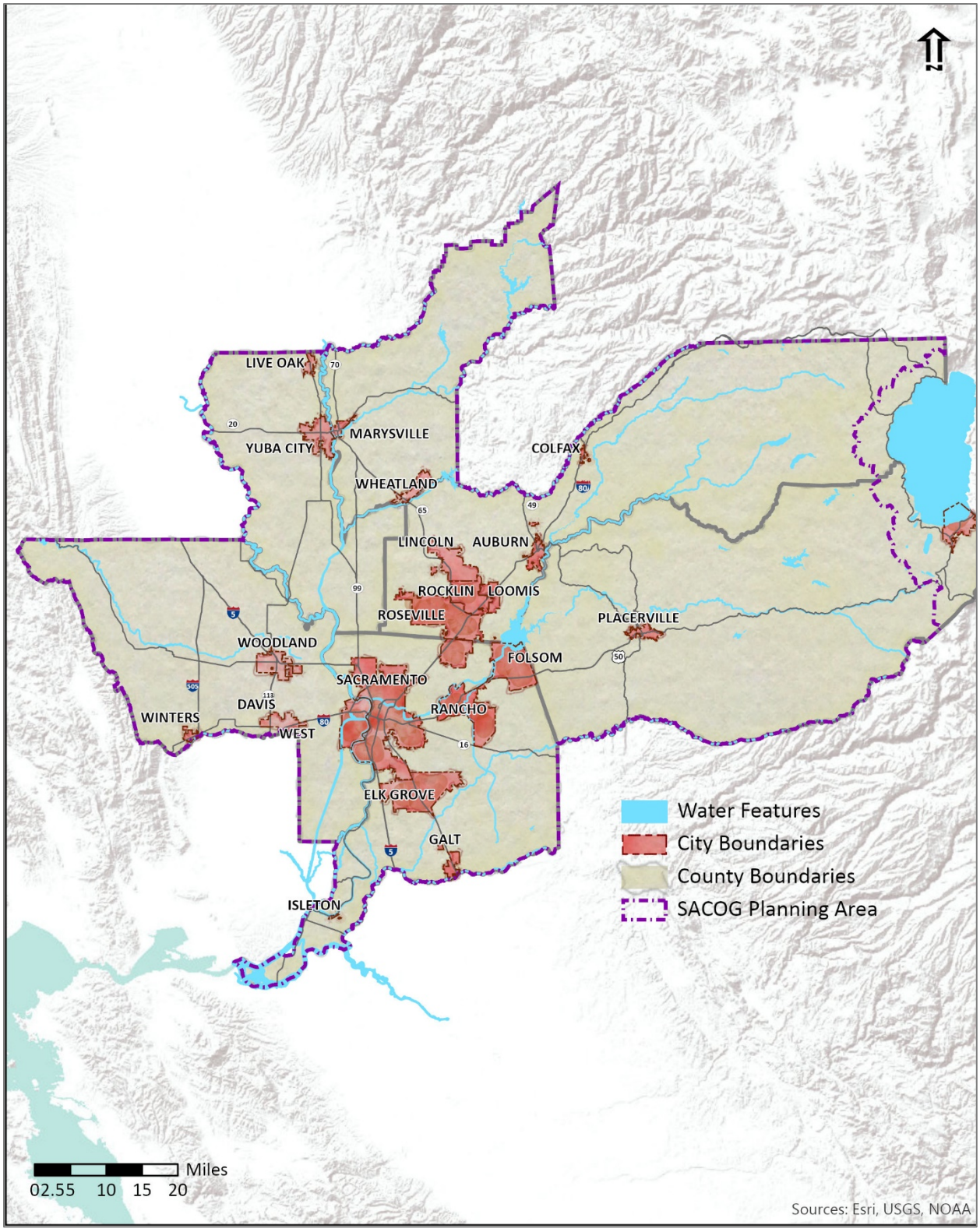


Figure 12-1
Plan Area of the Proposed MTP/SCS

Table 12-2
2016 Existing Land Uses in the Plan Area of the Proposed MTP/SCS by County

Development Types	El Dorado County	Placer County	Sacramento County	Sutter County	Yolo County	Yuba County	Regional Total
Residential	189,637	126,127	130,182	6,986	22,429	68,513	543,874
Mixed Use (vertical)	1	38	183	94	37	10	362
Office & Commercial	2,800	4,089	15,489	927	1,652	608	25,566
Industrial	4,822	3,150	20,652	3,070	10,088	3,168	44,949
Public	11,733	6,184	24,058	1,614	5,465	23,042	72,095
Total Development Acres[1]	208,992	139,588	190,564	12,691	39,671	95,341	686,847

[1] Excludes Agriculture, Farm Homes, Open Space, Parks, Recreation, and Vacant land estimate (land that is not developed in the proposed MTP/SCS but is available for development based on currently adopted general plans and specific plans.)
Source: Data compiled by SACOG, MTP/SCS Land Use Forecast, in June 2019

EL DORADO COUNTY

El Dorado County extends from the Sacramento County line on the west to the summit of the Sierra Nevada Mountains on the east. From west to east, the geography of El Dorado County progresses from foothill to mountainous terrain. Existing land uses primarily include residential, commercial, and industrial development, and rural and agricultural lands used for agricultural production, resource extraction, open space, and recreation. There is also a mixed-use development in the Missouri Flat area. The only incorporated city in the county within the plan area is Placerville (the Lake Tahoe Basin, including South Lake Tahoe, is not part of the plan area of the proposed MTP/SCS). Residential development is primarily concentrated on the west side of the county in clusters along US-50, including Placerville and the unincorporated communities of El Dorado Hills, El Dorado, Diamond Springs and Cameron Park, and throughout several rural communities. El Dorado Hills and Cameron Park are more recently urbanized areas of the county, where housing and commercial development are suburban in nature. Camino and Pollock Pines are examples of more rural communities that include housing and commercial development that is more rural in nature. Commercial development has generally followed the same growth patterns as residential development, clustering along US-50 and SR 49 and SR 193. A newer business park in El Dorado Hills south of US-50 and just east of the El Dorado-Sacramento County border has generated some job growth outside of the traditional jobs center in the city of Placerville. Additional employment clusters exist in the unincorporated county within Diamond Springs and Shingle Springs.

Over half of the land in the county is in public ownership. Agricultural and forestlands make up the largest percentage of undeveloped lands. Forestlands are managed by the United States Forest Service (USFS), and the United States Bureau of Land Management (BLM) also manages forested lands in the American and Cosumnes River canyons.

PLACER COUNTY

With a similar geography to El Dorado County, the unincorporated portion of Placer County is predominantly rural communities today. The majority of the population lives in the suburban southwest portion of the county where residential development has primarily occurred in and around the fast-growing cities of Roseville, Rocklin, and Lincoln. Residential development in these cities is predominantly single-family, although there are some medium- and high-density attached dwelling units. Outside of these cities, suburban residential uses are concentrated along I-80 in the incorporated cities of Loomis, Auburn, Colfax, and the community of Granite Bay. The predominant land use in these cities is low-density residential, though Auburn has a concentration of employment uses due to its role as the county seat of government. The unincorporated area of the county is broken up into several rural communities and a substantial amount of agriculture and protected open space.

The highest concentrations of commercial, light industrial, and office uses in the county fall within the cities of Roseville, Rocklin, and Lincoln. Industrial and heavy commercial uses are also scattered in various locations outside the incorporated urban boundaries, mainly along I-80 near Loomis, Newcastle, Auburn, Foresthill, and Weimar, and near Highway 49 in Auburn and Highway 174 in Colfax.

Non-urban uses within Placer County include agricultural, resource extractive (timber and mining), public lands, and open space. A large portion of the county, particularly in the eastern half, is under public ownership. The largest amount of public land within Placer County is under the control of the BLM. Smaller amounts of land in central Placer County are under the jurisdiction of the USFS and the Bureau of Reclamation.

SACRAMENTO COUNTY

Sacramento County lies at the geographic center of the region and contains both agricultural land uses as well as the most urbanized areas of the region. The geographic boundaries of the County of Sacramento include several unincorporated communities and seven incorporated cities, including Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, and Sacramento. The county has established two growth boundaries to promote orderly growth and the efficient extension of infrastructure and the provision of urban services. The Urban Services Boundary (USB) delineates the ultimate growth boundary for the unincorporated area, where county services shall be provided and where they will not be extended unless the USB is amended. The Urban Policy Area (UPA) delineates the area within the USB expected to receive county services in the near term.

The highest densities of employment and residential uses are located in the urban core of the city of Sacramento. Two of the three regional employment centers in the plan area of the proposed MTP/SCS are located in Sacramento County, including downtown Sacramento and the employment center along the US-50 corridor in the cities of Rancho Cordova and Folsom. Land uses north of the American River are primarily suburban residential with concentrations of commercial and employment uses along major transportation routes. The southern half of the county, including south Sacramento, the unincorporated Vineyard community, and the cities of Elk Grove and Galt, are predominantly residential. The latter three areas also have fairly low suburban to rural densities. The Cosumnes River flood plain and existing agricultural operations separate the cities of Elk Grove and Galt. The southeast county (outside of existing cities and the USB) is in agricultural use with pockets of Rural Residential Communities, as defined in Chapter 2 – Project Description.

SUTTER COUNTY

Land use in Sutter County is predominantly agricultural, with agriculture as the county's primary industry. Yuba City and Live Oak are the two incorporated cities in Sutter County, which are suburban and rural in their current land use pattern. Several unincorporated rural communities include Meridian, Nicolaus, East Nicolaus, Rio Oso, Robbins, Sutter, Trowbridge, and Tudor. Historically, general plan policy in Sutter County has encouraged agricultural preservation in the unincorporated areas of the county and directed new development adjacent to and within the county's two cities and other clearly defined and comprehensively planned development areas. While generally continuing this policy, an exception is the Sutter Pointe specific plan area, located at the southern end of the unincorporated county. A development proposal for this area was approved by voters under "Measure M" in 2004 and the Sutter Pointe Specific Plan was adopted in 2009. As of July 2019, only limited industrial development exists in the area, as development of the Sutter Pointe specific plan has not yet begun.

YOLO COUNTY

Yolo County borders Sacramento and Sutter counties along the Sacramento River. Agriculture is Yolo County's primary industry. 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. About 88 percent of the population lives in the County's four cities (Davis, West Sacramento, Woodland, and Winters). Yolo County and its cities operate under an agriculture preservation policy that directs urban development into existing urban areas (including the many small rural towns within the unincorporated area). The cities of Davis, Woodland, and West Sacramento have received most of this growth. Additionally, the cities of Davis and Woodland have growth control measures limiting and containing growth.

YUBA COUNTY

Yuba County is located in the northern Sacramento Valley, approximately 40 miles north of the City of Sacramento. Its boundaries stretch from the farms and orchards of the valley to the timberlands of the Sierras. Historically, Yuba County has been primarily rural and agricultural. However, the southern Highway 70 corridor in unincorporated Yuba County experienced suburban residential growth since approval of the Plumas Lakes Specific Plan in the early 2000s. Similarly, the Highway 65 corridor running through the city of Wheatland has resulted in some residential growth in the city, prior to the Great Recession. The city of Marysville maintains its compact footprint due, in large part, to flood constraints.

12.2.2 Existing Land Uses by Community Type

The Community Types Framework was used in the land use allocation process of the proposed MTP/SCS. Local land use plans (e.g., adopted and proposed general plans, specific plans, master plans, corridor plans) were divided into one of five "Community Types" based on the location and land use composition of the plans, as described in Chapter 2 – Project Description. These Community Types are described below and illustrated in Figure 12-2. Tables 12-3 and 12-4 provide the distribution of housing, employment, and land use development by Community Type.

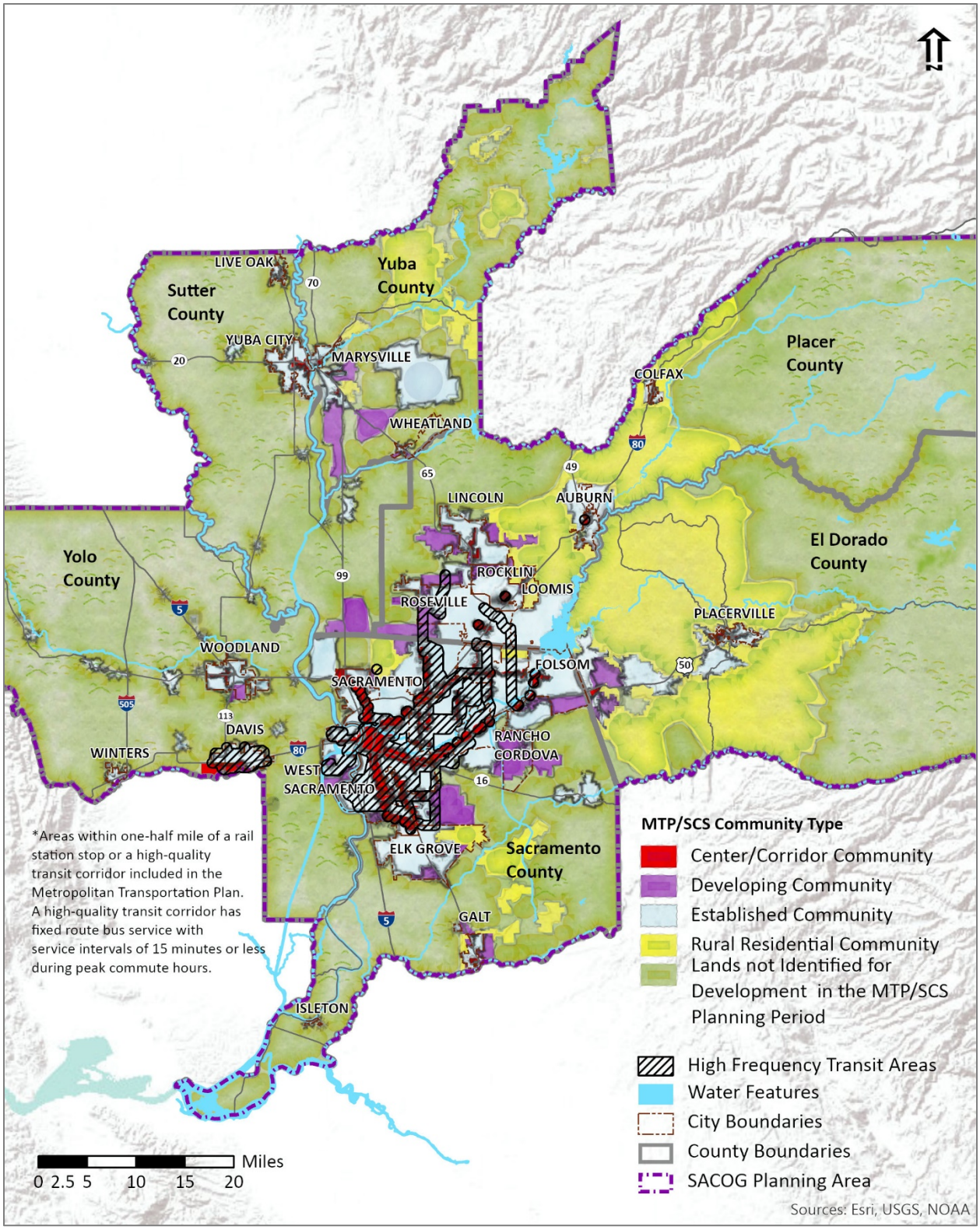


Figure 12-2
Community Types and High Frequency Transit Areas in the Plan Area of the Proposed MTP/SCS

Table 12-3
Summary of 2016 Housing and Employment by Community Type

Community Type	2016 Dwelling Units[1,3]	Percent of Total	2016 Employees[1,3]	Percent of Total
Center and Corridor Communities	113,880	12.36%	370,890	34.96%
Established Communities	712,012	77.30%	645,326	60.84%
Developing Communities	20,793	2.26%	12,339	1.16%
Rural Residential Communities	74,438	8.08%	32,196	3.04%
Lands Not Identified for Development in the MTP/SCS Planning Period	n/a[2]	n/a[2]	n/a[2]	n/a[2]
Region Total	921,123	100%	1,060,751	100%

[1] Totals may not match due to rounding.
[2] The proposed MTP/SCS does not forecast or model growth in the Lands Not Identified for Development in the Proposed MTP/SCS Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.). As a result, existing developed acres in the Lands Not Identified for Development Community Type was included in established and rural residential Community Type totals. Some lands within the Lands Not Identified for Development Community Type areas are within spheres of influence and/or urban growth boundaries and will be targeted for urbanization over the longer term (beyond 2040).
[3] Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.
Source: Data compiled by SACOG, MTP/SCS Land Use Forecast, in June 2019

Table 12-4
2016 Existing Land Uses in the Plan Area of the Proposed MTP/SCS by Community Type (Acres)

Development Types	Center and Corridor Communities	Established Communities	Developing Communities	Rural Residential Communities	Lands Not Identified for Development	Regional Total
Residential	10,305	158,063	13,298	362,209	n/a[2]	543,874
Mixed Use (vertical)	145	207	2	8	n/a[2]	362
Office & Commercial	8,240	13,477	317.2122	3,532	n/a[2]	25,566
Industrial	3,513	26,971	2,957	11,508	n/a[2]	44,949
Public	3,915	54,469	1,276	12,435	n/a[2]	72,095
Total Development Acres[1]	26,118	253,187	17,850	389,693	n/a[3]	686,847

[1] Excludes Agriculture, Open Space, Parks, Recreation, and Vacant land estimate (land that is not developed in the proposed MTP/SCS but is available for development based on currently adopted general plans and specific plans.)
[2] The proposed MTP/SCS does not forecast or model growth in the Lands Not Identified for Development in the Proposed MTP/SCS Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.). As a result, existing developed acres in the Lands Not Identified for Development Community Type was included in established and rural residential Community Type totals. Some lands within the lands not identified for development Community Type areas are within spheres of influence and/or urban growth boundaries and will be targeted for urbanization over the longer term (beyond 2040).
Source: Data compiled by SACOG, MTP/SCS Land Use Forecast, in June 2019

CENTER AND CORRIDOR COMMUNITIES

Land uses in Center and Corridor Communities are typically higher-density and more mixed than surrounding land uses of other Community Types. Centers and Corridor Communities are identified in local plans as historic downtowns, main streets, commercial corridors, rail station areas, central business districts, town centers, or other high-density destinations. In 2016, these areas had higher densities of employment, especially commercial and office uses, than their surroundings. They typically have more compact development patterns, a greater mix of uses, and a wider variety of transportation infrastructure as compared to the rest of the region. Some have frequent transit service, either bus or rail, and all have pedestrian and bicycling infrastructure that is more supportive of walking and bicycling than other Community Types.

ESTABLISHED COMMUNITIES

Established Communities are the areas adjacent to, or surrounding, Center and Corridor Communities. Local land use plans aim to maintain the existing character and land use pattern in these areas. Land uses in Established Communities are typically low- to medium-density residential neighborhoods, office and industrial parks, or commercial strip centers. Depending on the density of existing land uses, some Established Communities have bus service, while others may have commuter bus service or very little service.

DEVELOPING COMMUNITIES

Developing Communities are typically, though not always, situated on vacant land at the edge of existing urban or suburban development. They are the next increment of urban expansion. Developing Communities are identified in local plans as special plan areas, specific plans, or master plans, and may include only residential or employment development or a mix of residential and employment uses. In 2016, some of these areas were partially-developed, while others were used for farming, grazing, natural resource extraction, or other non-urban uses. Transportation options in Developing Communities often depend, , on the timing of development. Bus service, for example, may be infrequent or unavailable today, but may be available every 30 minutes or less once a community builds out. Walking and bicycling environments vary widely, though many Developing Communities are designed with dedicated pedestrian and bicycle trails.

RURAL RESIDENTIAL COMMUNITIES

Rural Residential Communities are typically located outside of urbanized areas and designated in local land use plans for rural residential development. Rural Residential Communities are predominantly residential with some small-scale hobby or commercial farming. Travel occurs almost exclusively by automobile, and transit service is minimal or nonexistent.

LANDS NOT IDENTIFIED FOR DEVELOPMENT IN THE MTP/SCS PLANNING PERIOD

These areas of the region are not expected to develop during the MTP/SCS planning period. Existing land use in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands (e.g., waste water treatment facilities), and other rural uses. Some of these areas have long-term plans and policies to preserve or maintain the existing non-urban uses, while other

areas are included in adopted or proposed plans that allow urban development and/or are included in the adopted Blueprint vision for future growth.

12.2.3 Existing Land Uses by High Frequency Transit Area

A subset of the proposed MTP/SCS housing and employment growth falls within what are referred to as High Frequency Transit Areas (HFTAs). HFTAs are areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or an existing or planned high-quality transit corridor included in the proposed MTP/SCS. A high-quality transit corridor is a corridor with fixed route bus service that has service intervals of no longer than 15 minutes during peak commute hours (PRC Section21155). In both the proposed MTP/SCS and this DEIR, HFTAs are considered an overlay geography and do not necessarily correspond directly to Community Types (see Chapter 2 – Project Description for more detailed information about the region's HFTAs).

Blueprint principles call for diverse housing options, in the form of housing products that are currently not widely available, in places where transit service can be efficiently provided. In 2016, 41 percent of housing units and 48 percent of employees were within areas that meet the definition of HFTAs. Table 12-5 provides the amount of the housing and employment in HFTAs in the baseline (2016).

Table 12-5
Summary of 2016 Housing and Employment within High Frequency Transit Areas1

High Frequency Transit Areas (HFTAs)[1]	2040 High Frequency Transit Areas[1]	
	Existing Dwelling Units	Existing Employees
Placer HFTAs	17,638	36,942
Sacramento HFTAs	325,111	424,122
Yolo HFTAs	42,318	51,333
All HFTAs	**385,067**	**512,397**

[1] Transit Priority Areas are those areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or an existing or planned high-quality transit corridor. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. (PRC Section1155)
Source: Data compiled by SACOG, MTP/SCS Land Use Forecast, in June 2019

12.2.4 Land within the Delta Primary Zone

Pursuant to the Delta Protection Act (PRC Section 29760 et seq.), the Delta Protection Commission (DPC) adopted the first Land Use and Resource Management Plan (LURMP) for the Sacramento-San Joaquin Delta on February 23, 1995 and updated the plan on February 25, 2010. The LURMP guides conservation and enhancement of natural resources in the Delta, while concurrently sustaining agriculture and meeting increased recreational demand. It defines a Primary Zone, which comprises the principal jurisdiction of DPC, and a Secondary Zone outside the Primary Zone and jurisdiction of DPC, but within the legal Delta area. Most of the land in this area is privately-owned and designated for agriculture and agriculturally-oriented uses, outdoor recreation, wildlife habitat, public facilities, and limited commercial, industrial, and rural residential development (Delta Protection Commission 2010).

The southernmost portions of Sacramento and Yolo counties within the plan area of the proposed MTP/SCS are located within the Delta Primary Zone. Isleton, a portion of City of Sacramento, and a portion of West Sacramento are located within the Delta Secondary Zone. Figure 12-3 shows the portions of the plan area of the proposed MTP/SCS located within Delta Primary and Secondary Zones.

12.3 Regulatory Setting

12.3.1 Federal Regulations

THE TRANSFER ACT OF 1905

While a department overseeing forestry has been a part of the federal government in some form since 1876, the Transfer Act (16 U.S. Code Section 472, 524, and 554) transferred the management of forest reserves from the General Land Office of the Interior Department to the Bureau of Forestry, renaming the agency the USFS. The USFS is responsible for the management of large areas of national forest land. National forests are primarily managed for outdoor recreational uses and for resource preservation by the USFS. The Eldorado National Forest and Tahoe National Forest are under USFS jurisdiction.

UNITED STATES DEPARTMENT OF TRANSPORTATION ACT OF 1966 (DOT ACT), SECTION 4(F)

Section 4(f) of the DOT Act of 1966 (49 U.S. Code Section 303) was enacted to preserve the natural beauty of the countryside, public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) requires a comprehensive evaluation of all environmental impacts resulting from federal-aid transportation projects administered by the Federal Highway Administration, Federal Transit Administration, and Federal Aviation Administration that involve the use – or interference with use – of the following types of land:

- public park lands,
- recreation areas,
- wildlife and waterfowl refuges, or
- publicly- or privately-owned historic properties of federal, state, or local significance.

For further discussion of the requirements of Section 4(f), see Chapter 15 – Public Services and Recreation.

CLEAN WATER ACT OF 1972 (CWA) AND ENDANGERED SPECIES ACT OF 1973 (ESA)

The Army Corps of Engineers, U.S. Fish and Wildlife Service (USFWS), and U.S. Environmental Protection Agency (EPA), through enforcing the requirements of the CWA (33 U.S. Code Section 1251 et seq.) and ESA (16 U.S. Code Section 1531 et seq.), have a significant influence on the location and yield of development in the region. See Chapter 6 – Biological Resources for a discussion of these federal regulations.

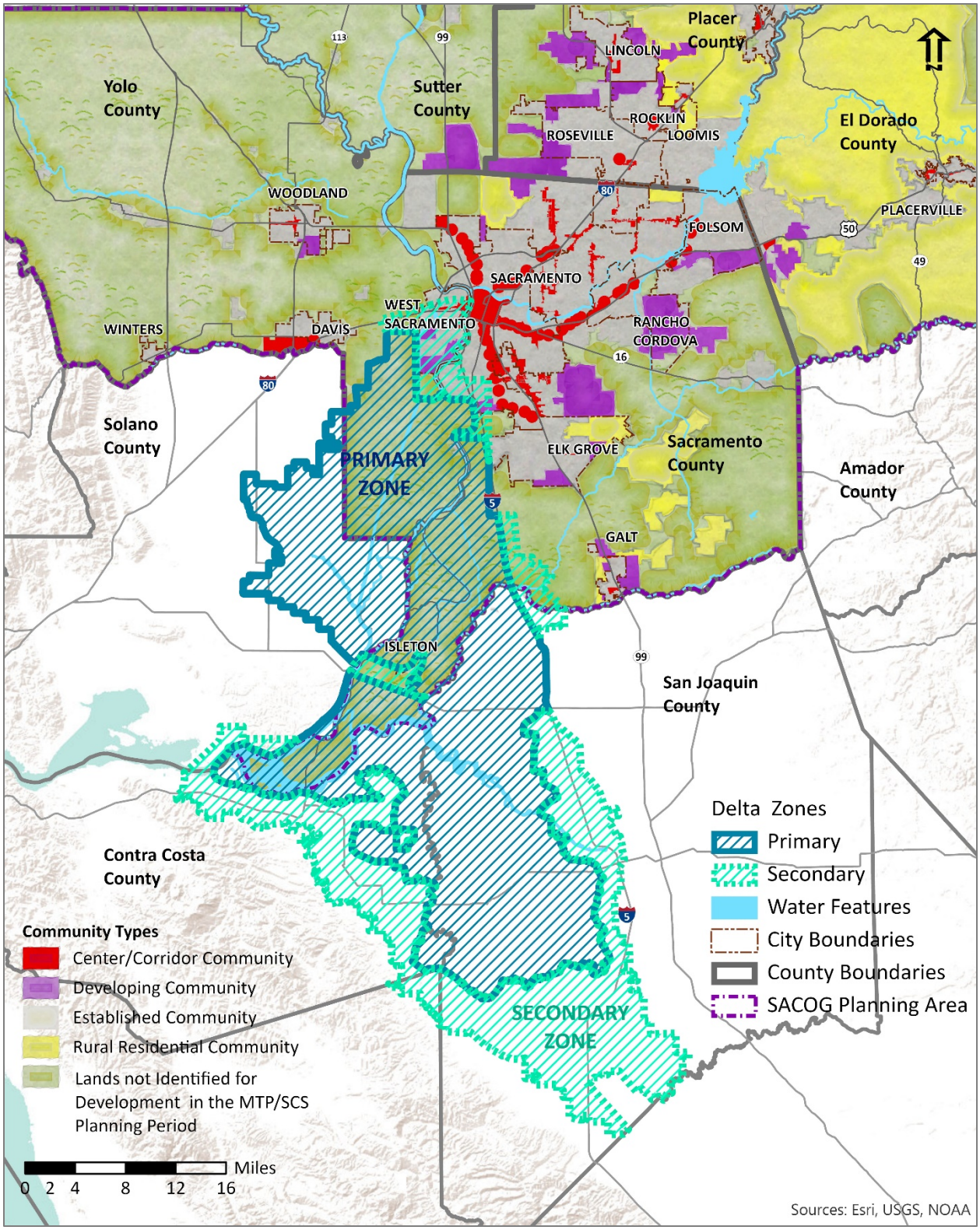


Figure 12-3
Delta Primary and Secondary Zones and Development Boundaries

THE FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA)

The FLPMA (43 U.S. Code Section 1701) established the BLM in its current iteration and bestowed upon the agency the responsibility for federal land management. BLM manages large rural land areas, including environmentally sensitive land. The BLM governs the uses allowed on land that it manages, striving to balance environmental protection and conservation goals with other uses such as recreation and grazing. BLM manages federal lands in Yolo County, Yuba County, and the Placer and El Dorado County foothills.

INDIAN GAMING REGULATORY ACT OF 1988 (IGRA): TRIBAL SOVEREIGNTY

Tribal sovereign lands within the plan area of the proposed MTP/SCS include those of the Shingle Springs Band of Miwok Indians in El Dorado County, United Auburn Indian Community of the Auburn Rancheria in Placer County, Wilton Miwok Indians in Sacramento County, Estom Yumeka Maidu Tribe of the Enterprise Rancheria in Sutter and Yuba counties, and Yocha Dehe Wintun Nation in Yolo County.

Under federal law, tribes are deemed domestic dependent nations and, as such, exercise a limited sovereignty that is subject to congressional authority. States may apply state law to activities within tribal territories only with permission from Congress to do so. As a result, most land use decisions on tribal land are not subject to CEQA or the planning and zoning codes of local jurisdictions (California Planning Roundtable 2007).

The most complex and extensive body of federal land use regulation regarding tribal land use concerns the siting and operating of casinos. In 1988, Congress passed the IGRA of 1988 (29 U.S. Code Section 2701 et seq.) in response to concerns by states over increased tribal gaming. IGRA rejected states' claims of authority over low stakes gambling, but it did stipulate that Class III or "Las Vegas style" games such as slot machines, black jack, and roulette could only occur under a "compact" between the tribe and the state. In 2000, California voters passed Proposition 1A to allow the state to enter these compacts for certain Class III games throughout the state. The compacts require a Tribal Environmental Impact Review (TEIR) process to address off-reservation impacts of casino projects. Also, any project undertaken by a local jurisdiction in conjunction with a casino project, such as an infrastructure upgrade or extension, is subject to the CEQA process as applicable (California Planning Roundtable 2007).

JOHN D. DINGELL, JR. CONSERVATION, MANAGEMENT, AND RECREATION ACT: SACRAMENTO-SAN JOAQUIN DELTA NATIONAL HERITAGE AREA

On March 12, 2019, President Trump signed the John D. Dingell, Jr. Conservation, Management, and Recreation Act, a large conservation and public lands bill that includes the establishment of the Sacramento-San Joaquin Delta National Heritage Area (NHA). The Delta will be the first California NHA. The new NHA boundaries extend from Sacramento to Stockton to Vallejo. The DPC will be the local coordinating entity for the Delta NHA and has three years to prepare a management plan, which will provide guidance on ways to preserve, enhance, and educate the public about Delta and Carquinez Strait heritage. NHAs are grassroots, community-driven approach to heritage conservation and economic development. NHAs are large lived-in landscapes. Through public-private partnerships, NHA entities support historic preservation, natural resource conservation,

recreation, heritage tourism, and educational projects. NHAs have no effect on water rights, property rights, or hunting and fishing rights within the designated area.

FEDERAL CLEAN AIR ACT (CAA) OF 1970 – CONFORMITY REQUIREMENTS

Federal Clean Air Act Air Quality Conformity for Transportation (Conformity) requirements pursuant to the Amendments of 1990 apply in all MPO nonattainment and maintenance areas. Section 176(c) of the Clean Air Act (CAA), as amended (Title 42 U.S.C. 7506(c), and the related requirements of Title 23 U.S.C. 109(j), "Transportation Conformity" ensure that federal funding and approval are given to transportation plans, programs and projects that are consistent with the air quality goals established by a SIP. For MPO nonattainment regions, the MPO, FHWA, and FTA are responsible for making the RTP Conformity determination. Under the U.S. Department of Transportation (U.S. DOT) Metropolitan Planning Regulations (Title 23 CFR Part 450 and 771 and Title 49 CFR Part 613) and EPA's Transportation Conformity Rule (Title 40 CFR Part 93) requirements, the RTP needs to meet four requirements: 1.) Regional emissions analysis, 2.) Timely implementation of Transportation Control Measures, 3.) Financial constraints analysis, and 4.) Interagency consultation and public involvement. The transportation conformity rule (Title 40 CFR Part 93 Subpart A) sets forth the policy, criteria, and procedures for demonstrating and assuring conformity of transportation activities.

Section 176(c) of the federal Clean Air Act of 1970 (42 U.S. Code Section 7401 et seq.) sets forth the definition of conformity for an RTP. SACOG must ensure that the transportation and transit projects and the emissions associated with such projects contained in the MTP conforms to the state implementation plan (SIP). The determination of Conformity must be based on the most recent estimates of emissions found in the SIP, and those estimates must be determined from the most recent population, employment, travel, congestion, and land use estimates as determined by the MPO or other agency authorized to make such estimates and approved by the MPO (42 U.S. Code Section 7506).

12.3.2 State Regulations

STATE LANDS COMMISSION SIGNIFICANT LANDS INVENTORY

The State Lands Commission is responsible for managing lands owned by the state, including lands that the state has received from the federal government (PRC Section6370). These lands total more than four million acres and include tide and submerged lands, swamp and overflow lands, the beds of navigable waterways, and state school lands. The state's sovereign interests within Placer County include, but are not limited to Lake Tahoe, the Truckee River, and the North Fork of the American River. The State Lands Commission has a legal responsibility for, and a strong interest in, protecting the ecological and Public Trust values associated with the state's sovereign lands, including the use of these lands for habitat preservation, open space, and recreation. Proposed MTP/SCS projects located within these lands in the plan area of the proposed MTP/SCS would be subject to the State Lands Commission permitting process.

CALIFORNIA LAND CONSERVATION ACT OF 1965 (WILLIAMSON ACT)

The Williamson Act (Gov. Code, Sections 51200-51207) was enacted by the California State Legislature in 1965 to encourage the preservation of agricultural lands. The Williamson Act program

permits property tax adjustments for landowners who contract with a city or county to keep their land in agricultural production or approved open space. Lands covered by Williamson Act contracts are assessed on the basis of their agricultural value instead of their potential market value under non-agricultural uses. In return for the preferential tax rate, the landowner is required to agree contractually to not develop the land for a period of at least 10 years.

Williamson Act contracts are renewed annually (adding an additional year to the 10-year contract), unless a party to the contract files for non-renewal. The filing of a non-renewal application by a landowner ends the automatic annual extension of a contract and starts a nine-year phase-out of the contract. During the phase-out period, the land remains restricted to agricultural and open-space uses, but property taxes gradually return to levels associated with the market value of the land. The contract expires at the end of the nine-year non-renewal process and then use of the land is only subject to local zoning regulations.

The Williamson Act defines compatible use of contracted lands as any use determined by the county or city administering the preserve to be compatible with the agricultural, recreational, or open space use of land within the preserve and subject to contract (Gov. Code Section 51202(e)). However, uses deemed compatible by a county or city government must be consistent with the principles of compatibility set forth in Government Code Sections 51231, 51238, or 51238.1 (Gov. Code, Section 51201(e)). Also see Chapter 4 – Agriculture and Forestry Resources for more information about the Williamson Act.

California Endangered Species Act of 1970 (CESA)

See Chapter 6 – Biological Resources, for a discussion of this state law. The California Department of Fish and Wildlife has no direct land use authority, but in enforcing the requirements of the CESA, it participates with the federal resource agencies (i.e., U.S. Army Corps of Engineers, USFS, and EPA) in commenting on the impacts of new development on natural resource areas.

The Sustainable Communities and Climate Protection Act of 2008

In 2008, California enacted Senate Bill (SB) 375 (Stats. 2008, ch. 728) (SB 375), which coordinates regional land use and transportation planning to reduce greenhouse gas (GHG) emissions from cars and light trucks. The law resulted in several amendments to the federally required MTP process. Although the law has many smaller process-oriented changes that affect only the MPO preparing the plan, the bill also resulted in the following three major changes to the MTP process and contents. See Chapter 1 – Introduction and Chapter 2 – Project Description for an additional description of this regulation and the requirements applicable to SACOG.

Sustainable Communities Strategy (SCS)

The first major change is that the bill requires the MPO to adopt a Sustainable Communities Strategy (SCS) as part of the MTP. The SCS is a land use and transportation plan designed to achieve State targets for the reduction of GHG emissions from automobiles and light trucks (passenger vehicles) in the region. The GHG targets are set by the California Air Resources Board (CARB) for the years 2020 and 2035 and expressed as a percent change in per capita passenger vehicle GHG emissions relative to a 2005 baseline. CARB approved updated targets in 2018.

Separate from SB 375, the MTP is required by federal regulations to reflect the most recent planning assumptions developed by SACOG or other designated agencies (40 CFR 93.110). The purpose of the land use plan in the MTP is to pair forecasted growth with the transportation projects in the plan and inform the regional travel model, which forms the basis for the MTP. The SCS serves to more effectively link the land use and transportation components of the MTP.

Pursuant to the requirements of SB 375 and in light of CARB's 2018 Target Update, if the proposed MTP/SCS does not meet the GHG emissions reduction target for passenger vehicles set for the region for 2035, in addition to the proposed MTP/SCS, the MPO is required to adopt an Alternative Planning Strategy (APS) that demonstrates how the targets could be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. However, as the CEQA streamlining benefits of SB 375 (described below) are intended to help regions meet the GHG emissions reduction targets, in the event that an MPO adopts an APS, and CARB accepts the MPO's determination that the APS, if implemented, would achieve the targets, the CEQA benefits would be activated by consistency with the APS.

CEQA Streamlining Benefits for Land Use Projects

The second major change under SB 375 is that specified projects that are consistent with an SCS or APS accepted by CARB receive CEQA streamlining benefits. SB 375 provides three tiers of CEQA streamlining benefits for Residential Mixed-Use Projects, Transit Priority Projects, and Sustainable Community Projects, as described below.

Generally, a Residential Mixed-Use project must be at least 75 percent residential and be consistent with the general land use designation, density, building intensity, and applicable policies of an SCS or APS accepted by CARB as achieving the GHG emissions reduction targets for cars and light duty trucks established for the SACOG region. CEQA documents for these projects are not required to discuss growth inducing impacts, reduced density alternatives, or any project specific or cumulative impacts from cars and light-duty truck trips on global warming or the regional transportation network.

Transit Priority Projects (TPPs) must also be consistent with an SCS or APS accepted by CARB as described above. In addition, the TPP must meet the following requirements: (1) the project must contain at least 50 percent residential use based on total building square footage, but if less than 75 percent residential, it must have a minimum Floor Area Ratio of 0.75; (2) it must have a minimum net density of 20 dwelling units per acre; and (3) it must be located within one-half mile of a major transit stop or high quality transit corridor included in the MTP.

Projects meeting the above requirements will have all the benefits of Residential Mixed-Use projects, discussed above, plus the option to conduct a "Sustainable Communities Environmental Assessment" (SCEA), rather than prepare an environmental impact report or negative declaration. Under the SCEA, an Initial Study is prepared identifying significant or potentially significant impacts. Where the lead agency determines that cumulative impacts have already been addressed and mitigated in an SCS or APS accepted by CARB, they are not "cumulatively considerable" for purposes of further environmental review. Also, traffic control and mitigation may be covered by jurisdiction-wide measures, and off-site alternatives do not need to be addressed. The standard of review for the SCEA is the "substantial evidence" standard, which is deferential to the agency.

The highest level of CEQA streamlining under SB 375 is provided to "Sustainable Community Projects," which are projects that meet all the qualifications of a TPP described above, as well as the following requirements, and are exempt from CEQA review:

- served by existing utilities;
- no impacts to wetlands, riparian habitats, endangered species, or native plants;
- no impacts to historic resources;
- no risks from hazardous substances;
- no risk from wildfires, seismic issues, or floods;
- 15 percent more energy efficient than California requirements and 25 percent more water efficient than average for area;
- no more than 8 acres in project area;
- no more than 200 units;
- no building greater than 75,000 square feet;
- no net loss of affordable housing for jurisdiction;
- compatible with surrounding industrial uses if applicable;
- within one-half mile of rail or ferry stop or one-quarter mile of high-quality bus line; and
- meets affordable housing minimum or open space minimum or pay in-lieu fee.

Linkage to Regional Housing Needs Allocation

SB 375 linked the Regional Housing Needs Allocation (RHNA) process to the RTP/SCS in the following ways: extended the frequency of required updates to 8 years, allowed some flexibility in the population projections used in the RHNA determination, allowed greater flexibility in implementation timelines, and aligned the timing of the RHNA process and local housing element preparation with RTP/SCS preparation and adoption. The preparation of the proposed MTP/SCS is taking place concurrent with the RHNA methodology and plan, for the second time since passage of the SB 375. Pursuant to CEQA Guidelines section 15283, CEQA does not apply to regional housing needs determinations; therefore, the current RHNA process is not analyzed in this EIR.

However, the proposed MTP/SCS does provide sufficient housing to meet the need of the RHNA at a regional level. Specifically, the MTP/SCS would accommodate 260,000 new housing units, which would be enough to meet the need for 153,512 new housing units identified through the draft RHNA. State statute requires that housing units allocated through RHNA be "consistent with the development pattern included in the sustainable communities strategy." The forecasted growth from 2016 to 2035 identified in the proposed MTP/SCS will be the starting point for the RHNA methodology of allocating units to jurisdictions. By using the MTP/SCS growth forecast as the basis for total RHNA calculations by jurisdiction, SACOG can effectively ensure consistency across these two planning efforts. For more information on how SB 375 has affected the RHNA process, see Chapter 14 – Population and Housing.

SACRAMENTO-SAN JOAQUIN DELTA REFORM ACT OF 2009 (DELTA REFORM ACT)

In November 2009, the California Legislature enacted the Delta Reform Act (Wat. Code, Section 10610 et seq.), also known as Sen. Bill No. 1 (Stats. 2009, 7th Ex. Sess., ch. 5) (SB X7-1), one of several bills passed at that time related to water supply reliability, ecosystem health, and the Delta. The Delta Reform Act created DSC. The DSC is made up of seven members that are advised by a 10-member board of scientists. The DSC is charged with developing and adopting a Delta Plan that addresses the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. These coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. The DSC adopted the Delta Plan on May 16, 2013 (Delta Stewardship Council, 2018). Subsequently, its 14 regulatory policies were approved by the Office of Administrative Law and became effective with legally-enforceable regulations on September 1, 2013.

The Delta Plan was amended on February 2016 to include refined performance measures, which were again amended in April 2018. A September 2016 amendment made permanent an exemption for single-year water transfers to be considered as covered actions. Also, in April 2018, the Delta Plan was amended to revise Chapter 3 to include new text and recommendations for conveyance, storage and operations, and to revise Chapter 7 to include new text and policy for setting priorities for State investments in Delta levees.

Under the Delta Reform Act, the DSC is charged with reviewing and advising local and regional agencies regarding the consistency of local and regional planning documents, including the proposed MTP/SCS, with the Delta Plan. The DSC's input includes reviewing and providing timely advice on the consistency of local and regional plans with the ecosystem restoration needs of the Delta and whether the lands set aside for natural resource protection are sufficient to meet the Delta's ecosystem needs. The Act requires that "covered actions," as defined, which include plans, programs, or projects within the primary or secondary zones of the Delta, be consistent with the Delta Plan.

The Act expressly provides that "covered actions" do not include the following: (1) RTPs, such as this proposed MTP/SCS; and (2) plans, programs, projects, activities (and any infrastructure necessary to support those plans, programs, projects, or activities) within the secondary zone of the Delta that SACOG has determined are consistent with an SCS or APS that CARB has accepted (Wat. Code Section 85057.5). However, the DSC reviews any plan that includes land within the Delta zones, whether or not it is a covered action. MPOs with a planning area that crosses these boundaries are required to follow a consultation procedure with the DSC. This procedure includes early coordination to determine consistency of the proposed MTP/SCS with the Delta Plan. If the DSC concludes that the proposed MTP/SCS is inconsistent with the Delta Plan, it must provide written notice of the claimed inconsistency no later than 30 days prior to the adoption of the final MTP/SCS. If the DSC provides timely notice of a claimed inconsistency, SACOG shall include a detailed response to the council's notice in the final MTP/SCS (Wat. Code Section 85212).

SACOG consulted with the DSC on January 15, 2019, April 2, 2019, and August 19, 2019, on the application of the law, the geography under DSC authority, and the policies established by the DSC, and will follow the Act's consultation requirements. From these early consultations, SACOG believes the proposed MTP/SCS is consistent with Delta Plan; however, the DSC has not provided their official review.

DELTA VISION STRATEGIC PLAN, 2008

The Delta Vision Blue Ribbon Task Force (Task Force) was initiated by the Governor's Executive Order (Executive Order S-17-06) in 1996 to develop recommendations on the overall management and governance of the Delta, including goals related to improving safety, ensuring water supply and water quality, expanding recreation, coordinating emergency response, and protecting infrastructure and public safety. The Task Force recommended two co-equal goals: to restore the Delta ecosystem and to create a reliable water supply for California.

The Task Force adopted the Delta Vision Strategic Plan in October 2008, which emphasizes the two co-equal goals and, in total, contains seven goals, 22 strategies, and 73 actions to achieve these overarching goals. The seven goals of the Strategic Plan are listed below.

1. Legally acknowledge the co-equal goals of restoring the Delta ecosystem and creating a more reliable water supply for California.
2. Recognize and enhance the unique cultural, recreational, and agricultural values of the California Delta as an evolving place, an action critical to achieving the co-equal goals.
3. Restore the Delta ecosystem as the heart of a healthy estuary.
4. Promote statewide water conservation, efficiency, and sustainable use.
5. Build facilities to improve the existing water conveyance system and expand statewide storage, and operate both to achieve the co-equal goals.
6. Reduce risks to people, property, and state interests in the Delta by effective emergency preparedness, appropriate land uses, and strategic levee investments.
7. Establish a new governance structure with the authority, responsibility, accountability, science support, and secure funding to achieve these goals.

The Strategic Plan proposed a governance structure for the Delta based on a new California Delta Ecosystem and Water (CDEW) Plan to be developed and adopted by the California Delta Ecosystem and Water Council (Governor's Delta Vision Blue Ribbon Task Force 2008). In 2009, the Delta Reform Act established this authority as the DSC, which adopted the Delta Plan in 2013 (Delta Stewardship Council 2018).

LURMP FOR THE PRIMARY ZONE OF THE DELTA

Pursuant to the Delta Protection Act of 1992 (PRC Section29760 et seq.), the DPC adopted the LURMP, which outlines the long-term land use requirements for the Sacramento-San Joaquin Delta and provides direction for land use decisions by the local jurisdictions in the Delta region. The Act defines two delta zones: the Primary Zone, which comprises the principal jurisdiction of the DPC, and the Secondary Zone, which while part of the "Legal Delta" is outside the planning area of the DPC. Both Primary and Secondary Delta Zones overlay the southern end of the plan area within Yolo and Sacramento counties.

The DPC adopted the updated LURMP on February 25, 2010. The update addressed recent court decisions related to water export, Delta ecosystem issues, levee stability, and global climate change. Local jurisdictions are required to review their general plans for consistency with the LURMP update and make amendments as necessary. The DPC has recently initiated an update to the

LURMP. The first draft of the LURMP update has been a collaboration between DPC staff and local land use planners, the Delta stakeholder community, and partner state agencies and became available for public review and comment in April 2019. The primary goals of the LURMP update is to engage stakeholders to assist the DPC in the update process, and to provide a regional framework for overall land use planning that also respects local land use authority using a transparent and collaborative process.

The DPC must ensure that proposed amendments to the general plan, and any development approved or proposed that is consistent with the general plan, will be consistent with the regional plan and will not result in the following:

- wetland or riparian loss;
- degradation of water quality;
- increased nonpoint source pollution;
- degradation or reduction of Pacific Flyway habitat;
- reduced public access, provided the access does not infringe on private property rights;
- expose the public to increased flood hazard;
- adversely impact agricultural lands or increase the potential for vandalism, trespass, or the creation of public private nuisance on public or private land;
- degradation or impairment of levee integrity; or
- increased requirements or restrictions upon agricultural practices in the Primary Zone.

CALIFORNIA ECO RESTORE

California EcoRestore is a California Natural Resources Agency initiative implemented in coordination with state and federal agencies to advance the restoration of at least 30,000 acres of Delta habitat by 2020. The goal of California EcoRestore is to pursue habitat restoration projects with clearly defined goals, measurable objectives, and financial resources to help ensure success. The types of habitat targeted include tidal wetlands, floodplain, upland, riparian, fish passage improvements, and others.

CORTESE-KNOX-HERTZBERG LOCAL GOVERNMENT REORGANIZATION ACT OF 2000 (CORTESE-KNOX-HERTZBERG ACT)

The Cortese-Knox-Hertzberg Act (Gov. Code Section 56000 et seq.) establishes the process through which local agency boundaries are established and revised. Each county must have a local agency formation commission (LAFCo), which is the agency that has the responsibility to create orderly local government boundaries, with the goal of encouraging "planned, well-ordered, efficient urban development patterns," the preservation of open space lands, and the discouragement of urban sprawl. A LAFCo typically consists of two county supervisors, two representatives of the county's cities, and one member of the public. Many LAFCos also include one special district representative. While LAFCos have no land use authority, their actions determine which local government will be responsible for planning new areas.

LAFCos address a wide range of boundary actions, including the creation of SOIs for cities, adjustments to boundaries of special districts, annexations, incorporations, detachments of areas

from cities, and dissolutions of cities. A city's SOI is an indication of the city's future boundaries. Since 1992, state law requires that the incorporation of a new city must not financially harm the county and must result in a positive cash flow for the new city, a requirement that has slowed the rate of new city incorporation.

12.3.3 Local Regulations

GENERAL PLANS

The legal framework in which California cities and counties exercise local planning and land use functions is provided in the California Planning and Zoning Law (Government Code Section 65000 et seq.) Under state planning law, each city and county are required to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning" (Government Code Section 65300 et seq.). The most comprehensive land use planning for the proposed plan area of the proposed MTP/SCS is provided in city and county general plans. The general plans contain goals and policies concerning topics that are mandated by state law or which the jurisdiction has voluntarily chosen to include. They must contain land use, housing, circulation, open space, conservation, noise, safety, and (in many cases) environmental justice elements, as well as any other elements that the city or county may wish to adopt. Other topics that local governments frequently choose to address are public facilities, parks and recreation, and agriculture, among others. All elements must be consistent with one another. County general plans cover unincorporated areas, while city general plans are required to cover an area that is generally larger than the existing city limits (i.e., portions of the unincorporated area that fall within a city's sphere of influence).

The 28 jurisdictions in the plan area of the proposed MTP/SCS are at various stages of updating or augmenting their general plans and other local land use plans. An overview of existing General Plans for the 28 jurisdictions in the area is provided in Table 12-6. This table is not reflective of general plan amendments or the Housing Element updates that happen on a more frequent basis.

Table 12-6
Local General Plans

Jurisdiction	General Plan Last Updated Year
Auburn	1993
Citrus Heights	2011
Colfax	1998
Davis	2007
El Dorado County	2004
Elk Grove	2019
Folsom	2018
Galt	2009
Isleton	2000
Lincoln	2008
Live Oak	2009
Loomis	2001
Marysville	1985
Placer County	2013
Placerville	1990
Rancho Cordova	2006

Jurisdiction	General Plan Last Updated Year
Rocklin	2012
Roseville	2016
Sacramento*	2015
Sacramento County	2011
Sutter County	2010
West Sacramento	2016
Wheatland	2006
Winters	1992
Woodland	2017
Yolo County	2009
Yuba	2004
Yuba County	2011

*Notes: *update in progress*

ZONING

The city or county zoning code is the set of detailed land use regulations that implement the general plan policies at the parcel level. The zoning code identifies allowed uses and required development regulations by district or area. Since 1971, state law has required the city or county zoning code to be consistent with the jurisdiction's general plan. (Gov. Code, Section 65860). As of 2018, this requirement now also applies to charter cities. (Gov. Code, Section 65860, subd. (d).)

SPECIFIC AND COMMUNITY PLANS

A city or county may also provide land use planning by developing community or specific plans for smaller, more specific areas within their jurisdiction. These more localized plans provide for focused guidance for developing a specific area, with development standards tailored to the area, as well as systematic implementation of the general plan. Specific and community plans are required to be consistent with the city's or county's general plan. Zoning ordinances and land use approvals must be consistent with applicable specific plans as well as the general plan. Cities and counties are also required to comply with the Subdivision Map Act (Government Code Section 66410 et seq.). The Subdivision Map Act sets forth the conditions for approval of a subdivision map and requires enactment of subdivision ordinances by which local governments have direct control over the types of subdivision projects to be approved and the physical improvements to be installed.

Consistent with CEQA Guidelines Section 15125(d) (Cal. Code Regs. Section 15125(d)), SACOG must discuss any inconsistency between the proposed project and applicable general plans, specific plans, and regional plans. SACOG worked closely with each jurisdiction to gather information about adopted specific and master plans. SACOG conducted an inventory of proposed and adopted specific and master plans including information on the type of development allowed, buildout assumptions, and development to date.

HABITAT CONSERVATION PLANS

There are five habitat conservation plans (HCPs) and natural community conservation plans (NCCPs) within the plan area of the proposed MTP/SCS, including the Natomas Basin HCP, the Placer County Conservation Plan, the South Sacramento HCP, the Yolo HCP/NCCP, and the Yuba/Sutter Regional Conservation Plan. A summary of these plans is provided in Chapter 6 –

Biological Resources. Not all of these plans have been adopted or fully implemented. During implementation of specific projects, an activity subject to Section 10 of the ESA (16 U.S. Code Section1531 et seq.) and considered a covered project under the implementing rules of an adopted HCP or NCCP may be able to participate in the plan in order to avoid adverse effects on covered species.

AIRPORT LAND USE COMPATIBILITY PLANS

Pursuant to state law, each county with an airport has an Airport Land Use Commission (ALUC). The ALUC prepares an Airport Land Use Compatibility Plan (ALUCP) for each public use airport. The plan provides for the orderly growth of the airport and the area surrounding the airport, excluding existing land uses. Its primary function is to safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general. Cities and counties must submit their general and specific plans to the ALUC upon adoption or amendment, which must be consistent with the ALUCP. Local jurisdictions are responsible for land use compatibility controls around airports. For more information on airport land use compatibility, see Chapter 10 – Hazards and Hazardous Materials.

GROWTH CONTROL

Local growth control measures manage community growth through various methods, including tying development to infrastructure capacity, limiting the number of new housing units, setting limits on the increase of commercial square footage, and the adoption of urban growth boundaries, among others.

The following jurisdictions in the plan area of the proposed MTP/SCS have some form of growth control measure:

- The City of Davis has voter-approved Measure L (1986) to grow "as slow as legally possible"; voter approved Measure J (2000) mandating voter approval for certain changes in land use, especially certain conversions of agricultural lands into an urban designation; and a General Plan policy limiting population and dwelling unit growth. Voter-approved Measure R (2010) amended Measure L to require voter approval for conversions of agricultural lands to an urban reserve designation and for any development project on the Covell Center and Nishi properties. Measure R also extended the sunset date of Measure L to 2020.
- The City of Woodland has a voter-approved Urban Limit Line Ordinance (2006), which sets the City's ultimate boundaries. The Urban Limit Line may only be modified by another vote by the people. The initiative also placed restrictions on the provision of services outside of the Urban Limit Line.
- Sacramento County established two growth boundaries in the General Plan to promote orderly growth and the efficient extension of infrastructure and the provision of urban services. The Urban Services Boundary (USB) generally delineates the ultimate growth boundary for the unincorporated area where county services shall be provided and where they will not be extended. The Urban Policy Area (UPA) generally delineates the area within the USB expected to receive county services in the near term. The USB and UPA limit urban uses in areas of the county not included in the "Natomas Joint Vision Study Area," which is the only location within the unincorporated County and outside of the USB with an overlay

that allows for the Board to consider urbanization beyond the USB, if it meets criteria specified in the General Plan.

SACOG BLUEPRINT VISION

In December 2004, the SACOG Board of Directors adopted the Blueprint Vision, which included a conceptual map and seven growth principles (hereafter referred to as Blueprint principles). Those principles are:

1. housing choice and diversity;
2. use existing assets;
3. compact development;
4. natural resources conservation;
5. design for quality;
6. mixed use developments; and
7. provide transportation choices.

The Blueprint Vision was the result of a three-year regional visioning process, which engaged SACOG's member jurisdictions, the general public, and special interest groups on how the region should accommodate the future population and employment that is forecast to come to the region. Without land use planning authority, SACOG serves in an advisory role for its member jurisdictions regarding implementation of the Blueprint Vision. Since SACOG Board adoption of the Blueprint Vision, many jurisdictions in the region have implemented the Blueprint principles in their planning processes. The most notable local implementation efforts are general plan updates that incorporate the Blueprint principles into goals and policies; however, local governments also regularly evaluate proposed master plans and individual projects in the context of the Blueprint principles.

The conceptual map depicts a way for the region to grow through the year 2050 in a manner generally consistent with the Blueprint principles. The map is the result of numerous public workshops and meetings with local staff and elected officials. While the adopted vision map is not intended to be implemented literally, the map is intended to be interpreted and used as a concept-level illustration of the growth principles. The goal and result of the Blueprint map and principles, is a reduction in traffic congestion, air pollution, and consumption of agricultural and resource lands through more efficient development within and contiguous to the existing urban area, paired with a transportation system that is more integrated with the land uses. The housing stock of the Blueprint map is more diverse than the current stock, which is dominated by single-family units, and housing, shopping, and employment uses are also closer together so that people are able to make shorter auto trips, or even non-auto trips, to reach their various destinations.

RURAL-URBAN CONNECTIONS STRATEGY

The Rural-Urban Connections Strategy (RUCS) was launched at the conclusion of the 2008 MTP to provide policy and technical approaches to addressing or avoiding impacts to rural resources in the Sacramento region. In the same way that the Blueprint is seen as an economic development and environmental sustainability strategy for urban areas, the RUCS program is seen as an economic and

environmental sustainability strategy for rural areas. The RUCS program is thus an integral piece of a regional strategy for the region's economic and environmental sustainability and viability.

SACOG assembled working groups around five broad topic areas to identify rural challenges and opportunities. These five topic areas included:

1. land use and conservation,
2. the infrastructure of agriculture,
3. economic opportunities,
4. forest management, and
5. regulations.

SACOG also developed working papers with input from local agriculture, planning, economic development, and environmental representatives in order to help the region better understand the unique issues affecting rural areas. Stakeholder workshops were included as part of this process in order to vet the research and findings on each of the above topics.

RUCS has developed and maintains several tools and supporting data to support policy discussion and understanding about the influence of the rural and urban economies on each other. One example is the Geographic Information System (GIS)-based tool that the RUCS program created using information about crop data, pesticide use, and economic data to assess agricultural production in the region. This tool provides the capacity to evaluate both urban and rural land use changes when combined with the land use model and includes parcel-specific data on the cropping patterns on the farms in the region, as well as planning and economic analytical tools to help understand the economics of farming and how infrastructure, land use and market factors affect the ability of farmers to profitably get their goods to market. These efforts are intended to broaden the region's understanding of how land use and transportation improvements affect rural areas. The RUCS program is ongoing, with the ultimate goal of bridging the urban and rural planning needs in the region The SACOG Board participates in various RUCS 2.0 activities to promote learning about the opportunities and challenges facing the agricultural economy in different parts of the region with focus on new implementation efforts.

12.4 Impacts and Mitigation Measures

12.4.1 Methods and Assumptions

This program-level analysis generally evaluates potentially significant land use and planning impacts resulting from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS. By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas. For Impacts LU-2 and LU-3, implementation of the proposed MTP/SCS is assessed at the regional level only. This is because land use requirements and objectives of SB 375, the Delta Plan, and the LURMP are regional in scope.

During each MTP/SCS update cycle, SACOG prepares a land use forecast to accommodate the regional growth forecast of population, employment, and housing demand (see Section 2.6.3 for details).

For the Impact LU-1 analysis, general location of uses, residential densities, and building intensities within the region located in the proposed MTP/SCS Land Use Forecast, described in detail in Chapter 2 – Project Description were used to compare with existing type of development in the region, to determine whether or not various types of land use and planned transportation network improvements proposed under the MTP/SCS have the potential to physically divide an existing community. For analysis under Impact LU-2, the Land Use Forecast outlined above was compared with the SCS requirements of SB 375. SACOG is required by law to comply with the requirements of SB 375, including those pertaining to the SCS. The full list of SB 375 SCS requirements may be found in Government Code Section 65080(b)(2)(B) and listed below in Section 12.4.2: Criteria for Determining Significance. SCS requirements were adopted in part for the purpose of avoiding or mitigating environmental effects, including greenhouse gas emissions, air pollution, and energy (petroleum) consumption. For Impact LU-3, the Land Use Forecast was also analyzed for conflicts with the LURMP adopted by the DPC in 2010. Since portions of the plan area of the proposed MTP/SCS fall within the Primary Zone of the Delta, the proposed MTP/SCS is required to be consistent with the LURMP pursuant to the requirements of the Delta Protection Act (PRC Section 29760 et seq.).

The analysis assumes implementing agencies will ensure that land use and planning are treated in accordance with applicable federal, state and local laws and regulations as part of project planning, design and engineering.

12.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if the following would occur:

LU-1 Physically divide an existing community.

LU-2 Cause a significant environmental impact due to a conflict with any of the following SCS requirements of Senate Bill 375 (California Government Code Section 65080(b)(2)(B)).

a. Identify the general location of uses, residential densities, and building intensities within the region.

b. Identify areas within the region sufficient to house all the population of the region, including all economic segments of the population, over the course of the planning period of the regional transportation plan taking into account net migration into the region, population growth, household formation, and employment growth.

c. Identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region pursuant to Section 65584 of the Government Code.

d. Identify a transportation network to service the transportation needs of the region.

e. Gather and consider the best practically available scientific information regarding resource areas and farmland in the region as defined in subdivisions (a) and (b) of Section 65080.01 of the Government Code.

f. Consider the state housing goals specified in Sections 65580 and 65581 of the Government Code.

g. Set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the GHG emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the GHG emission reduction targets approved by the state board.

h. Allow the regional transportation plan to comply with Section 176 of the federal Clean Air Act (42 U.S. Code Section 7506).

LU-3 Cause a significant environmental impact resulting from a conflict with any of the following requirements included in the Land Use and Resource Management Plan adopted by the Delta Protection Commission.

a. Direct new non-agriculturally oriented non-farmworker residential development within existing unincorporated towns and encourage a critical mass of farms, agriculturally-related businesses, and supporting infrastructure to ensure the economic vitality of agriculture within the Delta.

b. Support the long-term viability of agriculture and discourage inappropriate development of agricultural lands.

c. Preserve and protect the natural resources of the Delta; promote protection of remnants of riparian and aquatic habitat; and encourage compatibility between agricultural practices and wildlife habitat.

d. Promote continued recreational use of the land and waters of the Delta and ensure that needed facilities that support such uses are constructed, maintained, and supervised.

e. Protect and enhance long-term water quality in the Delta for agriculture, municipal, industrial, water-contact recreation, and fish and wildlife habitat uses, as well as all other beneficial uses.

f. Ensure that the construction of new utility and infrastructure facilities is appropriate and the impacts of such new construction on the integrity of levees, wildlife, recreation, agriculture and Delta communities are avoided, minimized and mitigated (Delta Protection Commission 2010).

12.4.3 Impacts and Mitigation Measures

IMPACT LU-1: PHYSICALLY DIVIDE AN EXISTING COMMUNITY

Regional Impacts

To accommodate a projected increase of approximately 620,500 people, the proposed MTP/SCS would result in about 260,000 new housing units, and approximately 270,000 new employees in the region through the year 2040, and conversion of an additional 46,403 acres of land to developed uses.

The majority of the new development would occur as infill development, in accordance with the adopted land use plans and zoning ordinances of the cities and counties in the proposed MTP/SCS area. The projected land use pattern of the proposed MTP/SCS reflects the regional growth forecast and generally focuses new land uses within existing communities. The projected land use pattern would serve to promote connectivity within an existing community by siting land uses of similar character and nature in a more compact and mixed-use pattern. Thus, it is reasonably foreseeable that the projected land use pattern of the proposed MTP/SCS would result in beneficial impacts related to the connectivity of an existing community, rather than an adverse effect. Construction activities associated with implementation of the projected land use pattern would not physically divide existing communities.

Therefore, the regional impacts on physical division of existing communities related to the projected land use pattern of the proposed MTP/SCS are considered less than significant (LS) for Impact LU-1. No mitigation is required.

In existing developed areas, where the majority of proposed MTP/SCS roadway improvements would occur, roadway infrastructure is already a dominant feature of the landscape, and improvements to existing roadway facilities would not necessarily physically divide existing communities. There may be localized exceptions, which are analyzed at the Community Type and HFTA level. In developing areas, where existing transportation infrastructure is less prevalent, implementation of new transportation infrastructure could potentially divide established communities, depending on the location and design of planned transportation improvements relative to existing communities.

The additional vehicle service hours of existing bus service or the addition of new bus service would not physically divide existing communities because the buses operate on existing infrastructure. Light rail or fixed guideway projects, unlike bus routes, add permanent infrastructure to the landscape, which could physically divide existing communities, depending on the siting and design

of rail projects. Similarly, roadway projects such as a widening or the conversion of a road to an expressway, with limited access, could also physically divide existing communities, depending on the siting and design of the project. As such, depending on their future siting and location, the construction of new transportation projects or the implementation of new light rail transit service could result in physical division of existing communities.

Therefore, regional impacts on physical division of existing communities from the planned transportation improvements at the regional level would be potentially significant (PS) for Impact LU-1. Mitigation is required. Mitigation measure LU-1 is described below.

Localized Impacts

Center, Corridor Communities, and Established Communities
Because Center and Corridor Communities and Established Communities are already urbanized, the majority of land development in these Community Types would likely involve higher-density infill development. As discussed above, the proposed MTP/SCS would create more centralized areas of residential areas and commercial centers and would not create features that would physically divide existing communities. More specifically, land use development within Center and Corridor Communities would include a 76 percent increase in housing in Center and Corridor Communities to develop vacant or underutilized land that is in close proximity to services and employment opportunities, take advantage of existing transportation infrastructure (light rail and bus service where they are present), and create more types of housing products for the projected population in central locations. New housing in Center and Corridor Communities is predominantly attached product (multi-family and mixed land uses), due to higher residential densities proposed or allowed in these areas by local jurisdictions.

Similar to Center and Corridor Communities, Established Communities already have a significant amount of development, but these areas are generally not as dense as Center and Corridor Communities. More specifically, land development within Established Communities would result in a modest rate of housing growth. This is in part due in part to their substantially "built out" existing condition, but also because much of the potential housing demand in these areas that might otherwise be realized through amended plans and codes to allow higher densities is channeled to the Center and Corridor Communities. Employment growth in Established Communities is higher than housing growth. As such, because the majority of development within Center, Corridor, and Established Communities would occur within already developed areas and because the projected land use pattern would expand the capacity of these Community Types to support new population growth, the projected land use pattern in these communities is not expected to physically divide established communities.

Therefore, impacts on physical division of existing communities related to the projected land use pattern from implementation of the proposed MTP/SCS in Center and Corridor Communities and Established Communities are considered less than significant (LS) for Impact LU-1. No mitigation is required.

Center and Corridor Communities and Established Communities would receive a variety of transportation improvements by 2040, including new transit, non-motorized, and roadway projects in addition to ongoing improvements in transit operations and roadway maintenance. Most of the roadway, bicycle, and pedestrian infrastructure projects are improvements to existing facilities.

Further, transportation infrastructure is already a dominant feature of the landscape in Center and Corridor Communities and Established Communities that would not result in division of an existing community. However, light rail and fixed guideway projects, unlike bus routes, add permanent infrastructure to the landscape, which could physically divide existing communities, depending on siting and design details. Nonetheless, depending on their future siting and location, the construction of new transportation projects or the implementation of new light rail transit service could result in physical division of existing communities in Center, Corridor, and Established Communities.

Therefore, impacts on physical division of existing communities related to the planned transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities and Established Communities are considered potentially significant (PS) for Impact LU-1. Mitigation is required. Mitigation measure LU-1 is described below.

Developing Communities

Currently, land uses in Developing Communities include vacant open space, residential development, some low-density office and commercial development and some transportation infrastructure. Although new employment centers and housing units would not necessarily be built at the same density as Established Communities or Center and Corridor Communities, development in Development and redevelopment proposed in Developing Communities would be more concentrated than existing uses and would create more centralized areas of residential areas and commercial centers. Thus, land use development in Developing Communities would not involve features that would physically divide an existing community.

Therefore, impacts on physical division of existing communities related to the projected land use pattern from implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact LU-1. No mitigation is required.

Implementation of the proposed MTP/SCS would result in the construction of various transportation improvement projects throughout Developing Communities. However, Developing Communities would not necessarily receive the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities would receive more road widening projects and newly constructed road projects to serve the new residential and employment developments that would be built by 2040. These areas would receive road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects would not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service would be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure would be similarly phased in over the life of the proposed MTP/SCS.

Because Developing Communities do not have as much existing transportation infrastructure as other Community Types, the construction and operation of new transportation projects or the implementation of new transit service could result in physical division of existing communities, depending on the location and design of such projects.

Therefore, impacts on physical division of existing communities from planned transportation improvements impacts related in Developing Communities would be potentially significant (PS) for Impact LU-1. Mitigation is required. Mitigation measure LU-1 is described below.

Rural Residential Communities
Rural Residential Communities are surrounded by open space, forested lands, and agricultural lands. These communities are expected to have very limited growth by 2040. More specifically, these areas are expected to increase by about 2,790 housing units and 1,400 jobs, or around one percent of the regional growth. This development would consume about 10,251 acres; however, most of that is not developed land in the way the other Community Types are. Development in this Community Type is primarily rural homes on very large lots where only a portion of the land is "developed" , and the remainder of the parcel remains undeveloped. Because the growth in this community type is modest, it is unlikely that the proposed MTP/SCS would result in division of existing communities.

Therefore, the impacts on physical division of existing communities related to the projected land use pattern from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact LU-1. No mitigation is required.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS would result in the construction of roadway improvements including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service. Because most of these projects would make improvements to existing service that operates on existing rights-of-way, such improvements would not result in physical division of existing communities. Nonetheless, because Rural Residential Communities do not have as much existing transportation infrastructure as other Community Types, the construction of new transportation projects or the implementation of new transit service could result in the physical division of existing communities.

Therefore, the impacts on physical division of existing communities from planned transportation improvements in Rural Residential Communities would be potentially significant (PS) for Impact LU-1. Mitigation is required. Mitigation Measure LU-1 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040.

Therefore, the impacts on physical division of existing communities related to the projected land use pattern from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact LU-1. No mitigation is required.

The focus for planned transportation improvements in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Because of the limited number of projects being implemented, implementation of the proposed MTP/SCS would likely not result in physical division of existing communities for this Community Type.

Therefore, the impacts on physical division of existing communities related to planned transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact LU-1. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The HFTAs already contain mostly urban uses and are relatively compact. The additional housing units and jobs would increase the amount of infill development and density in these areas. For instance, new development in the Placer HFTAs is predominantly employment, due primarily to the concentration of transit service in the Roseville employment centers along the Interstate 80 corridor. Of the new housing in the Placer HFTAs, 45 percent are in attached housing product types. This development is generally more densely developed than surrounding areas. Compact land uses that are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel are proposed within Sacramento HFTAs. Similarly, land development within Yolo County HFTAs would include compact land uses that are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. As such, because proposed land use development under the MTP/SCS would be located within existing developed areas and create centralized areas of residential areas and commercial centers, land development would not physically divide an existing community.

Therefore, the impacts on physical division of existing communities related to the projected land use pattern from implementation of the proposed MTP/SCS in the HFTAs are considered less than significant (LS) for Impact LU-1. No mitigation is required.

The HFTAs would receive a variety of transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service would include increased frequency on local fixed route buses, but the majority of transit service increases would be commuter service to downtown Sacramento. Projects such as light rail projects, add permanent infrastructure to the landscape, which could physically divide existing communities, depending on the siting and design of rail projects. As such, depending on their future siting and location, the construction and operation of new transportation projects or the implementation of new transit service could result in physical division of existing communities. Thus, planned transportation network improvements impacts related to community separation in the TPAs would be potentially significant (PS) for Impact LU-1. Mitigation measure LU-1 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project-level would reduce these impacts, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure LU-1: Implementing agencies and/or project sponsors shall implement measures, where feasible and necessary based on project- and site-specific considerations that include, but are not limited to:

- New transportation projects shall be required to incorporate design features such as sidewalks, bike lanes, and bike/pedestrian bridges or tunnels that maintain or improve access and connections within existing communities.
- SACOG shall continue to support planning efforts for locally sponsored traffic calming and alternative transportation initiatives, such as paths, trails, overcrossings, bicycle plans, that foster improved neighborhoods and community connections such as through the regional Community Design grant program.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact LU-1 would be reduced to a less than significant level (LS). Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact LU-1 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT LU-2: CAUSE A SIGNIFICANT ENVIRONMENTAL IMPACT RESULTING FROM A CONFLICT WITH THE SCS REQUIREMENTS OF SENATE BILL 375.

Regional Impacts

Sections a through h below address whether the proposed MTP/SCS would cause a significant environmental impact due to a conflict with the SCS requirements included in SB 375 (California Government Code Section 65080(b)(2)(B)).

a. Identify the general location of uses, residential densities, and building intensities within the region.

SB 375 requires that MPOs adopt an SCS that forecasts the amount and location of growth, including a detailed allocation of land uses addressing regional housing need, transportation demand, and natural resources (California Government Code Section 65080(b)(2)(B)). The proposed MTP/SCS identifies the general location of uses, residential densities, and building intensities within the region in the proposed MTP/SCS Land Use Forecast, described in detail in Chapter 2 – Project Description. The Land Use Forecast identifies housing by density and type; employment uses by industry, building intensity, and number of employees; and other uses including agriculture, open space, and recreation areas by the following geographic area types: county, jurisdiction, Community Type, and HFTA. Maps and tables with this information, as well as further impact analysis, can be found in Chapter 2 – Project Description, Chapter 4 – Agriculture and Forestry Resources, Chapter 14 – Population and Housing, and Chapter 15 – Public Services and Recreation.

To accommodate a projected increase of approximately 620,521 people, about 260,000 new housing units, and approximately 270,000 new employees in the region through the year 2040, the proposed MTP/SCS projects the conversion of an additional 46,403 acres of land to developed uses. Tables 12-7, 12-8, and 12-9 summarize housing growth, employment growth, and land uses by county.

Table 12-7
Summary of Expected Housing Growth by County (Dwelling Units)

County (incorporated and unincorporated areas)	2016		2016-2040		2040	
	2016 Dwelling Units[1,2]	Percent of Total	New Dwelling Units[1,2]	Percent of Total	2040 Dwelling Units[1,2]	Percent of Total
El Dorado	63,793	6.93%	8,498	3.27%	72,291	6.12%
Placer	146,701	15.93%	54,169	20.82%	200,870	17.00%
Sacramento	570,360	61.92%	154,500	59.39%	724,860	61.36%
Sutter	34,186	3.71%	8,093	3.11%	42,279	3.58%
Yolo	77,705	8.44%	28,662	11.02%	106,367	9.00%
Yuba	28,378	3.08%	6,206	2.39%	34,584	2.93%
Region Total	921,123	100%	260,128	100%	1,181,251	100%

[1] Totals may not match due to rounding.
[2] Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.
Source: Data compiled by SACOG, MTP/SCS Land Use Forecast, in June 2019

Table 12-8
Summary of Employment Growth by County (Employees)

County (incorporated and unincorporated areas)	2016		2016-2040		2040	
	2016 Employees[1,2]	Percent of Total	New Employees[1,2]	Percent of Total	2040 Employees[1,2]	Percent of Total
El Dorado	48,690	5%	9,275	3%	57,965	4%
Placer	162,577	15%	61,505	23%	224,082	17%
Sacramento	688,895	65%	151,377	56%	840,273	63%
Sutter	34,417	3%	9,552	4%	43,969	3%
Yolo	104,771	10%	30,604	11%	135,376	10%
Yuba	21,401	2%	7,748	3%	29,149	2%
Region Total	1,060,751	100%	270,062	100%	1,330,813	100%

[1] Totals may not match due to rounding.
[2] Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.
Source: Data compiled by SACOG, MTP/SCS Land Use Forecast, in June 2019

Table 12-9
Existing and Future Land Uses in the MTP/SCS Plan Area by County (Acres)

Development Types	El Dorado County	Placer County	Sacramento County	Sutter County	Yolo County	Yuba County	Regional Total
2016							
Residential[1]	189,637	126,127	130,182	6,986	22,429	68,513	543,874
Mixed Use (vertical)	1	38	183	94	37	10	362
Office & Commercial	2,800	4,089	15,489	927	1,652	608	25,566
Industrial	4,822	3,150	20,652	3,070	10,088	3,168	44,949
Public	11,733	6,184	24,058	1,614	5,465	23,042	72,095
Total Development Acres[2]	208,992	139,588	190,564	12,691	39,671	95,341	686,847
2016-2040 Growth							
Residential[1]	5,327	14,501	11,807	1,059	1,750	1,472	35,915
Mixed Use (vertical)	3	394	1,243	67	168	32	1,907
Office & Commercial	300	1,077	1,721	145	140	180	3,563
Industrial	217	1,314	1,391	266	865	92	4,145
Public	12	301	409	64	41	45	872
Total Development Acres[2]	5,859	17,587	16,571	1,602	2,963	1,820	46,403
2040							
Residential[1]	194,964	140,628	141,989	8,045	24,179	69,985	579,790
Mixed Use (vertical)	4	432	1,426	161	205	42	2,269
Office & Commercial	3,100	5,167	17,210	1,073	1,792	788	29,130
Industrial	5,039	4,464	22,043	3,336	10,953	3,260	49,095
Public	11,744	6,485	24,467	1,678	5,506	23,086	72,967
Total Development Acres[2]	214,851	157,175	207,135	14,292	42,635	97,162	733,250

[1] Because land use plans for future development do not consistently identify acres for public uses, the gross residential acres in this table include acreage set asides for parks and public services including fire stations, police stations, community centers, churches, etc. that are associated with forecasted residential growth.
[2] Excludes lands designated in adopted and proposed land use plans as Agriculture, Farm Homes, Open Space, Parks, Recreation, and Vacant land estimate. For the purposes of the MTP/SCS, lands with these land use designations are not identified as Developed Acres.
Source: Data compiled by SACOG, MTP/SCS Land Use Forecast, in June 2019

b. Identify areas of the region sufficient to house all the population of the region, including all economic segments of the population, over the course of the planning period of the regional transportation plan taking into account net migration into the region, population growth, household formation, and employment growth.

As described in Chapter 2 – Project Description, SACOG's regional forecast methodology identifies the total employment expected to occur in the region and the population that would occur in conjunction with that employment growth, taking into account net migration into the region, population growth within the region, and household formation. New households are converted into housing unit demand for the forecasted workers and residents in the region. Thus, the SCS identifies areas of the region sufficient to house the entire population of the region. The SCS does not assume development on all urban-designated land, because the sum of all local land use plans, adopted and proposed, yields an amount of employment and housing growth that exceeds the total employment and housing growth forecast for the region to 2040.

Recent research suggests a shift in the type of housing products that would be needed to accommodate the region's population. Evolving demographics and preferences held by specific demographic groups, or generational cohorts, are driving the change. On the housing demand side, the aging of the baby boom cohort (those born between 1946-1964), the preferences of the more populous Generation Y or "Millenial" cohort (those born between 1978 and 1994), and continued immigration would have a major impact on demand. On the supply side, the type and location of new housing construction over the past few decades may not match anticipated future demand according to many researchers (SACOG 2019).

Based on the available evidence, SACOG has concluded there would be higher demand for attached and small-lot single family housing products over the MTP/SCS planning period, along with lower demand for large lot-single-family housing products, which currently make up the majority of housing in the region. In addition, these housing types have also been shown to be beneficial for increasing densities and mixed uses in Center and Corridor Communities and near high quality transit (Table 12-10), thus helping to encourage walkable communities, decrease single occupant vehicle mode share, and reduce GHG emissions (SACOG 2019).

Table 12-10
Summary of Potential Housing Growth by Community Type (Dwelling Units)

Community Type	2016		2016-2040		2040	
	2016 Dwelling Units[1,3]	Percent of Total	New Dwelling Units[1,3]	Percent of Total	2040 Dwelling Units[1,3]	Percent of Total
Center and Corridor Communities	113,880	12%	86,661	33%	200,541	17%
Established Communities	712,012	77%	81,365	31%	793,377	67%
Developing Communities	20,793	2%	89,313	34%	110,106	9%
Rural Residential Communities	74,438	8%	2,789	1%	77,227	7%

Community Type	2016		2016-2040		2040	
	2016 Dwelling Units[1,3]	Percent of Total	New Dwelling Units[1,3]	Percent of Total	2040 Dwelling Units[1,3]	Percent of Total
Lands not Identified for Development in the Proposed MTP/SCS[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]
Region Total	921,123	100%	260,128	100%	1,181,251	100%

[1] Totals may not match due to rounding.
[2] The proposed MTP/SCS does not forecast or model growth in the Lands Not Identified for Development in proposed MTP/SCS Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.). As a result, existing developed acres in the Lands Not Identified for Development in the Proposed MTP/SCS Community Type was included in Established and Rural Residential Community Type totals.
[3] Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.
Source: Data compiled by SACOG, MTP/SCS Land Use Forecast, in June 2019

Based on this research, SACOG forecasted 74 percent of new housing in the proposed MTP/SCS to be small lot single family and attached housing products. Table 12-11 provides a full overview of the current housing product mix in the region in 2016, and the growth from 2016 to 2040.

Table 12-11
Housing Product Mix in the Proposed MTP/SCS

	Center and Corridor Communities		Established Communities		Developing Communities		Rural Residential Communities		Regional Total	
2016 Baseline										
Rural Residential[1]	368	0%	19,378	3%	2,171	10%	53,295	72%	75,212	8%
Large Lot Detached[1]	27,312	24%	419,485	59%	14,525	70%	16,781	23%	478,103	52%
Small Lot Detached[1]	17,968	16%	88,387	12%	1,785	9%	3,263	4%	111,403	12%
Attached[1]	68,232	60%	184,761	26%	2,312	11%	1,099	1%	256,404	28%
Total[1]	113,880	12%	712,011	77%	20,793	2%	74,438	8%	921,122	100%
2040 (Growth)										
Rural Residential[1]	6	0%	275	0%	19	0%	2,467	88%	2,767	1%
Large Lot Detached[1]	1,840	2%	21,288	26%	42,311	47%	302	11%	65,741	25%
Small Lot Detached[1]	11,350	13%	17,291	21%	22,972	26%	2	0%	51,615	20%
Attached[1]	73,490	85%	42,494	52%	24,012	27%	18	1%	140,014	54%
Total[1]	86,686	33%	81,348	31%	89,314	34%	2,789	1%	260,137	100%

[1]Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.
Source: Data compiled by SACOG, MTP/SCS Land Use Forecast, in June 2019

Rural residential housing consists of single-family homes on large lots, typically over one acre in size. This type of housing is mostly located at the edges of the urbanized area. New development of this type would take place primarily through incremental construction, or one house at a time. In 2016, rural residential housing represented eight percent of all housing units in the SACOG region and would constitute just one percent of the growth expected through 2040.

Large lot detached housing is currently the predominant form of housing in the SACOG region. This type of housing, ranging in density from one to eight units per acre, is found throughout newer suburban subdivisions and also in older traditional neighborhoods of the region's communities. In

2016, it represented 52 percent of all housing in the SACOG region but would account for just 25 percent of the growth through 2040.

Small lot detached housing consists of single-family homes on lots smaller than one-eighth of an acre. This housing type has historically had a minor role in the SACOG region, and currently represents just 12 percent of all housing. It has mainly been found in the region's older, more urbanized cities such as Sacramento, West Sacramento, and Davis. In the proposed MTP/SCS, this housing type would take on a more significant role in the region and would almost double in absolute numbers. Small lot units would be found in jurisdictions throughout the region both as freestanding homes as well as increasingly popular "accessory units" to large lot homes. Additionally, 20 percent of the growth in housing through 2040 is expected to be small-lot, detached units.

Attached housing comprises the highest density form of housing in the region, but can take on a variety of forms, ranging from duplexes at densities similar to small-lot detached housing, up to mid-rise and high-rise multifamily buildings. Attached housing has always had a place in the region and represented 28 percent of all housing as of 2016. In the proposed MTP/SCS it would constitute 54 percent of the expected growth through 2040, which is the highest percentage of growth among the housing types.

Providing a variety of housing options - apartments, condominiums, townhouses, and single-family detached homes on varying lot sizes - creates opportunities for the variety of people who need them: families, singles, seniors, and people living with special needs. The more diverse mix of housing in the proposed MTP/SCS, as identified in Table 12-11, provides more people with access to housing options that fit their circumstances and preferences. See Chapter 14 – Population and Housing for more information and analysis of dwelling units and housing types in the proposed MTP/SCS.

c. Identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region pursuant to Section 65584 of the Government Code.

The RHNA is part of a statewide statutory mandate to address housing issues related to future growth. The RHNA allocates each jurisdiction's "fair share" of the region's projected housing needs over the housing element planning period (2021-2029) for each of four household income groups as compared to the area median income (AMI) and as defined by the California Department of Housing and Community Development (HCD; i.e., extremely low-income or less than 30 percent of the AMI, very low-income or less than 50 percent of the AMI, low-income or less than 80 percent of the AMI, and moderate-income or less than 120 percent of the AMI). The RHNA is used by jurisdictions when updating their housing elements as the basis for assuring that adequate sites and zoning are available to accommodate the allocation.

SB 375 requires that the RHNA be consistent with the SCS and that the SCS identify areas sufficient to house the projected regional housing need for the region, since in most of California these documents are both prepared by the same regional organization. To ensure this consistency, SB 375 aligned the RHNA process with the SCS update, which has extended the RHNA and Housing Element update cycle in the SACOG region from five years to eight years. Because RHNA updates are required every eight years and MTP/SCS updates are required every four years, the SCS and RHNA update process are linked during every other SCS cycle. For the current planning period, the 2021-2029 RHNA is required to be consistent with the proposed MTP/SCS.

The current RHNA process is not analyzed in this EIR; however, the proposed MTP/SCS does provide sufficient housing to meet the need of the RHNA at a regional level. The regional growth forecast of the proposed MTP/SCS is identified in Table 12-12. State statute requires that housing units allocated through RHNA be "consistent with the development pattern included in the sustainable communities strategy." The forecasted identified in the proposed MTP/SCS will be the starting point for the RHNA methodology of allocating units to jurisdictions. By using the MTP/SCS growth forecast as the basis for total RHNA calculations by jurisdiction, SACOG can effectively ensure consistency across these two planning efforts.

Table 12-12
Proposed MTP/SCS Regional Growth Forecast

Year	Employees	Population	Housing Units
2016	1,060,751	2,376,311	921,123
2035	1,279,016	2,903,090	1,144,694
2040	1,330,813	2,996,832	1,181,251

Source: SACOG and CCSCE 2017; SACOG 2019

d. Identify a transportation network to service the transportation needs of the region.

SB 375 requires that MPOs adopt a RTP directed at achieving a coordinated and balanced regional transportation system including, but not limited to, mass transportation, highway, railroad, maritime, bicycle, pedestrian, goods movement, and aviation facilities and services. The RTP must be a fiscally and time-constrained plan with forecasted transportation improvements consistent with the amount of forecasted growth for the region by 2040. This is important because state and federal transportation agencies allocate billions of dollars in planning funds annually to help support the transportation planning process. The RTP establishes the basis for programming local, state, and federal transportation projects within a region. Additionally, state statutes require that RTPs serve as the foundation of the Federal Transportation Improvement Program (FTIP) prepared by MPOs, which identify the next four years of transportation projects to be funded for construction. The transportation network of the proposed MTP/SCS is identified in Figures 12-4, 12-5 and 12-6, and is described in Chapter 2 – Project Description. The transportation network was tailored to the Land Use Forecast to achieve the fiscal, system performance, and GHG reduction objectives of the plan.

The proposed MTP/SCS contains a mix of road and highway improvements, including new facilities that serve new development and high growth areas, expansion of existing facilities to relieve existing or future bottlenecks, realignments and bypasses to improve or redirect traffic flow, maintenance of existing infrastructure, and other operational and safety improvements (e.g., the addition of guardrails to highways, rumble strips, intersection signalizations, or restriping). Bicycle and pedestrian projects include new shared-use paths and trails, as well as "complete streets" projects incorporating bicycle and pedestrian infrastructure into existing or new and expanded road and transit facilities. Two-thirds of the total transit investment in the proposed MTP/SCS is spent on operating and maintaining the region's transit system. The balance pays for capital expenses such as purchasing new buses and rail vehicles, infrastructure associated with adding routes and stations to the bus and rail system, building new storage and maintenance facilities, and other improvements to help bus transit vehicles move quickly through traffic. See Chapter 16 – Transportation and Traffic for more information and analysis of the transportation network and traffic.

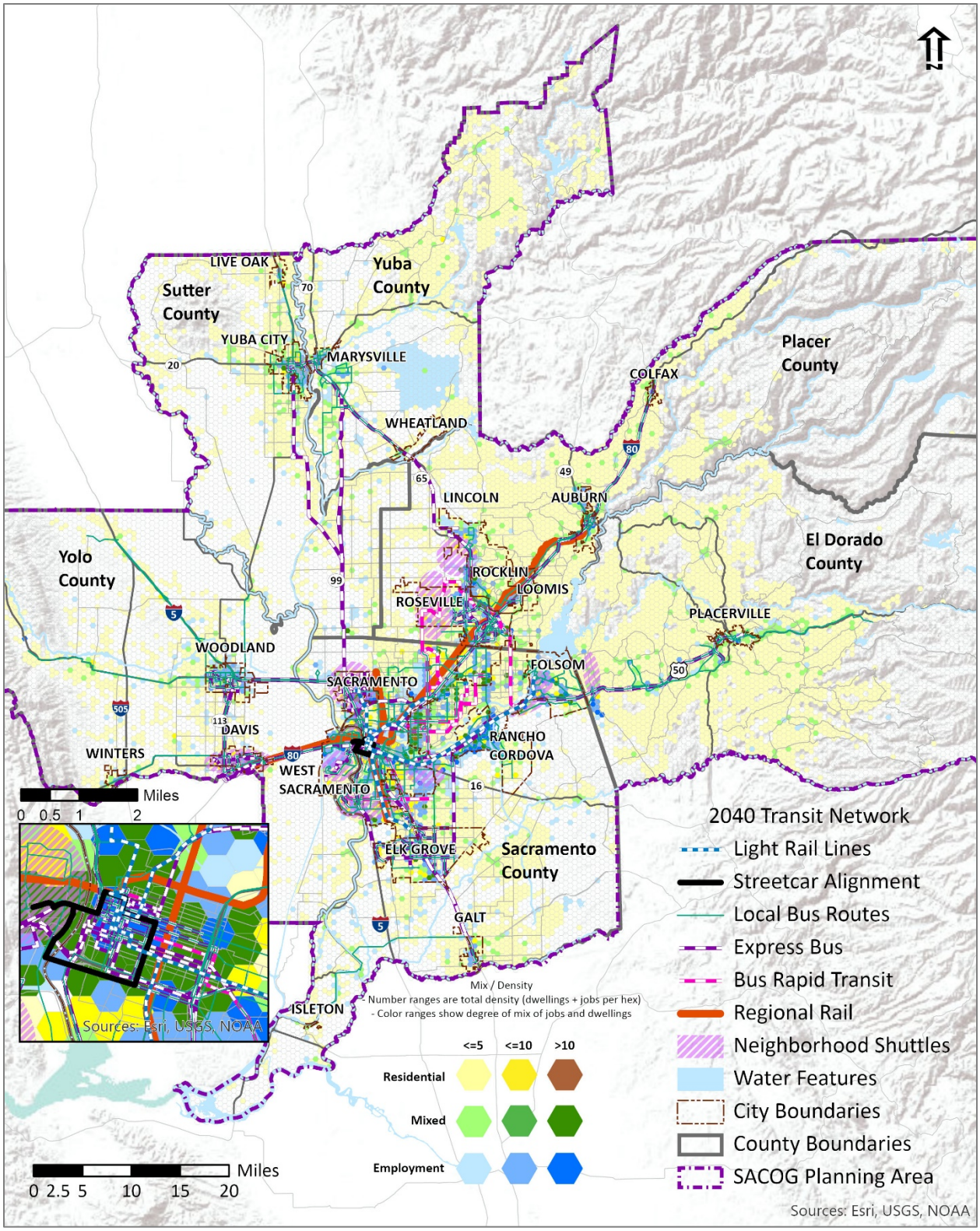


Figure 12-4
2040 Transit Network with 2040 Mixed Densities

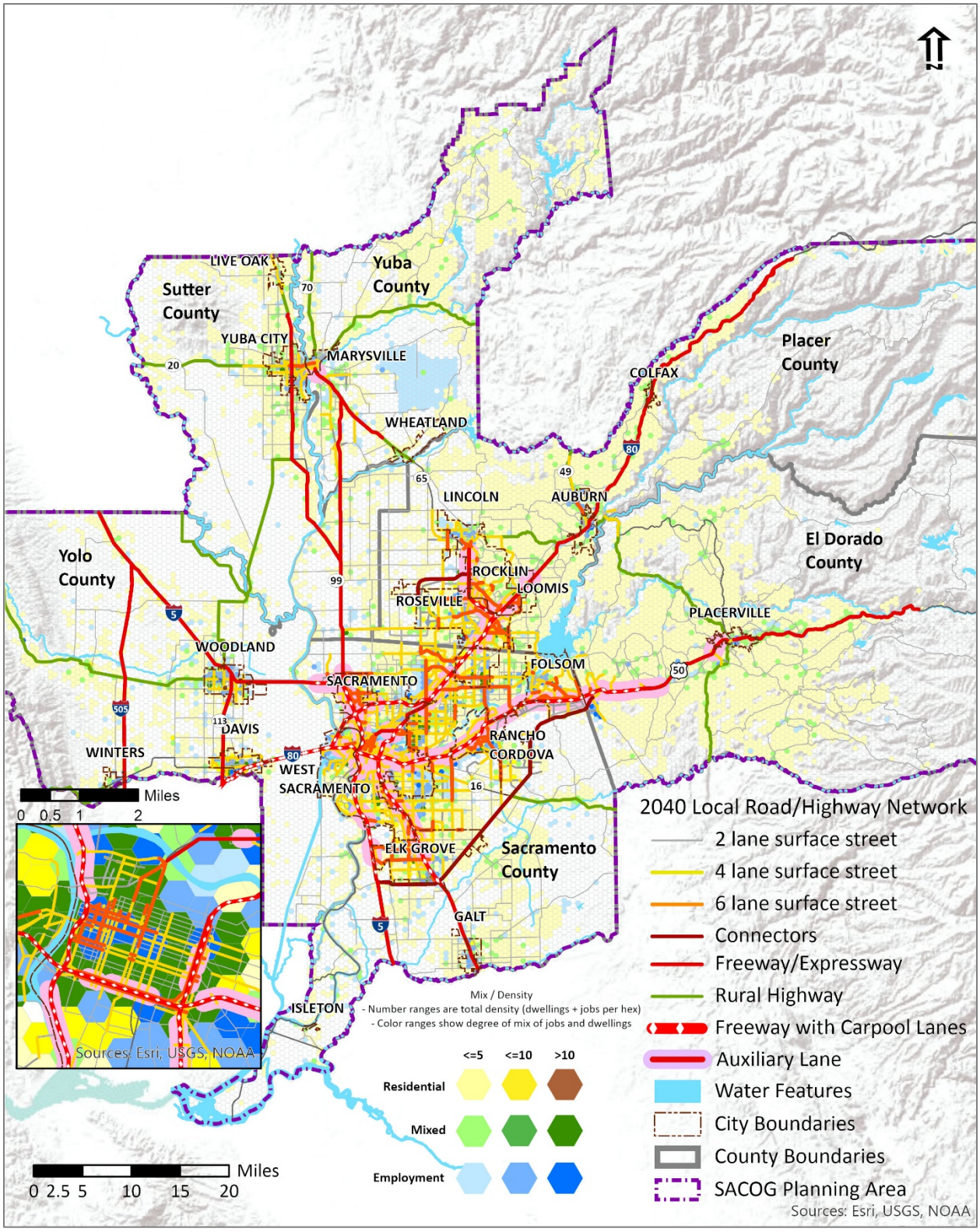


Figure 12-5
2040 Road Network with 2040 Mixed Density

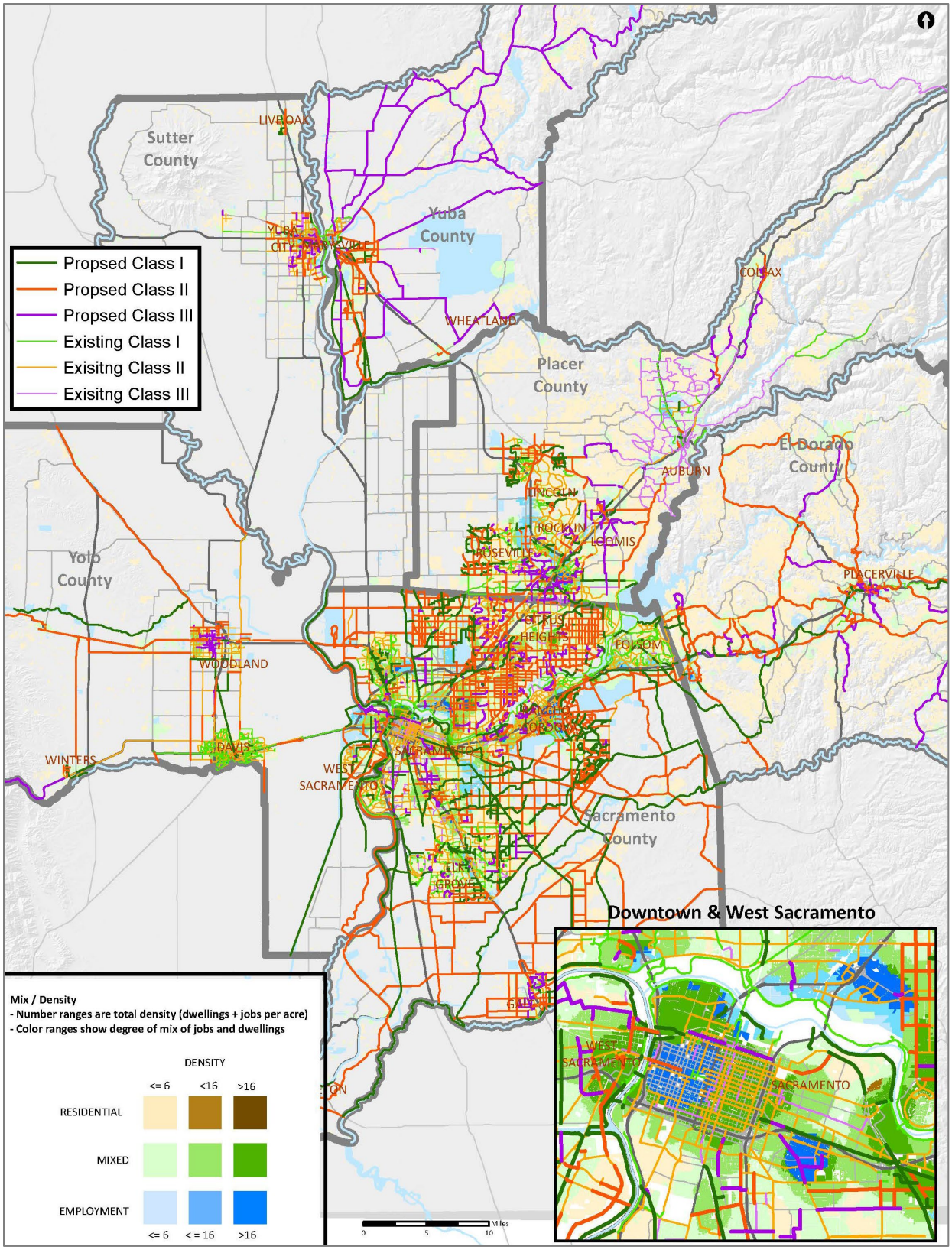


Figure 12-6
2040 Class I, II, and III Bicycle Network with 2040 Mixed Densities

e. Gather and consider the best practically available scientific information regarding resource areas and farmland in the region as defined in subdivisions (a) and (b) of Section 65080.01 of the Government Code.

SB 375 requires MPOs to gather and consider information about the following natural resource areas and farmland in the SCS:

- open space or habitat areas protected by NCCPs, HCPS, other natural resource protection plans;
- habitat for species identified as candidate, fully protected, sensitive, or species of special status by local, state, or federal agencies or protected by ESA, CESA (Fish & Game Code, Section 2050 et seq.), or the Native Plant Protection Act;
- lands subject to conservation or agricultural easements for conservation or agricultural purposes;
- areas designated for open space or agricultural uses in adopted open space elements or agricultural elements of local plans or ordinances;
- areas containing biological resources as described in Appendix G of the CEQA Guidelines that may be significantly affected by the SCS;
- an area subject to flooding where a development project would not, at the time of development in the judgment of the agency, meet the requirements of the National Flood Insurance Program or where the area is subject to more protective provisions of state law or local ordinance; and
- farmland outside all existing city SOIs or city limits as of January 2008 and is one of the following: prime or unique farmland or farmland of statewide importance.

The proposed MTP/SCS Land Use Forecast was developed in consultation with local jurisdictions and with consideration of the above-listed resources. As discussed in Chapter 6 – Biological Resources, each of the counties in the plan area are engaged in habitat and/or natural communities planning, which has involved extensive inventorying and mapping of resources. SACOG consulted with cities and counties, LAFCos, state and federal resource agencies, and other stakeholders on urban development and natural resource issues within each local jurisdiction. This included collecting information on agricultural and open space protection policies, the status of flood mapping and implications for future development, the status of habitat and/or natural communities planning, and the status of federal resource permits, including those required under Section 404 and Section 401 of CWA (33 U.S. Code Section 1251 et seq.) and section 1602 of the Fish and Game Code where applicable.

This level of data collection allowed SACOG to consider the limitations on urban growth due to various natural resource regulations and policies, as well as the impacts of urban growth on natural resources. Natural resource data was compared to the projected land use footprint of the proposed MTP/SCS to determine the amount of land potentially affected by the growth planned for 2040. The results of this analysis revealed that implementation of the land use and transportation elements of the proposed MTP/SCS could result in impacts to varying amounts of agricultural land, open space resources, and biological resources including habitat, fish, and wildlife. However, SACOG also evaluated the consistency of the proposed MTP/SCS with existing natural resource plans, policies,

and regulations in place to prevent or mitigate impacts to natural resources. Any specific projects proposed in the future are subject to federal, state, and local permits related to natural resource impacts (e.g., USACE Section 404 permit, RWQCB Section 401 certification, and CDFW Streambed Alteration Agreement) and must demonstrate consistency with and satisfy mitigation requirements included in an adopted HCP. In addition to the above-noted consideration of natural resources and farmland, this draft EIR analyzes the potential impacts of the proposed MTP/SCS on the above resources in Chapter 4 – Agriculture and Forestry Resources, Chapter 6 – Biological Resources, Chapter 11 – Hydrology and Water Quality, and Chapter 15 – Public Services and Recreation.

f. Consider the state housing goals specified in Sections 65580 and 65581 of the Government Code.

State law recognizes the availability of housing, including decent housing conditions, farmworker housing, a diverse mix of housing types, and housing affordability for all economic segments of the community, as of vital statewide importance. Providing a variety of housing options – apartments, condominiums, townhouses, and single-family detached homes of various sizes and on varying lot sizes – creates opportunities for the variety of people who need them: families, singles, seniors, and people with special needs. By providing a diverse mix of housing choice, more people have access to housing options that fit their circumstances and preferences. Since the beginning of the Blueprint project, SACOG has used four categories to describe housing product mix:

- Rural Residential: single-family detached homes built at densities less than 1 dwelling unit per acre.
- Large-Lot Single-Family: single-family detached homes built at densities between one and eight dwelling units per acre, defined by SACOG as very low to low density.
- Small-Lot Single-Family: single-family detached homes built at densities between eight and 25 dwelling units per acre, defined by SACOG as medium to medium-high density.
- Attached: Single-family and multi-family homes including duplexes, triplexes, apartments, condominiums, townhomes, row houses, and half-plexes, built at densities from greater than eight to more than 50 dwelling units per acre (defined by SACOG as high density).

More recent demographic studies indicate that housing choice would become an increasingly important issue in the future as evolving demographics and preferences held by specific demographic groups, or generational cohorts drive a change in housing preference and demand (SACOG 2018). Based on the available evidence, SACOG has concluded there would be higher demand for attached and small-lot single-family housing products over the planning period of the proposed MTP/SCS, along with lower demand for large-lot single-family housing products, which currently make up the majority of housing in the region. Additionally, the growth principles identified in the Blueprint and adopted by local agencies include providing housing choice and diversity, quality design, and mixed-use development, as well as compact development, which supports the remaining principles of natural resources conservation, use of existing assets, and transportation choice. Therefore, the proposed MTP/SCS provides a mix of housing options that address future demand for a variety of product types and implement the Blueprint principles.

Regionally, 54 percent of the new housing in the proposed SCS would be attached, 20 percent would be small-lot single-family, 25 percent would be large-lot single-family, and one percent would be rural residential. This represents a significant change from 2016, in which the mix is 28 percent

attached, 12 percent single-family small-lot, 52 percent single-family large-lot, and eight percent rural residential (Table 12-10). New housing in Center and Corridor Communities is predominantly attached products, due to higher residential densities proposed or allowed in these areas by local jurisdictions. New housing in Established Communities is balanced between large-lot single-family, small-lot single-family and attached housing. New housing in Developing Communities is predominantly large-lot single-family and small-lot single-family products. New housing in Rural Residential Communities is almost entirely rural residential and large-lot single-family housing product. See Chapter 14 – Population and Housing for more information on dwelling units and housing types.

g. Set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the greenhouse gas emissions from automobiles and light trucks to achieve the greenhouse gas emission reduction targets approved by the California Air Resources Board if there is a feasible way to do so.

The forecasted development pattern of the proposed MTP/SCS was designed to achieve the GHG reduction targets approved by the CARB in consideration of CARB guidance for the SACOG region: a19 percent per capita GHG reduction below 2005 levels by 2035 (CARB 2018). If SACOG is not able to secure the funding and commitments to implement their proposed pilot project, CARB staff would evaluate the SCS performance against an 18 percent target.

In support of the Blueprint principles, one of the primary strategies to achieve GHG emission reduction targets is to increase the number of people – both residents and employees – who have access to high-quality transit. By 2040 the proposed MTP/SCS puts approximately 27 percent of new dwelling units and 20 percent of new employees within HFTAs and brings high-quality transit service to an additional 105,243 existing dwelling units and 104,531 existing employees. Table 12-13 summarizes the existing and future housing and employment within HFTAs.

Table 12-13
Summary of Housing and Employment within High Frequency Transit Areas[1]

High Frequency Transit Areas (TPA)[1]	2040 High Frequency Transit Areas[1]					
	Existing Dwelling Units	Existing Employees	New Dwelling Units	New Employees	All Dwelling Units	All Employees
Placer HFTAs	17,638	36,942	11,495	12,073	29,133	49,015
Sacramento HFTAs	325,111	424,122	75,901	75,693	401,012	499,815
Yolo HFTAs	42,318	51,333	17,846	16,765	60,164	68,098
All HFTAs	**385,067**	**512,397**	**105,243**	**104,531**	**490,310**	**616,928**

[1] High Frequency Transit Areas are those areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or high-quality transit corridor. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (PRC Section21155).
Source: Data compiled by SACOG, MTP/SCS Preferred Scenario Land Use Forecast, in June 2019

Based on the SACOG Board direction, SACOG developed a Draft Preferred Scenario of land use growth and planned transportation improvements assumptions. The proposed MTP/SCS considered adopted and proposed plans in each jurisdiction, market conditions, environmental constraints, and availability of funds for transportation and other infrastructure. Based on this

framework, SACOG developed the proposed MTP/SCS, which is designed to meet the GHG targets set by CARB. Modeling of the proposed MTP/SCS shows a 19 percent per capita reduction below 2005 levels by 2035. See Chapter 8 – Energy and Global Climate Change for a detailed discussion on and analysis of impacts to GHG emissions.

h. Allow the regional transportation plan to comply with Section 176 of the federal Clean Air Act.

Section 176 of the federal Clean Air Act of 1970 (42 U.S. Code Section 7401 et seq.) sets forth the definition of Conformity for the MTP. SACOG must ensure that the MTP conforms to the SIP. The determination of Conformity must be based on the most recent estimates of emissions, and those estimates must be determined from the most recent population, employment, travel and congestion estimates as determined by the MPO or other agency authorized to make such estimates (42 U.S. Code Section 7506).

As part of the proposed MTP/SCS, SACOG must examine the long-term air quality impacts of the transportation system and ensure that it is compatible with the region's air quality goals. In doing so, regional agencies must work with state and local partner agencies to assess the impacts of growth on air pollution and decide how to manage growth.

In compliance with this requirement of the Clean Air Act, SACOG updated its baseline estimates, regional growth forecast, and Land Use Forecast using the most comprehensive, recent, and best available data. Chapter 1 – Introduction, provides a full description of the baseline for the proposed MTP/SCS and this EIR. The discussion of the seven SB 375 requirements above describes the information considered and used in creating both the regional growth forecast and translating that into the Land Use Forecast. The draft Conformity determination for this proposed MTP/SCS is included in Appendix I of the draft plan and documents the most recent emissions estimates. Chapter 5 – Air Quality includes more information about the Clean Air Act and analysis of pollutants and emissions.

Combined Effects of LU−1 (a-h)

Because the proposed MTP/SCS complies with all eight SB 375 objectives listed above, as demonstrated in the preceding discussion, the proposed MTP/SCS would not cause a significant environmental impact due to a conflict with the SCS requirements included in SB 375. The impacts of the proposed MTP/SCS are considered less than significant (LS) for Impact LU – 2. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
Because the land use requirements and objectives of SB 375 are regional in scope, no localized impact analysis is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Because the land use requirements and objectives of SB 375 are regional in scope, no High Frequency Transit Area impact analysis is required.

MITIGATION MEASURES

None required.

IMPACT LU-3: CAUSE A SIGNIFICANT ENVIRONMENTAL IMPACT RESULTING FROM A CONFLICT WITH THE PROVISIONS OF THE LAND USE AND RESOURCE MANAGEMENT PLAN ADOPTED BY THE DELTA PROTECTION COMMISSION.

Regional Impacts

Sections a through f below evaluate the proposed MTP/SCS for consistency with the goals of the 2010 LURMP (DPC 2010).

i. Direct new non-agriculturally oriented non-farmworker residential development within existing unincorporated towns and encourage a critical mass of farms, agriculturally-related businesses, and supporting infrastructure to ensure the economic vitality of agriculture within the Delta.

By developing more compactly, the proposed MTP/SCS directs more growth to areas that are already urbanized and helps prevent undeveloped land from being converted to urban uses. Keeping growth contained to areas that are already developed limits the amount of growth that takes place at the urban edge, adjacent to agricultural areas. Except for the Delta Legacy Communities, the Primary Zone of the Delta is located within Lands Not Identified for Development in the MTP/SCS, where no growth and only minimal transportation improvements are planned. Therefore, consistent with the LURMP, the priority land use of areas in the Primary Zone shall continue to be oriented toward agriculture and open space.

SACOG does not have land use authority to adopt local land use plans or approve local land use projects. However, jurisdictions with land in the Primary Zone (i.e., City of Sacramento, Sacramento County, Yolo County, City of West Sacramento) are required by PRC Section 29763 to adopt general plans with land uses consistent with the goals and policies in the LURMP, subject to review by the DPC. Therefore, subsequent projects within the proposed MTP/SCS that fall within the LURMP boundaries would be required to demonstrate consistency with the LURMP and satisfy mitigation requirements.

While much of the transportation infrastructure from implementation of the proposed MTP/SCS would serve urban uses in urbanized areas of the region, it is likely that implementation of planned transportation improvements at the urban edge could increase urban traffic patterns on roads that also serve agricultural lands. Frequently, the increased traffic volumes are caused by spillover from congested roads near the exterior of urbanized areas. Increased urban traffic on transitional roads, spanning between urban and rural areas, can lead to increased conflict between uses, which could result in the conversion of additional agricultural lands in order to reduce such conflicts.

As discussed above, the proposed MTP/SCS would result in more compact development than existing conditions. The proposed MTP/SCS is designed to improve transportation options and increase capacity within urbanized areas. Owners of agricultural lands nearest to these urbanized areas may feel pressure to develop as the planned transportation improvements within proximity of these lands are implemented. Such pressure would also increase as land uses surrounding these properties continue to urbanize.

Chapter 4—Agriculture and Forestry Resources analyzes impacts to farmland from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS (Impact AG-1, Impact AG-2, and Impact AG-4). SACOG proposes Mitigation Measure AG-1 to avoid or substantially lessen the loss of farmland, Mitigation Measure AG-3 to avoid or minimize conflicts and inconsistencies with lands under agricultural zoning designations or Williamson Act contracts, and Mitigation Measure AG-5 to mitigate or avoid conversion of farmland to non-agricultural use.

j. Support the long-term viability of agriculture and discourage inappropriate development of agricultural lands.

SACOG has maintained ongoing communication as part of the RUCS process with the DPC, which is a key partner in the effort to provide policy and technical approaches to addressing or avoiding impacts to rural resources in the Sacramento region. RUCS has identified five topical areas of focus, including land use and conservation, infrastructure of agriculture, economic opportunities, forest management, and regulations. Several tools and supporting data have also been developed to broaden the region's understanding of how the projected land use pattern and planned transportation improvements affect rural areas. The project is ongoing, with the ultimate goal of bridging the urban and rural planning needs in the region.

Chapter 4—Agriculture and Forestry Resources analyzes impacts from converting farmland identified in the farmland mapping and monitoring program (Impact AG-1), conflicting with local agricultural land designations (Impact AG-2), and converting other farmland (Impact AG-4). SACOG proposes Mitigation Measure AG-1 to avoid or substantially lessen the loss of farmland, Mitigation Measure AG-3 to avoid or minimize conflicts and inconsistencies with lands under agricultural zoning designations or Williamson Act contracts, and Mitigation Measure AG-5 to mitigate or avoid conversion of farmland to non-agricultural use.

k. Preserve and protect the natural resources of the Delta; promote protection of remnants of riparian and aquatic habitat; and encourage compatibility between agricultural practices and wildlife habitat.

For an analysis of biological resource conflicts with local, regional, or state habitat conservation plans, see Impact BIO-6 in Chapter 6 – Biological Resources. Chapter 6 also analyzes impacts to plants, wildlife, wetlands, and sensitive natural communities (Impact BIO-1, BIO-2, and BIO-3), wildlife corridors (Impact BIO-4), impacts to trees and other biological resources protected by local ordinances (Impact BIO-5), for the entire plan area of the proposed MTP/SCS including the Delta.

l. Promote continued recreational use of the land and waters of the Delta and ensure that needed facilities that support such uses are constructed, maintained, and supervised.

The proposed MTP/SCS does not forecast any growth by 2040 in areas outside those identified by the DPC as city land or areas designated for development that would result in the conversion of recreational land to urban uses. The proposed MTP/SCS land use forecast also assumes increases in public service capital capacity, programming, personnel, equipment, and facilities as the population increases, ensuring that recreational uses are constructed, maintained, and supervised as needed to meet demand. The public services and recreational facilities impacts of the proposed MTP/SCS are analyzed in Chapter 15 – Public Services and Recreation.

One of the primary ways that the LURMP promotes recreational use of the Delta is by providing alternative transportation choices allowing urban residents in the Secondary Zone and Delta Legacy Communities (i.e., Clarksburg, Hood, Courtland, Ryde, Walnut Grove, Locke, and Isleton) to visit the Primary Zone for recreation or tourism. The proposed MTP/SCS is designed to improve transportation options and increase capacity within Established and Developing Community Types, which include the Delta Legacy Communities and Secondary Zone areas, by increasing trips per capita by bicycle, walk, or transit above the regional baseline average. The proposed MTP/SCS also includes limited transportation improvements in road maintenance, safety enhancements, and other roadway operational improvements in Lands Not Identified for Development, which include Primary Zone areas.

Additionally, the Great California Trail Act (Chapter 839, statute of 2006) requires the DPC to establish a continuous recreation corridor, including bicycle and hiking trails, around the five-county region of the Delta. DPC must adopt a plan and implementation program for a continuous recreational corridor trail network linking the San Francisco Bay Trail system to the planned Sacramento River trails in Yolo and Sacramento counties. Existing law authorizes MPOs to allocate funds to establish a recreation corridor, including a bicycle and hiking trail, around the perimeter of the San Francisco and San Pablo Bays. SB 1556 authorized MPOs to allocate funds directly to the DPC for activities around the Delta, instead of cities and counties, including for establishing and maintaining pedestrian and bicycle trails.

The Great California Delta Trail Plan is anticipated to be published in June 2020 and would include routes for bicycling and hiking that connect to other trails, park and recreational facilities, and public transportation. DPC is currently working on a Delta Blueprint Report for the Eastern region, which includes Sacramento and Yolo counties. Adopted Delta trail segments within the plan area of the proposed MTP/SCS to date include the West Sacramento River Walk, the Sacramento River Parkway, and the Clarksburg Branch Line Trail (DPC 2019).

The Delta Blueprint Report for the Eastern region is still being drafted and has not been publicly released, so it cannot be analyzed for consistency with the proposed MTP/SCS. Additionally, since the plan is not adopted, consistency is not required to be analyzed under CEQA. Therefore, an analysis of the MTP/SCS consistency with the draft Delta Blueprint Report is not included in this EIR. SACOG would coordinate with DPC on incorporating the Great California Delta Trail System into the regional trail network in the future. Also see Chapter 16−Transportation and Traffic for an analysis of impacts from causing an interference with existing or planned bicycle and pedestrian facilities (Impact TRN-4).

m. Protect and enhance long-term water quality in the Delta for agriculture, municipal, industrial, water-contact recreation, and fish and wildlife habitat uses, as well as all other beneficial uses.

Two potentially substantial adverse impacts to water quality are urban runoff caused by increased impervious surfaces and discharges of constituents to CWA Section 303(d)-listed waters. The projected land use pattern and planned network improvements in the proposed MTP/SCS would increase impervious surfaces, which could potentially increase the amount of contaminated runoff water flowing into waters identified under CWA as being impaired by a variety of contaminants. Under the CWA listing, these water bodies have no remaining assimilative capacity or ability to accommodate additional quantities of these contaminants, irrespective of concentration.

In order to address impaired waters, several jurisdictions have municipal stormwater permits to reduce the discharge of sediments and other pollutants in runoff. Proponents (public agencies and private developers) of construction projects that disturb one or more acres of soil or disturb less than one acre, but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain a Construction General Permit from the State Water Resources Control Board (SWRCB). The project proponent must propose control measures consistent with the state's permit, and develop a Storm Water Pollution Prevention Plan for each site, which includes BMPs to reduce potential impacts.

Transportation projects where Caltrans is the lead agency are covered by the Caltrans Stormwater Program, which includes a permit process regulating all stormwater discharges from Caltrans-owned conveyances, maintenance facilities, and construction activities. Caltrans also has a Storm Water Management Plan that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters. Planned transportation improvements where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention.

Chapter 11—Hydrology and Water Quality analyzes impacts related to water quality (HYD-1, HYD-5, HYD-6) and stormwater runoff and altered drainage patterns (Impact HYD-3A, HYD-3B, HYD-3C) for the entire plan area of the proposed MTP/SCS including the Delta.

n. Ensure that the construction of new utility and infrastructure facilities is appropriate and the impacts of such new construction on the integrity of levees, wildlife, recreation, agriculture and Delta communities are avoided, minimized, and mitigated.

The projected land use pattern of the proposed MTP/SCS includes the land supply needed to accommodate necessary increases in utilities and services, including water supply, conveyance, storage, and distribution systems; energy and power systems; telecommunication systems; or sewer systems.

Construction of new roadway capacity, bicycle and pedestrian facilities, transit facilities, and rehabilitation of existing roadway infrastructure could increase the demand for water for construction-related activities such as concrete mixing, dust settling, and landscaping. Similarly, construction activities could increase the amount of wastewater generated at construction sites and increase demand on local wastewater collection, storage, conveyance, and treatment facilities.

Construction activities like demolition, grading, and excavation could generate solid waste, which may be disposed of in municipal waste systems. Finally, construction activities related to the implementation of the proposed MTP/SCS could result in an increased demand for energy to power construction lighting, equipment, and vehicles. Because utility infrastructure often shares the right-of-way with transportation infrastructure, there is the possibility that construction activity related to implementation of the proposed MTP/SCS could disrupt the provision of utility services.

The ongoing operation of new transit facilities, bicycle and pedestrian facilities, and roadway facilities could result in increases in electricity to power streetlights, traffic control devices, signage, and intelligent transportation systems (ITS) infrastructure. Similarly, ITS infrastructure often relies on communication systems to relay real-time information to travelers. New transportation infrastructure could require toilets, sinks, drinking fountains, and drains that would generate a small amount of additional wastewater. These projects could result in the conversion of undeveloped land to transportation uses, thereby increasing the amount of impervious surfaces in the region and possibly increasing the amount of runoff. These projects could also potentially increase the amount of waste collected from all land uses. Because the increase in demand for utilities and service systems is expected to be low, little new construction would be required.

Construction of any new utility or service system facilities would be subject to many federal, state, and local laws. Construction-related impacts are typically controllable and can be mitigated below a level of significance through actions of the implementing agency. Chapter 17−Utilities and Service Systems analyzes impacts from the construction of new utility and infrastructure facilities (Impact USS-2 and USS-3) for the entire region including the Delta.

Combined Effects of LU−2 (a-f)
Because the proposed MTP/SCS is consistent with the goals identified in the LURMP the proposed MTP/SCS would not result in a significant environmental impact resulting from a conflict with the LURMP at the regional level. Impacts are considered less than significant (LS) for Impact LU – 3. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
Because the LURMP is regional in scope for the five Delta counties, no localized impact analysis is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Because the LURMP is regional in scope for the five Delta counties, no localized impact analysis is required.

MITIGATION MEASURES

None required.

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Chapter 13—Noise and Vibration

13.1 Introduction

This chapter describes the existing conditions (environmental and regulatory) relevant to noise and vibration for the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this EIR chapter is based on review of existing and available information and is regional in scope. Data, analysis, and findings provided in this chapter were considered and prepared at a programmatic level. Noise impacts for people residing or working within an airport land use plan or within two miles of a public or public use airport are addressed in Chapter 10 – Hazards, Hazardous Materials, and Wildfire.

No comments addressing the noise or vibration impacts of the proposed MTP/SCS were received in response to the Notice of Preparation.

13.1.1 Noise Background

DESCRIBING NOISE

Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called hertz (Hz). Noise is often described as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon.

The decibel scale is used to measure and describe sound. The decibel (dB) scale uses the hearing threshold of 20 micropascals as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and converted to a logarithmic scale to keep the numbers in a practical range. Another useful aspect of the decibel scale is that changes in levels correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise, levels can be approximated by weighting the frequency response of a sound-level measurement device (called a sound level meter) by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as sound levels in dB) and community response to noise. For this reason, the A-weighted sound pressure level (dBA) has become the standard tool of environmental noise assessment. Because dBA is the scale used to assess noise impacts to humans, all references to dBs in this document are assumed to be representative of A-weighted sound pressure level.

Because noise is measured on a logarithmic scale, two sources of equal noise added together result in an increase of 3 dB. For example, 70 dB plus 70 dB yields a total noise level of 73 dB. An increase of 3 dB is also notable because changes of 3dB or more are perceptible to the human ear, while changes of less than 3 dB are only perceptible in laboratory settings. Figure 13-1 illustrates the typical dB associated with common sources.

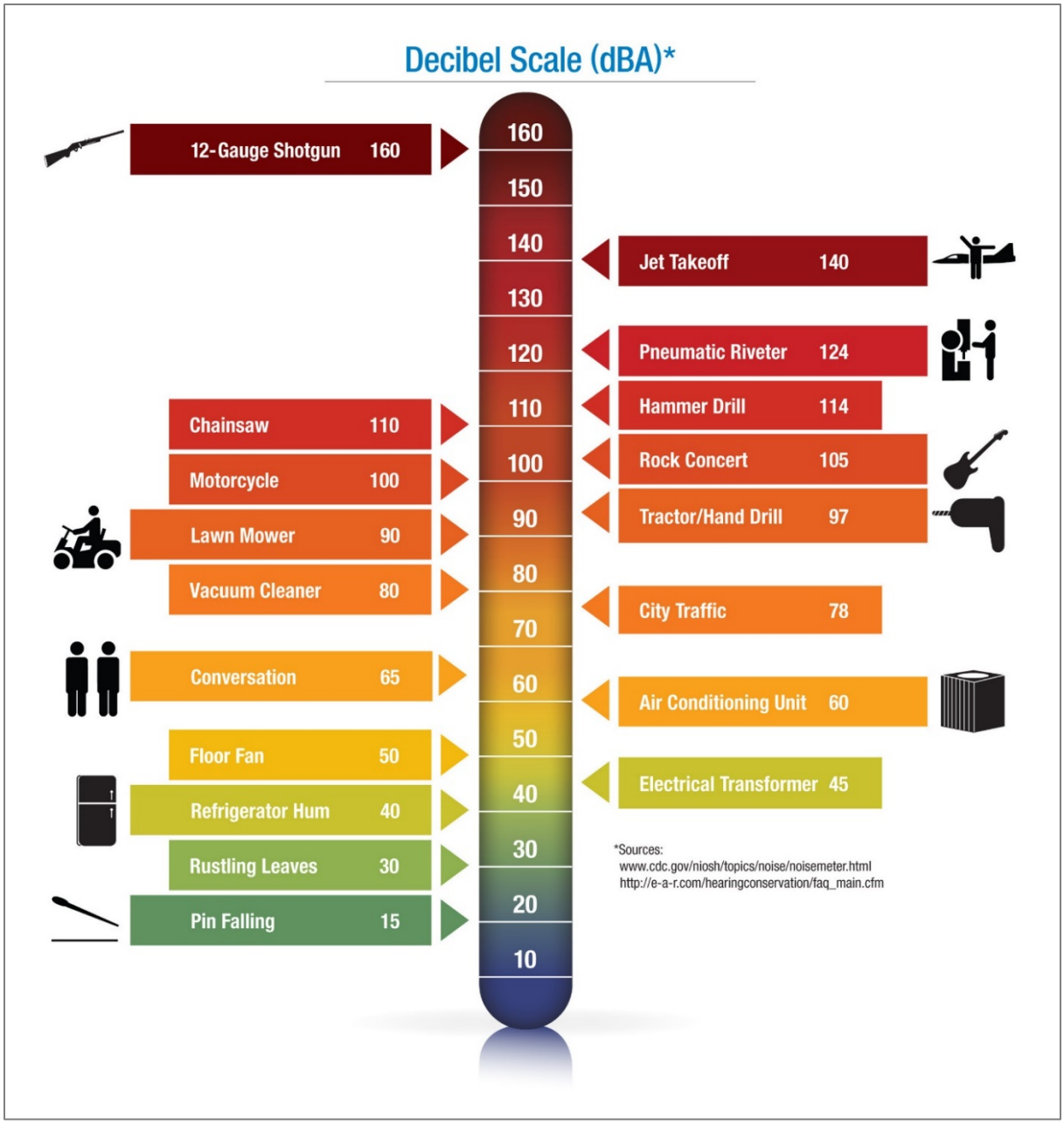


Figure 13-1
Typical A-Weighted Noise Levels

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. It is the composite of sound from many sources in all directions with no particular sound being dominant. A common measure used to quantify the ambient noise level is the equivalent sound level (L_{eq}), which corresponds to a steady-state sound level containing the same total energy as a time-varying signal over a given time period (usually one hour).

Noise in our daily environment fluctuates over time. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors used throughout this section.

- **Day-Night Average Sound Level (L_{dn}):** L_{dn} is based upon the average hourly L_{eq} over a 24-hour day, with a 10-decibel weighting applied to nighttime (10:00 p.m. to 7:00 a.m.) L_{eq} values. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures.
- **Community Noise Equivalent Level (CNEL)**: CNEL, like L_{dn}, is based upon the weighted average hourly L_{eq} over a 24-hour day, except that an additional 5-decibel penalty is applied to evening (7:00 p.m. to 10:00 p.m.) hourly L_{eq} values. CNEL was developed for the California Airport Noise Regulations, and is most commonly used for airport and aircraft noise assessment. For this reason, the Ldn descriptor, rather than CNEL, is used for the assessment of transportation noise levels in the plan area of the proposed MTP/SCS.
- **Equivalent Noise Level (L_{eq}):** L_{eq} is the average noise level of a given period of time, typically one hour. It does not include any weighting factors.
- **Maximum Noise Level (L_{max}):** L_{max} is the highest sound pressure level measured during a given interval of time, typically one hour.
- **Noise Level Exceeded a Percentage of the Hour (L_n):** L_n represents the level exceeded "n" percent of the hour. For example, L_{90} represents the level, which is exceeded 90 percent of the hour, whereas L_{10} represents the noise level exceeded 10 percent of the hour.

Noise level standards provided in terms of L_n are based on the duration of time during an hour in which the noise is being generated. More specifically, higher noise levels are allowed provided the noise is generated for shorter durations. While L_n-based standards provide a more accurate representation of public reaction to non-transportation noise than the use of L_{eq} and L_{max} alone, the L_n value for a given noise source can be very complex to determine, particularly when other noise sources are present.

Effects of Noise on People

Excessive noise in a community has often been cited as a health problem, not in terms of actual damage such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of excessive noise in the community arise from interference with human activities such as sleep, speech, recreation, and tasks demanding concentration or coordination. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases, and the acceptability of the environment for people decreases. This decrease in acceptability and the threat to public well-being are the basis for land-use planning policies designed to prevent exposure of communities to excessive levels of noise.

Some land uses are considered more sensitive to ambient noise levels than others due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Furthermore, it is important to delineate where the noise sensitivity exists for various land uses. For example, residential uses have noise sensitivity at both outdoor activity areas and interior spaces of the residence. School playgrounds are often noise-generating

and, therefore, not considered noise sensitive. Interior spaces of school classrooms, however, are considered sensitive. Exterior areas of passive recreation parks are considered sensitive, whereas sensitivity of hospitals, libraries, and auditoriums occurs within the building (exterior areas of these uses are frequently parking lots). The noise-sensitive areas of residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks are generally more sensitive to noise than are commercial and industrial land uses. Increases in noise near these *sensitive receptors* are more likely to cause an adverse community response.

NOISE MITIGATION

Noise has three basic elements: the noise source, a transmission path, and a receiver. The appropriate acoustical treatment for a given project should consider the nature of the noise source and the sensitivity of the receiver. Noise should be defined in terms of appropriate criteria (i.e., L_{dn}, L_n, L_{eq}, or L_{max}), the location of the sensitive receiver (i.e., inside or outside), and when the noise occurs (i.e., daytime, nighttime, or 24-hour average). Noise control techniques should be selected to provide an acceptable noise environment for the receiving property while remaining consistent with local aesthetic standards and practical structural and economic limits. Fundamental noise control techniques are described below.

Use of Setbacks

Noise exposure may be reduced by increasing the distance between the noise source and receiving use. The available noise attenuation from this technique is limited by the characteristics of the noise source, but is generally about 4.5 dB per doubling of distance from a roadway noise source, and approximately 6 dB per doubling of distance from fixed, or non-transportation noise source.

Use of Barriers

Shielding by barriers can be obtained by placing walls, berms or other structures, such as buildings, between the noise source and the receiver. The effectiveness of a barrier depends upon blocking line-of-sight between the source and receiver, and is improved with increasing the distance the sound must travel to pass over the barrier as compared to a straight line from source to receiver. The difference between the distance over a barrier and a straight line between source and receiver is called the "path length difference," and is the basis for calculating barrier noise reduction.

Barrier effectiveness depends upon the relative heights of the source, barrier and receiver. In general, barriers are most effective when placed close to either the receiver or the source. An intermediate barrier location yields a smaller path-length-difference for a given increase in barrier height than does a location closer to either source or receiver.

For maximum effectiveness, barriers must be continuous and relatively airtight along their length and height. To ensure that sound transmission through the barrier is insignificant, barrier mass should be about 3-4 pounds (lbs) per square foot, although a lesser mass may be acceptable if the barrier material provides sufficient transmission loss. Satisfaction of the above criteria requires substantial and well-fitted barrier materials, placed to intercept line of sight to all significant noise sources. Earth, in the form of berms or the face of a depressed area, is also an effective barrier material.

There are practical limits to the noise reduction provided by barriers. For traffic noise, a 5- to 10-dB noise reduction may often be reasonably attained. A 15-dB noise reduction is usually difficult but sometimes possible to attain, but a 20-dB noise reduction is extremely difficult to achieve. Barriers usually are provided in the form of walls, berms, or berm/wall combinations. The use of an earth berm in lieu of a solid wall may provide additional attenuation over that attained by a solid wall alone due to the absorption provided by the earth. Berm/wall combinations offer slightly better acoustical performance than solid walls, and are often preferred for aesthetic reasons over solid barrier walls alone.

Noise barriers currently exist or are planned in many areas of the plan area of the proposed MTP/SCS that are adjacent to state highways, major arterial roadways, railroad tracks, and/or industries. In cases of new residential development adjacent to a major noise source in the plan area of the proposed MTP/SCS, the responsibility for noise mitigation is typically placed on the project developer. In such cases, noise barriers are commonly constructed within the project confines, rather than within public right-of-way. In some cases, local jurisdictions and the California Department of Transportation (Caltrans) have built barriers as part of roadway improvement projects or barrier retrofit programs.

Site Design

Buildings can be placed on a project site to shield other structures or areas, to remove them from noise-impacted areas, and to prevent an increase in noise level caused by reflections. The use of one building to shield another can significantly reduce overall project noise control costs, particularly if the shielding structure is insensitive to noise. As an example, carports or garages can be used to form or complement a barrier shielding adjacent dwellings or an outdoor activity area. Similarly, one residential unit can be placed to shield another so that noise reduction measures are needed only for the building closest to the noise source. Placement of outdoor activity areas within the shielded portion of a building complex, such as a central courtyard, can be an effective method of providing a quiet retreat in an otherwise noisy environment. Patios or balconies should be placed on the side of a building opposite the noise source and "wing walls" can be added to buildings or patios to help shield sensitive uses.

Another useful option in site design is the placement of relatively insensitive land uses, such as commercial uses, between the noise source and a more sensitive portion of the project. Examples include development of a commercial strip along a busy arterial to block noise affecting a residential area. If existing topography or development adjacent to the project site provides some shielding, as in the case of an existing berm, knoll, or building, sensitive structures or activity areas may be placed behind those features to reduce noise control requirements.

Building Design

When structures have been located to provide maximum noise reduction by site design or shielding, noise reduction measures may still be required to achieve an acceptable interior noise environment. The cost of such measures may be reduced by placement of interior dwelling unit features. For example, bedrooms, living rooms, family rooms, and other noise-sensitive portions of a dwelling can be located on the side of the unit farthest from the noise source.

Bathrooms, closets, stairwells, and food preparation areas are relatively insensitive to exterior noise sources and can be placed on the noisy side of a unit. When such techniques are employed, noise reduction requirements for the building facade can be significantly reduced, although the architect must take care to isolate the noise-impacted areas by the use of partitions or doors.

Noise Reduction by Building Facades

When interior noise levels are of concern in a noisy environment, noise reduction may be obtained through acoustical design of building facades. Standard residential construction practices provide 10- to 15-dB noise reduction for building facades with open windows, and approximately 25- to 30- dB noise reduction when windows are closed. Therefore, a 25-dB exterior-to-interior noise reduction can be obtained by the requirement that building design include adequate ventilation systems, allowing windows on a noise-impacted facade to remain closed under any weather condition.

Where greater noise reduction is required, acoustical treatment of the building facade is necessary. The greatest improvement in building façade noise reduction can typically be realized through specification of upgraded windows with higher Sound Transmission Class (STC) ratings.

Noise transmitted through walls can be reduced by increasing wall mass (using stucco or brick in lieu of wood siding), isolating wall members by the use of double- or staggered-stud walls, or mounting interior walls on resilient channels. Noise control for exterior doorways is provided by reducing door area, using solid-core doors, and by acoustically sealing door perimeters with suitable gaskets. Roof treatments may include the use of plywood sheathing under roofing materials.

Whichever noise control techniques are employed, it is essential that attention be given to installation of weather-stripping and caulking of joints. Openings for attic or subfloor ventilation may also require acoustical treatment, while tight-fitting fireplace dampers and glass doors may be needed in aircraft noise-impacted areas.

Use of Vegetation

Trees and other vegetation are often thought to provide significant noise attenuation. However, approximately 100 feet of dense foliage (so that no visual path extends through the foliage) is required to achieve a 5-dB attenuation of traffic noise. Therefore, the use of vegetation as a noise barrier should not be considered a practical method of noise control unless large tracts of dense foliage are part of the existing landscape.

Vegetation can be used to acoustically "soften" intervening ground between a noise source and receiver, increasing ground absorption of sound and thus increasing the attenuation of sound with distance. Planting of trees and shrubs is also of aesthetic and psychological value, and may reduce adverse public reaction to a noise source by removing the source from view, even though noise levels will be largely unaffected.

In summary, the effects of vegetation upon noise transmission are minor, and are primarily limited to increased absorption of high frequency sounds and to reducing adverse public reaction to the noise by providing aesthetic benefits.

Noise-Reducing Paving Materials (i.e. Gap Graded and Rubberized Asphalt)

Studies conducted for the Sacramento County Planning and Environmental Review Department and Transportation Department to determine the noise reduction provided by rubberized asphalt have been completed in recent years. Those studies indicate that the use of rubberized asphalt on county roadways resulted in an average traffic noise level reduction of approximately 4 dB over that provided by conventional asphalt.

13.1.2 Vibration Background

According to the Federal Transit Administration (FTA) Noise and Vibration Impact Assessment Guidelines (FTA-VA-90-06), groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. Groundborne vibration caused by other sources (i.e., heavy industry, construction, agriculture, mineral extraction) can also be a source of concern for nearby sensitive receptors. In contrast to airborne noise, groundborne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving and operating heavy earth-moving equipment.

The effects of groundborne vibration include perceptible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Rumbling is the noise radiated from the motion of the room surfaces. In essence, the room surfaces act like a giant loudspeaker causing what is called groundborne noise.

Groundborne vibration is rarely annoying to people who are outdoors. Although the motion of the ground may be perceived, without the effects associated with the shaking of a building, the motion does not provoke the same adverse human reaction. In addition, the rumble noise that usually accompanies the building vibration is perceptible only inside buildings. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for normal transportation projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance will typically be well below the damage threshold for normal buildings.

Vibration can be described in terms of acceleration, velocity, or displacement. An industry-standard practice is to monitor vibration measures in terms of peak particle velocities (inches/second). Table 13-1 shows expected responses to different levels of groundborne vibration.

Table 13-1
General Human and Structural Responses to Vibration Levels[1]

Response	Peak Vibration Threshold (in/sec ppv)
Structural damage to commercial structures	0.5
Structural damage to new residential structures	0.5
Structural damage to older residential structures	0.3
Distinctly perceptible to humans	0.04
Strongly perceptible to humans	0.1

Notes: in/sec ppv = inches per second peak particle velocity
[1] Values shown for continuous vibration events.
Source: Caltrans 2013

13.2 Environmental Setting

The noise environment in the plan area of the proposed MTP/SCS comprises two major categories of noise sources: transportation and non-transportation. Transportation noise sources include surface traffic on public roadways, railroad line operations, and aircrafts in flight. Non-transportation (or fixed) noise sources commonly consist of commercial, industrial, and active outdoor recreation activities, railroad yard activities, small mechanical devices (i.e., lawnmowers, leaf blowers, air conditioners, radios), and other non-transportation noise sources not included in the traffic, railroad, and aircraft category.

13.2.1 Traffic Noise

The ambient noise environment in the plan area of the proposed MTP/SCS is defined by a wide variety of noise sources. The most pervasive source of noise in the region is traffic noise associated with use of thousands of miles of roadways throughout the region. Traffic noise exposure is mainly a function of the number of vehicles on a given roadway per day, the speed of those vehicles, the percentage of medium and heavy trucks in the traffic volume, and the receiver's proximity to the roadway. Every vehicle passage on every roadway in the region radiates noise.

The existing traffic noise environment in the plan area of the proposed MTP/SCS has been characterized by using traffic noise modeling. Traffic noise modeling was conducted consistent with the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) Version 2.5 using daily traffic volumes on major roadways in the plan area of the proposed MTP/SCS to characterize the traffic noise level at a fixed distance of 150 feet from each roadway. Noise analyses was performed on nearly 660 roadway locations throughout the plan area of the proposed MTP/SCS. The results indicated that existing (2016) ambient noise levels in the plan area of the proposed MTP/SCS vary between 36.0 dB and 84.5 dB, depending on the location, traffic volume, and Community Type.

13.2.2 Rail Noise

The region is affected by noise from freight and passenger railroad operations and light-rail train operations. These operations are intermittent, and the tracks are dispersed throughout the region. These operations can generate considerable noise levels in the immediate vicinity of the tracks during train passages. All of these operations contribute to the overall ambient noise environment in the plan area of the proposed MTP/SCS.

13.2.3 Aircraft Noise

The plan area of the proposed MTP/SCS has many airports, including public, private, and military airports. In addition to the numerous daily aircraft operations that originate and terminate at these airports, aircraft travel emanating from other locations also frequently fly over the region. All of these operations contribute to the overall ambient noise environment in the plan area of the proposed MTP/SCS. The intensity of aircraft noise exposure depends on proximity to the aircraft flight path; the type, speed, and altitude of the airplane; and atmospheric conditions. The farther away the noise source, the more weather affects the sound propagation from source to receiver.

A map of airport noise contours provided in terms of CNEL is shown in Figure 13-2. Because noise levels described in terms of CNEL contain penalties for sound levels occurring during evening hours (5-dB penalty) and sound generated during nighttime hours (10-dB penalty), the CNEL contours reflect the greater sensitivity to noise during those evening and nighttime hours. For more information about airports in the region, see Chapter 10 – Hazards, Hazardous Materials, and Wildfire.

13.2.4 Construction Noise

The projected land use pattern and planned transportation improvements within the plan area of the proposed MTP/SCS would result in construction activities that create new sources of short-term noise. Construction typically occurs in discrete steps, each of which has a distinctive mix of equipment and, consequently, distinctive noise characteristics. These various sequential phases change the character of the noise generated on each site and, therefore, the noise levels surrounding these sites as construction progresses. Construction activities typically involve several vehicles and equipment operating at various times within a fixed area. Construction noise sources can be both stationary and mobile. Table 13-2 lists typical construction noise levels for various types of construction equipment.

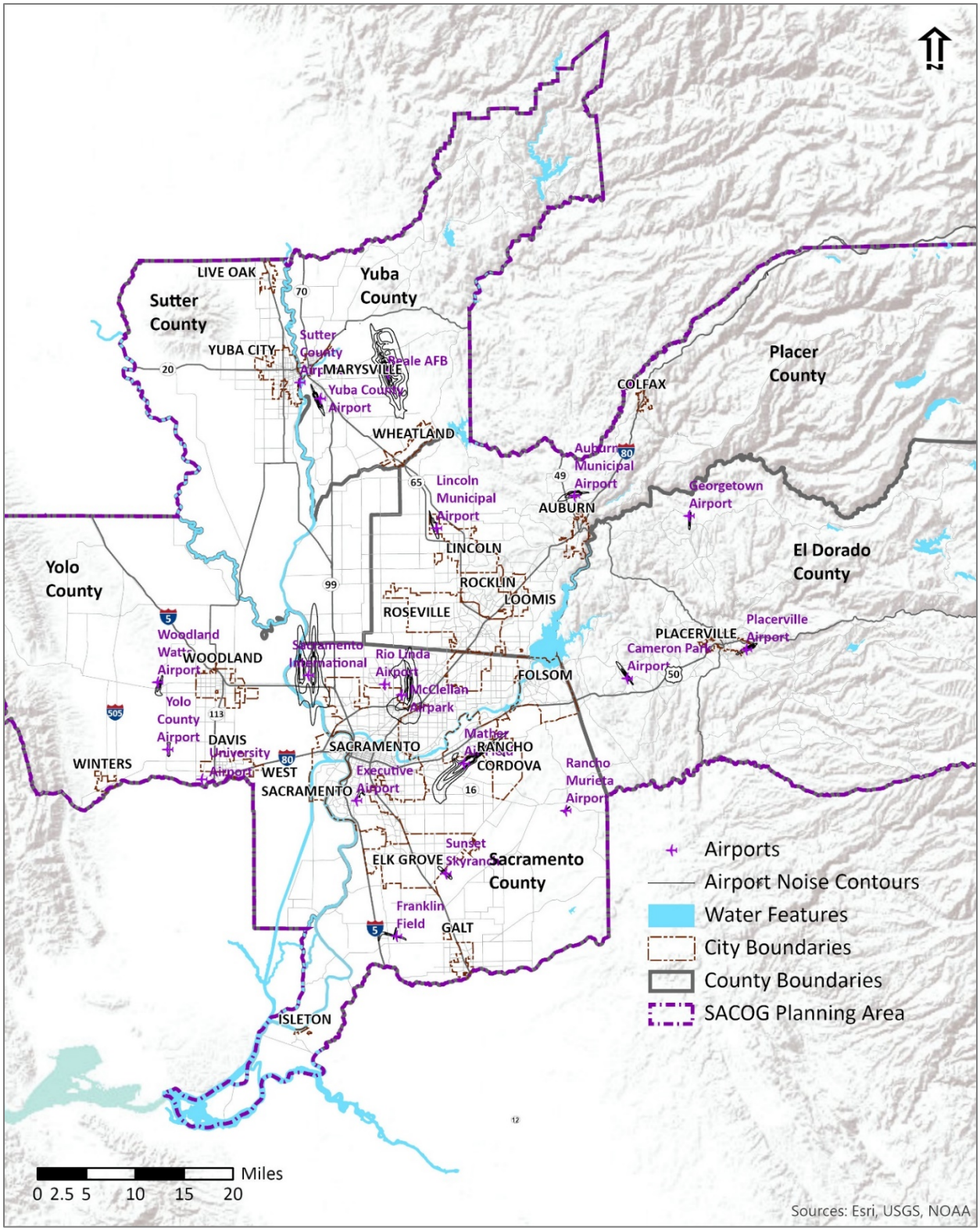


Figure 13-2
Airport Noise Contour

Table 13-2
Typical Construction Equipment Noise

Equipment Description	Maximum Noise Level at 50 feet, dB
Air Compressor	80
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	82
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	80
Paver	85
Pile-driver (Impact)	101
Pile-driver (Sonic)	95
Pneumatic Tool	85
Pump	77
Rail Saw	90
Rock Drill	95
Roller	85
Saw	76
Scarifier	83
Scraper	85
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck	84

Notes: dB = A-weighted decibel
Source: FTA 2018

13.2.1 Industry and Other Non-Transportation Noise

A wide variety of industrial and other non-transportation noise sources are located in the plan area of the proposed MTP/SCS, including manufacturing operations, power plants, food packaging and processing facilities, lumber mills, aggregate mining and processing plants, race tracks, shooting ranges, amphitheaters, loading docks, and car washes. Noise generated by these sources varies widely, but in some cases can be a potentially significant contributor to the local ambient noise environment. Although non-transportation noise sources can define the ambient noise environment

within a given distance to the noise source, the overall ambient noise environment is defined primarily by traffic. This is because traffic noise is pervasive throughout the plan area of the proposed MTP/SCS, whereas noise generated by an individual industry only affects a localized area in the immediate vicinity of the industrial noise source.

Non-transportation noise levels are difficult to quantify at the regional level, as noise levels can vary dramatically from location to location, even in the same Community Type. The types of land uses, the distance between noise sources, and the presence or absence of barriers can all greatly affect noise levels in a given area. Typically, ambient noise levels in a quiet residential area with light background traffic noise will range from 50 dB to 60 dB. In busy central business districts and mixed-use areas, ambient noise levels in the range of 60 to 70 or more dB are not uncommon. However, higher noise levels in mixed-use areas are becoming more acceptable as cities and counties strive to provide housing options in closer proximity to busy urban centers. At locations near freeways, ambient noise levels can reach 75 dB or higher. Similarly, industrial activity also has a widely varying range of noise outputs, depending on the type of activity taking place and whether the activity is indoors or outdoors.

13.3 Regulatory Setting

13.3.1 Federal Regulations

THE FEDERAL AVIATION ACT OF 1958 – FEDERAL AVIATION ADMINISTRATION

The Federal Aviation Administration (FAA), which was created under the Federal Aviation Act, has authority to regulate and oversee all aspects of American civil aviation. FAA pursues a program of aircraft noise control in cooperation with the aviation community. Noise control measures include noise reduction at the source, i.e., development and adoption of quieter aircraft, soundproofing and buyouts of buildings near airports, operational flight control measures, and land use planning strategies. FAA defines significant aircraft noise exposure as being 65 dB L_{dn}.

URBAN MASS TRANSPORTATION ACT OF 1964 – FEDERAL TRANSIT ADMINISTRATION

FTA is an agency within the United States Department of Transportation (DOT) established by the Urban Mass Transportation Act, which created the Urban Mass Transportation Administration. The agency was charged with providing federal assistance for mass transit projects and renamed the FTA in 1991.

FTA procedures for the evaluation of noise from transit projects are specified in the document titled, "Transit Noise and Vibration Impact Assessment" (FTA 2018). The FTA Noise Impact Criteria categorizes noise-sensitive land uses into the following categories:

- Category 1 includes buildings or parks where quiet is an essential element of their purpose.
- Category 2 includes residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.
- Category 3 includes institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches, and active parks.

L_{dn} is used to characterize noise exposure for residential areas (Category 2). For other noise-sensitive land uses, such as outdoor amphitheaters and school buildings (Categories 1 and 3), the maximum 1-hour L_{eq} during the facility's operating period is used. Noise impacts are identified based on absolute predicted noise levels and increases in noise associated with the project.

DEPARTMENT OF TRANSPORTATION ACT OF 1966 – FEDERAL RAILROAD ADMINISTRATION

The Federal Railroad Administration (FRA) was created by the Department of Transportation Act to promulgate and enforce rail safety regulations, administer railroad assistance programs, conduct research and development in support of improved railroad safety and national rail transportation policy, and consolidate government support of rail transportation activities. FRA noise standards are the same as those specified by the FTA.

FEDERAL HIGHWAY ADMINISTRATION, 1966

FHWA regulations (23 Code of Federal Regulations [CFR] Section 772) specify procedures for evaluating noise impacts associated with federally-funded highway projects and for determining whether these impacts are sufficient to justify funding noise abatement actions. The FHWA noise abatement criteria are based on worst hourly L_{eq} sound levels, not L_{dn} or CNEL values. The worst-hour one-hour L_{eq} noise abatement criteria are listed in Table 13-3.

Table 13-3
Activity Categories and Noise Abatement Criteria

Activity Category	Activity $L_{eq}[h]$[1]	Evaluation Location	Description of Activities
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (i.e., water resources, water treatment, electrical), and warehousing.
G	--	--	Undeveloped lands that are not permitted.

[1] The L_{eq} (h) activity criteria values are for *impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dB).*
[2] Includes undeveloped lands permitted for this activity category.
Source: 23 Code of Federal Regulations 772

NOISE CONTROL ACT OF 1972

The federal Noise Control Act of 1972 (42 U.S. Code Section 4901 note) established a requirement that all federal agencies administer their programs to promote an environment that would not jeopardize public health or welfare. The U.S. Environmental Protection Agency (EPA) was given the responsibility for:

- providing information to the public regarding identifiable effects of noise on public health and welfare;
- publishing information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety;
- coordinating federal research and activities related to noise control; and
- establishing federal noise emission standards for selected products distributed in interstate commerce.

In 1974, in response to the requirements of the federal Noise Control Act, EPA identified indoor and outdoor noise limits to protect public health and welfare (communication disruption, sleep disturbance, and hearing damage). Outdoor L_{dn} limits of 55 dB and indoor L_{dn} limits of 45 dB are identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and healthcare areas. Sound-level criteria to protect against hearing damage in commercial and industrial areas are identified as 24-hour L_{eq} values of 70 dB (both outdoors and indoors). While these standards are characterized as desirable by EPA, higher noise levels in mixed-use areas are becoming more acceptable as cities and counties strive to provide housing options in closer proximity to busy urban centers, and noise attenuation is increasingly focused on indoor noise levels.

The Noise Control Act also directed that all federal agencies comply with applicable federal, state, interstate, and local noise control regulations. Although EPA was given a major role in disseminating information to the public and coordinating with other federal agencies, each federal agency retains authority to adopt noise regulations pertaining to agency programs. EPA can, however, require other federal agencies, such as those listed below, to justify their noise regulations in terms of Noise Control Act policy requirements.

- FHWA is responsible for noise standards for federally-funded highway projects.
- FTA is responsible for noise standards for federally-funded transit projects.
- FRA is responsible for noise standards for federally-funded rail projects.

13.3.2 State Regulations

TITLE 24, CALIFORNIA CODE OF REGULATIONS – CALIFORNIA NOISE INSULATION STANDARDS

Part 2, Title 24, of the California Code of Regulations (CCR), "California Noise Insulation Standards," establishes minimum noise insulation standards to protect persons within new hotels, motels, dormitories, long-term care facilities, apartment houses, and dwellings other than single-family residences. Under this regulation, interior noise levels attributable to exterior noise sources cannot exceed 45 L_{dn} in any habitable room. Where such residences are located in an environment

where exterior noise is 60 L_{dn} or greater, an acoustical analysis is required to ensure that interior levels do not exceed the 45 L_{dn} interior standard.

STATE OF CALIFORNIA GENERAL PLAN GUIDELINES, 2017

The State of California General Plan Guidelines (California Governor's Office of Planning and Research 2017) provide the state's recommendations for city and county general plan noise elements. The guidelines include a sound level and land-use compatibility chart that categorizes by land use, outdoor L_{dn} ranges in up to four categories (i.e., normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable). Compliance by the cities and counties is not required, and local jurisdictions may modify these guidelines for local applicability; however many general plan noise elements are based on these guidelines as drafted by the state. For projects located within cities and counties with adopted general plans, the noise standards contained in those documents would apply.

The state noise element guidelines identify a normally acceptable range of sound for low-density residential uses as less than 60 dB, and a conditionally acceptable range as 55 to 70 dB. The normally acceptable range for high-density residential uses is identified as L_{dn} values below 65 dB, and the conditionally acceptable range is identified as 60 to 70 dB. For educational and medical facilities, L_{dn} values below 70 dB are considered normally acceptable, and L_{dn} values of 60 to 70 dB are considered conditionally acceptable. For office and commercial land uses, L_{dn} values below 70 dB are considered normally acceptable, and L_{dn} values of 67.5 to 77.5 are categorized as conditionally acceptable.

These overlapping L_{dn} ranges are intended to allow for local conditions (existing sound levels and community attitudes toward dominant sound sources) to be considered in evaluating land-use compatibility at specific locations. Because of the variation in noise environments and land use patterns within the plan area of the proposed MTP/SCS, city and county general plan noise elements often provide some flexibility for interpretation. For example, although a general plan may not include a specific category for mixed-use developments, the lead agency may choose to focus on achieving compliance with only the interior noise standards of residences constructed within mixed-use projects. This approach allows for consideration of noise-sensitivity within residential uses, and recognizes that elevated exterior noise environments will occur in urban environments, as a result of mixed uses and increased density and intensity of land uses.

CALIFORNIA DEPARTMENT OF TRANSPORTATION TRAFFIC NOISE ANALYSIS PROTOCOL, JULY 2011

The Caltrans Traffic Noise Analysis Protocol (Protocol) specifies the policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction projects. The noise abatement criteria specified in the Protocol are the same as those specified in 23 CFR Section 772. The Protocol defines a noise increase as substantial when the predicted noise levels with project implementation exceed existing noise levels by 12 dB. The Protocol also states that a sound level is considered to approach a Noise Abatement Criteria (NAC) level when the sound level is within 1 dB of the NAC identified in 23 CFR Section 772 (e.g., 66 dB is considered to approach the NAC of 67 dB, but 65 dB is not).

13.3.3 Local Regulations

Each of the six counties and 22 cities in the plan area of the proposed MTP/SCS has a general plan noise element. Some jurisdictions also have noise ordinances. The noise element and local noise ordinances are the two primary documents that local jurisdictions use to set noise standards in their community.

GENERAL PLANS

California Government Code Section 65300 requires that each planning agency shall prepare and the legislative body of each county and city shall adopt a comprehensive, long-term General Plan for the physical development of the county or city, and of any land outside its boundaries, which in the planning agency's judgment bears relation to its planning.

A noise element is a required component of each jurisdiction's general plan. The noise element provides information on the current and future noise levels associated with local noise sources such as highways and freeways, major streets and arterials, rail operations, aviation activities, and local industrial plants. The noise element also includes planning policies and implementation measures for limiting the exposure of people to noise. Government Code Section 65302(f) requires that the local general plan include a noise element that identifies and appraises noise in the community. The noise element must analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

- Highways and freeways;
- Primary arterials and major local streets;
- Passenger and freight on-line railroad operations and ground rapid transit systems;
- Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation;
- Local industrial plants, including, but not limited to, railroad classification yards; and
- Other ground stationary sources identified by local agencies as contributing to the community noise environment.

The noise elements of the cities and counties located within the plan area of the proposed MTP/SCS typically apply land-use compatibility criteria of 60 to 65 dB L_{dn} as being normally acceptable for new residential developments affected by transportation noise sources. The intent of these standards is to regulate the noise environment for outdoor activities. In addition, an interior noise level criterion of 45 dB L_{dn} is commonly applied to residential land uses. The intent of this standard is to provide a suitable environment for indoor communication and sleep.

Typical options for mitigation of excessive noise levels include the use of setbacks or buffer areas between the noise source and the proposed noise-sensitive land use, noise barriers, residential unit design, and improvements to building façade construction. Neither audibility of a new noise source nor an increase in noise levels within recognized acceptable limits is usually considered to be a significant noise impact, but these concerns should be addressed and considered in the planning and environmental review processes.

Where projects affected by, or including, non-transportation noise sources are proposed, the performance standards of the various city and county general plans or noise ordinances typically define acceptable noise exposure. For noise generated by new non-transportation noise sources, or noise-sensitive projects affected by non-transportation noise sources, hourly performance standards contained in general plan noise elements are commonly, but not universally, used within the plan area of the proposed MTP/SCS. In cases where hourly performance standards are used, they vary numerically and in terms of the specific noise metric used to evaluate non-transportation noise sources.

Community Noise Control Ordinances

To abate noise and resolve noise-related conflict with existing land uses, many jurisdictions have adopted community noise-control ordinances.

Community noise-control ordinances are generally designed to control noise on a short-term basis (usually by means of hourly noise-level criteria), rather than on the basis of 24-hour or annual cumulative noise exposures.

Regulation of noise emitted from traffic on public roadways, railroad operations, or aircraft in flight occurs at the federal level. While vehicle noise regulations are established at the federal level, there are a number of these regulations that can be enforced by local authorities through state law requirements, including Sections 23130, 23130.5, 27150, 27151 and 38275 of the California Vehicle Code (OPR General Plan Guidelines, Appendix C, page 249) which allow for local control of on-road mobile sources of noise.

13.4 Impacts and Mitigation Measures

13.4.1 Methods and Assumptions

This program-level analysis evaluates potential noise impacts from implementation of the proposed MTP/SCS based on the projected land use pattern and planned transportation improvements relative to the existing ambient noise conditions within the plan area of the proposed MTP/SCS.

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

For this noise analysis, traffic modeling was performed using guidance from the FHWA Traffic Noise Model TNM 2.5 model using traffic data for approximately 660 major roadways within the plan area of the proposed MTP/SCS. These roadway segments do not include each individual roadway noise source in the region; rather, they constitute a representative sample of typical roadway noise sources seen throughout the plan area of the proposed MTP/SCS. Locations where noise analyses were performed are displayed in Figure 13-3.

The noise analysis identifies the noise impact of the project by comparing predicted traffic noise levels under the proposed MTP/SCS to the 2016 baseline condition. For purposes of these comparisons, all values are calculated at a fixed distance of 150 feet from each roadway centerline. The evaluation does not consider whether there are sensitive receptors located adjacent to the freeways and arterials but evaluates all roadways equally, as if they were located adjacent to sensitive receptors. The analysis assumes implementing agencies will ensure noise and vibration are treated in accordance with applicable federal, state and local laws and regulations as part of project planning, design and engineering.

The modeling of existing ambient noise values does not account for existing sound barriers (i.e., sound walls, berms) and is therefore overly conservative. For roadways that do have existing sound barriers, actual noise levels would be lower at sensitive receptor locations, which are shielded by such barriers. This analysis does not attempt to quantify the dB of attenuation provided by sound walls and, by assuming no attenuation for existing soundwalls, the baseline values identified in Impact NOI-1 are conservative. It is likely that if the locations of sound walls were included, existing baseline ambient noise would be less.

Certain types of transportation improvement projects, (e.g., road widenings, HOV lanes, transition lanes, road extensions, new interchanges) would require project-specific noise analyses. In locations where such transportation improvements are proposed as part of the proposed MTP/SCS, it is possible that noise impacts would be mitigated as part of the individual project and that noise barriers may be identified as a mitigation option. However, because SACOG cannot require lead agencies to implement mitigation, it is not guaranteed that such mitigation would be implemented. In locations where no specific project is included in the proposed MTP/SCS, but where a "lump sum" funding included in the proposed MTP/SCS would fund re-pavement or re-construction of roadways, opportunities for re-paving with rubberized asphalt or "quiet pavement" exist which could mitigate noise impacts in other, unknown locations. Due to these uncertainties, this analysis conservatively does not apply offsets to the modeled existing or future traffic noise levels to account for either noise barriers or noise-reducing pavement.

In order to analyze the noise effects of implementation of the proposed MTP/SCS, SACOG developed noise thresholds for each Community Type. These thresholds are shown in Table 13-4. The thresholds were developed based on the California General Plan Guidelines (discussed above in the regulatory setting) and local jurisdiction general plan thresholds. Because the California General Plan Guidelines are suburban in nature, SACOG used the high end of the guidelines for Center and Corridor Communities and Established Communities, the middle of the range for Developing Communities, and the low end of the range for Rural Residential Communities. Lands Not Identified for Development in the proposed MTP/SCS, are not necessarily either noise-sensitive or noise-generating, and a "neutral" noise standard was applied accordingly. SACOG's thresholds are comparable to other urban jurisdictions in the region.

This analysis assumes that implementing agencies will ensure groundborne noise and vibration are treated in accordance with applicable, federal, state, and local laws and regulations.

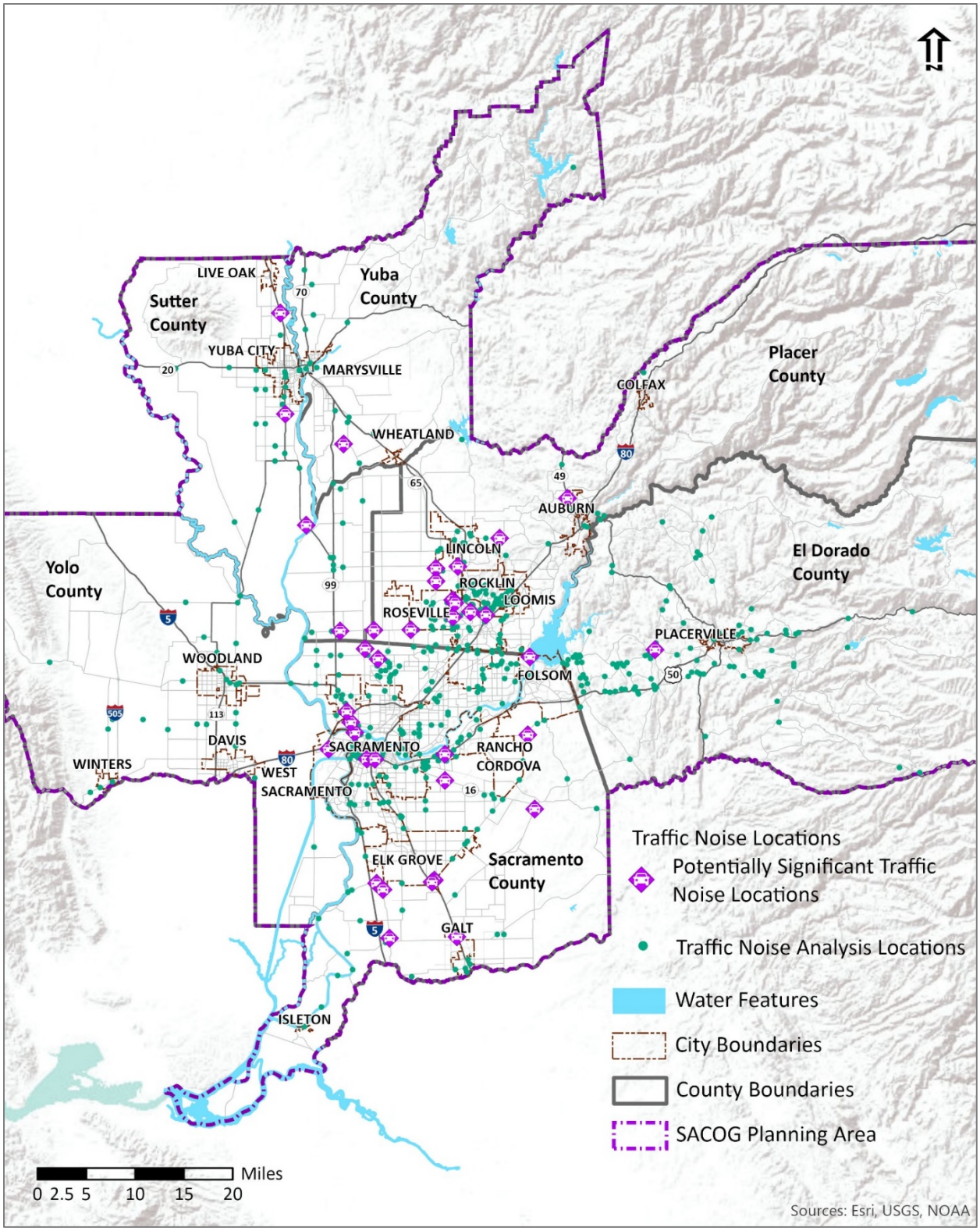


Figure 13-3
Traffic Noise Locations

Table 13-4
Noise Thresholds by Community Type (CNEL)

Geography	Noise Threshold	Increase Threshold
Region	NA[1]	N/A[1]
Center and Corridor Communities	75 dB	1.5 dB
Established Communities	65 dB	3.0 dB
Developing Communities	60 dB	3.0 dB
Rural Residential Communities	55 dB	3.0 dB
Lands Not Identified for Development	60 dB	3.0 dB

[1] Noise impacts are experience at the localized level. Therefore, one regional noise threshold cannot reflect the varied noise environments found in the proposed plan area of the proposed MTP/SCS.
Note: Because transit priority areas (HFTAs) may overlap multiple Community Types, each roadway segment in a HFTA was analyzed according to the noise threshold for the Community Type in which it is located.
Source: Data compiled and provided by SACOG in 2019

13.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

NOI-1 Result in permanent operational noise levels that exceed the Community Type CNEL thresholds identified in Table 13-4 or increase noise levels at locations currently in exceedance of the CNEL thresholds more than 1.5 dB for Center and Corridor Communities or more than 3 dB over baseline conditions for the other Community Types.

NOI-2 Result in excessive vibration and groundborne noise during operation of projects included in the proposed MTP/SCS.

NOI-3 Result in construction impacts that would increase noise levels above the Community Type CNEL thresholds identified in Table 13-4, result in increases of more than 1.5 dB for Center and Corridor Communities or more than 3 dB over baseline conditions for the other Community Types; or result in excessive levels of vibration and groundborne noise.

Segments that, under existing conditions, do not exceed CNEL thresholds but would exceed them as a result of implementation of the proposed MTP/SCS were identified as potentially significant. CNEL thresholds are developed in consideration of acceptable levels of noise depending on the land use and community character. For segments that, under existing conditions, exceed the CNEL thresholds and would result in a substantial increase in noise (i.e., the increase thresholds identified in Table 13-4 above) were additionally considered potentially significant for noise impacts. This approach excludes segments that, under existing and existing plus project conditions, do not exceed CNEL standards but do not result in a substantial noise increase (i.e., 1.5 dB or 3 dB).

13.4.3 Impacts and Mitigation Measures

IMPACT NOI-1: RESULT IN NOISE LEVELS THAT EXCEED THE COMMUNITY TYPE CNEL THRESHOLDS IDENTIFIED IN TABLE 13-4 OR INCREASE NOISE LEVELS MORE THAN 1.5 DB AT LOCATIONS CURRENTLY IN EXCEEDANCE OF THE CNEL THRESHOLDS FOR CENTER AND CORRIDOR COMMUNITIES OR MORE THAN 3 DB AT LOCATIONS CURRENTLY IN EXCEEDANCE OF THE CNEL THRESHOLDS OVER BASELINE CONDITIONS FOR THE OTHER COMMUNITY TYPES.

Regional Impacts

As noted in Table 13-4, noise impacts are experienced locally and cannot be quantified at a regional level. Land uses support various noise environments depending on multiple factors. For example, urban environments tend to be louder than suburban environments due to denser, multi-use land use patterns. Urban environments also typically support higher volumes of traffic as well as other transportation modes that generate sound such as trains, light rail, and buses. Suburban environments, where land uses are often more segregated, have more moderate noise levels. Agricultural areas also have a unique noise environment as compared to urban and suburban environments. Agricultural operations require the use of heavy-duty equipment (e.g., mechanized plows, tractors) that produce high noise levels. However, because agricultural areas are sparsely populated, noise generally does not have the same adverse effect on surrounding land uses and may be protected by right-to-farm regulations or other local land use policies.

Of the 660 transportation segments analyzed, 38 segments exceeded the noise thresholds in Table 13-4 or increased noise levels over baseline conditions by a significant level. However, as explained above, different noise environments experience transportation noise in different ways. Because of the nature of noise impacts (noise dissipates with distance from the source), new transportation operations may cause noise impacts, and those impacts may exceed applicable noise thresholds for determining significance within a localized area, but those impacts cannot be quantified at a regional level. Therefore, regional noise impacts related to the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are considered less than significant (LS) for Impact NOI-1. No mitigation is required.

Table 13-5
Number of Locations with Potentially Significant Transportation Noise Impacts Resulting from Implementation of the Proposed MTP/SCS

Geography	Potentially Significant Locations Pre-Mitigation	Total Locations Analyzed
Center and Corridor Communities	**5**	**176**
Established Communities	**17**	**342**
Developing Communities	**4**	**26**
Rural Residential Communities	**12**	**115**
Grand Total	**38**	**659**
Placer County High Frequency Transit Areas	0	**9**
Sacramento County High Frequency Transit Areas	2	**75**
Yolo County High Frequency Transit Areas	0	**2**
High Frequency Transit Areas	**2**	**86**

Source: Modeling performed by Ascent Environmental in 2019.

Localized Impacts

Center and Corridor Communities
Urban areas experience noise from a number of sources associated with living in proximity to other people and among different land uses. Typical community noise sources include small mechanical devices (e.g., lawn mowers, leaf blowers), parks and playgrounds, restaurants and bars, commercial uses, events, and industrial plants. Traffic and other transportation-related noise is also a dominant noise source in this Community Type. Light rails, passenger trains, and other forms of public transit generate noise from the contact of wheels on railways as well as loud bells that signal to cars, cyclists, and pedestrians of their arrival. The Center and Corridor Community Types currently experience higher levels of noise than the other Community Types, and noise is generally expected to be an element of this Community Type's character.

Implementation of the proposed MTP/SCS is likely to increase the amount of noise experienced in Center and Corridor Communities because of the increased density in these areas as well as from improved transportation infrastructure. Growth in the Center and Corridor Communities would be substantial over the life of the proposed MTP/SCS (2016–2040) and would introduce new non-transportation sources of noise that could introduce a 1.5 dB increase resulting in an exceedance of the 75 CNEL threshold. However, the extent of new stationary noise cannot be quantified at the time of writing this Draft EIR as the magnitude and location of specific sources are not known and any estimate would be speculative.

Heavy rail improvements would increase the number of passenger and freight trains in the region. This may increase noise along rail corridors based on site specific conditions. It is unknown if future increases in rail activity would result in exceedance in noise thresholds.

Light rail improvements would include improvements to existing corridors and the addition of new corridors. In general, the proposed transit improvements along existing corridors would occur in developed urban areas where noise levels are already high from existing transportation and transit systems. In areas that do not currently have light rail operations, implementation of the proposed MTP/SCS could increase noise levels above 75 dB CNEL and increase daily noise (CNEL) by more than 1.5 dB relative to baseline conditions for Center and Corridor Communities.

Increases in operational mobile source noise from the projected land use pattern and planned transportation improvements would result in new vehicles trips to existing roadways generating increases in noise. Table 13-6 shows the five locations where noise would exceed the CNEL threshold of 75 dB following the implementation of the proposed MTP/SCS resulting in a significant noise impact.

The roadway segments identified in Table 13-6 as projected to experience a significant increase in transportation-related noise may currently have site-specific noise attenuation in the form of sound walls or berms. Also, planned transportation improvements in the proposed MTP/SCS may result in sound walls or berms along these roadways in the future. Effective noise barriers can reduce noise levels by 10 to 15 dB while modest noise barriers can achieve a 5-dB reduction. It is foreseeable that the noise levels projected on the identified roadway segments in Table 13-6 would be lower than currently modeled if a noise barrier or other attenuation were present. While soundwalls can be effective attenuation tools, there are instances where they are rejected at the local level due to

concerns regarding community connectivity and aesthetics. This analysis takes a conservative approach and analyzes noise without barriers in place.

Table 13-6
Location of Potentially Significant Transportation Noise Impacts in Center and Corridor Communities before and after Implementation of the Proposed MTP/SCS

Location			Noise Threshold: 75 dB and 1.5 dB above 2016 Noise Levels		
Street	Cross Street	County	2016 Noise Level	MTP/SCS Noise Level (2040)	Change from 2016 to MTP/SCS (2040)
State Route 99	North of Twin Cities Road	Sacramento	76.4	78.0	1.6
Interstate 5 / American River Crossing	American River	Sacramento	74.5	76.7	2.2
US 50	East of Bradshaw Road	Sacramento	74.1	76.1	2.0
US 50	East of 15th/16th Street	Sacramento	74.4	76.6	2.2
US 50	West of Stockton Boulevard	Sacramento	74.4	76.2	1.8
				Total	**5**

Source: Modeling performed by Ascent Environmental in 2019.

Therefore, the operational, transportation-related increases as a result of the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS in Center and Corridor Communities would exceed the applicable CNEL thresholds and are considered potentially significant (PS) for Impact NOI-1. Mitigation is required. Mitigation Measure NOI-1 is described below.

Established Communities
Similar to Center and Corridor Communities, Established Communities already have a significant amount of urban development, but these areas are generally not as dense as Center and Corridor Communities and are projected to experience less housing growth from 2016 to 2040 as compared to the Center and Corridor Communities. While Established Communities would accommodate additional population, housing, and employment, the growth rate would be relatively modest when compared to Center and Corridor Communities and Developing Communities, which are projected to experience higher rates of growth.

Urban areas experience noise from a number of sources associated with living in proximity to other people and among different land uses. Typical community noise sources include small mechanical devices (e.g., lawn mowers, leaf blowers), parks and playgrounds, restaurants and bars, commercial uses, events, and industrial plants. Traffic and other transportation-related noise is also a dominant noise source in this Community Type. Light rails, passenger trains, and other forms of public transit generate noise from the contact of wheels on railways as well as loud bells that signal to cars, cyclists, and pedestrians of their arrival. Noise is generally expected to an element of this Community Type's character.

Implementation of the proposed MTP/SCS would likely increase the amount of noise experienced in Established Communities because of the increased density in these areas. Although the rate of growth is not as fast as in Center and Corridor Communities and Developing Communities,

Established Communities would still add over one fifth of a million people by 2040. This growth has the potential to increase noise levels above 65 dB CNEL and increases in noise levels of more than 3 dB in locations already in exceedance of the dB CNEL threshold. However, the extent of new stationary noise from these sources cannot be quantified at the time of writing this Draft EIR as the magnitude and location of specific sources are not known and any estimates would be speculative.

As with Center and Corridor Communities, Established Communities would see a variety of planned transportation improvements by 2040 that would also introduce new sources of noise in the region, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Heavy rail improvements would increase the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (CNEL) along any given track by more than 3 dB relative to baseline conditions. Light rail improvements will include increasing frequency on and making improvements to existing corridors and adding new corridors. In general, the proposed transit improvements along existing corridors will occur in developed urban areas where noise levels are already high from existing sources.

In areas that do not currently have light rail operations, implementation of the proposed MTP/SCS could increase noise levels above 65 dB CNEL and increase daily noise (CNEL) by more than 3 dB relative to baseline conditions.

Increases in operational mobile source noise from the projected land use pattern and planned transportation improvements would result in new vehicles trips on existing roadways generating increases in noise. Table 13-7 shows the 17 locations where noise would exceed the CNEL threshold of 65 dB following the implementation of the proposed MTP/SCS resulting in a significant noise impact.

The roadway segments identified in Table 13-7 as projected to experience a significant increase in transportation-related noise may currently have site-specific noise attenuation in the form of sound walls or berms. Also, planned transportation improvements in the proposed MTP/SCS may result in sound walls or berms along these roadways in the future. Effective noise barriers can reduce noise levels by 10 to 15 dB while modest noise barriers can achieve a 5-dB reduction. It is foreseeable that the noise levels projected on the identified roadway segments in Table 13-7 would be lower than currently modeled if a noise barrier or other attenuation were present. While sound walls can be effective attenuation tools, there are instances where they are rejected at the local level due to concerns regarding community connectivity and aesthetics. This analysis takes a conservative approach and analyzes noise without barriers in place.

Therefore, operational, transportation-related increases in noise from the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS in Established Communities would exceed the applicable CNEL threshold and are considered potentially significant (PS) for Impact NOI-1. Mitigation is required. Mitigation Measure NOI-1 is described below.

Table 13-7
Location of Potentially Significant Transportation Noise Impacts in Established Communities before and after Implementation of the Proposed MTP/SCS

Location			Noise Threshold: 65 dB and 3 dB above 2016 Noise Levels		
Street	Cross Street	County	2016 Noise Level	MTP/SCS Noise Level (2040)	Change from 2016 to MTP/SCS (2040)
Roseville Pkwy	East of Pleasant Grove Boulevard	Placer	65.0	66.0	0.9
Blue Oaks Blvd	West of Foothills Boulevard	Placer	64.2	66.2	2.0
Pleasant Grove Blvd	West of Foothills Boulevard	Placer	63.2	65.2	2.0
Foothills Blvd	South of Blue Oaks Boulevard	Placer	62.8	65.9	3.1
US 50	East of W.Capital	Yolo	64.9	67.2	2.3
Auburn-Folsom Road	North of Auburn Dam Road	Sacramento	64.8	65.9	1.1
State Route 49	North of Bell Road	Placer	64.3	65.2	0.9
Base line Rd	East of Pleasant grove Road	Placer	61.6	65.1	3.5
Grant Line Rd	East of East Stockton Road	Sacramento	64.4	66.2	1.8
Grant Line Rd	East of SH 99	Sacramento	64.0	65.8	1.9
State Route 65	North of I-80	Placer	63.2	67.0	3.8
State Route 20 / Feather River	East of Sutter Street	Placer	64.4	65.5	1.1
State Route 99	at Feather River Crossing	Sutter	64.7	65.4	0.7
State Route 99	South of Barry Avenue	Sutter	64.6	65.1	0.5
State Route 99/Live Oak Blvd	North of Encinal Road	Sutter	64.8	65.4	0.6
I-5	South of I-80	Sacramento	71.2	74.2	3.0
I-5	North of I-80	Sacramento	72.5	75.5	3.0
				Total	**17**

Source: Modeling performed by Ascent Environmental in 2019.

Developing Communities

Developing Communities are expected to include a high rate of growth during the proposed MTP/SCS plan period. Developing Communities would see the highest growth rate of any of the Community Types and would experience substantial increases in their proportional share of population, housing, and to a lesser extent employment.

Because Developing Communities may not have existing developed land uses, the introduction of new noise sources associated with the projected land use pattern would likely increase the perceived loudness in this Community Type. While the exact magnitude of increased noise from the introduction of new land uses is speculative, it is foreseeable that in certain locations, the noises associated with residential, commercial, and potentially industrial land uses under the projected land use pattern could introduce a level of noise that could exceed an acceptable noise standard. The increased noise from mechanical systems, industrial operations, and other stationary sources of community noise could be expose Developing Communities to noise in excess of 60 CNEL and increases greater than 3 dB in locations currently exceeding the 60 CNEL threshold. However, the extent of new stationary noise

cannot be quantified at the time of writing this Draft EIR as the magnitude and location of specific sources is not known and any estimate would be speculative.

Implementation of the MTP/SCS would result in the construction of transportation improvement projects. However, Developing Communities would not necessarily see the same mix of planned transportation improvements as Center and Corridor Communities and Established Communities. Developing Communities will see more road widening projects and newly constructed road projects to serve the new residential and employment land uses under the projected land use pattern that would be built by 2040. These areas would see road maintenance and rehabilitation projects; however, as these areas support less transportation infrastructure to begin with, the scale of transportation improvements would not be as great as compared to the Center and Corridor Communities and Established Communities. Under existing conditions, Developing Communities are generally not served by transit, but, consistent with the objectives of the proposed MTP/SCS, new transit services may be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure would similarly be phased in over the life of the proposed MTP/SCS.

Heavy rail improvements would include increasing the number of passenger and freight trains in the Developing Communities. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (CNEL) along any given track by more than 3 dBA relative to baseline conditions.

Light rail improvements would include increasing frequency on existing corridors. Because improvements along existing corridors would not double the number of daily trains along the corridors, these improvements are not expected to increase daily noise (CNEL) along these corridors by more than 3 dBA relative to baseline conditions.

Increases in operational mobile-source noise from the projected land use pattern and planned transportation improvements would introduce new vehicle trips to existing roadways within the Developing Communities producing increases in noise. Table 13-8 shows the four locations where noise is projected to exceed the CNEL threshold of 60 dB following the implementation of the proposed MTP/SCS.

Table 13-8
Location of Potentially Significant Transportation Noise Impacts in Developing Communities Before and After Implementation of the Proposed MTP/SCS

Location			Noise Threshold: 60 dBA and 3 dBA above 2016 noise levels		
Street	**Cross Street**	**County**	**2016 Noise Level**	**MTP/SCS Noise Level (2040)**	**Change from 2016 to MTP/SCS (2040)**
Baseline Road	West of Watt Avenue	Placer	61.7	65.5	3.8
State Route 193	East of Sierra College Boulevard	Placer	59.3	60.2	0.9
Riego Road	East of State Highway 99	Sutter	60.8	64.5	3.6
Fiddyment Road	South of West Sunset Boulevard	Placer	55.4	60.1	4.6
				Total	**4**

Source: Noise Impact modeling performed by Ascent Environmental in 2019.

The roadway segments identified in Table 13-8 as projected to experience a significant increase in transportation-related noise may currently have site-specific noise attenuation in the form of sound walls or berms. Also, planned transportation improvements in the proposed MTP/SCS may result in sound walls or berms along these roadways in the future. Effective noise barriers can reduce noise levels by 10 to 15 dB while modest noise barriers can achieve a 5-dB reduction. It is foreseeable that the noise levels projected on the identified roadway segments in Table 13-8 would be lower than currently modeled if a noise barrier or other attenuation were present. While sound walls can be effective attenuation tools, there are instances where they are rejected at the local level due to concerns regarding community connectivity and aesthetics. This analysis takes a conservative approach and analyzes noise without barriers in place.

Therefore, operational, transportation-related increases in noise from the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS in Developing Communities would exceed the applicable CNEL threshold and are considered potentially significant (PS) for Impact NOI-1. Mitigation is required. Mitigation Measure NOI-1 is described below.

Rural Residential Communities
Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to have very limited growth by 2040, or two percent of the regional growth. This Community Type is expected to have the lowest rate of growth and would have a decreasing share of regional population, housing units, and employment.

As with Developing Communities, Rural Residential Communities have even fewer sources of existing stationary noise sources than Center and Corridor Communities and Established Communities. Although these areas would experience some growth over the proposed MTP/SCS planning period (i.e., 2040), growth is expected to be minimal and resemble the character of existing land uses. While the new growth and projected land use pattern in this Community Type would be similar to that of existing land uses, increases in development of any kind could result in the introduction of new stationary sources of noise that could result in an increase in ambient noise. However, given the limited amount of land uses proposed under the projected land use pattern proposed for the Rural Residential Communities, it is unlikely that the small amount of growth in these areas would expose Rural Residential Communities to noise in excess of 55 dB CNEL and increase noise levels by more than 3 dBA in locations currently in exceedance of the 55 dB CNEL threshold.

Existing transportation infrastructure in rural communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS would result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. Within the timeframe of the proposed MTP/SCS, limited improvements to transit service could also occur.

Heavy rail improvements would include increasing the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains would not be expected to increase daily noise (CNEL) along any given track

by more than 3 dB relative to baseline conditions. The proposed MTP/SCS does not propose improvements to light rail in Rural Residential Communities.

Increases in operational mobile-source noise from the projected land use pattern and planned transportation improvements would introduce new vehicle trips to existing roadways within the Rural Residential Communities producing increases in noise. Table 13-9 shows the 12 locations where noise would exceed the CNEL threshold of 55 dB following the implementation of the proposed MTP/SCS resulting in a significant noise impact.

Table 13-9
Location of Potentially Significant Transportation Noise Impacts in Rural Residential Communities Before and After Implementation of the Proposed MTP/SCS

Location			Noise Threshold: 55 dBA and 3 dBA above 2016 noise levels		
Street	**Cross Street**	**County**	**2016 Noise Level**	**MTP/SCS Noise Level (2040)**	**Change from 2016 to MTP/SCS (2040)**
Fiddyment Road	North of Athens Avenue	Placer	51.5	58.2	6.7
Green Valley Road	West of Lotus Road	El Dorado	54.8	55.2	0.4
Dillard Road	South of SR 16 / Jackson Highway	Sacramento	54.6	55.3	0.7
Sorento Road	North of Elverta Road	Sacramento	46.4	55.2	8.9
Rio Linda Boulevard	North of Elverta Road	Sacramento	52.5	55.2	2.7
Twin Cities Road (County Road 104)	Sacramento/Amador County Line	Sacramento/ Amador	54.8	55.1	0.2
Franklin Boulevard	South of Hood Franklin Rd	Sacramento	51.3	60.1	8.8
Franklin Boulevard	North of Twin Cities Road	Sacramento	54.9	56.6	1.7
Plumas-Arboga Road	East of SR 70	Yuba	51.2	55.8	4.6
Hood Franklin Road	West of Franklin Boulevard	Sacramento	56.2	59.7	3.5
White Rock Road	West of Grant Line Road	Sacramento	56.8	62.8	6.0
Bradshaw Road	South of SR 16 / Jackson Highway	Sacramento	64.7	67.9	3.2
				Total	**12**

Source: Noise Impact modeling performed by Ascent Environmental in 2019.

The roadway segments identified in Table 13-9 as projected to experience a significant increase in transportation-related noise may currently have site-specific noise attenuation in the form of sound walls or berms. Also, planned transportation improvements in the proposed MTP/SCS may result in sound walls or berms along these roadways in the future. Effective noise barriers can reduce noise levels by 10 to 15 dB while modest noise barriers can achieve a 5-dB reduction. It is foreseeable that the noise levels projected on the identified roadway segments in Table 13-9 would be lower than currently modeled if a noise barrier or other attenuation were present. While sound walls can be effective attenuation tools, there are instances where they are rejected at the local level due to concerns regarding community connectivity and aesthetics. This analysis takes a conservative approach and analyzes noise without barriers in place.

Therefore, operational, transportation-related increases in noise from the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS in Rural Residential Communities would exceed the applicable CNEL threshold and are considered potentially significant (PS) for Impact NOI-1. Mitigation is required. Mitigation Measure NOI-1 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not proposed any land uses changes in these areas by 2040.

Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. The proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040. The planned transportation improvements in these areas would manifest as road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas.

The projected land use pattern and planned transportation improvements in the Lands Not Identified for Development Community Type is expected to result in very small, if any, increases in traffic on roadways. Because of this, implementation of the proposed MTP/SCS is not expected to result in significant noise impacts along existing roadways or transit routes and is not expected to result in significant noise impacts associated with new roadways, bridges, and transit facilities.

Based on the traffic study and noise modeling performed for the proposed MTP/SCS, no roadways were identified that would experience a notable dB increase that would cause an existing roadways currently below 60 dB CNEL to exceed 60 dB CNEL, nor introduce noise to a roadway currently in exceedance of 60 dB CNEL.

Therefore, operation, transportation-related increase in noise from the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS in Lands Not Identified for Development would not exceed the applicable CNEL threshold and are considered less than significant (LS) for Impact NOI-1. No mitigation is required.

High Frequency Transit Area Impacts

Placer County High Frequency Transit Areas
The Placer County HFTAs include portions of Roseville, Rocklin, and Auburn (around the Amtrak station), in areas that are already developed with urban uses. This area is generally more densely developed than surrounding areas. Noise is an inevitable part of urban living. Urban areas experience noise from any number of sources associated with living in proximity to other people and among different land uses. Typical community noise sources include small mechanical devices (e.g., lawn mowers, leaf blowers), parks and playgrounds, restaurants and bars, commercial uses, and industrial plants. Traffic and transportation-related noise is also a dominant noise source in this HFTA. The noise impacts of transportation are discussed below. The Placer County HFTAs already experience higher levels of noise than other areas in the region, and noise is an expected part of life

in these areas. Implementation of the proposed MTP/SCS is likely to increase the amount of noise experienced in the Placer County HFTAs because of the increased density in these areas.

The compact nature of development is likely to expose the Placer County HFTAs to noise levels in excess of the noise thresholds identified in Table 13-4 and increases in noise levels of more than 3 dBA over baseline conditions.

Therefore, the noise impacts as a result of more dense and compact development related to the projected land use pattern from implementation of the proposed MTP/SCS in the Placer County HFTAs are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Placer County HFTAs would see a variety of transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento.

As noted in Table 13-5 above, implementation of the proposed MTP/SCS would result in 0 roadway segments in the Placer County HFTAs that increase noise levels to potentially significant levels.

Heavy rail improvements will include increasing the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (L_{dn}) along any given track by more than 3 dBA relative to baseline conditions. The proposed MTP/SCS does not include any improvements to light rail in the Placer County HFTAs.

Therefore, the noise impacts related to transportation improvements from implementation of the proposed MTP/SCS in the Placer County HFTAs are considered less than significant (LS) for Impact NOI-1. No mitigation is required.

Sacramento County High Frequency Transit Areas

The Sacramento County HFTAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. The Sacramento County HFTAs will include approximately 29 percent of the region's new housing units and 28 percent of the region's new jobs. As discussed in the Placer County HFTA analysis, noise is an inevitable part of urban living. The Sacramento County HFTAs already experience higher levels of noise than the other areas in the region, and noise is an expected part of life in these areas. Implementation of the proposed MTP/SCS is likely to increase the amount of noise experienced in the Sacramento County HFTAs because of the increased density in these areas. The compact nature of development is likely to expose HFTAS to noise levels in excess of the Community Type noise thresholds identified in Table 13-4 and increases in noise levels of more than 3 dBA over baseline conditions in established and developing communities.

Therefore, the noise impacts as a result of more dense and compact development related to the projected land use pattern from implementation of the proposed MTP/SCS in the Sacramento

County HFTAs are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Sacramento County HFTAs would see a variety of transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service.

As noted in Table 13-5 above, implementation of the proposed MTP/SCS will result in five Sacramento County HFTA roadway segments that increase noise levels to potentially significant levels, of which four will occur in Established Communities, and one will occur in Developing Communities. However, as explained in the methods and assumptions section above, some segments that initially were projected to have significant noise impacts may be reduced to less than significant levels after considering existing soundwalls or future MTP projects. After these considerations, all five locations may be mitigated to less than significant noise levels. More detail about these locations is given in Table 13-9.

Heavy rail improvements will include increasing the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (L_{dn}) along any given track by more than 3 dBA relative to baseline conditions.

Light rail improvements will include increasing the frequency of and making improvements to existing corridors and adding new corridors. In general, the proposed transit improvements along existing corridors will occur in developed urban areas where noise levels are already high from existing transportation systems. Because improvements along existing corridors would not double the number of daily trains along the corridors, these improvements are not expected to increase daily noise (L_{dn}) along these corridors by more than 3 dBA relative to baseline conditions. However, in areas that do not currently have light rail operations, implementation of the proposed MTP/SCS could increase noise levels above acceptable Community Type noise levels (as identified in Table 13-4) and increase daily noise (L_{dn}) by more than 3 dBA relative to baseline conditions.

Therefore, the potential noise impacts as a result of increased automobile, and light rail traffic related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County HFTAs are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Table 13-10
Location of Potentially Significant Transportation Noise Impacts in the Sacramento HFTAs Before and After Implementation of the Proposed MTP/SCS

Location			Noise Threshold: 60-70 dBA and 3 dBA above 2016 noise levels		
Street	Cross Street	County	2016 Noise Level	MTP/SCS Noise Level (2040)	Change from 2016 to MTP/SCS (2040)
US 50	East of 15th/16th Street	Sacramento	74.4	76.6	2.2
US 50	West of Stockton Boulevard	Sacramento	74.4	76.2	1.8

Source: Noise Impact modeling performed by Ascent Environmental in 2019.

Yolo County High Frequency Transit Areas

The Yolo HFTAs include the majority of West Sacramento and Davis, and some portions of Yolo County. The area has relatively balanced growth in residential and employment, bolstering the existing jobs centers in downtown West Sacramento and UC Davis. As discussed in the Placer County HFTA analysis, noise is an inevitable part of urban living. The Yolo County HFTAs already experience higher levels of noise than the other Community Types, and noise is an expected part of life in these areas. Implementation of the proposed MTP/SCS is likely to increase the amount of noise experienced in the Yolo County HFTAs because of the increased density in these areas. The compact nature of development is likely to expose HFTAs to noise levels in excess of the Community Type noise thresholds identified in Table 13-4 and increases in noise levels of more than 3 dBA over baseline conditions.

Therefore, the noise impacts as a result of more dense and compact development related to the projected land use pattern from implementation of the proposed MTP/SCS in the Yolo County HFTAs are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Yolo County HFTAs will see a variety of transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, new streetcar service in West Sacramento, and increased express service to downtown Sacramento.

As noted in Table 13-5 above, implementation of the proposed MTP/SCS will result in zero Yolo County HFTA roadway segments that increase noise levels to potentially significant levels.

Heavy rail improvements will include increasing the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (L_{dn}) along any given track by more than 3dBA relative to baseline conditions. The proposed MTP/SCS does not include any improvements to light rail in the Yolo County HFTAs.

The noise impacts related to transportation improvements from implementation of the proposed MTP/SCS in the Yolo County HFTAs are considered less than significant (LS) for Impact NOI-1.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measure at a project level would reduce the impacts from noise, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure NOI-1: Employ measures to reduce noise from new land uses and transportation projects.

For projects that have not undergone previous noise study and that exceed acceptable noise thresholds, the implementing agency shall require a project-level evaluation of noise impacts in

accordance with applicable federal, state, and local noise standards. Where significant impacts are identified, applicable mitigation measures shall be implemented, to reduce noise to be in compliance with applicable noise standards. Mitigation designed to reduce noise impacts would apply to construction and operation of new development within the projected land use pattern as well as planned transportation improvements. Measures that shall be implemented, where feasible and necessary to address site-specific impacts include, but are not limited to, the following:

- constructing barriers in the form of outdoor barriers, sound walls, buildings, or earth berms to attenuate noise at adjacent sensitive uses;
- make mechanical modifications, operational modifications, or other changes to transit systems to improved soundproofing and minimize unwanted noise, particularly during sensitive times/hours.
- using land use planning measures, such as zoning, restrictions on development, site design, and buffers to ensure that future development is compatible with adjacent transportation facilities and land uses;
- constructing roadways so that they are depressed below-grade of the existing sensitive land uses to create an effective barrier between new roadway lanes, roadways, rail lines, transit centers, park-n-ride lots, and other new noise generating facilities;
- maximizing the distance between noise-sensitive land uses and new noise-generating facilities and transportation systems;
- improving the acoustical insulation, window quality, and/or other soundproofing of dwelling units (existing or proposed) where setbacks and sound barriers do not sufficiently reduce noise; and
- using rubberized asphalt or "quiet pavement" to reduce road noise for new roadway segments, roadways in which widening or other modifications require re-pavement, or normal reconstruction of roadways where re-pavement is planned.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact NOI-1 would be reduced to a less than significant level (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, this impact remains significant and unavoidable (SU).

IMPACT NOI-2: RESULT IN EXCESSIVE VIBRATION AND GROUNDBORNE NOISE.

Regional Impacts

The projected land use pattern has been classified into five general categories in the proposed MTP/SCS:

- **Residential:** Residential uses include single-family and multi-family housing of all densities and types.

- **Office and Commercial:** This category includes commercial uses that offer goods for sale to the public (retail) and service and professional businesses housed in offices. Office and commercial businesses include those that service neighborhood needs, community or regional needs. Government office buildings are included in this category.
- **Industrial:** The industrial category includes a mix of manufacturing and light industrial uses, some of which are found in business, research, and development parks. Light industrial activities include warehousing and some types of assembly work. Wholesaling and warehousing are also included in this category.
- **Public:** Non-office government buildings, public corporation yards, water and wastewater treatment plants, public utilities, libraries, schools, and other public institutions are found in this category. Hospitals are also included in this category.
- **Mixed-Use (vertical):** Residential and commercial uses mixed within one building are included in this category.

Land uses generate different amounts of vibration and groundborne noise. For example, industrial uses and certain public buildings generate substantially more vibration and groundborne noise than residential and commercial uses as industrial land uses often operate machinery and other vibration-inducing equipment.

Similarly, transportation infrastructure projects generate varying levels of vibration and groundborne noise. Traffic, especially heavy truck traffic, can be a source of vibration and groundborne noise. Rail operations, including freight and light rail trains, can also be a source of vibration. Table 13-11 contains reference to vibration levels associated with heavy-duty equipment.

Table 13-11
Vibration Levels for Construction Equipment

Equipment	Peak Particle Velocity at 25 feet	Approximate Lv at 25 feet, dB
Pile Driver – Impact	0.64	104
Pile Driver - Sonic	.170	93
Vibratory Roller	.210	94
Bulldozer	0.09	87
Loaded Trucks	0.08	86
Jackhammer	0.04	79

Source: Transit Noise and Vibration Impact Assessment, FTA-VA-1003-06

As explained above, portions of the plan area of the proposed MTP/SCS would experience transportation vibration in different ways. Because of the nature of vibration (vibration dissipates with distance from the source), new transportation operations would generate vibration, that could exceed thresholds for determining significance. However, such potentially significant vibration impacts would be confined to specific geographies and therefore cannot be evaluated from a regional perspective.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities
Normal operation of residential, office and commercial, and mixed-use buildings are unlikely to generate substantial vibration or groundborne noise. Industrial and public buildings could generate vibration and groundborne noise during operations that involve the use of machinery or other vibration-inducing equipment. However, the amount of vibration produced is not anticipated to be excessive, as workplace vibration is typically addressed from an occupational health and safety perspective. As with noise, vibration dissipates with distance from the source, therefore surrounding land uses would unlikely be affected. Table 13-11 indicates that, even at close distances, vibration levels for most heavy-duty equipment are below 0.1 inches per second.

Therefore, the vibration and groundborne noise impacts related to the projected land use pattern from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered less than significant (LS) for Impact NOI-2. No mitigation is required.

Traffic, especially heavy truck traffic, can be a source of vibration and groundborne noise. However, such vibration is rarely high enough to cause annoyance to surrounding uses, as vehicles are supported on spring suspensions and pneumatic tires, which reduce the amount of vibration and groundborne noise generated from vehicular traffic. Rail operations, including freight and light rail trains, can also be a source of vibration. These Community Types would see increased levels of both heavy rail and light rail with implementation of the proposed MTP/SCS. Existing and future growth and development near existing or planned light rail or heavy rail lines could result in excessive levels of vibration and groundborne noise as compared to existing conditions.

Therefore, the vibration and groundborne noise impacts related to planned transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact NOI-2. Mitigation is required. Mitigation Measure NOI-2 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040.Therefore, the vibration and groundborne noise impacts related to the projected land use pattern associated with implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact NOI-2. No mitigation is required.

The proposed MTP/SCS would make a limited number of planned transportation improvements in the Lands Not Identified for Development. The focus for transportation improvements in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. Traffic, especially heavy truck traffic, can be a source of vibration and groundborne noise. However, such vibration rarely occurs at a substantial level to cause annoyance to surrounding uses, as vehicles are supported on spring suspensions and pneumatic tires, which reduce the amount

of vibration and groundborne noise generated from vehicular traffic. Rail operations can also be a source of vibration. However, the proposed MTP/SCS does not forecast investments in new freight, commuter, or light rail projects in Lands Not Identified for Development. Therefore, no increased rail activity would occur in this community type as a result of the proposed MTP/SCS.

Therefore, the vibration and groundborne noise impacts related to the planned transportation improvements associated with implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact NOI-2. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described above in the localized impacts discussion for Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities.

Therefore, the impacts on vibration and groundborne noise related to the projected land use pattern associated with implementation of the proposed MTP/SCS in HFTAs are considered less than significant (LS) for Impact NOI-2. No mitigation is required.

The impacts on vibration and groundborne noise related to planned transportation improvements associated with implementation of the proposed MTP/SCS in HFTAs are considered potentially significant (PS) for Impact NOI-2. Mitigation is required. Mitigation Measure NOI-2 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measure at a project level would reduce the impacts from vibration and groundborne noise, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure NOI-2: Employ vibration-reducing measures on new and expanded rail systems.

The implementing agency can and should require project proponents to undertake a detailed evaluation of vibration and groundborne noise impacts and identify project-specific mitigation measures, as necessary to reduce vibration to a level that is in compliance with applicable local standards or FTA standards. Measures that can and should be implemented, where feasible and necessary to address site-specific conditions to minimize the effects of vibration and groundborne noise from rail operations include, but are not limited to, the following:

- complying with all applicable local vibration and groundborne noise standards, or in the absence of such local standards, comply with FTA vibration and groundborne noise standards;
- maximizing the distance between tracks and sensitive uses;

- conducting rail grinding on a regular basis to keep tracks smooth;
- conducting wheel truing to re-contour wheels to provide a smooth-running surface and removing wheel flats;
- providing special track support systems such as floating slabs, resiliently supported ties, high-resilience fasteners, and ballast mats; and
- implementing operational changes such as limiting train speed and reducing nighttime operations.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact NOI-2 would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, this impact remains significant and unavoidable (SU).

IMPACT NOI-3: RESULT IN CONSTRUCTION IMPACTS THAT WOULD INCREASE NOISE LEVELS ABOVE THE COMMUNITY TYPE CNEL THRESHOLDS IDENTIFIED IN TABLE 13-4, RESULT IN INCREASES OF MORE THAN 1.5 DB AT LOCATIONS CURRENTLY IN EXCEEDANCE OF THE CNEL THRESHOLDS FOR CENTER AND CORRIDOR COMMUNITIES OR MORE THAN 3 DBA AT LOCATIONS CURRENTLY IN EXCEEDANCE OF THE CNEL THRESHOLDS OVER BASELINE CONDITIONS FOR THE OTHER COMMUNITY TYPES; OR RESULT IN EXCESSIVE LEVELS OF VIBRATION AND GROUNDBORNE NOISE.

Regional Impacts

As noted in Table 13-4, there are no numeric regional thresholds for noise and vibration. The projected land use pattern and planned transportation improvements contribute different noise and vibration levels to the environment. Because of the nature of noise and vibration impacts (noise and vibration dissipate with distance from the source), construction associated with the projected land use pattern and planned transportation improvements would have noise and vibration impacts, but such potentially significant impacts would be confined to specific geographies and therefore cannot be evaluated from a regional perspective.

Localized impacts are discussed below in the Community Type and HFTA discussions.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities

Construction of new developments or transportation improvements could result in temporary noise and vibration impacts from grading, paving, clearing, landscaping, staging, excavation, earthmoving, and other related construction activities. Such construction activities would require the use of heavy-duty construction equipment (e.g., pile drivers, back hoes, jackhammers) and vehicles that generate significant amounts of noise and vibration in the immediate vicinity of the source, often resulting in noise and vibration levels substantially higher than existing conditions. Tables 13-2 and 13-10 summarize typical construction noise and vibration levels for various construction activities. Noise

and vibration impacts from construction activities depend on several factors including the types of surrounding land uses, duration and type of construction activities, distance between source and receptor, and the presence or absence of barriers between source and receptor.

Construction impacts are considered temporary and localized in nature, as they are limited to the time during which the project is being constructed and confined to areas adjacent to the construction site. After the project is completed, all construction equipment and vehicles are removed. Any noise or vibration impacts associated with the structure itself, once fully completed and operational, are covered in Impact NOI-1 and NOI-2.

The projected land use pattern and transportation improvements have the potential to result in construction-related impacts that increase noise levels above the Community Type CNEL thresholds identified in Table 13-4 and substantially increase noise levels in locations currently in exceedance of a CNEL threshold; or result in excessive levels of vibration and groundborne noise from regional growth and new and expanded transportation infrastructure. Although construction noise is short-term, it can nonetheless result in substantial increases in ambient noise levels in the immediate vicinity of the construction site. Construction activities would occur in accordance with an applicable city or county standard related to acceptable hours of operation; however, if sensitive receptors are located in the immediate vicinity of construction activities, they could be adversely affected.

Therefore, the construction-related noise and vibration impacts related to the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact NOI-3. Mitigation is required. Mitigation Measure NOI-3 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040.Therefore, the construction-related noise and vibration impacts related to the projected land use pattern associated with implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact NOI-3. No mitigation is required.

The proposed MTP/SCS would make a limited number of planned transportation improvements in this Community Type by 2040. The focus for investments in these areas is on road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. The localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the Community Types discussion above. Transportation improvements in Lands Not Identified for Development have the potential to result in construction-related impacts that increase noise levels above the Community Type CNEL thresholds identified in Table 13-4 and increase noise levels by more than 3 dB in locations currently in exceedance of a CNEL threshold; or result in excessive levels of vibration and groundborne noise from regional growth and new and expanded transportation facilities.

Therefore, the construction-related noise and vibration impacts related to the planned transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact NOI-3. Mitigation is required. Mitigation Measure NOI-3 is described below.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
Construction within HFTAs could result in temporary noise and vibration impacts from grading, paving, clearing, landscaping, staging, excavation, earthmoving, and other related construction activities. Such construction activities will require the use of construction equipment (e.g., pile drivers, jackhammers) and vehicles that generate significant amounts of noise and vibration in the immediate vicinity of the source, often resulting in noise and vibration levels substantially higher than existing conditions. Table 13-2 shows typical construction noise levels for various construction activities. Noise and vibration impacts from construction activities depend on several factors including the types of surrounding land uses, duration and type of construction activities, distance between source and receptor, and the presence or absence of barriers between source and receptor.

The impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described above in the localized impacts discussion for Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities. The projected land use pattern and planned transportation improvements in all of the HFTAs have the potential to result in construction impacts that would increase noise levels above the Community Type CNEL thresholds identified in Table 13-4 and increase noise levels by more than 3 dBA in locations currently in exceedance of an applicable CNEL threshold; or result in excessive levels of vibration and groundborne noise from regional growth and new and expanded transportation infrastructure.

Therefore, the construction-related noise and vibration impacts related to the projected land use pattern and the planned transportation improvements from implementation of the proposed MTP/SCS in each of the HFTAs are considered potentially significant (PS) for Impact NOI-3. Mitigation is required. Mitigation Measure NOI-3 is described below.

Mitigation Measures

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project-level would reduce the impacts from construction vibration and noise, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure NOI-3: Reduce noise, vibration, and groundborne noise generated by construction activities.

Measures that can and should be implemented to reduce noise, vibration, and groundborne noise generated by construction activities, where feasible and necessary to address site-specific considerations include, but are not limited to, the following:

- restrict construction activities to permitted hours in accordance with local jurisdiction regulations;
- properly maintain construction equipment and outfit construction equipment with the best available noise suppression devices (e.g., mufflers, silencers, wraps);
- prohibit idling of construction equipment for extended periods of time in the vicinity of sensitive receptors;
- locate stationary equipment such as generators, compressors, rock crushers, and cement mixers as far from sensitive receptors as possible; and
- predrill pile holes to the maximum feasible depth, provided that pile driving is necessary for construction.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact NOI-3 would be reduced to a less than significant (LS) level. Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, this impact remains significant and unavoidable (SU).

Chapter 14—Population and Housing

14.1 Introduction

This chapter describes existing conditions (environmental and regulatory) and assesses the potential population and housing impacts that may result from implementation of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data, analysis, and findings provided in this chapter were considered and prepared at a programmatic level. Direct or indirect inducement of substantial unplanned population growth is addressed in Chapter 19 – Other CEQA Considerations.

In response to the Notice of Preparation (NOP), SACOG received comments related to housing from ECOS and Sierra Club (Placer). The commenters expressed that the Draft EIR should consider the following:

- gentrification and displacement in transit-oriented areas, and
- housing affordability generally and in transit-oriented areas.

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

14.2 Environmental Setting

14.2.1 Existing Population, Housing, and Employment Distribution

The 2016 Department of Finance (DOF) City/County Population and Housing Estimates indicate that the current population within the six counties, excluding the Tahoe Basin, is 2,376,311[1], representing a nearly 20 percent increase since 2000 (1,901,964). This is much higher than the growth rate of the state of California, which grew about 14 percent over the same period to a population of 39,328,337 in 2016. As of 2016, the plan area of the proposed MTP/SCS was home to about six percent of the population in California (California Department of Finance 2019). Table 14-1 provides 2016 population, housing units, and employment for the region.

The population centers of the region are located in and around the region's geographic center. Approximately 84 percent of the region's population lives in incorporated cities, of which the cities

[1] Tahoe Basin portions of El Dorado and Placer counties are based on 2010 Census counts of population, households and housing units.

of Sacramento, Elk Grove, and Roseville are most populous. Unincorporated Sacramento County itself is home to 577,323 people, making it the most populous of the jurisdictions in the region. The City of Sacramento, with approximately 472,693 residents, is the most populous incorporated city in the region, followed by Elk Grove, Roseville, and Citrus Heights, which are all located close to the urban core. The least populous cities are located near the geographic edge of the region and include the cities of Isleton, Colfax, Winters, Live Oak, and Wheatland.

Table 14-1
Population, Housing Units, and Employees by Jurisdiction (2016)

Jurisdiction	Population[1]	Housing Units	Employees	Jobs/Housing Ratio
El Dorado[2]	**147,202**	**63,812**	**48,690**	**0.8**
Placerville	9,385	4,542	9,516	2.1
Unincorporated county	137,817	59,270	39,175	0.7
Placer[2]	**363,896**	**146,701**	**162,577**	**1.1**
Auburn	12,948	6,170	9,590	1.6
Colfax	2,044	916	736	0.8
Lincoln	47,659	18,615	9,704	0.5
Loomis	6,132	2,476	3,616	1.5
Rocklin	63,977	22,992	20,585	0.9
Roseville	135,355	51,494	82,398	1.6
Unincorporated county	95,781	44,038	35,948	0.8
Sacramento	**1,476,573**	**570,360**	**688,897**	**1.2**
Citrus Heights	85,740	35,584	20,435	0.6
Elk Grove	170,111	53,631	44,316	0.8
Folsom	72,918	27,542	45,425	1.6
Galt	24,806	7,932	4,942	0.6
Isleton	662	424	161	0.4
Rancho Cordova	72,320	26,859	59,503	2.2
Sacramento (City)	472,693	194,397	308,724	1.6
Unincorporated County	577,323	223,991	205,391	0.9
Sutter	**96,392**	**34,186**	**34,405**	**1.0**
Live Oak	7,611	2,572	1,012	0.4
Unincorporated county	21,863	7,786	6,799	0.9
Yuba City	66,918	23,828	26,594	1.1
Yolo	**214,784**	**77,705**	**104,771**	**1.3**
Davis	70,096	26,424	23,431	0.9
Unincorporated county	27,367	8,690	20,069	2.3
West Sacramento	53,395	19,728	33,123	1.7
Winters	7,067	2,401	2,277	0.9
Woodland	56,859	20,462	25,871	1.3
Yuba	**77,464**	**28,378**	**21,403**	**0.8**
Marysville	13,116	5,446	7,750	1.4
Unincorporated county	60,046	21,494	12,829	0.6
Wheatland	4,302	1,438	824	0.6
Region Total	**2,376,311**	**921,142**	**1,060,742**	**1.2**

[1] *Population estimates for 2016 are based on persons per household rates by housing type. County totals are for incorporated cities and unincorporated areas.*
[2] *Excludes the portions of the county located within the Tahoe Basin.*
Source: Data compiled and provided by SACOG in June 2019

Since adoption of the Blueprint Vision, many jurisdictions in the region have been implementing the Blueprint principles, which encourage compact, mixed-use development, a variety of housing types and transportation modes, quality design, and natural resource conservation. While all jurisdictions are striving to achieve the Blueprint goals, regional variations in population, housing, and employment patterns still exist because these goals are being implemented in a way that is appropriate based on topography, economy, local regulations, community preference, or other factors specific to a jurisdiction. Growing with the same goals in mind does not mean growing in the same way. Such variations are apparent when comparing centralized, urban areas of the region with more rural, agricultural-based areas. The following paragraphs describe the existing population, housing, and employment trends within each of the six counties in the plan area of the proposed MTP/SCS.

El Dorado County

Historically, El Dorado County has maintained a lower ratio of jobs to housing. The majority of the county's recent residential and employment growth has occurred in the unincorporated communities of El Dorado Hills and Cameron Park at the western edge of the county. These new communities are characterized by low-density residential and commercial development. However, in recent years, new business park and mixed-use developments have also emerged in El Dorado Hills. As of 2016, the jobs/housing ratio is 0.8.

Placer County

Placer County's population has historically been concentrated along the southwest section of the Interstate-80 (I-80) corridor (i.e., Roseville, Rocklin, and Granite Bay), with tapering population densities towards the eastern end of the corridor (i.e., Colfax and Foresthill). The southwest Placer communities of Roseville and Rocklin have emerged as regional job centers in the past several years, accompanied by significant residential growth within and surrounding those communities. As of 2016, the jobs/housing ratio is 1.1.

Sacramento County

Sacramento County is the region's population center, including both the largest city (i.e., City of Sacramento) and unincorporated area (i.e., County of Sacramento) within the region. Sacramento County housed 62 percent of the region's population in 2016. Sacramento County, and the cities therein, also contained a majority of the region's housing (62 percent) and employment (65 percent) in 2016. As of 2016, the jobs/housing ratio is 1.2.

Sutter County

Sutter County is largely agricultural and is somewhat removed from the urbanized core of the region. Housing development has generally occurred within or contiguous to the two incorporated cities of Live Oak and Yuba City, in accordance with the county's general plan policies for urban development. There is also single-family housing in the unincorporated county, though at rural densities in accordance with the provisions of agricultural zoning districts. As of 2016, the jobs/housing ratio is 1.0.

YOLO COUNTY

Yolo County and its jurisdictions have traditionally maintained strong land use policies to focus urban development towards incorporated cities and unincorporated communities such as Capay, Clarksburg, Dunnigan, Esparto, Guinda, Knights Landing, Madison, and Yolo. The highest population and housing densities currently are in the City of Davis and the adjacent University of California at Davis due to the large student population, followed by the City of West Sacramento. Much of the employment located in the cities of West Sacramento and Davis. As of 2016, the jobs/housing ratio is 1.3.

YUBA COUNTY

Although historically an agricultural area, the Highway 70 corridor in unincorporated Yuba County and the City of Wheatland has seen several large residential developments. The county's current employment centers are the City of Marysville and Beale Air Force Base. As of 2016, the jobs/housing ratio is 0.8.

14.3 Regulatory Setting

14.3.1 Federal Regulations

THE CIVIL RIGHTS ACT OF 1964

Title VI of the Civil Rights Act (42 U.S. Code Section 2000d et seq.) prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal financial assistance.

THE ARCHITECTURAL BARRIERS ACT OF 1968

The Architectural Barriers Act (42 U.S. Code Section 4151 et seq.) requires that buildings and facilities designed, constructed, altered, or leased with certain federal funds after September 1969 must be accessible to and usable by handicapped persons.

THE CIVIL RIGHTS ACT OF 1968

Title VIII, of the Civil Rights Act of 1968 (Fair Housing Act) (42 U.S. Code Section 3601 et seq.) as amended, prohibits discrimination in the sale, rental, and financing of dwellings, and in other housing-related transactions, based on race, color, national origin, religion, sex, familial status (including children under the age of 18 living with parents or legal custodians, pregnant women, and people securing custody of children under the age of 18), and handicap (disability).

UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICIES ACT OF 1970

The Uniform Relocation Assistance and Real Property Acquisition Policies Act (Uniform Act) (42 U.S. Code Section 4601 et seq.), passed in 1970 and amended in 1987, is intended to provide for uniform and equitable treatment for persons displaced through federally-funded or assisted transportation and redevelopment projects that require property acquisition. The act lays out rules for notification, relocation counseling, social services or assistance for disabled residents, and compensation for replacement housing and moving costs. The rules stipulate that replacement

housing must be comparable to previous housing in terms of location, size, access to employment and public facilities, and must be "decent, safe, and sanitary." The rules apply if federal funds are used in any phase of the program or project, even if the property acquisition itself is not federally funded.

THE EDUCATION AMENDMENTS ACT OF 1972

The Education Amendments Act (20 U.S. Code Sections 1681–1688) prohibits discrimination on the basis of sex in education programs or activities that receive federal financial assistance.

THE REHABILITATION ACT OF 1973

The Rehabilitation Act, Section 504 (Programs, Services and Activities) (29 U.S. Code Section 794) prohibits discrimination based on disability in any program or activity receiving federal financial assistance.

THE HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974

The Housing and Community Development Act (42 U.S. Code Section 5301 et seq.) prohibits discrimination on the basis of race, color, national origin, sex, or religion in programs and activities receiving financial assistance from U.S. Department of Housing and Urban Development (HUD) Community Development and Block Grant Program.

AGE DISCRIMINATION ACT OF 1975

The Age Discrimination Act (42 U.S. Code Sections 6101–6107) prohibits discrimination on the basis of age in programs or activities receiving federal financial assistance.

THE AMERICANS WITH DISABILITIES ACT OF 1990

The Americans with Disabilities Act (ADA) (42 U.S. Code Section 12101 et seq.) prohibits discrimination based on disability in programs, services, and activities provided or made available by public entities. HUD enforces Title II when it relates to state and local public housing, housing assistance, and housing referrals.

THE NATIVE AMERICAN HOUSING ASSISTANCE AND SELF DETERMINATION ACT OF 1996

The Native American Housing Assistance and Self Determination Act (NAHASDA) (25 U.S. Code Section 4101 et seq.) reorganized the system of housing assistance provided to Native Americans through HUD by eliminating several separate programs of assistance and replacing them with a block grant program. The two programs authorized for Indian tribes under NAHASDA are the Indian Housing Block Grant, which is a formula-based grant program and Title VI Loan Guarantee, which provides financing guarantees to Indian tribes for private market loans to develop affordable housing.

NATIVE AMERICAN HOUSING ENHANCEMENT ACT OF 2005

The Native American Housing Enhancement Act (25 U.S. Code Section 4101 et seq.) amends the Native American Housing Assistance and Self-Determination Act of 1996 in prohibiting the Secretary of HUD from restricting tribal access to housing grant funds if a tribe retains program income funds. The Act specifies that Title VI of the Civil Rights Act of 1964 and Title VIII of the Civil Rights Act of 1968 shall not apply to federally recognized tribes. The Act also amends the Cranston-Gonzalez National Affordable Housing Act of 1990 (42 U.S. Code Section 12704) to make tribes and tribally designated housing entities eligible for Youth Build grants.

INDIAN VETERANS HOUSING OPPORTUNITY ACT OF 2010

The Indian Veterans Housing Opportunity Act (Veterans Act) (25 U.S. Code Section 4103) amends NAHASDA to exclude from consideration as income any amounts received by a family from the Department of Veterans Affairs as veterans' disability compensation or dependency and indemnity compensation for service-related disabilities of a member of the family.

FIXING AMERICA'S SURFACE TRANSPORTATION AND MOVING AHEAD FOR PROGRESS IN THE 21ST CENTURY ACTS

Under the Fixing America's Surface Transportation (FAST Act) (Public Law 114-94) and the Moving Ahead for Progress in the 21st Century Act (MAP-21 Act) (Public Law 112-141)), the U.S. Department of Transportation requires that metropolitan planning organizations, such as SACOG, prepare long-range regional transportation plans (RTPs) and update them every four years if they are in areas designated as "nonattainment" or "maintenance" for federal air quality standards. Before enactment of MAP-21, the primary federal requirements regarding RTPs were included in the metropolitan transportation planning rules (Title 23 CFR Part 450 and 49 CFR Part 613). The FAST Act and MAP-21 Act make a number of changes to the statutes that underpin these regulations. With respect to population and housing, the rules and regulations require that RTPs must be developed for a period of not less than 20 years into the future and reflect the most recent assumptions for population, land use, employment, and economic activity.

FAIR HOUSING-RELATED PRESIDENTIAL EXECUTIVE ORDERS

Executive Order 11063

Executive Order 11063 prohibits discrimination in the sale, leasing, rental, or other disposition of properties and facilities owned or operated by the federal government or provided with federal funds.

Executive Order 11246

Executive Order 11246, as amended, bars discrimination in federal employment because of race, color, religion, sex, or national origin.

Executive Order 12892

Executive Order 12892, as amended, requires federal agencies to affirmatively further fair housing in their programs and activities, and provides that the Secretary of HUD will be responsible for coordinating the effort. The Executive Order also establishes the President's Fair Housing Council.

Executive Order 12898

Executive Order 12898 requires that each federal agency conduct its program, policies, and activities that substantially affect human health or the environment in a manner that does not exclude persons based on race, color, or national origin.

Executive Order 13166

Executive Order 13166 eliminates, to the extent possible, limited English proficiency as a barrier to full and meaningful participation by beneficiaries in all federally assisted and federally conducted programs and activities.

Executive Order 13217

Executive Order 13217 requires federal agencies to evaluate their policies and programs to determine if any can be revised or modified to improve the availability of community-based living arrangements for persons with disabilities.

14.3.2 State Regulations

PUBLIC HOUSING PROJECT LAW

The state Public Housing Project Law, Article 34 of the California Constitution, requires a majority vote of the electorate to approve the development, construction, or acquisition by a public body of any "low rent project" within that jurisdiction. In other words, for any project to be built and/or operated by a public agency where at least 50 percent of the occupants are low-income and rents are restricted to affordable levels, the jurisdiction must seek voter approval.

CALIFORNIA GOVERNMENT CODE SECTION 65008

Government Code Section 65008 prohibits, *inter alia*, discrimination of any group or individuals in the enjoyment of residence, landownership, tenancy, or any other land use or against any resident development or emergency shelter.

FAIR EMPLOYMENT AND HOUSING ACT OF 1959

The Fair Employment and Housing Act (FEHA) of 1959 (Government Code Section 12900 et seq.) prohibits housing discrimination on the basis of race, color, religion, sexual orientation, marital status, national origin, ancestry, familial status, disability, or source of income.

THE UNRUH CIVIL RIGHTS ACT OF 1959

The Unruh Civil Rights Act (Civil Code Section 51) prohibits discrimination in "all business establishments of every kind whatsoever." The provision has been interpreted to include businesses and persons engaged in the sale or rental of housing accommodations.

CALIFORNIA RELOCATION ASSISTANCE ACT OF 1971

The California Relocation Assistance Act (Government Code Section 7260 et seq.) was passed in 1971, following the Uniform Act in 1970 (see discussion above in Federal Regulations). California's version of the law has similar provisions requiring notification, counseling, social services, and financial assistance for persons displaced by transportation and land redevelopment projects. Under the California act, these procedural protections and benefits apply when the project causing the displacement has received state funding during any phase of the program or project, even if it did not receive federal funding.

STATE HOUSING ELEMENT LAW

State law requires that each city and county prepare and adopt a general plan for its jurisdiction that contains certain mandatory elements, including a housing element. Housing element law requires local governments to adequately plan to meet their existing and projected housing needs. Pursuant to Government Code Section 65580, a Housing Element of a General Plan must contain local commitments to:

- provide sites with appropriate zoning and development standards, and with services and facilities to accommodate the jurisdiction's Regional Housing Needs Allocation (RHNA) for each income level; the RHNA is the only population and/or housing requirement that applies to the General Plan;
- assist in the development of adequate housing to meet the needs of lower- and moderate-income households;
- address and, where appropriate and legally possible, remove governmental constraints to the maintenance, improvement, and development of housing, including housing for all income levels and housing for persons with disabilities;
- conserve and improve the condition of the existing affordable housing stock;
- promote housing opportunities for all persons regardless of race, religion, sex, marital status, ancestry, national origin, color, familial status, or disability; and
- preserve assisted housing developments for lower income households.

State Housing Element law mandates specific topics and issues that must be addressed in the Housing Element. These include:

- an analysis of population and employment trends, documentation of projections, and quantification of existing and projected housing needs for all income levels;
- an analysis and documentation of household characteristics, such as the age of housing stock, tenancy type, overcrowded conditions, and the level of payment compared to ability to pay;

- an analysis and documentation of special needs, such as female-headed households, homeless individuals, persons with disabilities, large households, farmworkers, and the elderly;
- a regional share of the total regional housing need for all income categories;
- an inventory of land suitable for residential development, including vacant land and infill/redevelopment opportunities; this analysis also looks at potential residential sites and their accessibility to adequate infrastructure and services;
- identifying actual and potential governmental and nongovernmental constraints that could potentially impede the maintenance, improvement, and development of housing for all income groups;
- identifying and analyzing opportunities for energy conservation in residential developments;
- an inventory of at-risk affordable units that have the possibility of converting to market rate; and
- a statement of goals, policies, quantified objectives, financial resources, and scheduled programs for the improvement, maintenance, and development of housing.

SB 2, effective as of January 1, 2008, amended state housing element law regarding shelter for homeless persons. The legislation requires that every jurisdiction identify potential zones where emergency shelters are allowed as a permitted use without discretionary review. It also added new requirements for local governments to treat emergency shelter facilities and transitional housing or supportive housing developments the same as other residential uses of the same type in the same zone.

A copy of the draft housing element for each jurisdiction must be sent to the California Department of Housing and Community Development (HCD) for review and comment before it may be adopted by the city or county. HCD will advise the local jurisdiction regarding whether the draft housing element substantially complies with Housing Element Law (Government Code Section 65580 et seq.). A housing element determined by HCD to be in substantial compliance is presumed to meet the requirements of Housing Element Law.

Several statutory changes related to state housing element law were enacted January 1, 2018, as part of the 2017 Legislative Housing Package. These changes included SB 35 (Chapter 366, Statutes of 2017), which creates a streamlined approval process for specific housing developments in localities that have not yet met their housing targets; AB 1397 (Chapter 375, Statutes of 2017), which requires cities to zone more appropriately for their share of regional housing needs and in certain circumstances requires by-right development; and AB 166 (Chapter 367, Statutes of 2017), which requires a city or county to identify additional low-income housing sites in their housing element when market-rate housing is developed on a site currently identified for low-income housing. Other new/revised statutes address the creation and preservation of affordable housing, housing element accountability and enforcement, and processes to streamline housing development.

REGIONAL HOUSING NEEDS ASSESSMENT AND ALLOCATION

SACOG, like all other councils of governments in the state, receives an overall regional housing assessment from HCD and must develop a methodology for calculating and distributing to each jurisdiction its fair share of the assessment figure. Each city and county in the plan area of the proposed MTP/SCS will receive an allocation of housing units, which it must accommodate with an eight-year zoned land supply. For the RHNA, SACOG must also plan for the Tahoe Basin portions of El Dorado and Placer counties, which are outside of the plan area of the proposed MTP/SCS.

Allocations are distributed to each jurisdiction based on the state-defined economic categories: very low-income, low-income, moderate-income, and above moderate-income. The sum of the allocations of these four categories must equal the overall allocation for that jurisdiction. Each jurisdiction must then develop its housing element to address how it will zone for enough housing units during the eight-year period to meet the overall allocation and allocations by income category.

THE SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT OF 2008

The Sustainable Communities and Climate Protection Act of 2008 (SB 375) (Chapter 728, Statutes of 2008) required, in part, the preparation of a sustainable communities strategy (SCS) as part of the RTP. Among other things, the SCS must identify areas within the region sufficient to house all the population of the region, including all economic segments of the population, over the course of the planning period of the RTP, taking into account net migration into the region, population growth, household formation, and employment growth (Government Code Section 65080). Under SB 375, preparation of the RHNA is coordinated with preparation of the SCS. The RHNA must allocate housing units consistent with the SCS development pattern (Government Code Section 65584.04(i)). The SCS is required to use the most recent planning assumptions considering general plans and other factors (Government Code Section 65080(b)(2)(B)).

Under SB 375, MPO schedules to adopt RTPs that determine regional housing needs assessments and housing-element due dates are differentiated based on the region's air quality attainment status for one or more pollutants regulated by the federal Clean Air Act. "Non-attainment" MPOs, such as SACOG, adopt RTPs every four years. Regional housing needs assessments and housing-element schedules must be coordinated with every other RTP, requiring housing elements be updated every eight years and no later than 18 months after RTP adoption. The preparation of the proposed MTP/SCS coincides with Cycle 6 of the RHNA for SACOG (June 30, 2021 to August 31, 2029).

CALIFORNIA BUILDING STANDARDS CODE

The minimum standards for structural design and construction in the State of California are identified in the California Building Code (California Code of Regulations [CCR] Title 24). The 2016 triennial edition of Title 24 was published July 1, 2016 with an effective date of January 1, 2017. Additionally, an intervening supplement was published January 1, 2017 with an effective date of July 1, 2018. Information Bulletins 16-01 and 17-06 provide detailed information concerning changes to the 2016 publication. The 2016 California Building Standards Code contains the following 12 codes: Building (including Residential), Electrical, Plumbing, Administrative, Mechanical, Energy, Historical Building, Fire, Existing Building, Green Building Standards (CALGreen), and the Code for Building Conservation Reference Standards. These codes promote public health and safety and ensure that safe and decent housing is constructed in the Sacramento region. The 2016 triennial edition remains in effect until the effective date of the 2019 triennial edition, which will become effective January 1, 2020.

14.3.1 Local Regulations

LOCAL HOUSING ELEMENTS

The Housing Element is one of the eight mandated elements of the local general plan, but it is the only element that must be certified by the State of California. Housing element law, enacted in 1969, mandates that local governments adequately plan to meet the existing and projected housing needs

of all economic segments of the community. The law acknowledges that, in order for the private market to address adequately housing needs and demand, local governments must adopt land use plans and regulatory systems, which provide opportunities for, and do not unduly constrain, housing development. Though required by state law, this element (like others) is implemented at the local level. As a result, housing policy in the state rests largely upon the effective implementation of local general plans and, in particular, local housing elements. Table 14-2 lists the current status of housing element adoption and compliance in the plan area of the proposed MTP/SCS.

Table 14-2
Status of Housing Elements in the Plan Area of the Proposed MTP/SCS

Jurisdiction	Housing Element Status	Date Received	Date Reviewed	Compliance Status
Auburn	ADOPTED	2/12/2014	2/20/2014	IN
Citrus Heights	ADOPTED	5/28/2013	6/4/2013	IN
Colfax	ADOPTED	3/7/2014	3/19/2014	IN
Davis	ADOPTED	3/6/2015	5/27/2015	IN
El Dorado County[1]	ADOPTED	11/6/2013	11/13/2013	IN
Elk Grove	ADOPTED	2/28/2014	3/21/2014	IN
Folsom	ADOPTED	11/4/2013	12/3/2013	IN
Galt	ADOPTED	2/12/2014	2/20/2014	IN
Isleton	ADOPTED	2/27/2014	4/24/2014	IN
Lincoln	ADOPTED	11/18/2013	2/7/2014	IN
Live Oak	ADOPTED	9/9/2013	9/16/2013	IN
Loomis	CONDITIONAL	6/11/2018	7/2/2018	IN
Marysville	CONDITIONAL	8/8/2018	9/4/2018	IN
Placer County[1]	ADOPTED	10/16/2013	11/22/2013	IN
Placerville	CONDITIONAL	10/17/2014	3/19/2015	IN
Rancho Cordova	ADOPTED	1/13/2014	1/29/2014	IN
Rocklin	ADOPTED	10/28/2013	12/16/2013	IN
Roseville	ADOPTED	7/1/2013	8/22/2013	IN
Sacramento	ADOPTED	1/9/2014	3/19/2014	IN
Sacramento County	ADOPTED	11/5/2013	12/26/2013	IN
South Lake Tahoe	ADOPTED	5/30/2014	7/16/2014	IN
Sutter County	CONDITIONAL	5/29/2018	6/21/2018	IN
West Sacramento	ADOPTED	10/8/2013	10/14/2013	IN
Wheatland	ADOPTED	6/14/2019	--	IN REVIEW
Winters	ADOPTED	10/23/2013	11/20/2013	IN
Woodland	ADOPTED	10/4/2018	12/3/2018	IN
Yolo County	ADOPTED	10/11/2013	1/9/2014	IN
Yuba City	ADOPTED	2/28/2014	4/16/2014	IN
Yuba County	ADOPTED	1/29/2014	2/12/2014	IN

[1] For the RHNA, SACOG is required by state law to plan for the Tahoe Basin portions of El Dorado and Placer County.
Source: California Housing and Community Development Department 2019

14.4 Impacts and Mitigation Measures

14.4.1 Methods and Assumptions

This program-level analysis generally evaluates potential physical displacement of substantial numbers of existing people or housing units based on the projected land use pattern and planned transportation network relative to the known distribution of existing population and housing units.

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS. For this chapter, 2016 serves as the baseline for all impact comparisons.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area of the proposed MTP/SCS's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

The proposed MTP/SCS is evaluated to determine whether forecasted land use patterns and planned transportation improvements of the proposed MTP/SCS would cause physical displacement of substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

Displacement risk is a function of the location and availability of affordable housing near major job centers in a growing regional economy. As the growth in jobs (particularly those that pay higher wages) outpaces the supply of housing (particularly those that are affordable to lower-income households), the cost of housing inevitably rises faster than wages for all workers. In such market conditions, higher-income workers are better positioned to compete for the limited supply of housing opportunities, resulting in a higher risk of displacement for all other residents. To the extent that the private or the public sectors can provide more market rate and deed-restricted affordable housing in these communities, this risk subsides. Displacement risk for lower-income residents may increase because of other reasons as well. These include:

- physical constraints such as a lack of available land for new housing in communities that have a significant number of jobs, with the resulting potential for redevelopment of existing residential areas with new employment or residential development;
- policy constraints such as regulations that hinder environmentally-sound development of infill sites;
- lack of other sites that could support higher-density housing, and inadequate public spending on housing and transportation infrastructure;

- social constraints such as local community opposition to higher-density rental housing; and
- economic conditions, such as high land and labor costs, loss of household income as a result of a shrinking market for middle-wage jobs, and competition for available land from other uses.

CEQA requires analysis and mitigation of potentially substantial adverse changes in the physical environment (PRC Sections 21151, 21060.5, and 21068). "Economic and social changes resulting from a project are not treated as significant environmental effects [citation] and, thus, need not be mitigated or avoided under CEQA." (*San Franciscans for Reasonable Growth v. City and County of San Francisco* (1984) 209 Cal.App.3d 1502, 1516.). Physical changes in the environment caused by economic or social effects of a project may constitute significant environmental effects (CEQA Guidelines Sections 15131 and 15064(e)). Social and economic effects in and of themselves, however, are not significant effects on the environment under CEQA. (*Melom v. City of Madera* (2010) 183 Cal.App.4th 41, 55.). Impact POP-1 addresses the potential for physical displacement impacts at the three levels of analysis.

To the extent households are indirectly displaced and move to new housing because of social or economic factors (e.g., increasing rents), household travel behavior and associated environmental impacts on air quality, greenhouse gas emissions, transportation, and noise would be affected. These impacts are analyzed in other chapters of this EIR as part of the analysis of overall impacts of the proposed MTP/SCS on these resource topics. Such indirect impacts of physical displacement are not addressed further in this chapter.

The impact analysis takes into account the methodology used to create the land use forecast of the proposed MTP/SCS, which is the result of a technical process that included local agency plans and development codes, coordination with local agency planning departments and stakeholders, consideration of market and policy/regulatory factors, and direction from the SACOG Board of Directors. The land use forecast methodology is described in more detail in Section 2.6.2 of this EIR and in Appendix C: Land Use Forecast and D; Land Use Forecast Documentation, of the proposed MTP/SCS. Direct or indirect inducement of substantial unplanned population growth is addressed in Chapter 19 – Other CEQA Considerations.

The analysis assumes implementing agencies will ensure population and housing are treated in accordance with applicable federal, state and local laws and regulations as part of project planning, design and engineering.

14.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant population and housing impacts under CEQA, if the following would occur:

POP-1 Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

14.4.3 Impacts and Mitigation Measures

IMPACT POP-1: DISPLACE SUBSTANTIAL NUMBERS OF EXISTING PEOPLE OR HOUSING, NECESSITATING THE CONSTRUCTION OF REPLACEMENT HOUSING ELSEWHERE.

Regional Impacts

Regional displacement is addressed by SB 375, which requires that the proposed MTP/SCS identify areas in the region sufficient to house all of the population of the region. The proposed MTP/SCS accomplishes this through the methodology for the land use forecast and transportation system, which analyzes a regional economic forecast of employees and population to determine how much housing and employment is required to accommodate projected growth. The proposed MTP/SCS allocates the housing needed to accommodate the growth throughout the region. This method, in conjunction with vacancy factors applied in the regional travel model to simulate market conditions, identifies areas in the region to accommodate sufficient housing supply in the proposed MTP/SCS for the population expected to reside in the plan area through 2040.

The proposed MTP/SCS uses the adopted and proposed land use plans from the cities and counties of the SACOG region to help determine where the housing and employment growth is likely to occur. It concentrates growth in and near existing developed areas, near high frequency transit, and in areas that would improve local jobs/housing balances (e.g., locating new homes near existing jobs or new jobs near existing homes). The projected land use pattern is a realistic forecast of the expected growth in the region that also supports fundamental objectives of the proposed MTP/SCS, including continuing encouragement of the Blueprint Vision through a smart land use pattern, achieving the GHG emissions reduction targets of SB 375, and locating growth near existing infrastructure to improve the financial stewardship of the transportation system.

To achieve these objectives, the land use forecast focuses housing and employment growth in areas of existing development. Although much of the growth is expected to occur through infill of vacant lots, some of the growth may occur through the redevelopment of existing buildings. To model the potential extent of redevelopment, SACOG's land use forecasting methodology identifies non-residential parcels for potential redevelopment by screening for a high land value to structure value ratio and a general plan designation that is higher value than the existing use (e.g., a commercial designation and an existing industrial use). However, this modeling exercise is not intended to dictate the exact parcels that may be redeveloped over the planning period and, therefore, the proposed MTP/SCS does not forecast the amount of housing and population that may be displaced by future land use changes. Instead, it assumes that the population and jobs forecast used to inform regional housing development is enough to meet the housing needs of that forecasted population, taking into account localized displacement of some people or housing units. The forecast and subsequent allocation of regional housing is enough to meet the demand. As such, the proposed MTP/SCS would accommodate any displacement that may occur and would not result in the need for new replacement housing to be constructed elsewhere.

Adoption of the proposed MTP/SCS does not authorize or provide entitlements to redevelopment or construction projects in the plan area of the proposed MTP/SCS. Rather, the proposed MTP/SCS is a regional strategy that sets a vision for future development, which must still be reviewed, analyzed and approved by local governments, which retain full control over local land use authority. In addition, any project-level redevelopment that uses federal or state funds must follow

the Uniform Act and the California Relocation Assistance Act to address the displacement of people or housing.

Therefore, the potential for regional impacts associated with displacement of substantial numbers of people or housing that results in construction of replacement housing elsewhere from implementation of the projected land use pattern of the proposed MTP/SCS are considered less than significant (LS) for Impact POP-1. No mitigation is required.

The proposed MTP/SCS planned transportation improvements are developed to most efficiently meet the demands created by the forecasted growth in population and jobs, and focus mainly on the existing regional transportation system. Planned transportation improvements would largely be constructed within existing rights-of-way and with minimal to no acquisition of land, with acquired lands typically consisting of areas immediately adjacent to existing rights-of-way that does not contain residential housing units. In rare cases, residential structures may have to be removed to make way for new or expanded transportation facilities. In other cases, certain planned transportation improvements could permanently alter the characteristics and qualities of a neighborhood. The degree of the disruption would generally depend on the size and extent of the transportation improvement and the associated need to acquire new right-of-way. In any case, the potential for displacement and disruption are considerations in the final design of individual planned transportation improvements and may be addressed in the project-level environmental review and mitigation process. From the regional perspective, it is assumed that some residential displacement and disruption would occur. However, because the proposed projects have not yet been designed, the exact number and location of displacements cannot be known at this time and any attempt to predict them would be speculative.

As described above, the housing developed in the proposed MTP/SCS accommodates the forecasted population for the region, taking into account market vacancy factors. For this reason, any displacement that occurs due to the planned transportation improvements in the proposed MTP/SCS is not expected to result in the construction of new housing units other than what is already included with the plan.

In addition, all transportation projects that use federal or state funds must follow the Uniform Act and the California Relocation Assistance Act for any displaced people or housing. Therefore, the potential for regional impacts associated with displacement of substantial numbers of people or housing that results in construction of replacement housing elsewhere from implementation of the planned transportation improvements of the proposed MTP/SCS are considered less than significant (LS) for Impact POP – 1. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS
The type and character of the projected land use pattern and planned transportation improvements that occurs in the proposed MTP/SCS differs by each Community Type. While some existing people or housing units may be displaced at the Community Type-level, the regional forecast and allocation of growth (described above in the Regional Impacts section of Impact POP-1) accommodate the housing demand and transportation system necessary to support the entire population projected during the planning period.

Therefore, like the regional impacts above, the projected land use pattern and planned transportation improvements of the proposed MTP/SCS are not anticipated to result in the substantial displacement of people or housing that would require the construction of new replacement housing. This impact is considered less than significant (LS) for Impact POP-1 for all Community Types. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The HFTAs, in aggregate, have more infill and redevelopment as compared to the region, which could displace more people and housing as a result of the implementation of the proposed MTP/SCS. While some existing homes and residents may be displaced at the HFTA-level, the regional forecast and allocation of growth (as described above in the regional impacts section of Impact POP-1) accommodate the housing demand and transportation system necessary to support the entire population projected during the planning period. The allocation of regional housing is enough to meet demand, including that created through infill and redevelopment. Any displacement that occurs due to the projected land use pattern or planned transportation improvements in the proposed MTP/SCS would not result in the construction of new replacement housing units beyond what is already included with the plan.

Therefore, like the regional impacts above, the projected land use pattern and planned transportation improvements of the proposed MTP/SCS are not anticipated to result in the displacement of substantial numbers of existing people or housing within HFTAs that would require the construction of new replacement housing elsewhere. This impact for the projected land use pattern and planned transportation improvements is considered less than significant (LS) for Impact POP-1 for all HFTAs. No mitigation is required.

MITIGATION MEASURES

None required.

Chapter 15—Public Services and Recreation

15.1 Introduction

This chapter describes existing conditions (environmental and regulatory) and assesses the potential public services and recreational facilities impacts of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on review of existing information and is regional in scope. Data, analysis, and findings provided in this chapter were considered and prepared at a programmatic level. Public services included in this chapter include police protection, fire protection, social services, schools, and libraries. Emergency response plans, emergency evacuation plans, and fire threats (e.g., urban fires, wildland fires, and wildland-urban interface zones) are discussed in Chapter 10 – Hazards, Hazardous Materials, and Wildfire. Stormwater infrastructure is addressed in Chapter 11 – Hydrology and Water Quality. Utilities including water supply, wastewater, fire flows, solid waste, electric power, natural gas, and telecommunications are addressed in Chapter 17 – Utilities and Service Systems.

In response to the Notice of Preparation (NOP), SACOG received comments related to recreation from the Delta Protection Commission (DPC). The commenter expressed that the Draft EIR should consider the following:

- Delta Trail Master Plan

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines, Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

15.2 Environmental Setting

15.2.1 Police Protection Services

Police protection services are provided at both the state and local level. Law enforcement services include crime investigation, crime prevention, traffic management, traffic collision investigation, homeland security activities, and emergency response.

CALIFORNIA HIGHWAY PATROL

The California Highway Patrol (CHP) has statewide authority to conduct law enforcement activities and criminal investigations, but generally provides traffic regulation enforcement, emergency accident management and service, and assistance on state roadways and other major roadways in

unincorporated portions of the region. The CHP service area is along the state route and interstate highway system that runs through the plan area of the proposed MTP/SCS. Counties may contract with CHP for services in unincorporated areas ranging from primary jurisdiction for road patrol and traffic enforcement to non-traffic law enforcement and criminal investigations. CHP also provides state police for the Capitol. CHP cooperates with both county and city police departments when the need arises, providing support to local police and helping coordinate multi-jurisdictional task force activities in serious or complicated cases.

LOCAL POLICE PROTECTION

Each of the six counties within the plan area of the proposed MTP/SCS has its own county sheriff's department, which is responsible for providing police protection within unincorporated areas. Each incorporated city and town in the plan area of the proposed MTP/SCS also either provides its own police services or contracts with the sheriff's department for the provision of such services. The Sacramento Regional Transit District, University of California-Davis, California State University-Sacramento, Los Rios Community College District, and Yuba Community College District all have their own police departments. The locations of police facilities are shown in Figure 15-1.

Additionally, AMTRAK and the Sacramento Regional Transit District (RT) maintain their own policing services to enforce agency policies and provide for the public safety at transit stops and stations, including additional staff for implementation of new transit service.

TRIBAL POLICE PROTECTION

The Shingle Springs Band of Miwok Indians has a Tribal Police Department (Shingle Springs Band of Miwok Indians 2019). The United Auburn Indian Community (UAIC) has signed memorandums with Placer County and the City of Lincoln for police protection services and the Yocha Dehe Wintun Nation is part of the Yolo Emergency Communications Agency Joint Powers Agreement for shared police services (UAIC 2014; Yolo County 2019). In addition, UAIC and the Placer County Indian Gaming Local Community Benefit Committee have awarded grants to the Placer County, Lincoln, Roseville, and Rocklin police departments in order to mitigate the effects of tribal gaming. Wilton Rancheria currently does not have any developed tribal lands requiring police protection services.

15.2.2 Fire Protection Services

Fire suppression is the responsibility of various fire departments and districts, which often employ paramedics for emergency medical services. The plan area of the proposed MTP/SCS includes 49 fire districts and 16 city fire departments, as well as several other public fire departments. There are also a number of private fire departments including Aerojet Fire Services in Folsom and Sacramento. The locations of fire stations are shown in Figure 15-1. Table 15-1 lists the local fire protection districts and fire departments in the plan area of the proposed MTP/SCS.

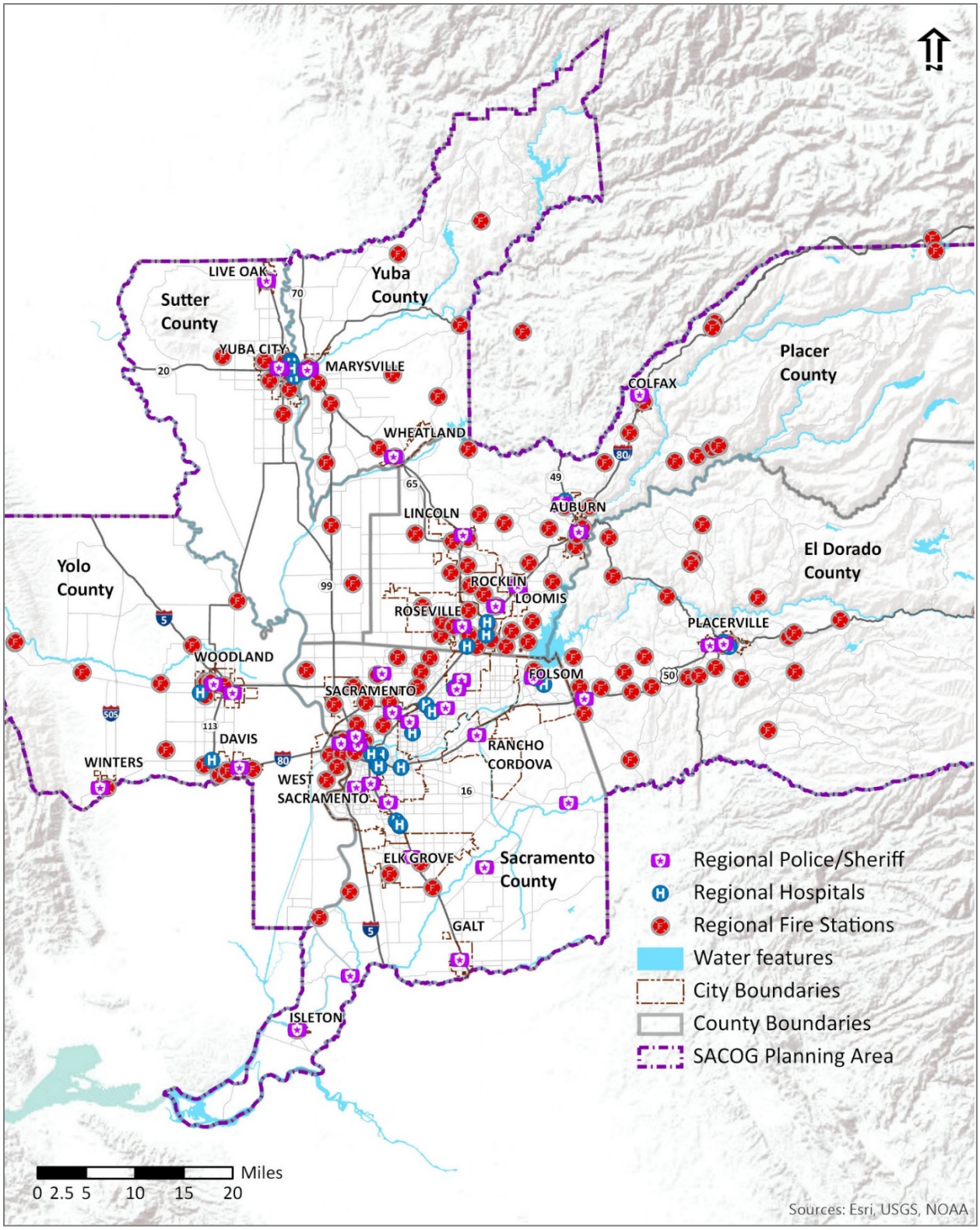


Figure 15-1
Police Stations, Fire Stations, and Hospitals in the Plan Area of the Proposed MTP/SCS

Table 15-1
Fire Protection Districts in the Plan Area of the Proposed MTP/SCS

El Dorado County	Sutter County
Cameron Park Community Services District	*Unincorporated*
Diamond Springs/El Dorado Fire District	East Nicolaus Fire Department (County Service Area C)
El Dorado County Fire Protection District	Pleasant Grove Fire Department (County Service Area D)
El Dorado Hills Fire Department	Oswald-Tudor, Live Oak, and Sutter Fire Stations (County Service Area F)
Garden Valley Fire Protection District	Meridian Fire Protection District
Georgetown Fire Protection District	Robbins (Sutter Basin) Fire Department
Lake Valley Fire Protection District	*Incorporated*
Latrobe Fire Protection District	City of Yuba City Fire Department (County Service Area G)
Mosquito Fire Protection District	**Yolo County**
Pioneer Fire Protection District	*Unincorporated*
Rescue Fire Protection District	Capay Fire Protection District
Shingle Springs Rancheria Fire Department	Clarksburg Fire Protection District
Placer County	Dunnigan Fire Protection District
Unincorporated	East Davis Fire Protection District
Alta Volunteer Fire Protection District	Elkhorn Fire Protection District
Foresthill Fire Protection District	Esparto Fire Protection District
Newcastle Fire Protection District	Knights Landing Fire Protection District
Penryn Fire Protection District	Madison Fire Protection District
Placer County Consolidated Fire Protection District	No Man's Land Fire Protection District
Placer Hills Fire Protection District	Rumsey Rancheria Fire Department
Sacramento Metropolitan Fire District	Springlake Fire Protection District
South Placer Fire Protection District	UC Davis Fire Department
Incorporated	West Plainfield Fire Protection District
City of Auburn Fire Department	Willow Oak Fire Protection District
City of Colfax Volunteer Fire Department	Yolo Fire Protection District
City of Lincoln Fire Department	Zamora Fire Protection District
City of Rocklin Fire Department	*Incorporated*
City of Roseville Fire Department	City of Davis Fire Department
Sacramento County	City of West Sacramento Fire Department
Unincorporated	City of Winters Fire Department
Courtland Fire Protection District	City of Woodland Fire Department
Delta Fire Protection District	**Yuba County**
Folsom State Prison Fire Department	*Unincorporated*
Herald Fire Protection District	Beale Air Force Base Fire Department
Natomas Fire Protection District (contract with the City of Sacramento)	Camptonville Volunteer Fire Department
Pacific Fruitridge Fire Protection District	Dobbins-Oregon House Fire Protection District
River Delta Fire District	Foothill Volunteer Fire Department
Sacramento County Airport Fire Department	Linda Fire Department
Sacramento Metropolitan Fire District	Loma Rica-Browns Valley Community Service District
Walnut Grove Fire Protection District	Olivehurst Public Utility District
Wilton Fire Protection District	Smartsville Fire Protection District

Incorporated	*Incorporated*
City of Folsom Fire Department	City of Marysville Fire Department
City of Isleton Fire Department	Wheatland Fire Authority
City of Sacramento Fire Department	--
Cosumnes Community Services District	--

Source: C' Online California Fire Department Directory, updated February 2019, accessed June 10, 2019. El Dorado County Fire Districts, County of El Dorado; Sutter County Fire Districts, Fire Services, County of Sutter, accessed June 10, 2019. City of Lincoln Fire Department; Sacramento Local Agency Formation Commission, 2016; Placer County Fire Districts, County of Placer; Yolo County, 2019; City of Rocklin, accessed June 11, 2019.

U.S. FOREST SERVICE

The U.S. Forest Service (USFS) is responsible for fire prevention and suppression in the Eldorado National Forest, Tahoe National Forest, and those privately-owned lands within the forest boundaries.

NATIONAL INDIAN FORESTRY AND WILDLAND FIRE MANAGEMENT PROGRAM

The National Indian Forestry and Wildland Fire Management Program is a cooperative effort of the United States Department of the Interior, Bureau of Indian Affairs, Office of the Deputy Director - Trust Services, Division of Forestry and Wildland Fire Management, Intertribal Timber Council, and individual Tribal governments on reservations that contain forest resources.

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

The California Department of Forestry and Fire Protection (CAL FIRE) provides response to all wildland fires within the unincorporated, privately-owned areas of the plan area of the proposed MTP/SCS. CAL FIRE is also called to assist with emergencies which require more resources than the local city and county emergency responders are able to provide. Because of CAL FIRE's size and major incident management experience, CAL FIRE is often asked to assist or take the lead in disasters, such as floods, toxic spills, earthquakes, and major urban and rural fires. Within the plan area of the proposed MTP/SCS, CAL FIRE operates 27 fire stations, including 16 in Placer County, seven in El Dorado County, three in Yuba County, and one in Yolo County. El Dorado County is also home to one conservation camp jointly operated by the California Department of Corrections with crews of prison inmates that respond to wildland fires (CAL FIRE 2019).

LOCAL FIRE PROTECTION SERVICES

County fire departments provide fire prevention and suppression and emergency services to the unincorporated areas of the six counties, as well as those municipalities that contract for fire protection and emergency services. City fire departments are more prevalent among older and/or larger municipalities. The varied topographic features, environmental settings, and demographics of the region require fire protection personnel to respond to various types of emergencies in rural, suburban, and urban settings. The wide diversity of emergency incidents requires firefighters to be proficient in wildland firefighting, structural firefighting, crash fire rescue, technical rescue, swift water rescue, hazardous material mitigation, and paramedic medical services.

TRIBAL FIRE PROTECTION SERVICES

The Shingle Springs Band of Miwok Indians in El Dorado County and the Yocha Dehe Wintun Nation in Yolo County operate tribal fire departments (Shingle Springs Band of Miwok Indians 2018; Yocha Dehe Wintun Nation 2018). The Yocha Dehe Wintun Nation is also part of the Yolo Emergency Communications Agency Joint Powers Agreement for shared fire services (Yocha Dehe Wintun Nation 2018). The UAIC in Placer County has signed agreements with the City of Lincoln and the county, by contract with CAL FIRE, to provide fire protection. Wilton Rancheria currently does not have any developed tribal lands requiring fire protection services.

15.2.3 Social Services

Social services are provided by government agencies, private non-profit organizations, and private for-profit organizations. Figure 15-2 displays the locations of these services. The following types of social services currently available in the plan area of the proposed MTP/SCS:

- **Alcohol, Drug, and Mental Health Services:** provides alcohol and drug abuse prevention and treatment services to adults and juveniles, and mental health services to seriously mentally ill adults, youth, and families.
- **Adult Education and Job Training:** provides educational and job training opportunities to give adult students the knowledge and skills necessary to participate effectively as citizens, employees, parents, and family members.
- **Child Support Services:** determines parentage, establishes orders for support and medical coverage, and collects and distributes funds from absent parents who have a financial responsibility to support their children.
- **Civic Buildings and Community Centers:** includes libraries, community centers, and other public buildings not otherwise classified.
- **Courts and Parole Offices:** hears and gives rulings on the following types of court cases: appeals, civil, criminal, family and children, juvenile, and traffic. Parole offices coordinate parole hearings and supervise defendants not yet sentenced to a term of incarceration and offenders released from incarceration.
- **Heath and Disabled Services:** provides programs for the medically indigent, older adults, the disabled, and detainees; communicable disease prevention and control; protection of food and water; waste and vector control; vital records; nutrition and safety education; and public health nursing services.
- **Homeless and Housing Assistance:** provides temporary shelter, food assistance, mental health services, and transitional housing assistance to adults, juveniles, and families.
- **Human Assistance:** administers various federal, state, and local government programs designed to provide cash assistance, food stamps, and other social services not otherwise classified.
- **Veteran Affairs:** provides medical, mental health, vocational rehabilitation and employment, educational, and other training to veterans.

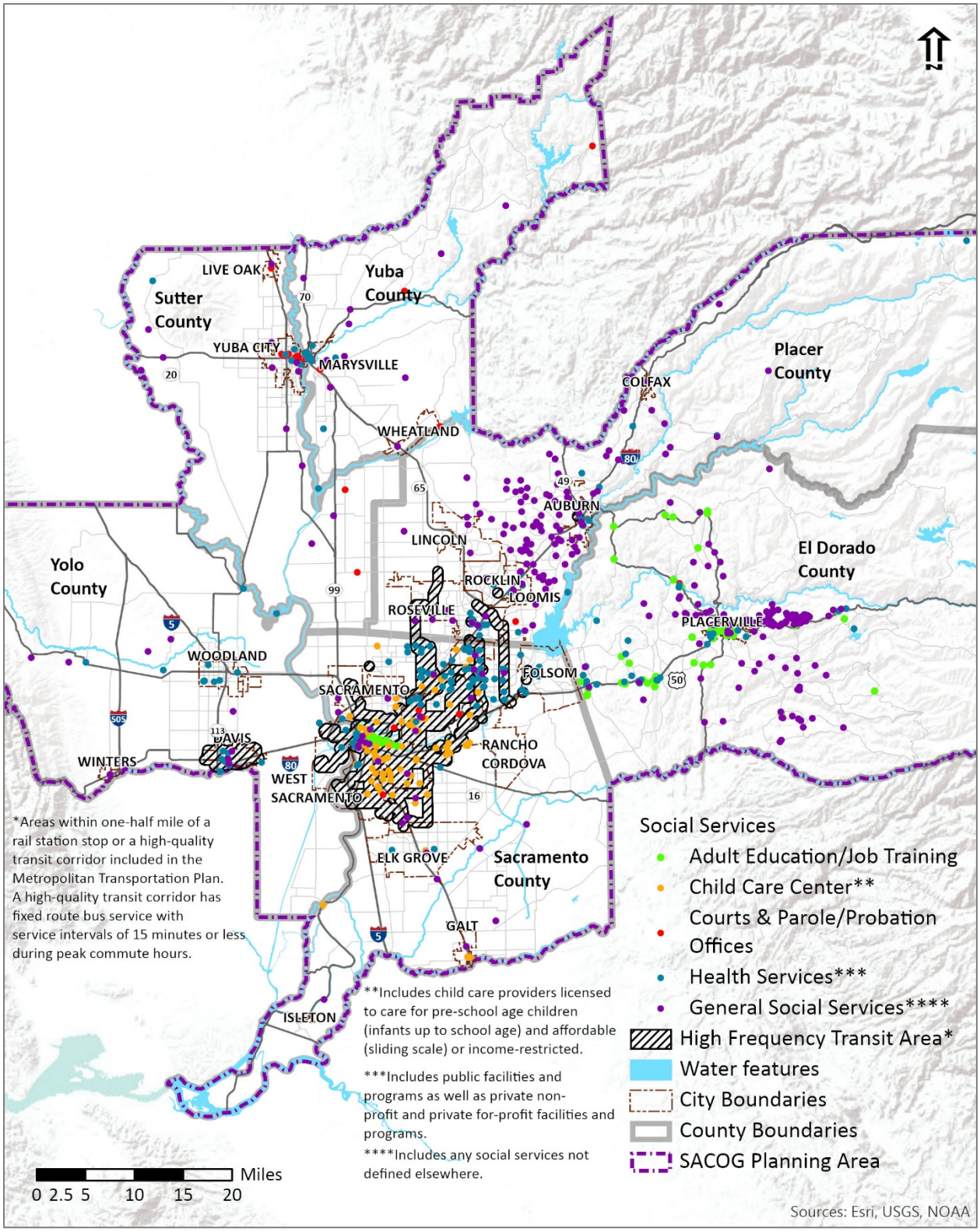


Figure 15-2
Social Service Access by Transit in the Plan Area of the Proposed MTP/SCS

15.2.4 Schools

School districts and local jurisdictions within the plan area of the proposed MTP/SCS provide public education facilities and services, including elementary schools, middle schools, secondary schools, post-secondary schools, and colleges and universities, as well as special and adult education. School districts are responsible for planning and constructing school facilities. Standards relating to class size and funding for new school construction are set at the state level. There are 733 elementary, middle, secondary, and post-secondary schools, colleges and universities, alternative education, continuation, special education, and adult school services in the region (California Department of Education 2019). Table 15-2 lists the public school districts serving each of the six SACOG-region counties and the number of each type of school within that district. Figure 15-3 shows the location of public educational facilities.

Table 15-2
Public Education Facilities in the Plan Area of the Proposed MTP/SCS

District	Number of Public Schools by Type							Total Schools
	K-8[1]	K-12[2]	Elementary	Intermediate /Middle/ Junior High	High School	College	Adult	
EL DORADO COUNTY	**9**	**4**	**27**	**12**	**14**	**1**	**-**	**67**
Black Oak Mine Unified	—	1	3	—	2	—	—	6
Buckeye Union Elementary	3	1	6	2	—	—	—	12
Camino Union Elementary	2	—	—	—	—	—	—	2
Central Sierra ROP	—	—	—	—	1	—	—	1
El Dorado County Office of Education	2	2	—	—	2	—	—	6
El Dorado Union High	—	—	—	—	6	—	—	6
Gold Oak Union Elementary	—	—	1	1	—	—	—	2
Gold Trail Union Elementary	—	—	1	1	—	—	—	2
Indian Diggings Elementary	1	—	—	—	—	—	—	1
Lake Tahoe Unified	—	—	4	1	3	—	—	8
Latrobe	—	—	1	1	—	—	—	2
Los Rios Community College	—	—	—	—	—	1	—	1
Mother Lode Union Elementary	—	—	1	1	—	—	—	2
Pioneer Union Elementary	—	—	2	1	—	—	—	3
Placerville Union Elementary	—	—	2	1	—	—	—	3
Pollock Pines Elementary	—	—	1	1	—	—	—	2
Rescue Union Elementary	—	—	5	2	—	—	—	7
Silver Fork Elementary	1	—	—	—	—	—	—	1
PLACER COUNTY	**21**	**7**	**57**	**16**	**26**	**2**	**4**	**133**
Ackerman Charter	1	—	—	—	—	—	—	1
Alta-Dutch Flat Union Elementary	1	—	—	—	—	—	—	1
Auburn Union Elementary	—	—	4	1	—	—	—	5
Colfax Elementary	1	—	—	—	—	—	—	1
Dry Creek Joint Elementary	1	—	6	2	—	—	—	9
Eureka Union	—	—	5	2	—	—	—	7
Foresthill Union Elementary	1	—	—	—	—	—	—	1
Forty-Niner ROP	—	—	—	—	1	—	—	1

District	Number of Public Schools by Type							Total Schools
	K-8[1]	K-12[2]	Elementary	Intermediate /Middle/ Junior High	High School	College	Adult	
Loomis Union Elementary	7	1	—	—	—	—	—	8
Newcastle Elementary	5	—	1	—	—	—	—	6
Placer County Office of Education	—	4	—	—	2	—	—	6
Placer Hills Union Elementary	—	—	1	1	—	—	—	2
Placer Union High	—	—	—	—	6	—	1	7
Rocklin Unified	2	1	13	2	4	—	—	22
Roseville City Elementary	—	—	15	4	—	—	—	19
Roseville Joint Union High	—	—	—	—	7	—	1	8
Sierra Joint Community	—	—	—	—	—	2	—	2
Tahoe-Truckee Unified	1	—	5	2	4	—	1	13
Western Placer Unified	1	1	7	2	2	—	1	14
SACRAMENTO COUNTY	**43**	**25**	**194**	**44**	**83**	**12**	**10**	**411**
Arcohe Union Elementary	1	—	—	—	—	—	—	1
California Education Authority (CEA) Headquarters	—	—	—	—	4	—	—	4
California State University, Sacramento	—	—	—	—	—	1	—	1
Center Joint Unified	—	—	4	1	2	—	1	8
Elk Grove Unified	1	2	42	9	14	—	1	69
Elverta Joint Elementary	—	1	1	1	—	—	—	3
Folsom-Cordova Unified	1	2	20	4	6	—	1	34
Galt Joint Union Elementary	—	—	5	1	—	—	—	6
Galt Joint Union High	—	—	—	—	3	—	1	4
Los Rios Community College	—	—	—	—	—	11	—	11
Natomas Unified	5	2	6	3	4	—	—	20
River Delta Joint Unified	—	—	5	2	5	—	1	13
Robla Elementary	—	—	5	—	2	—	—	7
Sacramento City Unified	13	2	47	8	15	—	2	87
Sacramento County Office of Education	—	4	—	—	4	—	—	8
Sacramento County ROP	—	—	—	—	1	—	—	1
San Juan Unified	12	8	36	8	13	—	2	79
Twin Rivers Unified	10	4	23	7	10	—	1	55
SUTTER COUNTY	**18**	**7**	**7**	**3**	**12**	**1**	**1**	**49**
Brittan Elementary	1	—	—	—	—		—	1
Browns Elementary	1	—	—	—	—		—	1
East Nicolaus Joint Union High	—	—	—	—	1		—	1
Franklin Elementary	1	—	—	—	—		—	1
Live Oak Unified	1	—	1	1	3		—	6
Marcum-Illinois Union Elementary	1	1	—	—	—		—	2
Meridian Elementary	2	1	—	—	1		—	4
Nuestro Elementary	1	1	—	—	—		—	2
Pleasant Grove Joint Union	1	—	—	—	—		—	1

District	Number of Public Schools by Type							Total Schools
	K-8[1]	K-12[2]	Elementary	Intermediate /Middle/ Junior High	High School	College	Adult	
Sutter County Office of Education	—	1	—	1	1		1	4
Sutter Union High	—	—	—	—	2		—	2
Tri-County ROP	—	—	—	—	1		—	1
Winship-Robbins	2	1	—	—	—		—	3
Yuba City Unified	7	2	6	1	3		—	19
Yuba Community College	—	—	—	—	—	1	—	1
YOLO COUNTY	**8**	**2**	**27**	**10**	**17**	**4**	**3**	**71**
Davis Joint Unified	—	1	9	3	3	—	1	17
Esparto Unified	—	—	1	1	2	—	—	4
Los Rios Community College	—	—	—	—	—	2	—	2
University of CA - Davis	—	—	—	—	—	1	—	1
Washington Unified	7	—	3	2	3	—	1	16
Winters Joint Unified	—	—	1	1	2	—	—	4
Woodland Joint Unified	—	—	13	3	3	—	1	20
Yolo County Office of Education	1	1	—	—	3	—	—	5
Yolo County ROP	—	—	—	—	1	—	—	1
Yuba Community College	—	—	—	—	—	1	—	1
YUBA COUNTY	**3**	**3**	**19**	**5**	**10**	**2**	**0**	**42**
Camptonville Elementary	1	1	—	—	—		—	2
Marysville Joint Unified	1	—	14	3	5		—	23
Plumas Lake Elementary	—	—	2	1	—		—	3
Wheatland	—	—	3	1	—		—	4
Wheatland Union High	—	—	—	—	3		—	3
Yuba Community College	—	—	—	—	—	2	—	2
Yuba County Office of Education	1	2	—	—	2		—	5
REGION	**102**	**48**	**331**	**90**	**162**	**22**	**18**	**773**

[1] *"K-8" category includes facilities that serve grades 1-8, 2-8, and K-7.*

[2] *"K-12" category includes facilities that serve grades 1-12, 2-12, 4-11, and K-10.*

Sources: California Department of Education, Educational Data Management Division: Public Schools and Districts Data File, 2019; The California State University; The University of California; California Community Colleges Chancellor's Office; Yuba Community College District; Los Rios Community College District.

15.2.5 Libraries

Public libraries serve communities by providing access to collections of broadly-based materials that interest and benefit all ages and abilities, and reflect community needs, wants, and use. There are 64 libraries and three bookmobiles in the plan area of the proposed MTP/SCS. In addition, local colleges and high schools offer library services for their students. Table 15-3 is an inventory of existing library facilities in the plan area of the proposed MTP/SCS. The locations of these libraries are shown in Figure 15-3.

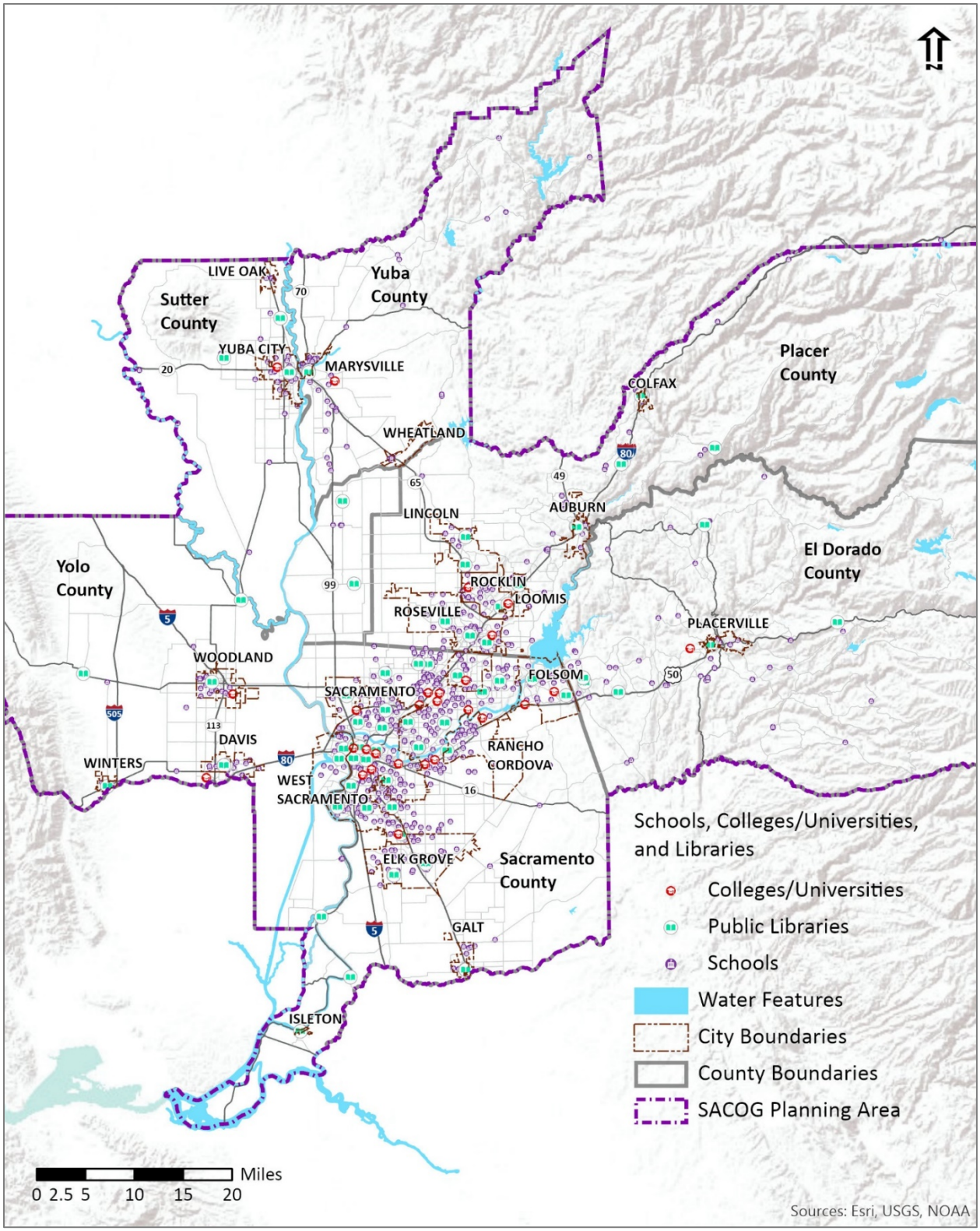


Figure 15-3
Schools, Universities, and Libraries in the Plan Area of the Proposed MTP/SCS

Table 15-3
Public Libraries in the Plan Area of the Proposed MTP/SCS

County	Library
El Dorado County	Bookmobile
	Cameron Park Branch Library
	El Dorado Hills Branch Library
	Georgetown Branch Library
	Placerville Main Library
	Pollock Pines Branch Library
Placer County	Applegate Branch Library
	Auburn Branch Library
	Bookmobile
	Colfax Branch Library
	Foresthill Branch Library
	Granite Bay Branch Library
	Kings Beach Branch Library
	Loomis Library and Community Learning Center
	Maidu Branch Library (Roseville)
	Martha Riley Community Branch Library (Roseville)
	Meadow Vista Branch Library
	Penryn Branch Library
	Rocklin Branch Library
	Roseville Downtown Public Library (Roseville)
	Tahoe City Library
	Lincoln Public Library (Lincoln)
Sacramento County	Arcade Branch Library
	Arden-Dimick Branch Library
	Belle Cooledge (Land Park) Branch Library Carmichael Branch Library
	Bookmobile
	Carmichael Branch Library
	Central Sacramento Public Library
	Colonial Heights Branch Library
	Courtland Branch (Nonie Wetzel Courtland) Library
	Del Paso Heights Branch Library
	Elk Grove Branch Library
	Ella K. McClatchy Branch Library
	Fair Oaks Branch Library
	Folsom Branch Library (Folsom)
	Franklin Community Branch Library (Elk Grove)
	Galt-Marian O. Lawrence Branch Library
	Isleton Branch Library
	Martin Luther King, Jr. Branch Library
	McKinley Branch Library

County	Library
	North Highlands-Antelope Branch Library
	North Natomas Branch Library
	North Sacramento-Hagginwood Branch Library
	Orangevale Branch Library
	Rancho Cordova Branch Library
	Rio Linda Branch Library
	Robbie Waters Pocket-Greenhaven Branch Library
	South Natomas Branch Library
	Southgate Branch Library
	Sylvan Oaks Branch Library (Citrus Heights)
	Valley Hi-North Laguna Branch Library
	Walnut Grove Branch Library
Sutter County	Main Public Library (Yuba City)
	Barber Branch Library (Live Oak)
	Sutter Branch Library
Yolo County	Arthur F. Turner Branch Library (West Sacramento)
	Clarksburg Branch Library
	Mary L. Stephens - Davis Branch Library
	Esparto Regional Branch Library
	Knights Landing Branch Library
	South Davis Montgomery Library
	Winters Branch Library
	Yolo Branch Library
	Woodland Public Library (Woodland)
Yuba County	Yuba County Library (Marysville)

Source: El Dorado County Public Library 2019; Folsom Public Library 2019; Lincoln Public Library, City of Lincoln 2019; Loomis Library and Community Learning Center 2019; Placer County Library 2019; Library Department, City of Roseville 2019; Sacramento Public Library 2019; Sutter County Library Services 2019; Yolo County Library 2019; Library Department, Yuba County 2019.

15.2.6 Parks and Recreation

NATIONAL MONUMENTS, PARKS, FORESTS, AND WILDERNESS AREAS

USFS manages two national forests in the plan area of the proposed MTP/SCS: the Eldorado National Forest (El Dorado and Placer counties) and the Tahoe National Forest (Placer and Yuba counties). The forests provide diverse recreational opportunities including: camping, fishing, water sports (e.g., rafting, canoeing, kayaking), motorized use trails (on designated trails and roads), non-motorized use trails (e.g., hiking, cycling, equestrian), rental cabins, shooting (e.g., plinking and target shooting), winter sports (e.g., cross-country skiing, downhill skiing, snowboarding, snowshoeing), and snowmobiling. There are three wilderness areas within these two National Forests: Granite Chief Wilderness (Tahoe National Forest), Desolation Wilderness (Eldorado National Forest), and Mokelumne Wilderness (Eldorado National Forest). However, all three of these wilderness areas are outside the plan area of the proposed MTP/SCS. In 2015 over 330,000 acres of Berryessa Snow Mountain became a national monument. A portion of this area is located within Yolo County.

While there are no national parks within the plan area of the proposed MTP/SCS, there are other federally-managed open space and conservation areas located within the region. The Bureau of Land Management (BLM) manages several special, critical environmental concern, and other management areas within the region, including Cronan Ranch, Greenwood, Kanaka Valley, Norton Ravine, and Pine Hill Preserve in El Dorado County; Cosumnes River Preserve in the Sacramento Delta; and the South Yuba Wild and Scenic River Recreation Area in Yuba County. The U.S. Fish and Wildlife Service (USFWS) manages the Sutter National Wildlife Refuge near Yuba City and the Stone Lakes National Wildlife Refuge in Sacramento County (in partnership with the California Department of Parks and Recreation [DPR]). The U.S. Bureau of Reclamation (USBR) operates the Putah Creek Fishing Site in Yolo County and the Folsom S. Canal in Sacramento County and the U.S. Army Corps of Engineers (USACE) manages Harry L. Englebright Lake in Yuba County. Figure 15-4 shows existing land in the plan area of the proposed MTP/SCS designated as parks and open space.

National Trails

The National Park Service (NPS) designates national historic and scenic trails. The National Trails System Act of 1968 made it federal policy to provide financial assistance, volunteer support, and coordination between state and other agencies in order to recognize and promote trails. NPS has established 11 national scenic trails and 19 national historic trails. Depending on the trail, some combination of NPS, USFS, and BLM are designated as administering agencies. Portions of the Pony Express National Historic Trail and California National Historic Trail are within the plan area of the proposed MTP/SCS (NPS 2019). NPS is preparing a feasibility study under the Omnibus Public Land Management Act of 2009 to evaluate potentially adding 64 routes to existing national historic trails. A total of 41 of these proposed routes are part of the California National Historic Trail (NPS 2019). Figure 15-5 shows the location of national historic and scenic trails.

In addition to national historic and scenic trails, NPS designates National Recreation Trails in the plan area of the proposed MTP/SCS, including Carson Emigrant Historic in El Dorado County; Pioneer Trail in Placer County; and California Aqueduct Bikeway, Jedediah Smith (also known as the American River Parkway), South Yuba, and Western States Pioneer Trail in Sacramento County.

State Parks, Recreation Areas, Historic Parks, Park Properties, and Points of Interest

DPR currently manages 283 parks in the state, providing for the health and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation. Of these parks, the DPR manages 28 state parks within the SACOG region: seven in El Dorado County, five in Placer County, fourteen in Sacramento County, one in Sutter County, and one in Yolo County. There are no designated state parks within Yuba County. Figure 15-4 shows existing land in the plan area of the proposed MTP/SCS designated as parks and open space. (DPR 2019).

Table 15-4 includes current state parks, recreation areas, historic sites, properties, and points of interest within the plan area of the proposed MTP/SCS.

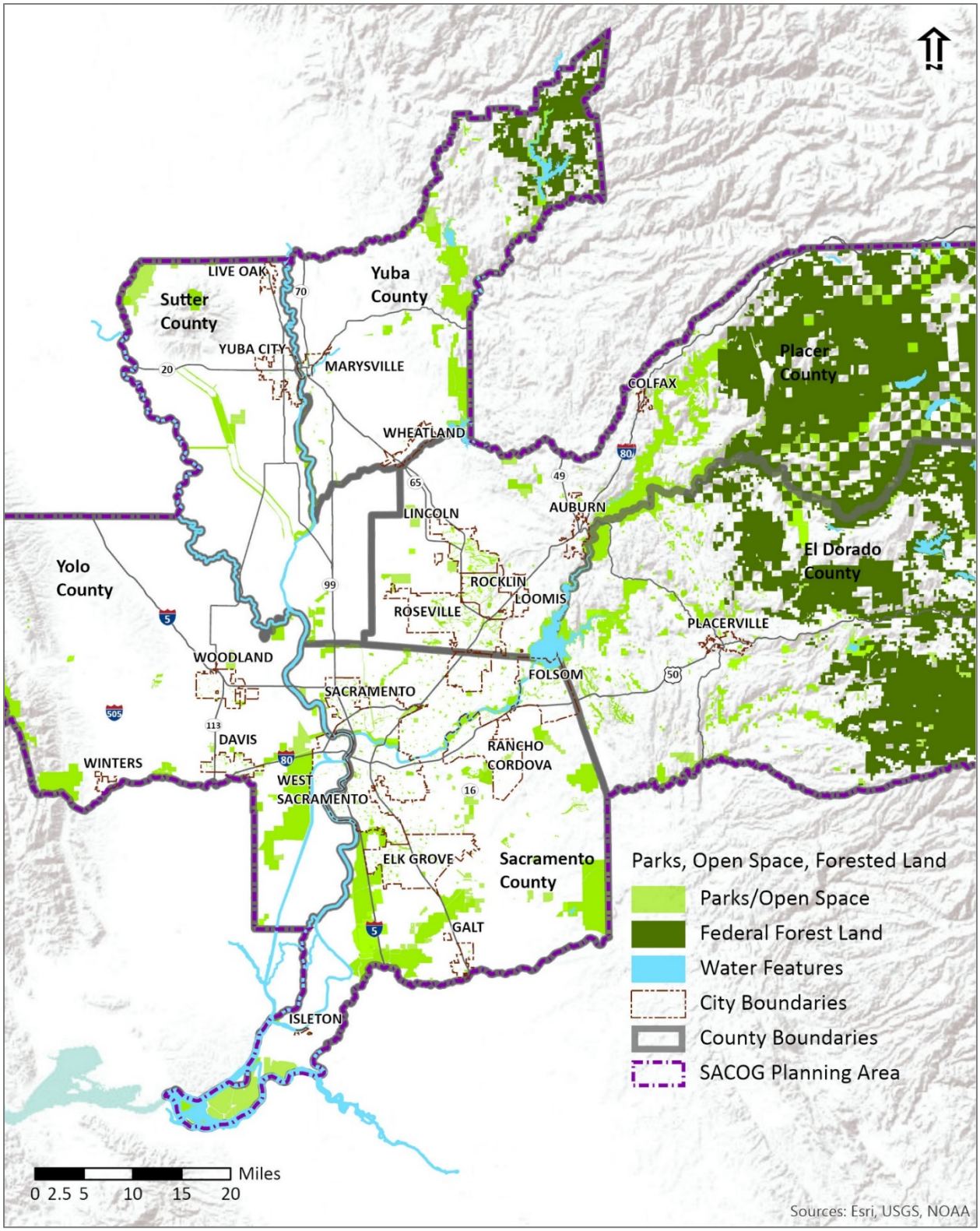
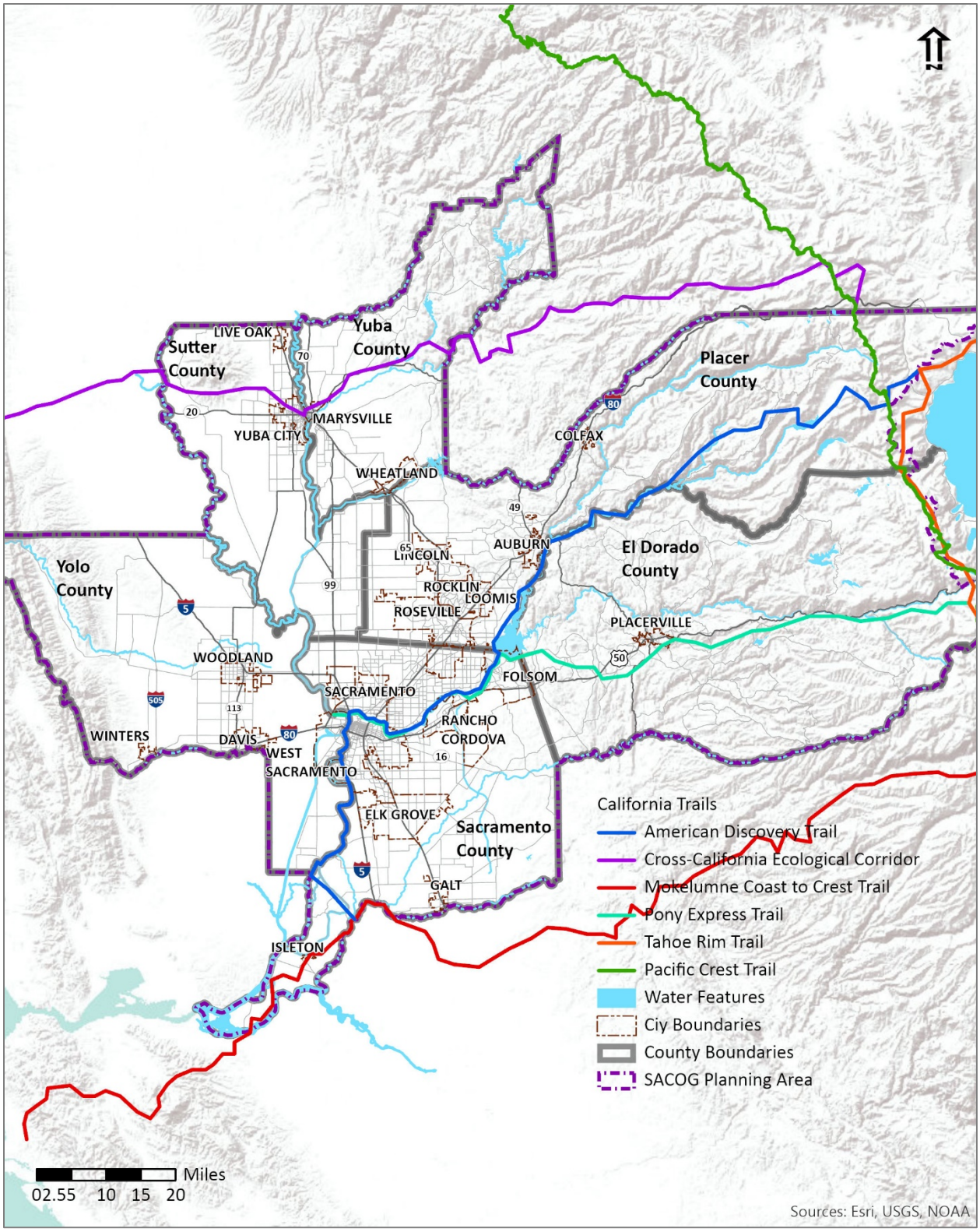


Figure 15-4
Parks, Open Space, and Forested Land in the Plan Area of the Proposed MTP/SCS



Source: California State Parks 2011; National Park Service 2014

Figure 15-5
National and State Trails in the Plan Area of the Proposed MTP/SCS

Table 15-4
State Parks, Recreation Areas, Park Properties, and Points of Interest in the Plan Area of the Proposed MTP/SCS

Park Name	Type of Park	Description
El Dorado County		
Auburn State Recreation Area	State Recreation Area	In the heart of the gold country, the Auburn State Recreation Area (Auburn SRA) covers 40-miles of the North and Middle Forks of the American river. Once teeming with thousands of gold miners, the area is now a natural area offering a wide variety of recreation opportunities to over 900,000 visitors a year. Major recreational uses include hiking, swimming, boating, fishing, camping, mountain biking, gold panning, equestrian/horseback riding trails, and off-highway motorcycle riding.
Folsom Lake State Recreation Area	State Recreation Area	Located at the base of the Sierra foothills, the lake and recreation area offers opportunities for hiking, biking, running, camping, picnicking, horseback riding, water-skiing and boating. Fishing offers trout, catfish, big and small mouth bass or perch. For cyclists, there is a 32-mile long bicycle path that connects Folsom Lake with many Sacramento County parks before reaching Old Sacramento. The park also includes Lake Natoma, downstream from Folsom Lake, which is popular for crew races, sailing, kayaking and other aquatic sports.
Marshall Gold Discovery State Historic Park	State Historic Park	The Marshall Gold Discovery State Historic Park secures and makes the gold discovery site available for public observation, inspiration, and enjoyment. The park provides activities demonstrating an accurate portrayal of the story that unfolded at the time of the discovery and Gold Rush.
Placer County		
Auburn State Recreation Area	State Recreation Area	Refer to description for El Dorado County.
Folsom Lake State Recreation Area	State Recreation Area	Refer to description for El Dorado County.
Sacramento County		
Brannan Island State Recreation Area	State Recreation Area	Brannan Island State Recreation Area is a maze of waterways within the Sacramento-San Joaquin Delta. One of the outstanding water-oriented recreation areas in the world, the area offers great fishing, including striped bass, sturgeon, catfish, bluegill, perch and bullhead. Frank's Tract, a protected wetland marsh, is home to beaver, muskrat, river otter, mink, and 76 species of birds.
California Indian Heritage Center	Park Property	The California Indian Heritage Center (CIHC) honors the diversity and history of California Indian people by preserving cultural and tribal traditions, nurturing contemporary expressions, and facilitating research and education, for California, the nation, and the world. The CIHC will be a distinctive and honorable place where past, present and future experiences and achievements of California Indians are recognized, celebrated and shared. The CIHC will replace the California State Indian Museum when it opens, estimated June 30, 2019.
California State Capitol	Park Property	At the California State Capitol, visitors can tour the restored historic offices of the Secretary of State, Treasurer, and Governor of the State of California. Surrounding the Capitol is Capitol Park, which includes a Civil War Memorial Grove, a life-sized statue of Father Junípero Serra, the California Vietnam Veterans Memorial, the California Veterans Memorial, and various gardens and trees.

Park Name	Type of Park	Description
California State Railroad Museum	Point of Interest	The California State Railroad Museum houses more than 20 restored locomotives and railroad cars, some dating back to 1862, along with thousands of smaller artifacts and a variety of exhibits.
Delta Meadows	Park Property	The Delta Meadows Park Property is closed. The restroom facilities have been removed and no services are provided.
Folsom Lake State Recreation Area	State Recreation Area	Refer to description for El Dorado County.
Folsom Powerhouse	State Historic Park	Once called "the greatest operative electrical plant on the American continent", the Folsom Powerhouse produced electricity for Sacramento residents from 1885 to 1952. Visitors touring the powerhouse can see the massive General Electric transformers, each capable of conducting from 800 to 11,000 volts of electricity, in addition to the forebays and canal system that brought water from the dam.
Governor's Mansion	State Historic Park	California's executive mansion, popularly known at the Governor's Mansion, was built in 1877 for Albert and Clemenza Gallatin. The State of California purchased the house from Joseph and Louisa Steffens to use as a home for California's first families in 1903. The Governor's Mansion is closed to the public.
Leland Stanford Mansion	State Historic Park	Originally built in 1856 by Gold Rush merchant Sheldon Fogus, the Leland Stanford Mansion was later purchased and remodeled by Leland and Jane Stanford. Leland Stanford served as Governor of California from 1862-1863. The Mansion served as the office of three governors during the 1860's: Leland Stanford, Fredrick Low, and Henry Haight. After a 14-year, $22 million restoration and rehabilitation, the Mansion is now open to the public as a museum. It also serves the citizens of California as the state's official reception center for leaders from around the world.
Locke Boarding House	Point of Interest	Once known as the Jack Ross Boardinghouse, the Locke Boarding House was constructed in 1909, prior to the formal development of the town of Locke. Chinese men working on the construction of the Southern Pacific Railroad boarded in the small establishment which was located near the Southern Pacific Railroad shipping warehouse. The Kuramoto family operated the boarding house from 1921 until they were interned during World War II in 1942. The family did not return to resume operation of the Boarding House after the war. In 2008 it became the Locke Boarding House, a unit of the state park system. Today, the boarding house is operated in partnership with the Locke Foundation as a museum that provides visitors a glimpse into the past. The entire town of Locke is a historical site, but is also a living community with year-round residents.
Old Sacramento	State Historic Park	Old Sacramento State Historic Park is a cluster of noteworthy, early Gold Rush commercial structures. Historic buildings include the 1849 Eagle Theater, the 1853 B. F. Hastings Building (once home to the California Supreme Court), and the 1855 Big Four Building. Old Sacramento's historical significance comes from it being the western terminus of the Pony Express postal system, the first transcontinental railroad, and the transcontinental telegraph. Old Sacramento is a California Historical Landmark. The National Park Service named the entire original historic 1850s business district of Old Sacramento a National Historic Landmark in 1965. With over 50 historic buildings, Old Sacramento has more buildings of historic value in its 296 acres than any area of similar size in the West.
Prairie City	State Vehicular	Prairie City park is at the base of the Sierra Nevada. The park has flat, open grasslands, rolling hills with native blue oak trees, and acres of cobbled mine

Park Name	Type of Park	Description
	Recreation Area	tailings. The area off highway vehicle (OHV) facilities, including open space and trails for motorcycles, all-terrain vehicles, and four-wheel drive vehicles.
State Indian Museum	State Historic Park	The California State Indian Museum displays exhibits illustrating the cultures of the state's first inhabitants. California's prehistoric population, one of the largest and most diverse in the Western hemisphere, was made up of over 150 distinct tribal groups who spoke at least 64 different languages. California Native American cultural items in the museum include basketry, beadwork, clothing and exhibits about the ongoing traditions of various tribes. There is also an exhibit depicting the life of Ishi, reputedly the last survivor of the Yahi tribe, illustrating how Native culture was powerfully impacted and forever changed when outsiders arrived.
Stone Lake	Park Property	The purpose of the Stone Lake property, in Sacramento County, is to preserve and protect two rare natural Central Valley lakes and their surrounding riparian habitat and grassland areas. The property lies within the Pacific Flyway and provides wintering grounds for a variety of waterfowl and other migratory birds, as well as habitat for indigenous species such as the listed Swainsons hawk, the giant garter snake and the longhorn elderberry beetle. The property contains a number of Native American occupancy sites. Located on the southern edge of the Sacramento metropolitan area, the property serves as valuable urban open space.
Sutter's Fort	State Historic Park	Sutter's Fort was built by Swiss immigrant John Sutter more than 150 years ago. Less than a decade after they were established, Sutter's properties were overrun by gold seekers and the fort is all that remains of New Helvetia. It has been restored to its former state based on an 1847 map published in Darmstadt, Germany and is open for tours.
Sutter County		
Sutter Buttes State Park	State Park	In 2003, California State Parks acquired property on the north side of the Sutter Buttes, which represents a unique resource within the State Park System. There is currently no public access point to enter this park. This park has not been officially named.
Yolo County		
Woodland Opera House	State Historic Park	Built in 1885, the original Woodland Opera House burned down in 1892. It was rebuilt on the same site, using some of the remaining foundations and bricks from the walls, reopening in 1896.

Source: DPR 2019

State Trails

In 2002, DPR produced a Recreational Trails Plan that provides guidance for establishing and maintaining the state's trail systems. This includes integrating program efforts with local government agencies and private organizations for trail system planning, funding, development, operation, and maintenance. A Trail Plan Progress Report was created in 2011, showing a total of 85 percent of Californians live within 10 miles of the 27 routes identified in the state's Recreational Trails System (DPR 2011). Five of these trails, which include federally-designated trails, are within the plan area of the proposed MTP/SCS:

- **American Discovery Trail:** The American Discovery trail is managed by the American Discovery Trail Society. The California segments of the trail include the Point Reyes National Seashore, as well as routes near the San Francisco Bay, Delta, and American River

Parkway. The trail runs east/west through Placer and Sacramento counties in the plan area of the proposed MTP/SCS.

- **Cross California Ecological Corridor**: The Cross California Ecological Corridor is not currently managed by a state or federal agency or non-profit organization. The 180-mile corridor follows Highway 20 and was recently promoted on National Geographic's Geotourism mapguides as an important tourist destination in the west. The trail runs east/west through Placer, Yuba, and Sutter counties in the plan area of the proposed MTP/SCS.
- **Mokelumne Coast to Crest Trail:** The Mokelumne Coast to Crest Trail is managed by the East Bay Municipal Utility District, USFS, BLM, and Pacific Gas and Electric. The 330-mile trail travels through a diverse landscape from the East Bay hills through the Delta, across the valley, up the foothills, and to the peaks of the Sierra. The trail runs east/west through Sacramento county in the plan area of the proposed MTP/SCS.
- **Pacific Crest National Scenic Trail:** The Pacific Crest National Scenic Trail (PCT) is managed by USFS. The PCT spans 2,650 miles across the length of California. The trail runs north/south through El Dorado and Placer counties in the plan area of the proposed MTP/SCS.
- **Pony Express National Historic Trail**: The Pony Express National Historic Trail is managed by NPS and the National Pony Express Association. This heritage corridor extends 140 miles in California, tracing the historic route of the Pony Express from 1860 to 1861. This trail runs east/west through El Dorado and Sacramento counties in the plan area of the proposed MTP/SCS.

Additionally, the Folsom Lake State Recreational Area and Old Sacramento State Historic Park also contain several trails. Figure 15-5 shows the location of California Recreational Trails.

LOCAL PARKS

Diverse natural resources provide a wide range of recreational opportunities for residents and tourists alike. Natural and recreational sites range from small neighborhood parks, featuring playground equipment and sports fields, to vast expanses of wilderness with hiking trails, rafting, and camping. In addition to parks providing opportunities for active recreation, the plan area of the proposed MTP/SCS also has a diverse array of open space areas. As of 2019, there are approximately 1,271,939 acres of parks, recreation, and open space lands in the plan area of the proposed MTP/SCS. These lands are governed by a variety of agencies, including dependent and independent park districts, counties, cities, community service districts, and federal and state agencies. Figure 15-4 shows existing land in the plan area of the proposed MTP/SCS designated as parks and open space, and Figure 15-5 depicts federal- and state-designated trails.

Parks are classified into several subgroups: neighborhood parks, community parks, city or regional parks, specialized recreation areas, state and federal recreation areas, open space areas, and trails and corridors:

- **Neighborhood Park:** A park or playground developed primarily to serve the recreational needs of citizens living within a half-mile radius of the park. Neighborhood parks include pocket parks and neighborhood playgrounds.

- **Community Park:** A larger park or facility developed to meet the park and recreational needs of those living or working within a three-mile radius. Community parks may have a variety of playing fields and community recreation facilities.
- **City or Regional Park:** A park or facility that is larger than a community park and meets the recreational needs of the entire city and a portion of the larger region. City or regional parks include destination attractions and are often located near public transit.
- **Specialized Recreation Area:** A park or facility that include sports fields or courts, beach amenities, or other designated natural areas. These facilities may also include stand-alone parks designed to serve a particular use, such as a golf course or a marina. A specialized recreation area meets the active recreation needs of the entire city and a portion of the larger region.
- **State or Federal Recreation Area:** A park designated and managed by either DPR or NPS. State and federal recreation areas serve the larger state and national population and preserve large scenic areas and natural habitats.
- **Open Space Area:** An area that provides for passive, low-impact recreational use by city and regional residents. These areas also protect wildlife and habitat, establish community separators, and preserve scenic vistas. Open space areas are generally larger in size, ranging from the size of a community park to a national park.
- **Trail and corridors:** These are the linear features that connect other parkland and open space areas. Recreational trails or linear parkways may be located within a park or connect a series of parks. They provide recreational opportunities and access for bicycles, pedestrians, and other users.

PRIVATELY-OWNED OPEN SPACE AND RECREATION LANDS

In addition to the parks and recreation facilities offered by governmental agencies, many private landowners and non-profit conservation organizations also contribute to the open space acreage in the region. Types of privately-owned open space can include private parks, private nature preserves, golf courses, campgrounds, playing fields, animal parks, off-road-vehicle parks, private arboretums, and fallow farmland.

15.3 Regulatory Setting

15.3.1 Federal Regulations

While the most direct regulation of public services and recreation in the plan area of the proposed MTP/SCS is provided by city and county governments, there are numerous laws, regulations, policies, programs, and codes at the federal and state levels of government that also regulate public services and recreation in various ways within the plan area of the proposed MTP/SCS. To simplify the volume and complexity of the regulations presented, this regulatory setting focuses on laws, regulations, policies, and programs that directly affect public services and recreation. Laws, regulations, policies, and programs that indirectly affect public services and recreation are included in other chapters of this EIR.

LAND AND WATER CONSERVATION FUND ACT OF 1965

Section 6(f)(3) of the Land and Water Conservation Fund Act (LWCF Act) (16 U.S. Code Section 460l et seq.) contains provisions to protect federal investments in park and recreation resources and the quality of those assisted resources. The law recognizes the likelihood that changes in land use or development may make park use of some areas purchased with LWCF Act funds obsolete over time, particularly in rapidly changing urban areas, and provides for conversion to other use pursuant to certain specific conditions.

No property acquired or developed with assistance under Section 6(f)(3) shall, without the approval of the Secretary of the Department of the Interior, be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he or she finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he or she deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location.

This requirement applies to all parks and other sites that have been the subject of LWCF Act grants of any type, and includes acquisition of parkland and development or rehabilitation of park facilities. If a transportation project would have an effect upon a park or site that has received LWCF Act funds, the requirements of Section 6(f)(3) would apply.

U.S. DEPARTMENT OF TRANSPORTATION ACT OF 1966, SECTION 4(F)

Section 4(f) of the U.S. Department of Transportation Act (DOT Act) (49 U.S. Code Section 303) was enacted to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) requires a comprehensive evaluation of all environmental impacts resulting from federal-aid transportation projects administered by the Federal Highway Administration, Federal Transit Administration, and Federal Aviation Administration that involve the use or interference with use of the following types of land:

- public park lands;
- recreation areas;
- wildlife and waterfowl refuges; and
- publicly- or privately-owned historic properties of federal, state, or local significance.

This evaluation, called the Section 4(f) statement, must be sufficiently detailed to permit the U.S. Secretary of Transportation to determine that:

- there is no feasible and prudent alternative to the use of such land;
- the program includes all possible planning to minimize harm to any park, recreation area, wildlife and waterfowl refuge, or historic site that would result from the use of such lands; or
- if there is a feasible and prudent alternative, a proposed project using Section 4(f) lands cannot be approved by the Secretary of Transportation; or if there is no feasible and prudent alternative, the proposed project must include all possible planning to minimize harm to the affected lands.

Detailed inventories of the locations and likely impacts on resources that fall into the Section 4(f) category are required in project-level environmental assessments.

In August 2005, Section 4(f) was amended to simplify the process for approval of projects that have only minimal impacts on lands affected by Section 4(f). Under the new provisions, the U.S. Secretary of Transportation may find such a minimal impact if consultation with the State Historic Preservation Officer results in a determination that a transportation project will have no adverse effect on the historic site or that there will be no historic properties affected by the proposed action. In this instance, analysis of avoidance alternatives is not required, and the Section 4(f) evaluation process is complete.

15.3.2 State Regulations

STATE PUBLIC PARK PRESERVATION ACT OF 1971

The primary instrument for protecting and preserving parkland is the State Public Park Preservation Act (Public Resources Code [PRC] Sections 5400–5409). Under the act, cities and counties may not acquire any real property that is in use as a public park for any non-park use unless compensation or land, or both, are provided to replace the parkland acquired. This provides no net loss of parkland and facilities.

COMMUNITY FACILITIES ACT OF 1982, AS AMENDED

The Community Facilities Act of 1982 (Government Code Section 53324), also commonly known as the Mello-Roos Act, enables certain public agencies to designate a Mello-Roos Community Facilities District, which allows for the financing of public improvements and services. These include basic infrastructure, police protection, fire protection, ambulance services, schools, parks, libraries, museums, and other cultural facilities. Mello-Roos Community Facilities Districts are usually created to finance improvements and services when no other funding sources are available, and require a two-thirds majority vote of residents living within the proposed boundaries. They are used especially often (but not exclusively) in new development areas. Upon approval, a special tax lien is placed against each property in the district, and residents pay a special tax each year. This tax is not based on property value, but on formulas that consider physical characteristics such as square footage and structure size.

MUTUAL AID AGREEMENTS

The Emergency Managers Mutual Aid (EMMA) system is a collaborated effort between city and county emergency managers in the Office of Emergency Services (OES) in the coastal, southern, and inland regions of the state. EMMA provides service in the emergency response and recovery efforts at the Inland Regional Emergency Operations Center, local Emergency Operations Centers, the Disaster Field Office, and community service centers. The purpose of EMMA is to support disaster operations in affected jurisdictions by providing professional emergency management personnel. In accordance with the Master Mutual Aid Agreement, local and state emergency managers have responded in support of each other under a variety of plans and procedures.

THE QUIMBY ACT OF 1975

The Quimby Act (Government Code Section 66477) states that "the legislative body of a city or county may, by ordinance, require the dedication of land or impose a requirement of the payment of fees in lieu thereof, or a combination of both, for park or recreational purposes as a condition to the approval of a tentative or parcel map." The Quimby Act only applies to the acquisition of new parkland and does not apply to the physical development of new park facilities or associated operations and maintenance costs. The Quimby Act preserves open space needed to develop parkland and recreational facilities. The actual development of parks and other recreational facilities is subject to discretionary approval and is evaluated on a case-by-case basis with new residential development.

ASSEMBLY BILL 2926, CHAPTER 887, STATUTES OF 1986

In 1986, Assembly Bill (AB) 2926 (Statutes of 1986, chapter 887) authorized the levy of statutory fees on new residential, commercial, and industrial development in order to pay for school facilities.

CALIFORNIA GOVERNMENT CODE SECTION 65995

California Government Code Section 65995 authorizes school districts to collect impact fees from developers of new residential and commercial/industrial building space. Senate Bill (SB) 50 amended Government Code Section 65995 in 1998. Under the provisions of SB 50 schools can collect fees to offset costs associated with increasing school capacity as a result of development. The development that would occur within the SACOG region between now and 2040 would be subject to applicable fees determined by the local school districts per Government Code Section 65995. The provisions of SB 50 are deemed to provide full and complete mitigation of school facilities impacts, notwithstanding any contrary provisions in CEQA or other State or local laws.

CALIFORNIA EDUCATION CODE

School facilities and services are subject to the rules and regulations of the California Education Code and governance of the State Board of Education (SBE). SBE is the 11-member governing and policymaking body of the California Department of Education (CDE) that sets K–12 education policy in the areas of standards, instructional materials, assessment, and accountability. The CDE and the State Superintendent of Public Instruction are responsible for enforcing education law and regulations; and for continuing to reform and improve public elementary school, secondary school, and childcare programs, as well as adult education and some preschool programs. The CDE's mission is to provide optimal leadership, assistance, oversight, and resources to California's students. The core purpose of the CDE is to lead and support the continuous improvement of student achievement, with a specific focus on closing achievement gaps.

CALIFORNIA DEPARTMENT OF EDUCATION

The CDE is the government agency responsible for public education throughout the state. The department oversees funding, and student testing and achievement levels for all state schools. A sector of the CDE, SBE, is the governing and policy making sector responsible for education policies regarding standards, instructional materials, assessment, and accountability.

RECREATIONAL LANDS WITHIN THE DELTA PRIMARY ZONE

DPC adopted the first Land Use and Resource Management Plan (LURMP) for the Sacramento-San Joaquin Delta on February 23, 1995 and updated the plan on February 25, 2010. The LURMP guides the conservation and enhancement of natural resources in the Delta, while sustaining agriculture and meeting increased recreational demand. It defines a Primary Zone, which comprises the principal jurisdiction of DPC, and a Secondary Zone outside the Primary Zone and jurisdiction of DPC, but within the legal Delta area. Both Primary and Secondary Delta Zones overlay the southern end of the plan area of the proposed MTP/SCS within Yolo and Sacramento counties. The LURMP guides the conservation and enhancement of natural resources in the Sacramento-San Joaquin Delta, while sustaining agriculture and meeting increased recreational demand. The LURMP sets forth a description of the needs and goals for the Delta and a statement of the policies, standards, and elements for implementing those goals. The DPC is currently developing a 2019 update and a "staff draft" was made available for subcommittee and public review on April 24, 2019, as noted on the DPC website.

Within the plan area of the proposed MTP/SCS, the southernmost portions of Sacramento and Yolo counties are located in a Delta Primary Zone. Refer to Chapter 12 – Land Use and Planning for a map and further discussion of plan area of the proposed MTP/SCS land falling within Delta Primary and Secondary Zones. Most of the land in this area is privately-owned, with recreational facilities provided through private marinas, reducing the availability of land-based recreation (DPC 2010).

The LURMP identifies concerns regarding existing and future recreational activities within the Delta, including:

- compatibility with agricultural operations and other private property uses,
- funding availability for the long-term maintenance and supervision of existing recreational facilities,
- funding availability for the development of new recreational facilities,
- compatibility with wildlife uses and levee maintenance requirements,
- overuse of existing facilities and popular waterways,
- the abandonment of vessels and other debris within Delta waterways, and
- increased demands on law enforcement and other emergency response providers.

The LURMP also identifies opportunities for new recreational facilities on publicly-owned land. Some potential opportunities include pedestrian access on publicly-owned levees adjacent to the Brannan Island State Recreation Area; construction of new visitor facilities, interpretive facilities, and trails at the Stone Lake National Wildlife Refuge; and new pedestrian trails, visitor facilities, and water access facilities at Delta Meadows. In 2018, a majority of land use projects recommended by DPC under the LURMP were within Sacramento County (35 percent) and Yolo County (24 percent) (DPC 2018).

In 2006, Senate Bill 1556 (PRC Section 5852 et seq.; Public Utilities Code Section 99234) required that DPC adopt a plan and implementation program for a continuous recreational corridor trail network linking the San Francisco Bay Trail system to the planned Sacramento River trails in Yolo

and Sacramento counties. The Great California Delta Trail Plan will include routes for bicycling and hiking that connect to other trails and park and recreational facilities, as well as route connections to public transportation. The Plan is anticipated to be published in June 2020. DPC is currently finishing a Blueprint Report for the Eastern region of the Delta, set to publish in 2019, that includes Sacramento and Yolo counties. Adopted Delta trail segments within the plan area of the proposed MTP/SCS to date include the West Sacramento River Walk, the Sacramento River Parkway, and the Clarksburg Branch Line Trail (DPC 2019).

Class Size Reduction Kindergarten-University Public Education Facilities Bond Act of 1998

Class Size Reduction Kindergarten–University Public Education Facilities Bond Act (Proposition 1A) (Education Code Sections 100400–100405) was a school construction funding measure approved by the voters on the November 3, 1998 ballot. Proposition 1A created the School Facility Program where eligible school districts may obtain state bond funds.

Leroy Greene School Facilities Act of 1998

The Leroy Greene School Facilities Act (Education Code Sections 17070.10–17079.30) eliminated the ability of cities and counties to require full mitigation of school impacts and replaced it with the ability for school districts to assess fees directly to offset the costs associated with increasing school capacity as a result of new development. The act states that payment of developer fees is "deemed to be complete and full mitigation" of the impacts of new development.

Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000

The Cortese-Knox-Hertzberg Local Government Reorganization Act (Cortese-Knox-Hertzberg Act) (Government Code Section 56000 et seq.) establishes the process through which local agency boundaries are established and revised. Each county must have a local agency formation commission (LAFCo), which is the agency that has the responsibility to create orderly local government boundaries, with the goal of encouraging "planned, well-ordered, efficient urban development patterns," the preservation of open-space lands, and the discouragement of urban sprawl. A LAFCo typically consists of two county supervisors, two representatives of the county's cities, and one member of the public. Many LAFCos also include one special district representative.

While LAFCos have no land use power, their actions determine which local government will be responsible for planning new areas. LAFCos address a wide range of boundary actions, including creation of spheres of influence (SOI) for cities, adjustments to boundaries of special districts, annexations, incorporations, detachments of areas from cities, and dissolutions of cities. A city's SOI is an indication of the city's future boundaries. Since 1992, state law requires that the incorporation of a new city must not financially harm the county and must result in a positive cash flow for the new city. This requirement has slowed the rate of new city incorporation.

5 California Code of Regulations Division 1-10

Division 10 of Title 5 of the CCR governs all aspects of education within the state.

8 CALIFORNIA CODE OF REGULATIONS SECTIONS 1270 AND 6773

In accordance with the CCR, Title 8 Sections 1270 Fire Prevention and 6773 Fire Protection and Fire Equipment, the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hosing sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

13 CALIFORNIA CODE OF REGULATIONS DIVISION 2

Division 2 of Title 13 of the CCR governs the operations of CHP.

15.3.3 Local Regulations

GENERAL PLANS

Local planning policies related to public services and recreation are established in each jurisdiction's general plan. In general, jurisdictions have policies in place stating that public services must be provided at the same time as (or in advance of) the need for that service. In addition to these general policies, jurisdictions may have more specific policies tailored to performance objectives, such as those outlined below.

Policies and strategies for police protection services often include language pertaining to the development of law enforcement programs to reduce and control crime, the planning of future law enforcement facilities concurrently with growth, and the prevention of crime through education. Many jurisdictions also have specific goals, such as a maintaining a certain ratio of sworn officers to citizens, reducing response times, or reducing the overall number of crimes in the community.

Policies and strategies for fire protection services and emergency response typically include goals for service provision (such as an average response time) and supporting policies to help meet those goals, such as implementing emergency signal activation or requiring sprinkler systems in new developments. Each jurisdiction's general plan policies and goals will differ slightly depending on the level of need and type of services provided.

General plan policies relating to library services may involve the library level of service, capital facility funding, and library siting. In addition, general plans can evaluate proposed library facilities for consistency with library master plans and explore methods for financing new, expanded, or upgraded library facilities.

Policies and strategies for parks and recreation may include standards for park acreage and requirements for the provision of parks in new residential developments. They also contain policies to develop self-supporting recreation programs and pursue joint use of school sites; utility rights-of-way; trail development, maintenance and integration; and other public lands for park, recreation, and open space purposes.

General plan policies relating to school services may involve coordination with local school districts or encouragement or support for school curriculum or programs to meet the needs of all

populations. School districts set standards related to class size, student-teacher ratio, or state standardized test scores.

General plan policies relating to social services may include linking transportation facilities to social services or planning for social services in underserved, disproportionately low-income, and/or minority neighborhoods.

Bicycle, Pedestrian, and Trails Master Plans

Bicycle, Pedestrian, and Trails Master Plans are planning documents used to guide future development of a jurisdictions' bicycle and pedestrian facilities. These plans usually promote Class I bike paths, that feature completely separate right of way for exclusive use by bicyclists and pedestrians. At a minimum, these plans usually contain an inventory of existing facilities, a discussion of the plan's goals, recommendations for new projects, and an implementation plan. General plans typically include policies for bicycle and pedestrian infrastructure for jurisdictions without a Bicycle, Pedestrian, and Trails Master Plan.

Fire District Master Plans

Many jurisdictions and fire districts in the region have adopted or are planning to adopt Fire Department or District Master Plans. A master plan addresses staffing needs, facility needs, and service goals for the service area, and serves as a guiding document for the organization and daily functions of the department. In jurisdictions without a Fire District Master Plan, the general plan typically includes policies for facility siting and level of service.

Parks and Recreation Master Plans

Parks and Recreation Master Plans outline projected parks and recreation needs and strategies for fulfilling those needs. The main purpose of Parks and Recreation Master Plans is to provide guidance for addressing preservation, use, development, and administration of recreation facilities. These policy and action documents ensure the preservation of the naturalistic environment, while providing developments to facilitate human enjoyment of the parks and recreation areas. Plans can target goals and future actions for a specific park or be generalized to a collection of parks in a larger system. In jurisdictions without a Parks and Recreation Master Plan, the general plan typically includes policies for facility siting and level of service.

Public Library Facility Master Plans and Standards

Many public library systems have facility master plans that provide general standards and criteria for the renovation and construction of new libraries. These plans establish preferred facility sizing and footprint, as well as desirable components such as volumes and collections, meeting rooms, study areas, computer terminals. These items are standards driven. In public library systems without a facility master plan, the general plan typically includes policies for siting and level of service.

School District Master Plans

School District Master Plans are planning documents used to assess current school assets and needs. The documents often provide a schedule for performing maintenance on and making improvements

to district facilities. The plans usually lay out a finance plan and may include demographic information and trends to help schools plan for future needs.

15.4 Impacts and Mitigation Measures

15.4.1 Methods and Assumptions

This program-level analysis generally evaluates potential adverse physical impacts that could result in the need for new or altered public facilities, decreased levels of service for public services, and deterioration of existing recreational facilities based on the projected land use pattern and planned transportation network relative to the known existing public services within the plan area of the proposed MTP/SCS. The public services addressed in the analysis include fire protection, police protection, emergency services, schools, libraries, social services, and parks and recreational facilities.

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count, and vehicle miles traveled (VMT) data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area of the proposed MTP/SCS. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. And third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas.

Impacts related to fire protection, police protection, emergency services, schools, libraries, social services, and parks and recreational facilities are qualitatively evaluated to determine whether the proposed MTP/SCS would increase demand for these public utilities to the degree that acceptable levels of service could not be maintained or that construction of new or expanded facilities would be required to maintain adequate service levels. It also qualitatively evaluates whether use of parks and recreational facilities would increase to the extent that substantial physical deterioration would occur or be accelerated. The analysis considers the role of existing regulations in addressing impacts to public services and evaluates the effects of forecasted regional growth, the projected land use pattern, and planned transportation network improvements of the proposed MTP/SCS.

The analysis assumes implementing agencies would ensure public services and recreational facilities are treated in accordance with applicable federal, state and local laws and regulations as part of project planning, design and engineering.

15.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

PS-1 Impede achievement of acceptable levels of service, including capital capacity, programming, equipment, and personnel, for police protection, fire protection, emergency response, school, library, social, parks and recreation, and/or other public services, and including increased use of parks and recreational facilities such that substantial physical deterioration would occur or be accelerated.

PS-2 Result in impacts associated with the construction of new or the expansion of existing facilities required to maintain acceptable levels of service for police protection, fire protection, emergency response, school, library, social, park and recreation services, and/or other public services.

15.4.3 Impacts and Mitigation Measures

IMPACT PS-1: IMPEDE ACHIEVEMENT OF ACCEPTABLE LEVELS OF SERVICE, INCLUDING CAPITAL CAPACITY, PROGRAMMING, EQUIPMENT, AND PERSONNEL, FOR POLICE PROTECTION, FIRE PROTECTION, EMERGENCY RESPONSE, SCHOOL, LIBRARY, SOCIAL, PARKS AND RECREATION, AND/OR OTHER PUBLIC SERVICES, AND INCLUDING INCREASED USE OF PARKS AND RECREATIONAL FACILITIES SUCH THAT SUBSTANTIAL PHYSICAL DETERIORATION WOULD OCCUR OR BE ACCELERATED.

Regional Impacts

The forecasted regional growth identified in the proposed MTP/SCS would increase demand for public services including police protection, fire protection, emergency response, school, library, social service, and parks and recreation facilities. Increases in demand for public services would correlate with the location of development identified in the projected land use pattern of the proposed MTP/SCS. In some cases, particularly in locations where higher density, compact development is projected, implementation of the proposed MTP/SCS could require additional capital capacity, programming, equipment, or personnel to ensure acceptable levels of service in order to respond to increased demand for parks and recreational facilities.

The proposed MTP/SCS identifies the general location of uses, residential densities, and building intensities within the region in the proposed MTP/SCS Land Use Forecast, described in detail in Chapter 2 – Project Description. The land use allocation uses the adopted and proposed land use plans from the cities and counties of the SACOG region to help determine where housing and employment growth is likely to occur, and assumes increases in public services facilities and infrastructure as the population increases. Therefore, the land use growth footprint of the proposed MTP/SCS includes the land supply needed to accommodate necessary increases in public services facilities, including those for police protection, fire protection, emergency services, schools, libraries, parks and recreation, social services, and other public facilities.

However, SACOG does not attribute un-sited public service facilities to specific parcels. Instead, this land supply is included in the proposed MTP/SCS in one of two ways: 1) where local plans

identify specific locations and acreages for these services, they are included in the "public" and "office and commercial" development categories of the land use forecast; and 2) where local plans do not identify specific locations and acreages, they are accounted for in the gross acreages of the "residential" development category of the land use forecast. This approach to the land use forecast is used because SACOG has no land use authority to adopt local land use plans or approve local land use projects. Ultimately, local governments make decisions about land use, including the type, level, timing, and siting of services necessary to support new development. Local governments also have the authority to ensure the timing of capital facilities for most local public services through general plan policies, regulatory standards, CEQA mitigation measures, and project conditions of approval.

The proposed MTP/SCS does not include standards for public service provision. Public service standards, performance measures, and related policies are usually set in city and county general plans or topical master plans, as discussed above in Section 15.3 – Regulatory Setting. Police protection, fire protection, and emergency response levels of service are generally evaluated based on travel duration by the public agency to homes and businesses, with performance measured by personnel ratios and response times to calls for service. School, library, social service, and parks and recreation levels of service are generally evaluated based on their accessibility for residents traveling from their homes or places of work to the facility itself, with performance measured by facility capacity and transportation access. The following public service standards, performance measures, and related policies are generally used to evaluate the adequacy of levels of service for public services.

- **Police Protection, Fire Protection, and Emergency Response:** Level of service standards for emergency services usually take the form of average response times to calls for service or personnel ratios per 1,000 residents. Some individual jurisdictions also adopt fire or police master plans that include additional information supporting these goals and policies. Many jurisdictions also require developers to pay fees to support fire and/or police departments serving a proposed project.
- **Schools:** School standards relating to class size are predominately set at the state level, with school districts also planning for school facilities. Funding for new school construction is provided through state and local revenue sources in the form of development fees. SB 50 (Chapter 407, Statutes of 1998) governs the amount of fees that can be levied against new development. Payment of fees authorized by the statute is deemed "full and complete mitigation," and, as such, agencies cannot require additional mitigation for any school impacts. School impact fees would be used in combination with state and other funds to construct new schools.

  Therefore, SB 50 restricts the ability of local agencies to affect school levels of service based on local standards, deny project approvals based on concerns about school capacity, or require mitigation related to capacity or timing of schools or on the basis that public school facilities are inadequate. Pursuant to state law, project payment of applicable school fees fully mitigates impacts to schools.

- **Libraries:** Library facilities typically use a service standard of facility feet or acres per capita or per 1,000 residents.

- **Social Services:** Performance measures for social services are more subjective and service standards vary depending on the type of services offered and the jurisdiction where services are being provided.
- **Parks and Recreation:** Parks and recreation facilities typically use a service standard of facility feet or acres per capita or per 1,000 residents. Generally, the standard is 5 acres of developed parkland per 1,000 residents or 0.005 acres per capita. The parks and recreation standards for counties in the region include: 0.005 acres per capita in El Dorado County, 0.01 acres per capita in Placer County, 0.02 acres per capita in Sacramento County, 0.01 acres per capita in Sutter County, 0.02 acres per capita in Yolo County, and 0.005 acres per capita in Yuba County.

While there are general level of service measures used for various public services as described above, the determination of minimum or target service levels for public services are set at the local level. Jurisdictions have different goals, standards, and policies related to the provision of public services, and have the authority to determine how these standards are applied. Local jurisdictions have generally accommodated increases in public service demand by first leveraging existing facilities, equipment, and personnel before constructing new facilities. By developing more compactly, the proposed MTP/SCS directs more growth to areas that are already urbanized, which decreases impacts to service areas and increases the potential to leverage existing facilities. Many jurisdictions also require developers to pay fees to help provide certain public services to serve the proposed project.

While the proposed MTP/SCS does accommodate for additional public services consistent with local land use plans, it is ultimately local jurisdictions that have the authority over land use, set and implement level of service standards, and determine the siting and timing of public service projects. These policies and standards may limit the potential adverse effects to public services capital capacity, programming, personnel, and equipment needs from a project. However, because levels of service standards are implemented differently among the various jurisdictions in the plan area of the proposed MTP/SCS, and because the population is forecasted to increase under the proposed MTP/SCS, it is possible that implementation of the proposed MTP/SCS would result in increased demand for public services that impedes achievement of acceptable service levels. Overall, the projected land use pattern of the proposed MTP/SCS would result in increased demand for services, schools, and other public services and facilities (e.g., libraries, social services). Increases in residential and non-residential land uses would increase the number of service calls for emergency services and police and fire protection. The larger population would increase the demand for and use of parks and recreational facilities. Therefore, regional impacts on service levels for public services (i.e., police protection, fire protection, emergency service, school, library, social services, and parks and recreation), including capital capacity, programming, personnel, and equipment needs, and including increased use of parks and recreational facilities such that substantial physical deterioration would occur or be accelerated, resulting from implementation of the projected land use pattern proposed MTP/SCS are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Planned transportation improvements that increase capacity, such as road widenings, newly constructed roads, and high-occupancy vehicle (HOV) lanes, have the potential to increase access to school, library, social service, and parks and recreation facilities, as well as improve response times for emergency service providers (refer to Chapter 2 – Project Description for more information on transportation changes in the proposed MTP/SCS). This is especially true for heavily-congested

areas where such projects would alleviate bottlenecks and reduce congestion. Similarly, implementation of the region's transit projects would increase access to public service facilities by increasing the frequency of transit service and expanding the service area to include new public service facilities. The same is true for pedestrian and bicycle improvements, such as Safe Routes to School projects that construct additional facilities near schools and thereby increase non-motorized access for schoolchildren.

Implementing the projected land use pattern and transportation investments in the proposed MTP/SCS would reduce the need to travel by vehicle, as demonstrated by declining regional weekly household-generated VMT over the life of the proposed MTP/SCS (for more information on the transportation system and VMT refer to Chapter 16 – Transportation). Therefore, implementation of the proposed MTP/SCS would result in more effective travel choices than under base year conditions and the construction of roadway projects that coincide with new housing and employment developments, thereby facilitating efficient access to these developments by emergency service providers and from these developments by public service users. As such, the planned transportation improvements that comprise the proposed MTP/SCS would generally have beneficial effects for public services access and response times.

While roadway improvements increase efficiency and therefore response times, certain projects may also increase the service area for emergency service providers and therefore increase service demands. Similarly, additional Class I and Class II bicycle facilities could potentially increase service areas if new trails or bike lanes are constructed outside of current service boundaries. Transit projects could also potentially increase the size of the service areas of emergency services providers, as new stations and transfer points require patrolling in order to maintain public safety. For example, AMTRAK and the Sacramento Regional Transit District (RT) maintain their own policing services to enforce agency policies and provide for the public safety at transit stops and stations, including additional staff for implementation of new transit service.

Although most of the potential increased demand resulting from planned transportation improvements would occur in areas that are already covered by existing services, some potential increases in demand would occur in areas not currently included within existing service boundaries. However, the anticipated increase in demand would be small when compared to baseline conditions and therefore may not adversely affect existing service levels. The timing, siting, and project-specific details of individual transportation improvements would dictate the extent to which existing service levels are adversely affected. Planned transportation improvements would not result in increased use of parks and recreational facilities that could cause substantial physical deterioration of these facilities.

Overall, development of proposed MTP/SCS planned transportation improvements in the region would generally improve overall transportation system efficiency and in some instances, improve capacity, and would result in decreasing per capita VMT. In the few instances where planned transportation improvements would minimally increase the demand for public services, the land use growth footprint of the proposed MTP/SCS includes the land supply needed to accommodate additional public service facilities. However, while not probable, there is a possibility that implementation of the planned transportation improvements of the proposed MTP/SCS could produce longer police, fire, and other emergency response times as compared to baseline conditions. These levels of service standards are defined in general plans or master plans by individual jurisdictions and, thus, each jurisdiction may choose to revise the standard or accept a level of

service that is below the standard. Because level of service standards may be exceeded, the regional impacts on service levels for public services (police protection, fire protection, emergency services, school, library, social service, and parks and recreation), including capital capacity, programming, personnel, and equipment needs resulting from implementation of the planned transportation improvements of the proposed MTP/SCS are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Localized Impacts

Center and Corridor Communities
Center and Corridor Communities are already built out and have established public services, including police protection, fire protection, emergency response, school, library, social services, and parks and recreation. Because new development would mostly be infill, the service area of public service providers would not increase, but the total number of residents served would increase. More compact development would allow service providers to meet accepted levels of service standards by leveraging existing facilities, equipment, programs, and personnel without necessarily needing to construct additional facilities. However, because levels of service standards are implemented differently among the various jurisdictions in the plan area of the proposed MTP/SCS, and because the population is forecasted to increase under the proposed MTP/SCS, it is possible that implementation of the proposed MTP/SCS would result in increased demand for public services that impedes achievement of acceptable service levels.

Therefore, impacts on service levels for public services (i.e., police protection, fire protection, emergency service, school, library, social services, and parks and recreation), including capital capacity, programming, personnel, and equipment needs, and including increased use of parks and recreational facilities such that substantial physical deterioration would occur or be accelerated, resulting from implementation of the projected land use pattern of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

The proposed MTP/SCS includes a variety of planned transportation improvements that increase capacity in Center and Corridor Communities, such as road widenings, newly constructed roads, and HOV lanes, which have the potential to increase public access to school, library, social service, and parks and recreation facilities, as well as improve response times for emergency service providers. Similarly, implementation of various new transit, bicycle, and pedestrian improvements in this Community Type would increase access to public facilities. New transit, bicycle, and pedestrian projects would be constructed within current service area boundaries, therefore not extending the existing public service beyond what it is today. Planned transportation improvements would not result in increased use of parks and recreational facilities that could cause substantial physical deterioration of these facilities.

Implementation of the proposed MTP/SCS would result in a per capita decrease in weekday household-generated VMT in Center and Corridor Communities (for more information on the transportation system and VMT refer to Chapter 16 – Transportation). Because Center and Corridor Communities often have large employment and commercial districts, they also tend to have higher rates of congestion, as large volumes of people try to travel to the same destinations at the same times of day. More congestion could lead to longer response times for fire, police, and emergency services providers. However, Center and Corridor Communities are expected to become denser and

more compact through implementation of the proposed MTP/SCS, meaning that destinations would be closer together and there would be more opportunities for shorter trips by non-auto modes of travel. Thus, in addition to decreasing weekday household-generated VMT per capita overall, Center and Corridor Communities have the lowest per capita weekday VMT of the Community Types. This improved system performance could potentially lead to faster emergency service response times and increased access to other public services.

However, there is a possibility that implementation of the proposed MTP/SCS could produce longer police, fire, and other emergency response times as compared to baseline conditions. These levels of service standards are defined in general plans or master plans by individual jurisdictions and, thus, each jurisdiction may choose to revise the standard or accept a level of service that is below the standard. Because level of service standards may be exceeded in Center and Corridor Communities, the impacts on public services (police protection, fire protection, emergency services, school, library, social service, and parks and recreation), including capital capacity, programming, personnel, and equipment needs resulting from implementation of the planned transportation improvements of the proposed MTP/SCS are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Established Communities

Established Communities are generally built out and have established public services, including police protection, fire protection, emergency response, school, library, social service, and parks and recreation facilities. Because new development would mostly be infill, the service area of public service providers would not increase, but the total number of residents served would increase. More compact development would allow service providers to meet accepted service standards by leveraging existing facilities, equipment, programs, and personnel without necessarily needing to construct additional facilities. However, because levels of service standards are implemented differently among the various jurisdictions in the plan area of the proposed MTP/SCS, and because the population is forecasted to increase under the proposed MTP/SCS, it is possible that implementation of the proposed MTP/SCS would result in increased demand for public services that impedes achievement of acceptable service levels.

Therefore, impacts on service levels for public services (i.e., police protection, fire protection, emergency service, school, library, social services, and parks and recreation) including capital capacity, programming, personnel, and equipment needs, such that substantial physical deterioration would occur or be accelerated, resulting from implementation of the projected land use pattern of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Established Communities would experience planned transportation improvements similar to those found in Center and Corridor Communities. Capacity increasing roadway improvements in Established Communities have the potential to increase public access to school, library, social service, and parks and recreation facilities, as well as improve response times for emergency service providers. Similarly, implementation of various new transit, bicycle, and pedestrian improvements in this Community Type would increase access to public facilities. New transit, bicycle, and pedestrian projects would also be constructed within current service area boundaries, therefore not expanding the existing public service area beyond what it is today.

Implementing the projected land use patterns and transportation investments in the proposed MTP/SCS would reduce the need to travel by vehicle, as demonstrated by declining regional weekday household-generated VMT over the life of the proposed MTP/SCS (for more information on the transportation system and VMT refer to Chapter 16 – Transportation). Weekday household-generated VMT would decrease overall in Established Communities at a greater rate than the regional average. These changes result in more effective travel choices than under baseline conditions, which have the potential to facilitate more efficient access to public service facilities. As with Center and Corridor Communities, the increased density in Established Communities could potentially help emergency service providers achieve acceptable response times by decreasing the distance between the providers and the public, as well as increasing access to public services by decreasing the distance between public service facilities and users. Planned transportation improvements would not result in increased use of parks and recreational facilities that could cause substantial physical deterioration of these facilities.

However, there is a possibility that implementation of the proposed MTP/SCS could result in longer police, fire, and other emergency response times as compared to baseline conditions. These levels of service standards are defined in general plans or master plans by individual jurisdictions and, thus, each jurisdiction may choose to revise the standard or accept a level of service that is below the standard. Because level of service standards may be exceeded, the impacts on service levels for public services (police protection, fire protection, emergency services, school, library, social service, and parks and recreation) including capital capacity, programming, personnel, and equipment needs resulting from implementation of the planned transportation improvements of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Developing Communities

Developing Communities already have some capacity for providing public services, but with the type of population growth planned for these areas, it would likely be necessary to increase capital capacity, equipment, programs, and personnel in order to achieve acceptable public service levels and emergency response times. Because growth in Developing Communities would occur at the edge of Established Communities, there may be some limited potential for public service providers to leverage existing facilities, equipment, programs, and personnel by expanding current public service boundaries to include future developments. Additionally, as described above for the regional level, the proposed MTP/SCS land use allocation assumes increases in public service facilities and infrastructure as the population increases.

However, because levels of service standards are implemented differently among the various jurisdictions in the plan area of the proposed MTP/SCS, and because the population is forecasted to increase under the proposed MTP/SCS, it is possible that implementation of the proposed MTP/SCS would result in increased demand for public services that impedes achievement of acceptable service levels. Therefore, impacts on service levels for public services (i.e., police protection, fire protection, emergency service, school, library, social services, and parks and recreation) including capital capacity, programming, personnel, and equipment needs, including increased use of parks and recreational facilities such that substantial physical deterioration would occur or be accelerated, resulting from implementation of the projected land use pattern of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Implementation of the proposed MTP/SCS would result in the construction of various transportation improvement projects throughout Developing Communities. However, Developing Communities would not necessarily receive the same mix of planned transportation improvements as Center and Corridor Communities and Established Communities. Developing Communities would receive more road widening projects and newly constructed road projects to serve the new residential and employment developments that would be built by the planning horizon of 2040. These types of roadway capacity increasing improvements have the potential to increase public access to school, library, social service, and parks and recreation facilities, as well as improve response times for emergency service providers. Developing Communities would also receive road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects would not be as prevalent as in Center and Corridor Communities and Established Communities.

While Developing Communities are generally not served by transit or bicycle and pedestrian facilities today, new transit, bicycle, and pedestrian service would be added incrementally to align with the completion of new housing and employment centers. Implementation of these types of improvements within this Community Type would increase access to public facilities as they are phased in over the life of the proposed MTP/SCS. However, new transit, bicycle, and pedestrian projects may require expansion of the service area for emergency service providers, depending on the location of specific projects, and therefore could potentially increase service demands. However, the anticipated demand increase would likely be small when compared to baseline conditions and may not require additional public services or facilities beyond what is provided today.

Overall, Developing Communities would receive weekday household-generated VMT per capita decrease by 2040. Improvements in regional accessibility between residential and employment land uses and increase in use of transit, bicycling, and walking as a mode of transportation would result in decreasing overall weekday household-generated VMT. Implementation of the proposed MTP/SCS would result in more effective travel choices than under baseline conditions and the construction of roadway projects that coincide with new housing and employment developments, thereby facilitating efficient access to these developments by emergency service providers and from these developments by public service users. Planned transportation improvements would not result in increased use of parks and recreational facilities that could cause substantial physical deterioration of these facilities.

However, while not probable, there is a possibility that implementation of the proposed MTP/SCS could result in longer police, fire, and other emergency response times as compared to baseline conditions. These levels of service standards are defined in general plans or master plans by individual jurisdictions and, thus, each jurisdiction may choose to revise the standard or accept a level of service that is below the standard. Because level of service standards may be exceeded, the impacts on service levels for public services (police protection, fire protection, emergency services, school, library, social service, and parks and recreation) including capital capacity, programming, personnel, and equipment needs resulting from implementation of the planned transportation improvements of the proposed MTP/SCS are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Rural Residential Communities

Rural Residential Communities already have some capacity for providing public services. With less growth projected in these areas and lower levels of service than other areas, some of the growth resulting from implementation of the proposed MTP/SCS could likely be accommodated by

expanding service boundaries to include future developments. The proposed MTP/SCS land use allocation also assumes increases in public services facilities and infrastructure as the population increases. However, similar to the regional discussion above, because Rural Residential Communities cover such a vast area of the plan area of the proposed MTP/SCS, it is also likely that new equipment and facilities would be necessary to serve populations in this Community Type. It is possible that implementation of the proposed MTP/SCS would result in increased demand for public services that impedes achievement of acceptable service levels, because levels of service standards are implemented differently among the various jurisdictions in the plan area of the proposed MTP/SCS and because the population is forecasted to increase under the proposed MTP/SCS.

Therefore, impacts on service levels for public services (i.e., police protection, fire protection, emergency service, school, library, social services, and parks and recreation) including capital capacity, programming, personnel, and equipment needs, such that substantial physical deterioration would occur or be accelerated, resulting from implementation of the projected land use pattern of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS would result in the construction of roadway improvements including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service and minor investment in bicycle and transit infrastructure in Rural Residential Communities by 2040. Certain capacity-increasing planned transportation improvements may increase the service area for public service providers and therefore increase service and facility demands. However, due to the very low anticipated demand increase compared to baseline conditions, additional services would not be required beyond what is provided today.

Weekday household-generated VMT per capita in Rural Residential Communities decreases relative to the baseline condition. The projected land use pattern and planned transportation improvements in neighboring Developing and Established Communities would bring important destinations closer and reduce the need to travel long distances on a regular basis. Therefore, implementation of the proposed MTP/SCS would result in more effective travel choices than under baseline conditions and the construction of roadway projects that coincide with new housing and employment developments, thereby facilitating efficient access to these developments by emergency service providers and from these developments by public service users. Planned transportation improvements would not result in increased use of parks and recreational facilities that could cause substantial physical deterioration of these facilities.

However, there is a possibility that implementation of the proposed MTP/SCS could result in longer police, fire, and other emergency response times as compared to baseline conditions. These levels of service standards are defined in general plans or master plans by individual jurisdictions and, thus, each jurisdiction may choose to revise the standard or accept a level of service that is below the standard. Because level of service standards may be exceeded, the impacts on service levels for public service (police protection, fire protection, emergency services, school, library, social service, and parks and recreation) including capital capacity, programming, personnel, and equipment needs resulting from implementation of the planned transportation improvements of the

proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Therefore, the potential for adverse impacts to public services related to implementation of the projected land use pattern of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact PS-1. No mitigation is required.

With respect to planned transportation improvements in Lands Not Identified for Development, the proposed MTP/SCS would make a limited number of transportation investments by 2040, including road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. With limited transportation changes and no change to weekday household-generated VMT, access to public services in these areas is not expected to change from the baseline conditions. Most of the potential increased demand resulting from the minimal roadway, transit, and bicycle and pedestrian improvements would occur in areas that are already covered by existing services. Any increase in demand that occurs would be small when compared to baseline conditions and would not require additional services beyond what is provided today.

Therefore, with no change in weekday household-generated VMT and minimal increase in demand anticipated, the potential for adverse impacts to public services related to planned transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact PS-1. No mitigation is required.

High Frequency Transit Area Impacts

Placer County High Frequency Transit Areas
Placer County HFTAs have established public services, including police protection, fire protection, emergency response, school, library, social services, and parks and recreation. Because new development would mostly be infill, service areas would not increase, but the total number of residents served would increase. More compact development would allow public service providers to meet accepted service standards by leveraging existing facilities, equipment, programs, and personnel without necessarily needing to construct additional facilities. However, because levels of service standards are implemented differently among the various jurisdictions in the plan area of the proposed MTP/SCS, and because the population is forecasted to increase under the proposed MTP/SCS, it is possible that implementation of the proposed MTP/SCS would result in increased demand for public services that impedes achievement of acceptable service levels.

Therefore, impacts on service levels for public services (i.e., police protection, fire protection, emergency service, school, library, social services, and parks and recreation) including capital capacity, programming, personnel, and equipment needs, such that substantial physical deterioration would occur or be accelerated, resulting from implementation of the projected land use pattern of the proposed MTP/SCS in Placer County HFTAs are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Placer County HFTAs would receive a variety of planned transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service (primarily commuter service to downtown Sacramento), and roadway maintenance and rehabilitation projects. Capacity increasing roadway improvements have the potential to increase public access to school, library, social service, and parks and recreation facilities, as well as improve response times for emergency service providers. Similarly, implementation of various new transit, bicycle, and pedestrian improvements in this Community Type would increase access to public facilities. New transit, bicycle, and pedestrian projects would be constructed within current service area boundaries, therefore not expanding the existing public service area beyond what it is today.

Weekday household-generated VMT per capita in Placer County HFTAs is expected to decrease relative to baseline conditions. Additionally, Placer County HFTAs are expected to become denser and more compact and include more mixed use development through implementation of the proposed MTP/SCS, meaning that destinations would be closer together and, therefore, would be more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. The projected land use pattern together with the transportation investments in Placer County HFTAs would reduce overall weekday household-generated VMT per capita by putting people closer to jobs and other destinations and by increasing opportunities to bicycle, walk, or ride transit, thus lessening the need to travel frequently or over long distances using single occupancy vehicles. This improved system performance could potentially lead to faster emergency service response times and increased access to other public services. Planned transportation improvements would not result in increased use of parks and recreational facilities that could cause substantial physical deterioration of these facilities.

However, while not probable, there is a possibility that implementation of the proposed MTP/SCS could result in longer police, fire, and other emergency response times as compared to baseline conditions. These levels of service standards are defined in general plans or master plans by individual jurisdictions and, thus, each jurisdiction may choose to revise the standard or accept a level of service that is below the standard. Because level of service standards may be exceeded, the impacts on service levels for public service (police protection, fire protection, emergency services, school, library, social service, and parks and recreation) including capital capacity, programming, personnel, and equipment needs resulting from implementation of the planned transportation improvements of the proposed MTP/SCS in Placer County HFTAs are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Sacramento County High Frequency Transit Areas

Sacramento County HFTAs are already built out and have established public services, including police protection, fire protection, emergency response, school, library, social services, and parks and recreation. Because new development would mostly be infill, service areas would not increase, but the total number of residents served would increase. More compact development would allow service providers to meet accepted service standards by leveraging existing facilities, equipment, programs, and personnel without necessarily needing to construct additional facilities. However, because levels of service standards are implemented differently among the various jurisdictions in the MTP/SCS plan areas, and because the population is forecasted to increase under the proposed MTP/SCS, it is possible that implementation of the proposed MTP/SCS would result in increased demand for public services that impedes achievement of acceptable service levels.

Therefore, impacts on service levels for public services (i.e., police protection, fire protection, emergency service, school, library, social services, and parks and recreation) including capital capacity, programming, personnel, and equipment needs, such that substantial physical deterioration would occur or be accelerated, resulting from implementation of the projected land use pattern of the proposed MTP/SCS in Sacramento County HFTAs are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Sacramento County HFTAs would receive a variety of planned transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities (i.e., bus, light rail, streetcar), increased transit service (i.e., bus, light rail, and streetcar), and roadway maintenance and rehabilitation projects. Capacity increasing roadway improvements have the potential to improve public access to school, library, social service, and parks and recreation facilities, as well as response times for emergency service providers. Transit in the Sacramento HFTAs is connected to the larger regional transit network, providing more opportunities for shorter trips and non-auto forms of travel. Implementation of various new transit, bicycle, and pedestrian improvements in this Community Type would increase access to public facilities. New transit, bicycle, and pedestrian projects would be constructed within current service area boundaries, therefore not expanding the existing public service area beyond what it is today.

Because the Sacramento County HFTAs have large employment and commercial districts, they also tend to have higher rates of congestion, as large volumes of people try to travel to the same destinations at the same times of day. Implementation of the proposed MTP/SCS would result in an overall decrease in the amount of weekday household-generated VMT per capita in these areas. In addition, these areas are expected to become denser and more compact through implementation of the proposed MTP/SCS, meaning that destinations would be closer together and, therefore, would be more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. The projected land use pattern together with the planned transportation improvements in Sacramento County HFTAs would reduce overall VMT per capita by putting people closer to jobs and other destinations and by increasing opportunities to bicycle, walk, or ride transit, thus lessening the need to travel frequently or over long distances using single occupancy vehicles. This improved system performance could potentially lead to faster emergency service response times and increased access to other public services. Planned transportation improvements would not result in increased use of parks and recreational facilities that could cause substantial physical deterioration of these facilities.

However, while not probable, there is a possibility that implementation of the proposed MTP/SCS could increase police, fire, and other emergency response times. These levels of service standards are defined in general plans or master plans by individual jurisdictions and, thus, each jurisdiction may choose to revise the standard or accept a level of service that is below the standard. Because level of service standards may be exceeded, the impacts on service levels for public service (police protection, fire protection, emergency services, school, library, social service, and parks and recreation) including capital capacity, programming, personnel, and equipment needs resulting from implementation of the planned transportation improvements of the proposed MTP/SCS in Sacramento County HFTAs are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Yolo County High Frequency Transit Areas

Yolo County HFTAs are already built out and have established public services, including police protection, fire protection, emergency response, school, library, social services, and parks and recreation. Because new development would mostly be infill, service areas would not increase, but the total number of residents served would increase. More compact development would allow public service providers to meet accepted service standards by leveraging existing facilities, equipment, programs, and personnel without necessarily needing to construct additional facilities. However, because levels of service standards are implemented differently among the various jurisdictions in the plan area of the proposed MTP/SCS, and because the population is forecasted to increase under the proposed MTP/SCS, it is possible that implementation of the proposed MTP/SCS would result in increased demand for public services that impedes achievement of acceptable service levels.

Therefore, impacts on service levels for public services (i.e., police protection, fire protection, emergency service, school, library, social services, and parks and recreation) including capital capacity, programming, personnel, and equipment needs, such that substantial physical deterioration would occur or be accelerated, resulting from implementation of the projected land use pattern of the proposed MTP/SCS in Yolo County HFTAs are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

Yolo County HFTAs would receive a variety of planned transportation improvements by 2040, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities (i.e., bus, streetcar, light rail), increased transit service (i.e., bus), and roadway maintenance and rehabilitation projects. Roadway improvements that increase have the potential to improve public access to school, library, social service, and parks and recreation facilities, as well as response times for emergency service providers. New transit services would be connected to new and existing regional transit service. Implementation of various new transit, bicycle, and pedestrian improvements in this Community Type would increase access to public facilities. New transit, bicycle, and pedestrian projects would be constructed within current service area boundaries, therefore not requiring additional public services beyond what is provided today.

Weekday household-generated VMT per capita in Yolo County HFTAs would decrease by 2040. Because these areas have large employment and commercial districts, they also tend to have higher rates of congestion, as large volumes of people try to travel to the same destinations at the same times of day. More congestion in these areas could lead to longer response times for emergency services providers. However, Yolo County HFTAs are expected to become denser and more compact through implementation of the proposed MTP/SCS, meaning that destinations would be closer together and, therefore, would be more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. The projected land use pattern together with the transportation investments in these areas would reduce overall weekday household-generated VMT per capita by putting people closer to jobs and other destinations and by increasing opportunities to bicycle, walk, or ride transit, thus lessening the need to travel frequently or over long distances using single occupancy vehicles. This improved system performance could potentially lead to faster emergency service response times and increased access to other public services. Planned transportation improvements would not result in increased use of parks and recreational facilities that could cause substantial physical deterioration of these facilities.

However, there is a possibility that implementation of the proposed MTP/SCS could result in longer police, fire, and other emergency response times as compared to baseline conditions. These

levels of service standards are defined in general plans or master plans by individual jurisdictions and, thus, each jurisdiction may choose to revise the standard or accept a level of service that is below the standard. Because level of service standards may be exceeded, the impacts on service levels for public services (police protection, fire protection, emergency services, school, library, social service, and parks and recreation) including capital capacity, programming, personnel, and equipment needs resulting from implementation of the planned transportation improvements of the proposed MTP/SCS in Yolo County HFTAs are considered potentially significant (PS) for Impact PS-1. Mitigation is required. Mitigation Measure PS-1 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measure at a project-level would reduce the impacts to levels of service for public services, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure PS-1: Ensure adequate public service and utilities will be available to comply with applicable service levels.

During project planning, design, and project-level environmental review, implementing agencies shall ensure that adequate service levels for public services are achieved. The implementing agency can and should ensure that public services and utilities will be available to comply with applicable service levels. This shall be documented prior to project approval in the form of a capacity analysis, provider will-serve letter, or equivalent documentation.

SIGNIFICANCE AFTER MITIGATION

If an implementing agency adopts this mitigation measure, Impact PS-1 would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. This impact remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT PS-2: RESULT IN IMPACTS ASSOCIATED WITH THE CONSTRUCTION OF NEW OR THE EXPANSION OF EXISTING FACILITIES REQUIRED TO MAINTAIN ACCEPTABLE LEVELS OF SERVICE FOR POLICE PROTECTION, FIRE PROTECTION, EMERGENCY, SCHOOL, LIBRARY, SOCIAL, PARK AND RECREATION SERVICES, AND/OR OTHER PUBLIC SERVICES.

Regional Impacts

As described in Impact PS-1, implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS would result in increased demand for public services, including police protection, fire protection, emergency service, school, library, social services, and parks and recreation that could impede achievement of acceptable service levels. Regional development could include a variety of land uses, ranging from residential to commercial

or industrial uses, to provide increased goods and services to the region. The amount of growth allocated to these areas could result in the construction of some additional facilities in order to maintain adequate service levels. However, a more dense and compact growth pattern in existing areas within the proposed MTP/SCS should allow jurisdictions to leverage existing facilities and absorb some of the increased demand with facilities that are currently underutilized, especially since the potential increase in demand is expected to be low. This approach should limit the number of new facilities needed to maintain adequate levels of service and at the same time reduce per capita costs to construct and maintain those new facilities that are built.

On the transportation side, a variety of planned improvements are included in the proposed MTP/SCS, such as new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. During construction, road closures and detours may be necessary. These are normally part of a Traffic Control Plan or Transportation Management Plan that allows emergency service providers to be aware of the current access restrictions and the alternatives available, while allowing people to travel to their destination.

Construction of new or expanded public service facilities to maintain adequate service levels could result in impacts to the public or the environment during both the construction process and the conversion of undeveloped land to accommodate expanded facilities. These impacts could adversely affect aesthetics, air quality, cultural resources, geology, land use, noise, transportation, utilities, and other related resources and infrastructure. However, construction of any new public service facilities would be subject to federal, state, and local laws. Construction-related impacts are typically short-term and can be mitigated below a level of significance through actions of the implementing agency. This EIR discusses and addresses construction impacts by impact type in the following chapters:

- Chapter 3 −Aesthetics: Impact AES-6 and Mitigation Measures AES-8, AES-9, AES-10, AES-11, and AES-12;
- Chapter 4 − Agriculture and Forestry Resources: Impact AG-6 and Mitigation Measure AG-8;
- Chapter 5 − Air Quality: Impact AIR-4b and Mitigation Measure AIR-5;
- Chapter 6 − Biological Resources: Impacts BIO-1, BIO-2, BIO-3, BIO-4 and Mitigation Measures BIO-1a, BIO-1b, BIO-1c, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7;
- Chapter 7 − Cultural Resources: Impacts CR-1, CR-2, CR-3, CR-4, and CR-5 and Mitigation Measures CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6;
- Chapter 8 – Energy and Global Climate Change: Impact GHG-2 and ENE-1 and Mitigation Measure GHG-3;
- Chapter 9 – Geology, Soils, Seismicity, and Mineral Resources: Impact GEO-7;
- Chapter 10 – Hazards and Hazardous Materials: Impact HAZ-7;
- Chapter 11 – Hydrology and Water Quality: Impact HYD-6;
- Chapter 13 – Noise and Vibration: Impact NOI-3 and Mitigation Measure NOI-3;

- Chapter 16 – Transportation and Traffic: Impact TRN-8 and Mitigation Measure TRN-3.

- Chapter 17 – Utilities and Service Systems: Impacts USS-2 and USS-3 and Mitigation Measures USS-3, USS-4, USS-5, USS-6, and USS-7.

Construction impacts to the public and the environment are regulated by various federal, state, and local regulations, and are discussed in the chapters identified above and include mitigation measures to reduce risk where necessary. However, the impacts from the construction of new facilities for public services could result in adverse environmental impacts during both the construction process and the conversion of undeveloped land to accommodate expanded facilities. Therefore, regional impacts from the construction of new or expanded public services facilities related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS are considered potentially significant (PS) for Impact PS-2. Mitigation is required. Mitigation Measure PS-2 is described below.

Localized Impacts and High Frequency Transit Areas

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS, Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types and HFTAs as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development, and HFTAs have the potential to result in significant impacts associated with the construction of new or expanded public services facilities.

For the Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, Lands Not Identified for Development Community Types, and HFTAs, impacts from the construction of new or expanded public services facilities related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS are considered potentially significant (PS) for Impact PS-2. Mitigation is required. Mitigation Measure PS-2 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measure(s) at a project-level would reduce the impacts from construction of public services facilities, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure PS-2:

Implement Mitigation Measures AES-8 through AES-12

Implement Mitigation Measure AG-8

Implement Mitigation Measure AIR-6

Implement Mitigation Measures BIO-1a through BIO-7

Implement Mitigation Measures CR-1 through CR-6

Implement Mitigation Measure GHG-3

Implement Mitigation Measure NOI-3

Implement Mitigation Measure TRN-3

Implement Mitigation Measures USS-3 through USS-7

SIGNIFICANCE AFTER MITIGATION

If an implementing agency adopts this mitigation measure, Impact PS-2 would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. This impact remains significant and unavoidable (SU) for purposes of this program-level review.

Chapter 16—Transportation

16.1 Introduction

This chapter describes the existing conditions (environmental and regulatory) and assesses the potential transportation impacts of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on review of existing information and is regional in scope. Data, analysis, and findings provided in this chapter were considered and prepared at a programmatic level.

In response to the Notice of Preparation (NOP), SACOG received several comments related to transportation from Sierra Club (Placer County), Sacramento Metropolitan Air Quality Management District (SMAQMD), ECOS, Sierra Club (Placer County), and Delta Protection Commission. The commenters expressed that the Draft EIR should consider the following:

- Different transportation improvements for Placer County,
- Relationship between planned transportation improvements and the goals of the MTP/SCS,
- Increased transit service,
- Induced vehicle miles traveled,
- Multiple lanes as a part of consideration of managed lanes,
- Increased funding for active transportation projects,
- Shared modeling with member jurisdictions,
- Relationship between vehicle miles traveled (VMT) and greenhouse gases (GHG),
- Equity and environmental justice concerns related to transit access,
- VMT impacts, and
- Delta Trail Master Plan.

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

16.2 Environmental Setting

The plan area of the proposed MTP/SCS consists of transportation routes, including highways, rail alignments, bicycle/multi-use trails, state routes, roads, and other transportation right-of-way in the SACOG region. The major components of the existing transportation system within the plan area of the proposed MTP/SCS include three interstate highways, several state highways, numerous local arterial roadways, a deep water shipping port, a major international airport, numerous general aviation airports, freight and passenger rail service, and a public transit system that includes approximately 40 miles of light rail transit service and several thousand miles of regional and local bus routes. The components of the existing and proposed transportation system in the plan area of the proposed MTP/SCS are defined below.

16.2.1 Roadway System

For purposes of this EIR, the roadway network within the plan area of the proposed MTP/SCS is categorized into several functional classifications as follows:

FREEWAYS

A freeway is a divided highway with full control of access and two or more lanes for the exclusive use of high volumes of traffic in each direction. Intersections with other streets and roads are grade-separated and provide through ramps and connectors. Because of the grade-separations and access control, these facilities do not provide direct access to land. These types of facilities serve primarily regional through-trips and connect to other regional and interregional facilities. Within the "Freeway" classification, several sub-classifications are of interest and importance to the proposed MTP/SCS, since the prevalence of freeway projects and improvements varies widely by the following sub-classifications:

High-Occupancy Vehicle Lanes

High-Occupancy Vehicle (HOV) Lanes are restricted to private vehicles with two-or-more persons (exceptions are allowed for select partial or zero emission vehicles), motorcycles, and public transit vehicles during commute hours, but allow all private vehicles to use the lanes during non-commute hours. HOV lanes are intended to provide an incentive to commuters to carpool by providing faster travel speeds than the parallel general-purpose lanes during peak periods.

Freeway Ramps and Connectors

Ramps and connectors link the region's surface street system to the freeway system or connect one designated freeway to another.

Freeway Auxiliary Lanes

Auxiliary lanes are added at an on-ramp and then drop at the next downstream off-ramp to help facilitate merging and diverging traffic. In cases where parallel local streets do not exist, longer auxiliary lanes may extend beyond the next downstream interchange.

General Purpose Freeway Lanes

Freeway lanes that do not fall into one of the three categories above are characterized as general purpose freeway lanes. These lanes allow all types and occupancy classes of vehicles at all times of the day.

Surface Streets

Any street type that predominantly intersects with other streets at-grade are surface streets. There is a wide range of sub-classifications of surface streets. For many practical and historical reasons, surface streets often do not fall neatly into one sub-classification or another, and some surface streets may have characteristics of more than one sub-classification.

Expressways

An expressway facility intersects other roadways at-grade, but direct land access to the facility is very limited. Where allowed, driveways are usually consolidated (i.e., one driveway serves several fronting properties), or mediated through frontage roadways. Spacing of signalized intersections is usually very wide, generally greater than one-half mile. Medians are raised, and midblock turns are disallowed.

Arterial Roadways

Arterial facilities also limit direct land access, but are less restrictive than expressways. Intersection spacing is generally about one quarter mile and may be less. Arterials are usually multi-lane (i.e., two-or-more lanes per travel direction). Most arterial roadways have raised medians, but mid-block turns and two-way-left turn lanes are also common. Intersections usually include separate turning lanes.

Collector Streets

Collector facilities generally do not limit direct land access. Intersection spacing is less than one-quarter mile, and unsignalized, stop-sign-controlled intersections are common. Collectors include a mix of two- and four-lane facilities. If provided, medians are usually striped and rarely raised.

Local Streets

Local facilities are intended to provide land access. The majority of local streets are provided in residential areas, although local streets are provided in mixed and employment-oriented areas, too. Local streets are two lanes, one lane per travel direction. Most local streets do not have medians or center strips.

Table 16-1 provides a tabulation of roadway classes by route miles and lane miles for the SACOG region for the baseline year of 2016. The two overall classifications are minor roadways (collectors/local streets) and major roadways (arterials/expressways, auxiliary lanes/ramps, HOV lanes, and general-purpose freeways). Because the major roadways (arterial and above roadway classes) carry more traffic and transit trips, they have the greater effect on the transportation performance measures. "Route miles" are the centerline mileage of roads. "Lane miles" are route miles multiplied by the number of lanes on the roadway.

Table 16-1
Roadway Route and Lane Mileage by Class Year 2016 and 2040 MTP/SCS

Roadway Class	2016[1]	2040 MTP/SCS	Change from 2016	% Change
Route Miles				
General Purpose Freeway	319	320	+1	+%
HOV Lane[2]	n/a	n/a	n/a	n/a
Auxiliary Lanes/Ramps[2]	n/a	n/a	n/a	n/a
Expressways/Arterials	1,536	1,796	+260	+17%
Collectors/Local Streets[3]	10,594	12,589	+1,995	+19%
All Roadway Classes	12,449	14,704	+2,255	+18%
Arterial & Above	1,855	2,115	+260	+14%
Lane Miles				
General Purpose Freeway	1,661	1,688	+26	2%
HOV Lane[2]	124	242	+118	96%
Auxiliary Lanes/Ramps[2]	232	299	+67	29%
Arterials/Expressways	4,447	5,494	+1,046	24%
Collectors/Local Streets[3]	21,320	25,414	+4,093	19%
All Roadway Classes	27,785	33,136	+5,351	19%
Arterial & Above	6,465	7,722	+1,258	19%
Population	2,376,300	2,996,800	+620,520	26%
Lane Miles Per Thousand People	11.69	11.06	-0.64	-5%

[1]From "California Public Road Data Reports," and Highway Performance Monitoring Data provided by Caltrans. Data assembled by and modified SACOG to include HOV and auxiliary lane mileage.
[2]Since HOV lanes, auxiliary lanes and ramps are located within other freeway routes, they do no generate route mileage, only lane mileage.
[3]MTP/SCS quantity of local streets based on applying a per capita rate to population growth.
Sources: Data compiled by SACOG in July 2019; Caltrans 2016.

Several freeways and state highways are included in the plan area of the proposed MTP/SCS and are depicted in Figure 16-1.

The freeway and highway systems are under the jurisdiction of the California Department of Transportation (Caltrans). Below is a description of the major freeways and highways within the plan area.

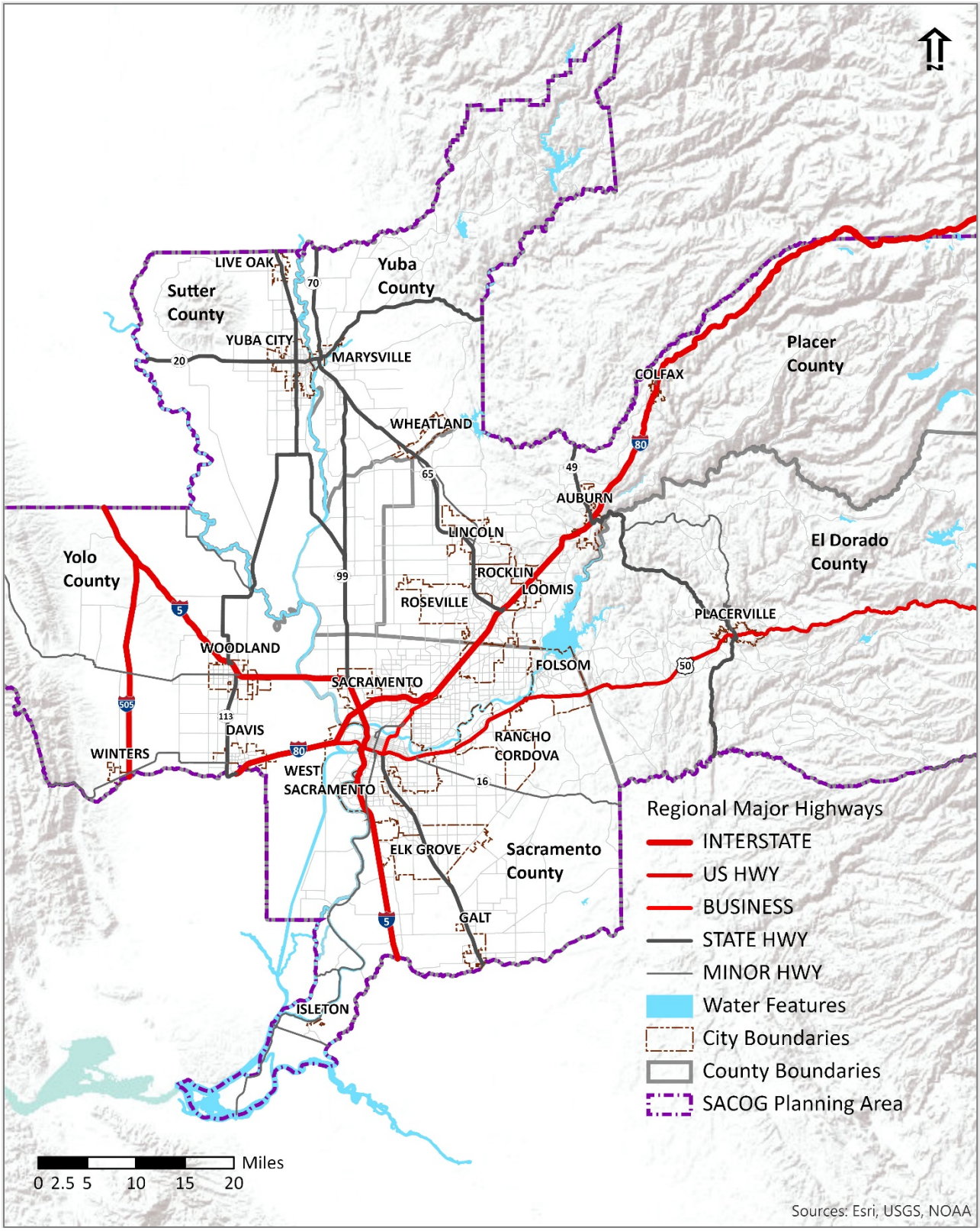
- Interstate 5 (I-5) is a 4 to 10-lane freeway that runs from north to south through the western portion of the plan area of the proposed MTP/SCS and is the largest of the major regional facilities in the area. I-5 is a major federal interstate freeway and travels from the Canadian border to Mexico.
- Interstate 80 (I-80) is a 6 to 14-lane freeway that runs from west to east from the San Francisco Bay Area to the California/Nevada state line, passing through Yolo, Sacramento, and Placer counties in the plan area of the proposed MTP/SCS. I-80 is also part of the federal interstate system, connecting the East Coast of the United states with the Pacific Rim.

- Interstate 505 (I-505) is a 4-lane freeway extending 22 miles from I-5 near Dunnigan south to Yolo County near Winters. After leaving Yolo County and the SACOG region, I-505 merges with I-80 in Vacaville. I-505 connects areas north of Sacramento to areas east of Sacramento while bypassing traffic in the urbanized region of Sacramento and its suburbs.
- United States Highway 50 (US 50) is a 4 to 10-lane east-west route that is part of the California state Highway system, which predates the federal interstate system. US 50 traverses the plan area of the proposed MTP/SCS from the eastern portion of Yolo County through Sacramento and El Dorado counties.
- State Route 20 (SR 20) is a state highway that runs east and west north of Sacramento from the North Coast to the Sierra Nevada. In the SACOG region, this 2 to 4-lane facility runs through Yuba and Sutter counties and through the cities of Marysville and Yuba City where it serves as a local street.
- State Route 49 (SR 49) is part of the state highway system while also serving as Main Street in several foothill communities. In the SACOG region, SR 49 is a 2 to 6-lane, north-south highway that traverses the central portion of the plan area through El Dorado, Placer, and Yuba counties.
- State Route 65 (SR 65) is a 2 to 5-lane, north-south highway that traverses the east side of the plan area of the proposed MTP/SCS through Sacramento, Placer and Sutter counties. The route connects automobile and truck traffic originating in the I-80 corridor (in the Roseville/Rocklin area) to the SR 70/99 corridor (in the Marysville/Yuba City area).
- State Route 70 (SR 70) is a 2 to 4-lane, north-south highway that travels the western side of the plan area of the proposed MTP/SCS through Sutter and Yuba counties. SR 70 currently travels through downtown Marysville as a local street.
- State Route 99 (SR 99) is the second largest regional facility in the plan area of the proposed MTP/SCS. SR 99 is a 2 to 8-lane north-south highway and freeway that traverses the central portion of the plan area of the proposed MTP/SCS through Sacramento and Sutter counties. SR 99 serves ten of the state's urbanized areas, making it an important corridor in the Central Valley. The route also serves as a main access between several small cities and urban areas in Sacramento County.

16.2.2 Transit System

Local transit service in the region is currently provided by 12 public transit operators and two private non-profit Consolidated Transportation Services agencies of varied size and type of service, as shown in Figure 16-2, 43 miles of track, to very small systems. For example, the City of Auburn provides service with a fleet of only six vehicles.

For purposes of this report, transit services in the plan area of the proposed MTP/SCS were categorized by "service type." Service type is defined according to unique combinations of right-of-way (e.g., exclusive vs. mixed with traffic), traction (rail/steel wheel vs. rubber tire), vehicle technology, and operational features like station or stop spacing and running speeds. As with roadway classifications, in some cases, actual transit service may include characteristics of more than one service type, and some "gray areas" between service types exist (e.g., between "light rail transit" and "streetcar"). Table 16-2 lists each service type and the 2016 levels of vehicle service hours (VSH) provided. The table is followed by more detailed descriptions of each service type.



Source: Data compiled by SACOG in 2019

Figure 16-1
Regional Major Highways

Table 16-2
Weekday Transit Revenue Service Hours by Service Type 2016 and 2040 Proposed MTP/SCS

Service Types	2016	2040 MTP/SCS	Change from 2016	
			#	%
Light Rail	301	385	+84	28%
Tram/Streetcar	0	86	+86	N/A
Express Bus	336	826	+490	146%
BRT/Fixed Route Bus	2,962	5,948	+2,986	101%
Shuttle	369	907	+538	146%
Regional Rail	26	57	+31	119%
Regional Total	**3,994**	**8,209**	**+4,215**	**106%**

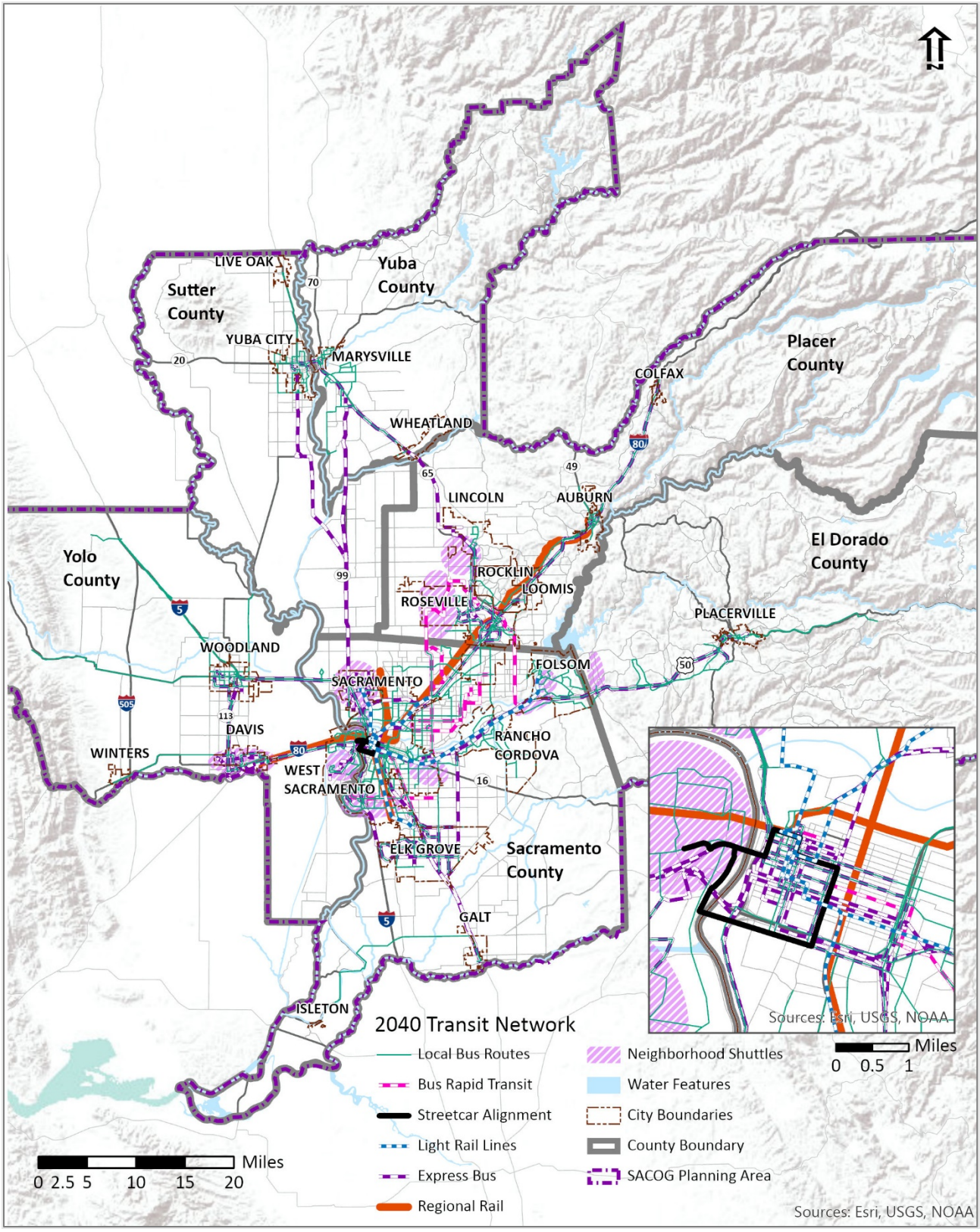
Source: Data compiled by SACOG in July 2019

REGIONAL (INTERCITY) RAIL AND BUS SERVICE

Intercity rail service is an electric or diesel propelled railway for passenger train operated on a regular basis by Amtrak or under contract with a transit operator for transporting passengers between and within urbanized and outlying areas. Such rail service is generally characterized by multi-trip tickets, specific station-to-station fares, railroad employment practices, and considerable distance between stations. Intercity bus service is similar to intercity rail service except that it uses the highways system to transport passengers.

Within the plan area of the proposed MTP/SCS, Amtrak operates two intercity rail services – the Capitol Corridor and the San Joaquins routes. The Capitol Corridor has stations in Auburn, Rocklin, Roseville, Sacramento, and Davis, connecting Placer, Sacramento, and Yolo counties to stations in the San Francisco Bay Area. It operates 30 trains daily on weekdays, and 22 on weekends, and carried over 1.7 million passengers between Auburn and San Jose in 2018 (Capitol Corridor Joint Powers Authority 2019). The Capital Corridor service is supplemented by bus connections to Lake Tahoe, Reno, Redding, Eureka, and Santa Barbara. The Capitol Corridor was the fourth busiest Amtrak-operated route in the nation in 2018 (Amtrak 2019a).

The Amtrak San Joaquins route provides intercity rail service between the Bay Area and Sacramento and Bakersfield, with bus connections to Los Angeles, Redding, and Yosemite National Park. The Sacramento-to-Bakersfield segment has two daily round trips. Five daily round trips between Oakland/San Francisco and Bakersfield are also accessible by Sacramento and Elk Grove riders through Amtrak connecting buses. Amtrak buses also serve the Davis station to allow riders to connect to all San Joaquins trains. The San Joaquins route shares rail equipment, train crews, and maintenance facilities in Oakland with the Capitol Corridor. A planned Valley Rail improvement in the MTP/SCS will enable two San Joaquins round trips and up to five Altamont Corridor Express (ACE) round trips between Sacramento and the San Joaquin Valley. In addition, the Coast Starlight and California Zephyr trains pass though the region stopping in Davis, Sacramento, Roseville, and Colfax on their way from Seattle to Los Angeles and from Chicago to San Francisco, respectively.



Source: Data compiled by SACOG in 2019

Figure 16-2
2016 Transit Network

Greyhound Bus operates intercity bus services in the region to connect to a variety of local and national destinations. There are station stops in Colfax, Marysville, and Roseville with a major regional station in Sacramento at Richards Boulevard. The Richards Boulevard bus station connects with the Sacramento Regional Transit (SacRT) light rail station at Township 9. Greyhound offers regular service to San Francisco and Los Angeles from its Sacramento station. Private intercity bus service operators serving Sacramento include MegaBus (services to San Francisco and Reno/Sparks from the SacRT 65th Street light rail station) and FlixBus (services to San Francisco and Southern California from several locations around the Sacramento central city).

LIGHT RAIL

Light rail (LRT) is a rail system designed for operating in lighter-demand, urban environments. In the plan area, LRT operates with up to four-car trains on fixed rails in an exclusive right-of-way in some locations or mixed with street vehicle traffic in others. Light rail vehicles are typically driven electrically with power being drawn from an overhead electric line via a trolley or a pantograph. SacRT operates the only light rail service within the plan area of the proposed MTP/SCS. In general, LRT operates with station spacing one-half mile or more, and with maximum running speeds of about 55 miles-per-hour. The current system operated by SacRT is 43 miles and consists of Blue, Gold, and Green Lines. The Gold Line serves the US 50 corridor extending from downtown Sacramento to Folsom. The Blue Line serves the I-80 corridor northeast of downtown Sacramento and extends south of downtown to Cosumnes River College. The Green Line serves the Sacramento central city between Midtown Sacramento and the River District area just north of downtown.

EXPRESS BUS

Express bus service is typically operated over long distances with limited stops. Express buses typically travel on highways and freeways with extended "closed door" (i.e., no passengers boarding or alighting) distances. Operators providing express bus service to residents within the region, primarily to Downtown Sacramento, are:

- Yolobus
- Yuba-Sutter Transit
- Placer County Transit
- e-transit (Elk Grove)
- El Dorado Transit
- Roseville Transit.

Several transit operators provide express bus services to residents outside the MTP/SCS plan area, but to employment centers within the plan area. Examples of these operators are Fairfield and Suisun Transit, Amador Stage Lines, and San Joaquin Regional Transit District.

FIXED-ROUTE BUS

Fixed-route bus (or "local bus") service is the largest share of bus transit services. Buses stop frequently along a route that is typically several miles long. This is the most common type of bus service in the plan area of the proposed MTP/SCS. Within the plan area of the proposed MTP/SCS, the following operators provide fixed-route service in the Sacramento or Yuba City/Marysville urbanized areas:

- City of Auburn – providing intra-city service;
- El Dorado County Transit – providing intra-city, intra-county, and commuter service to Sacramento;
- e-Tran – operated by SacRT, providing intra-city service and commuter service to Sacramento;
- Folsom Stage Line – operated by SacRT, providing intra-city service within the City of Folsom;
- Placer County Transit with service connecting I-80 communities, commuter service to Sacramento and the Regional Transit light rail stop at Watt Avenue and I-80, and community service within the City of Lincoln;
- Roseville Transit – operated by the City of Roseville, providing intra-city and commuter services to Sacramento;
- SacRT – the largest fixed-route transit provider in the plan area of the proposed MTP/SCS, with extensive service coverage across urban Sacramento County; Unitrans – operated jointly by the City of Davis and the Associated Students of University of California, Davis (UC Davis), providing intra-city service in Davis and the UC Davis campus;
- Yolobus – serving Davis, Woodland, West Sacramento, Downtown Sacramento, the Sacramento International Airport, and rural Yolo County;
- Unitrans—serving Davis and UC Davis, focusing on travel to and from the university; and
- Yuba-Sutter Transit – providing intra-city service in the Marysville/Yuba City area, intercity service to Live Oak, Wheatland and the Yuba foothills, and commuter service to Sacramento.

Transit service in the non-urbanized portion of Sacramento County includes South County Transit Link fixed route services linking the Cities of Elk Grove, Galt, Isleton, Lodi, Sacramento, and other Delta communities. Amador Transit provides additional fixed-route services that link Jackson and Sutter Creek in Amador County with Rancho Murieta, the 65th Street light rail station, and downtown Sacramento.

COMMUNITY SHUTTLES

Community shuttles provide short-distance transit service within a small geographic area and are often called circulator, feeder, neighborhood, trolley, or shuttle services. Shuttles often have a lower fare than local fixed route service, frequently operate in a loop and connect to major routes for travel to more outlying destinations. SacRT; California State University, Sacramento (CSUS); and North Natomas Jibe provide publicly operated shuttles in the plan area of the proposed MTP/SCS.

PARATRANSIT SERVICES

Paratransit services provide transportation service required by the Americans with Disabilities Act (ADA) of 1990 (42 U.S. Code 12101 et seq.) for seniors or individuals with disabilities who are unable to use fixed-route transit systems. Under federal law, paratransit services must be comparable in service-area coverage to fixed-route services in the same area. Paratransit services providers within the plan area of the proposed MTP/SCS include the following operators:

- Davis Community Transit - serving the City of Davis;
- El Dorado County Transit - serving El Dorado County;

- Paratransit Inc., the largest paratransit provider in the plan area of the proposed MTP/SCS - providing door-to-door share-ride, subscription, and intermittent transportation service within the Sacramento Metropolitan area;
- Placer County Transit - serving the Rocklin/Loomis area, Granite Bay, and along the state Route 49 corridor;
- Roseville Transit Dial-A-Ride - serving the City of Roseville;
- South County Transit - providing service in the Galt area;
- Yolo County Transportation District ADA Service - serving Woodland, West Sacramento and intercity service needs throughout Yolo County and into Sacramento County; and
- Yuba Sutter Transit - serving the Marysville/Yuba City urban area.

Paratransit service is commonly operated as a form of demand responsive transit (discussed below).

DEMAND RESPONSIVE TRANSIT

Demand responsive transit (DRT), also encompasses a variety of transit service products that provide on-demand service to passengers. Examples of DRT service types include point-deviation, route-deviation, and simple DRT (service area based) services. Micro-transit is a form of DRT. Typically, DRT requires a simple timepoint-based schedule or an advance bookings system to match passengers with vehicles. The City of West Sacramento and SacRT have introduced new DRT services within the last several years to augment fixed-route transit or provide transit coverage in lower demand transit markets.

The SacRT service is called SmaRT Ride and was initially launched in Citrus Heights in 2018. The service is curb-to-curb and allows rides to be booked by smart phone app, phone, or on-line reservation. The success of the initial service led to expansion into Antelope and Orangevale plus service in Franklin-South Sacramento. Other geographies will be considered in the future for this service.

The City of West Sacramento service was implemented in May 2018 and is also proving popular with users. The curb-to-curb service operates seven vans with six seats each. Rides can be booked using a smartphone app or by phone. Service hours have been expanded since initial roll out with current service available from 6 a.m. to 11 p.m. weekdays and 9 a.m. to 11 p.m. on Saturdays. On average, passengers experience an eight-minute wait time and eight-minute travel time with average trip lengths of about three miles per ride. Average weekday ridership has reached about 400 passengers and 3.46 passengers per driver hour.

16.2.3 Bicycle and Pedestrian Network

Bicycling and walking are active transportation modes. In addition to providing low-cost transportation, bicycling and walking contribute to community health and wellness and reduce congestion, regional GHG emissions, and other transportation-related pollutants. The SACOG region has a robust system of bicycling and walking facilities. A complete inventory is included the SACOG Regional Bicycle, Pedestrian, and Trails Master Plan published in 2015. The bicycle and pedestrian system currently (2016) serves almost four percent of all commuter trips and about 10 percent of all trips, as reported in Table 16-6 below.

BICYCLES

As of 2018, the Sacramento area bikeway network consists of over 495 miles of Class I multi-use pathways, 1,270 miles of Class II bike lanes, 216 miles of Class III signed bicycle routes, and two miles of Class IV separated bikeways (SACOG 2019a). A highlight of the regional bikeway system is the 23-mile American River Parkway trail. This Class I multi-use trail extends from Folsom to downtown Sacramento along the American River and is heavily used for recreation and commute travel. Figure 16-3 shows the cross-section of each type of bicycle facility, as further defined below.

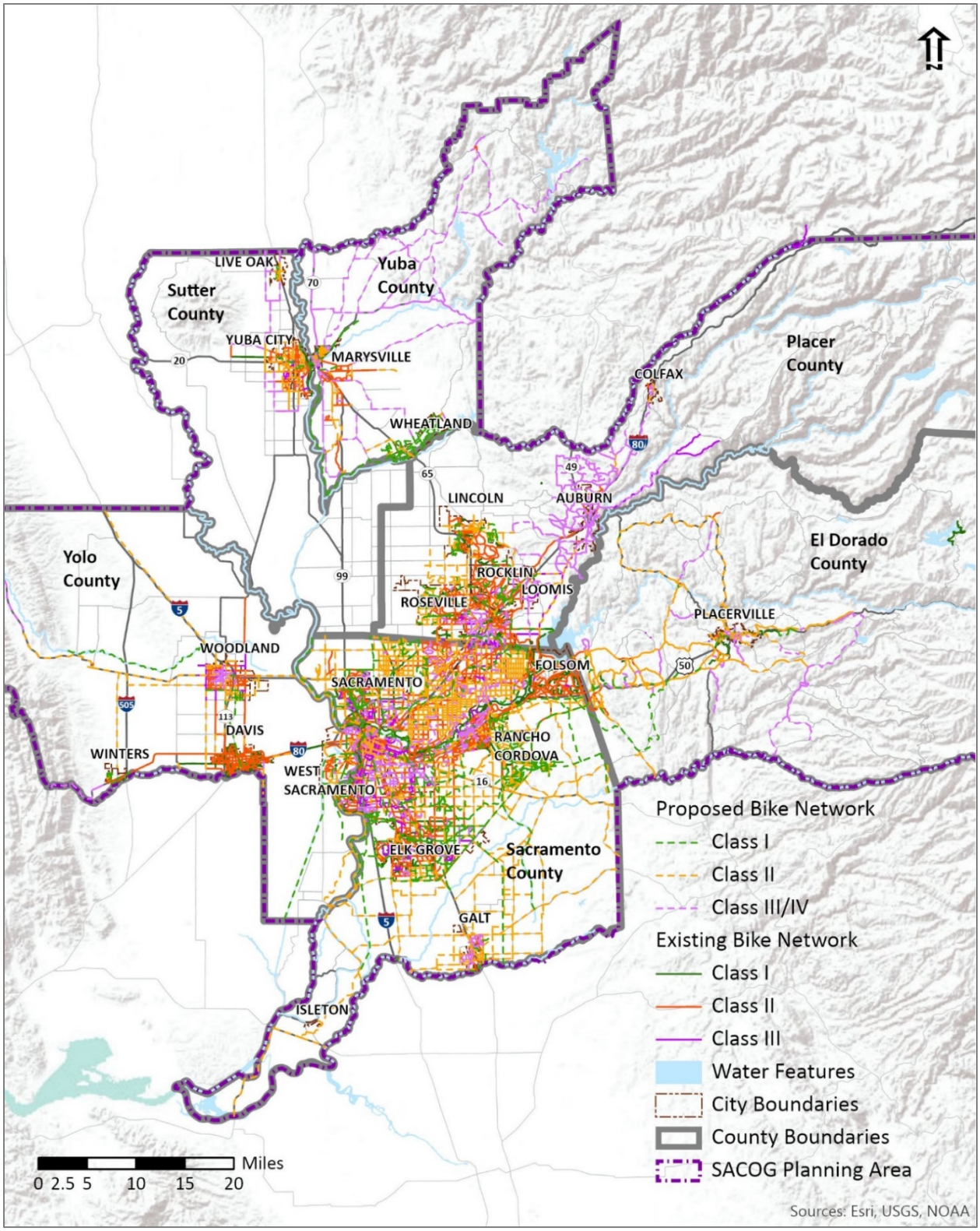
Class I Shared Use Paths provide a completely separated right-of way for non-motorized users such as bicycles, pedestrians, joggers, and skaters, with crossflows by motorists minimized. Shared or multi-use paths are often the most popular type of facilities because of their exclusive use by active transportation modes and separation from vehicles. Prime locations for bike paths are areas such as power-line easements, utility easements, canal banks, river levees, drainage easements, railroad or highway rights-of-way, or regional community parks.

Class II Bike Lanes usually consist of a portion of a roadway that has been set aside by striping and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes are intended to promote an orderly flow of bicycle and vehicle traffic. This type of facility is established by using the appropriate striping, legends, and signs.

Class III Bike Routes are facilities shared with motor vehicle traffic. Bike routes must be of benefit to the bicyclist and offer a higher degree of service than adjacent streets. They provide for specific bicycle demand and may be used to connect discontinuous segments of bike lanes. Bike routes may also be located on residential streets and rural roads. If the pavement width is sufficient and traffic volume/speeds warrant, an edge line may be painted to further delineate the bike route.

Class IV Separated Bikeways (a.k.a., Cycle Tracks) , provide a right-of-way for exclusive bicycle use adjacent to but separated and protected from vehicular traffic. Separation may be provided by grade differences, flexible posts, inflexible physical barriers, on-street parking, or other means. The barrier separation from vehicular traffic is intended to provide greater protection for cyclists using these bikeways, and thereby make them more attractive than Class II lanes or Class III routes.

In addition to paths, lanes, routes, and separated bikeways, secure and convenient parking and bus and rail bike accommodations are an important supporting part of regional bicycle infrastructure. The SacRT LRT system incorporates bicycle parking at 25 stations (SacRT 2019). SacRT also accommodates up to four bicycles inside each LRT car, and all SacRT buses have bicycle racks with capacity for two or three bicycles (SacRT). Additionally, Amtrak Capitol Corridor trains include two "bike cars" that can accommodate dozens of bicycles per train (Amtrak 2019b). Amtrak San Joaquins service accommodates six bicycles per train (Amtrak 2019c). Bicycle infrastructure is supplemented with a regional bikeshare system launched by SACOG and local partners in May 2018. Currently, JUMP is the sole vendor, operating and maintaining a fleet of electric-assist bicycles in the cities of Davis, Sacramento, and West Sacramento and on the UC Davis and CSUS campuses. Rides are available on a per-use basis or through a monthly subscription package. JUMP and Lime have both recently introduced scooters in the City of Sacramento and City of West Sacramento service areas. Finally, a pilot project is under way to test shared bikes in the Cities of Folsom, Rancho Cordova, and Elk Grove.



Source: SACOG 2019a. Map shows regional route coverage and density. Consult sponsors for individual route maps.

Figure 16-3
Bicycle Facility Classifications

PEDESTRIANS

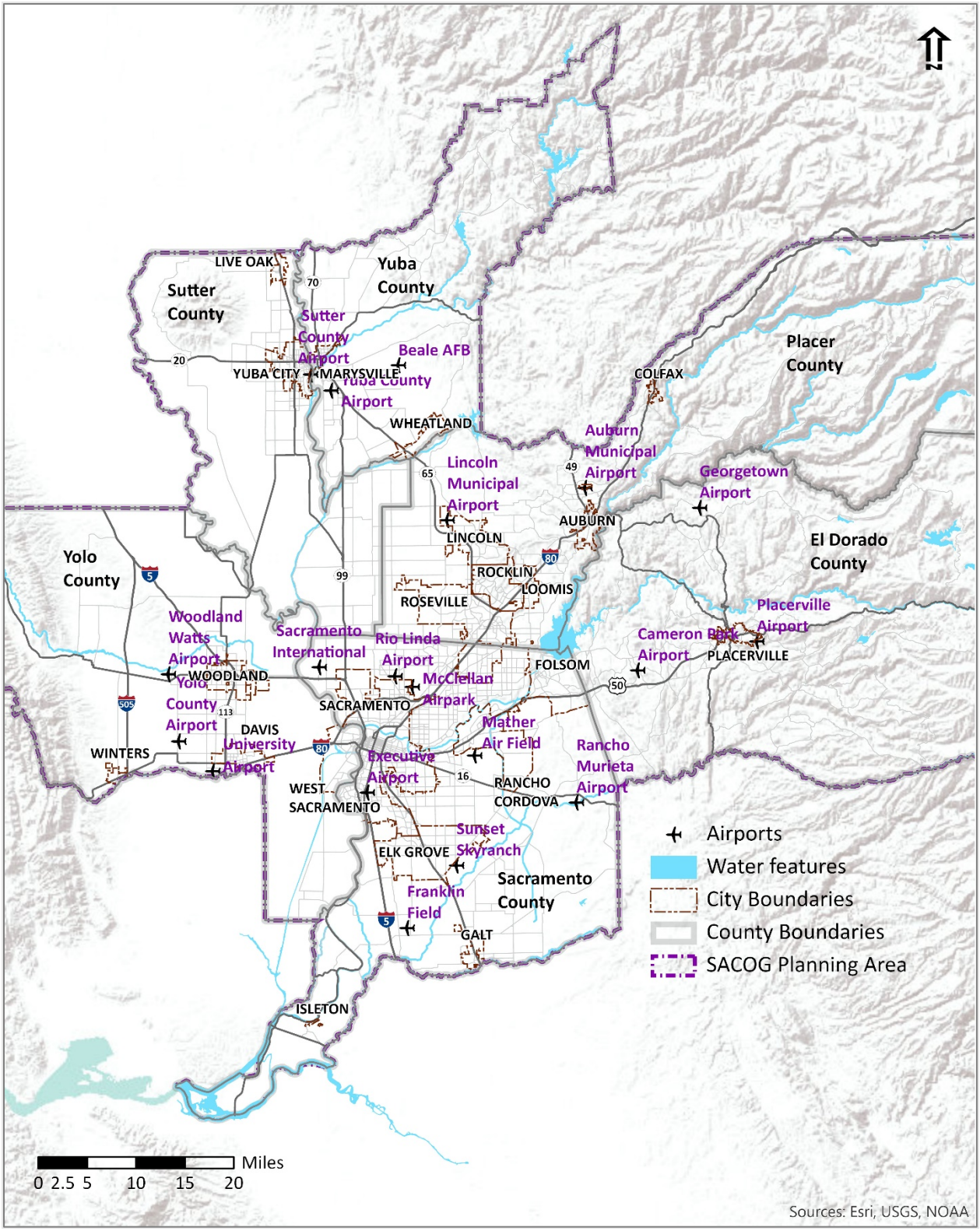
Pedestrian facilities include multi-use paths, sidewalks, crosswalks, walkways, stairs, ramps, and building entranceways. By far, sidewalks are the most common type of public pedestrian facility and exist along streets in most of the urbanized areas of the plan area of the proposed MTP/SCS. Exceptions generally include rural areas or still developing areas where gaps in sidewalks occur due to undeveloped parcels or low potential for walking. The region has made a concerted effort over the past few years to improve the pedestrian system and continues to focus on the following types of improvements in modifying and expanding the system.

- Improved signals and signal timings to better accommodate pedestrians
- Improved accessibility to meet ADA requirements including curb cuts, wheelchair access, connected sidewalks, and surface overlays.
- Safety projects that improve pedestrian crossing locations, including high visibility sidewalks along all sides of intersections, advanced signing to alert drivers to pedestrians, pedestrian refuge islands and medians, and curb extensions to reduce crossing distances (SACOG 2015).

Aviation

The plan area of the proposed MTP/SCS contains 18 public use airports. While most of these are smaller airports for general aviation, the region also hosts Sacramento International Airport (commercial passenger and cargo service) and Mather Airport (commercial cargo service). Additionally, Beale Air Force Base is located within the plan area of the proposed MTP/SCS, approximately eight miles east of Marysville. Figure 16-4 shows the general aviation airports in the plan area of the proposed MTP/SCS.

Sacramento International Airport is owned by the County of Sacramento, occupies approximately 6,000 acres, and has two 8,600-foot runways (SACOG 2013). The airport is bordered by I-5 to the south and is also located 8 miles from I-80, 5 miles from CA-99, and ten miles from CA-113. The airport served 12 million annual passengers in 2018 (Sacramento County 2018a). The number of enplaned passengers is forecasted to increase by over 40 percent by 2035 (Sacramento County 2017). Service is available from twelve major air carriers (Sacramento County 2019).



Source: Data compiled by SACOG in 2019

Figure 16-4
General Aviation Airports in the Plan Area of the Proposed MTP/SCS

Mather Airport is also owned by the County of Sacramento. The airport is located approximately twelve miles from downtown Sacramento and one mile from US-50. Mather occupies 2,253 acres approximately 12 miles from downtown Sacramento and has two parallel runways, one 11,301 feet long and one 6,040 feet long. Mather serves cargo carriers, notably United Parcel Service (UPS), and general aviation (Sacramento County 2013). The region's 16 local general aviation airports include (FAA 2019):

- Auburn Municipal
- Blue Canyon – Nyack
- Cameron Airpark
- Franklin Field
- Georgetown
- Lincoln Regional
- McClellan
- Placerville
- Rancho Murieta
- Rio Linda
- Sacramento Executive
- Sutter
- University
- Watts/Woodland
- Yolo County
- Yuba County

Emerging Travel Options and Technology Changes

Several new options for travel are emerging around the nation, including Sacramento: ride-sharing services (e.g. Uber, Lyft), food delivery services (e.g., Postmates, Grubhub, Uber Eats) car-sharing services (e.g. Zipcar, GIG, Turo), bike- and scooter-sharing (e.g., JUMP and Lime), parking-space-finding applications (e.g., SacPark, ParkMobile), demand responsive transit (e.g., West Sacramento On-Demand rideshare service and Sacramento Regional Transit SmartRide service), and autonomous transit (e.g., CSUS Olli shuttle).

Uber and Lyft are both increasingly prevalent in the region, Zip-Car has services focused on the CSUS campus, Downtown Sacramento, and UC Davis, GIG provides services throughout the Sacramento central city and adjoining neighborhoods, and JUMP is steadily growing its fleet of bicycles and scooters and expanding its service area (see Figure 16-5), and ridership has grown quickly.

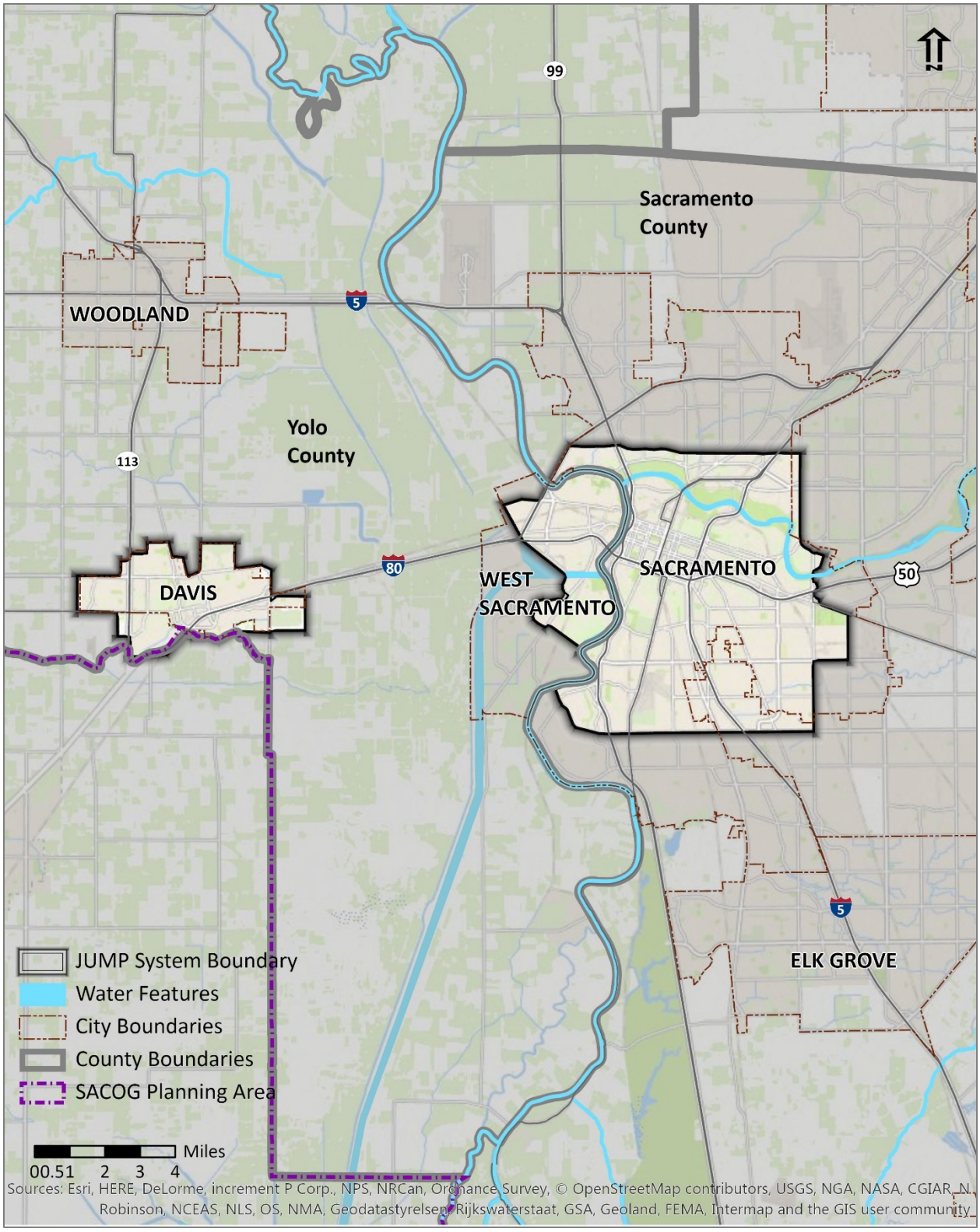


Figure 16-5
JUMP Bikes/Scooters Service Areas in the Plan Area of the Proposed MTP/SCS

Though prevalent in conversation and highly visible due to their novelty, these new travel options are, at the moment, serving a very small percentage of trips in the plan area of the proposed MTP/SCS:

- The 2018 SACOG Household Travel Survey (2018 SACOG HTS) found that Uber and Lyft served about one-quarter of one percent of all weekday trips made by residents in the Sacramento Region. The 2017 National Household Travel Survey (2017 NHTS) for the Sacramento-Roseville-Arden-Arcade core area of the region revealed a weekday mode split of 0.31 percent (FHWA 2017). These estimates are comparable to results in other small-to-medium metropolitan areas in other similar surveys.

Based on the most recent data from Uber, JUMP bike ridership has reached 140,000 trips per month during summer months, and 100,000 trips per month during winter months. On a per-day basis, this is less than one-half of one percent of trips within the JUMP service area.

While current visibility is greater than their actual impact on travel in the region, these new travel options are likely to grow and can serve a much larger share of trips. Denser cities with much higher parking costs, like San Francisco, have weekday mode splits closer to 1.5 percent or higher for Uber, Lyft and other ride-hailing services. These higher estimates point to the potential growth of these services as the region grows.

Beyond new travel options, emerging vehicle technology will influence travel behavior and safety. For example, smart phone applications such as Google Maps and Waze better inform travelers regarding travel options, comparative costs, and travel routes. Safety technology on some new vehicles, such as assisted braking and lane guidance on some new vehicles, will likely be standard equipment by 2040, leading to fewer collisions. Narrower lanes and shoulders may become more feasible due to these technology advancements reducing the need for physical capacity expansions. If collisions decline as expected, congestion would also be reduced since incidents and collisions are significant causes of congestion.

16.2.4 Goods Movement

The major urbanized areas of the Sacramento region require millions of tons of goods each year to maintain economic activities and quality of life. Further, the nature of travel demand is shifting -- more goods are being delivered directly to the home due to the convenience of internet shopping. Wholesale and retail trade, transportation, and manufacturing support over 202,700 jobs in the region according to statistics provided by the state's Employment Development Department (EDD 2019). Located at the center of the Central Valley, a major agricultural region, the transport of agricultural commodities from farm to market is also a vital function for the regional economy. Therefore, freight transportation is essential for the region's consumers and businesses.

Goods are transported by rail, air, truck, auto, and ship into, out of, and through the plan area of the proposed MTP/SCS, although pipelines also carry products such as fuel. An international port of entry is also located at the Sacramento International Airport (U.S. Customs and Border Protection 2019). The goods movement system includes not only highways, railroads, sea lanes, and airways, but also truck terminals, railyards, warehousing, and other facilities serving these transportation routes. For goods traveling within the plan area of the proposed MTP/SCS, about 96 percent of freight tonnage is carried by truck, and the remainder by other modes. For goods originating or destined for the region, but with the other end of trip outside the region, the mode share mix is still

77 percent of the tonnage is carried by trucks, and the remainder by other modes. For goods traveling through the region, only 45 percent is by truck, 22 percent by rail, 14 percent by pipeline, and the remaining 19 percent by other modes. Almost all goods delivered to final destinations in the plan area involve trucks or autos. Table 16-3 contains the detailed breakdown of tonnage by mode.

Table 16-3
Mode Share by Tonnage of Goods Transported in Caltrans District 3

	All Goods To, From & Through District	Goods Within District	Goods to/from District & Points Outside District	Goods Passing Through District
Truck	68%	96%	77%	45%
Water	2%	4%	23%	19%
Air (incl. truck>air)	0%			
Multiple Modes & Mail	7%			
Other, Unknown	6%			
Pipeline	7%			14%
Rail	11%			22%
Total	100%	100%	100%	100%
Total Tonnage (in millions)	273	55.9	103.6	114

Notes: District 3 includes the SACOG region plus Glenn, Colusa, Butte, Sierra, and Nevada counties.
Source: SACOG, August 2019. Based on Caltrans District 3 "Goods Movement Study Final Report," 2015.

An important change in freight movement over the past few years has been the increasing amount of internet shopping. The combination of internet shopping and the e-commerce system that supports it has altered traditional travel demand. One of the reasons people travel is to obtain goods and services. Today, goods and services are routinely delivered directly to users including food delivery within minutes of ordering and commerce from many major retailers within two hour, same-day, next-day, and two-day shipping windows. According to Professor Jose Holguin-Veras, director of the Center of Excellence for Sustainable Urban Freight Systems at New York's Rensselaer Polytechnic Institute, the number of daily freight deliveries per person in the U.S. has increased from about 0.12 in 2009 to 0.25 (TIME 2018). This rate is expected to double by 2023. In response to growing demand and faster delivery times, delivery vehicle options have expanded to include passenger cars and experimentation with drones and small robot vehicles operating on sidewalks.

MEDIUM AND HEAVY-DUTY TRUCKS

One of the key components of the region's goods movement system is the fleet of medium- and heavy-duty trucks, defined as cargo-carrying vehicles with a gross weight rating in excess of 8,500 pounds (by the U.S. Environmental Protection Agency [EPA]) or 10,000 pounds (by the Federal Highway Administration [FHWA]) (DOE 2012). Trucks provide a vital link in the distribution of all types of goods between the region's airports, seaport, railroads, warehouses, factories, farms, construction sites and stores.

The industry uses the public highway system for over-the-road and local service. I-80 is the major east-west freeway through the Sacramento region, not only facilitating goods movement to and from the region but also connecting the ports and industry of the San Francisco Bay Area to much of the rest of the country. I-5 and SR 99 are the two major north-south corridors serving the region, facilitating goods movement through the Central Valley and connecting the Sacramento region to

the rest of the state, the Pacific Northwest, and Mexico and Canada. Figure 16-6 shows the Goods Movement Routes for trucks in the plan area of the proposed MTP/SCS.

While trucks are essential to the goods movement for the region, they also create conflicts with neighbors when operated on roadways not designated for trucks, contribute to freeway and highway congestion, and contribute to air pollutant and GHG emissions.

PASSENGER VEHICLES USED FOR GOODS MOVEMENT

To help complete the last mile of freight delivery, especially to individual homes, internet shopping businesses such as Amazon have developed networks that rely on passenger vehicles and light-duty trucks and vans. The increase in deliveries to homes is occurring at the same time trips from home for shopping, recreation, or other purposes is declining according to analysis of the 2017 NHTS by Fehr & Peers. Whether the declines offset the new increases in passenger vehicle trips for goods delivery is uncertain; however, one estimate of passenger vehicle VMT changes in California based on gasoline fuel sales prepared by the California Air Resources Board (CARB) reveals that VMT per capita has been increasing since about 2011 (CARB 2018a). This increase may, in part, be due to increased goods delivery in passenger vehicles but other contributors could be higher levels of visitors in California, more auto drivers, and lower fuel prices.

RAIL TRANSPORT

The Sacramento region is served by both major railroads and shortline railroads, shipping products such as motor vehicles, lumber, chemicals, petroleum, agricultural products, cement, and aggregate. These railroads shipped 104 million tons of freight into California and 63 million tons of freight out of California in 2017 (AAR 2019).

The Union Pacific Railroad (UPRR) is the largest Class 1 railroad serving the region. The UPRR links the Sacramento area to the rest of California and other United states regions, Mexico, and Canada, both directly via its major north/south and east/west lines passing through the region and via their connections with other railroads. The UPRR's Roseville Yard is the largest rail facility on the West Coast and handles approximately 98 percent of all rail traffic moving through Northern California. The yard occupies 915 acres and includes a repair facility. An additional Class 1 railroad, BNSF Railway, also operates in the region through UPRR track rights (BNSF Railway 2014).

The Sierra Northern Railway is a shortline railroad with 17 miles of track between West Sacramento and Woodland. The railway connects customers to the UPRR and BNSF railways via its interchange location in West Sacramento. The railway also serves the Port of Sacramento. The railway serves both freight and excursion train (via the Sacramento River Train) customers (SNR 2015).

Genesee & Wyoming owns the California Northern Railroad, which operates 256 miles of track in Northern California. This shortline railroad connects customers in Northern California to Sacramento and San Francisco Bay Area via links to the UPRR in Davis. The railway serves freight customers (Genessee and Wyoming, Inc. 2015).

Patriot Rail operates the Sacramento Valley Railroad, which supports seven miles of tracks within McClellan Business Park, where it interchanges traffic with the UPRR and BNSF. The railway serves freight customers (Patriot Rail 2019).

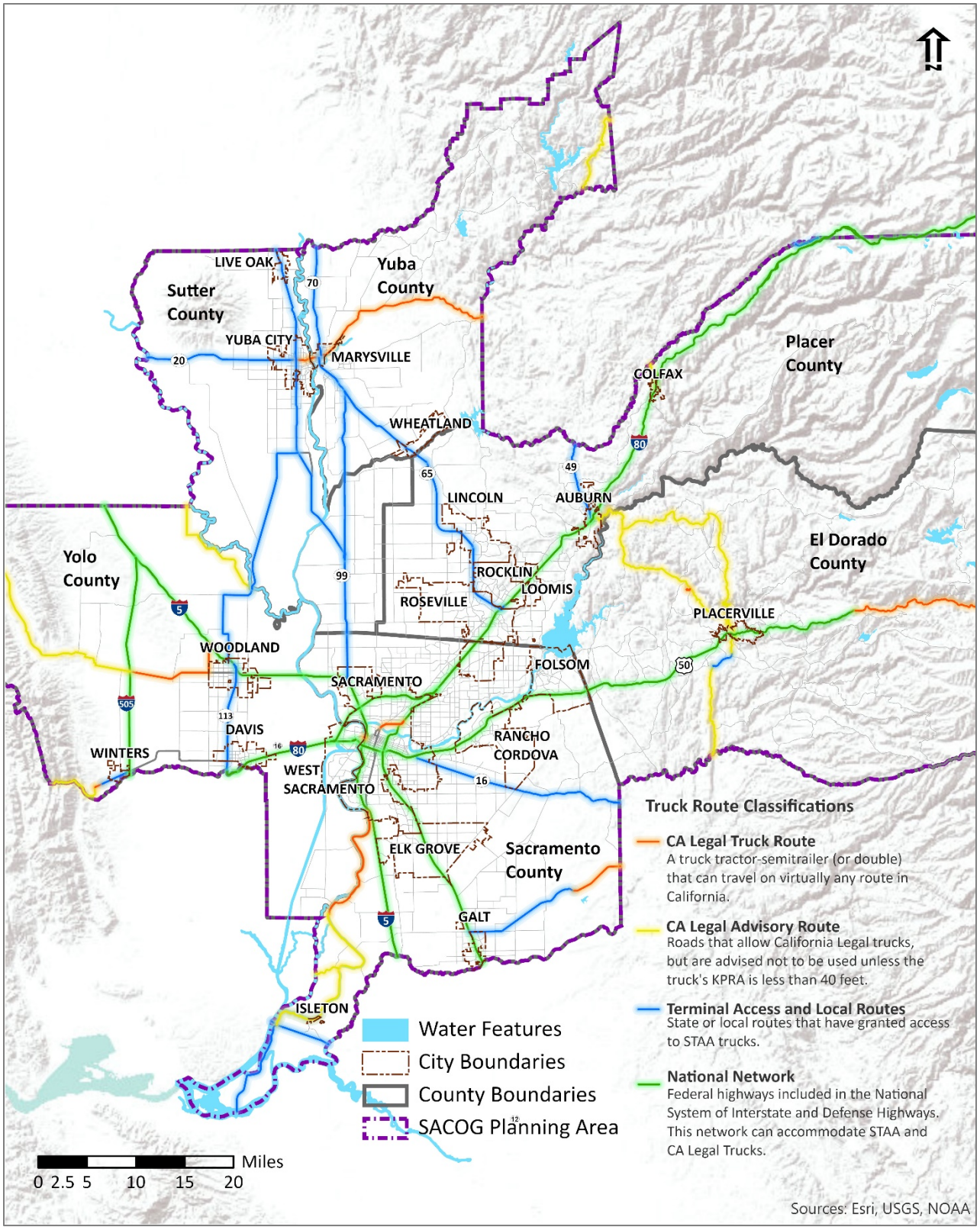


Figure 16-6
Goods Movement Routes

In addition to shipping other agricultural, commercial, and industrial goods, the region's rail network also handles crude oil shipments. These shipments, connecting production fields in California, the rest of the U.S., and Canada to refineries and ports on the coast, are expected to grow in coming years with increasing North American oil production. In response to concerns about possible dangers from such shipments, including explosions and spills, state officials have requested the railroads handling these shipments provide plans showing that they can clean up any spills (Sacramento Bee 2014).

AIR FREIGHT

Air freight also arrives and departs the plan area of the proposed MTP/SCS through two major cargo airports, Sacramento International and Mather. While the data above based on a 2011 regional study showed air carrying about 300,000 tons of freight to/from/through the region, more recent information shows that the air service carried just under 197,000 tons. In 2018, Sacramento International handled 120,000 tons of freight and Mather handled 77,000 tons of freight. Additionally, Sacramento International handled 6,700 tons of airmail in 2018 (Sacramento County 2018b). UPS is the primary cargo carrier serving Mather.

MARITIME PORT

The inland Port of West Sacramento, managed by the City of West Sacramento, is located near the center of the Sacramento metropolitan area and thus also the Central Valley agricultural region. The port is connected to Suisun Bay and San Francisco by the 40-mile long, 30-foot deep Deep Water Ship Channel (City of West Sacramento 2015). The port is the primary handler of the region's rice exports and handles other agricultural and industrial bulk products. As of 2012, the port averaged approximately 320,000 tons of cargo annually (Port of West Sacramento 2013).

16.2.5 Existing Conditions: Transportation Performance Measures

Regional conditions for select performance indicators form the basis for the transportation impacts analysis presented in this EIR. These indicators include VMT, shares of transit and non-motorized trips, transit productivity, and miles of bicycle and pedestrian routes. These indicators have been important performance measures throughout the development of the proposed MTP/SCS, and all relate directly to the performance of the region's transportation system. The discussion below includes historical context on travel trends in the plan area of the proposed MTP/SCS related to VMT and mode split shares. More details on each indicator are included in the impact analysis section. In addition to these metrics, information is summarized below about the aviation and goods movement components of the transportation system.

VEHICLE MILES TRAVELED

A "VMT" is one vehicle traveling on a roadway for one mile. Regardless of how many people are traveling in the vehicle, each vehicle traveling on a roadway within the Sacramento region generates one VMT for each mile it travels. For the purposes of this EIR, VMT is estimated and projected for a typical weekday. The efficacy of this measure is as a result of several factors:

- VMT is relatively easy to measure by counting traffic on roadways at different locations. It is one of the few measures of transportation performance that has been consistently and comprehensively monitored and documented over time in the Sacramento region.
- VMT bears a strong and direct relationship to vehicle emissions, although this relationship is becoming more complex as vehicular technologies evolve. State and federal policies pertaining to vehicle efficiency and formulation of vehicle fuels suggest that on a per VMT basis, emissions for most pollutants and GHGs will decline relative to today. However, even with these per VMT improvements due to fuel and vehicle technology changes, lower VMT will mean lower emissions.
- VMT can be influenced by policy in a number of different ways. By providing more attractive alternatives to driving alone, VMT can be reduced by shifting from vehicle to non-vehicle modes (i.e., from a car trip to a bike or walk trip), or from low occupancy to HOVs (i.e., from a single-occupant vehicle trip to a carpool or transit trip). VMT can be influenced by land use patterns as well. A better mix of residential, employment, education, and service uses in an area can allow people to accomplish their daily activities with less driving, and consequently less VMT. Locating land uses in closer proximity to each also makes walking and bicycling more viable, while also making transit more effective.

As displayed in Table 16-4, VMT per capita increased by 3.1 percent from 2012 to 2016 while the region's population continued to increase for the same period (7.3 percent). This trend can at least in part be attributed to the improving economy and associated travel since the 2008/09 recession.

Table 16-4
Average Daily Vehicle Miles Traveled in SACOG Region, 2008-2016

County	Daily VMT[1] (thousands)			Changes		
	2008	2012	2016	'08 to '12	'12 to '16	'08 to '16
El Dorado[1]	3,801	3,848	4,095	1.2%	6.4%	7.7%
Placer[1]	8,502	8,605	9,161	1.2%	6.5%	7.7%
Sacramento	31,835	32,937	35,652	3.5%	8.2%	12.0%
Sutter	2,444	2,283	2,672	-6.6%	17.0%	9.3%
Yolo	5,489	5,710	6,071	4.0%	6.3%	10.6%
Yuba	1,787	1,765	1,928	-1.2%	9.2%	7.9%
Region	53,859	55,148	59,579	2.4%	8.0%	10.6%
Pop. (thousands)[2]	2,215	2,268	2,376	2.4%	4.8%	7.3%
VMT per Capita	24.3	24.3	25.1	0.0%	3.1%	3.1%

Notes:
[1]Includes VMT from all sources (household-generated, commercial and external) on all roadways within the SACOG region. Estimates from California Public Road Data (CPRD) reports, adjusted to exclude Tahoe Basin portions of El Dorado and Placer County.
[2]Only the portions of Placer and El Dorado County outside the Tahoe Basin are reported.
Sources: Data compiled by SACOG in July 2019; Caltrans 2008-2016

TRAVEL BY BICYCLING, WALKING, AND TRANSIT

Table 16-5 provides data and estimates on travel by walking, biking, and transit in the region. The commuter travel estimates are survey data from the American Community Survey. These data show

that mode shares have remained relatively stable since 2008 although bicycling has increased notably while carpooling has declined. The other key change is that working at home has increased.

Table 16-5
Transit and Non-Motorized Weekday Mode Shares in the SACOG Region, 2008-2016

Mode of Travel	2008	2012	2016
Commuter Travel[1]			
Total Workers	1,020,500	968,200	1,023,200
Drive-Alone Commuters	767,200	729,500	782,100
Carpool Commuters	126,700	110,800	105,700
Public Transit Commuters	26,100	24,800	26,000
Bicycle Commuters	14,900	17,000	17,400
Walk Commuters	21,600	20,500	21,400
Combined Bicycle and Walk Commuters	36,500	37,600	38,800
Worked at Home	51,000	55,100	57,600
Mode Shares			
Drive-Alone	75.2%	75.3%	76.4%
Carpool	12.4%	11.4%	10.3%
Public Transit	2.6%	2.6%	2.5%
Bicycle	1.5%	1.8%	1.7%
Walk	2.1%	2.1%	2.1%
Combined Bicycle and Walk	3.6%	3.9%	3.8%
Worked at Home	5.0%	5.7%	5.6%

[1] SACOG, based on data from the American Community Survey 3-year sample data releases for 2008, 2012, and 2016. Data shown are 6-county totals, including Tahoe Basin.
Source: Data compiled by SACOG in July 2019

Table 16-6 provides recent information on mode of commute for residents in the SACOG region. Mode of travel varies significantly, based on the type of area where the resident lives. For example, the non-auto share of person trips (including every mode, except driving alone or carpooling) accounted for nearly 21 percent of all trips for residents of Center and Corridor communities, but 11 percent for residents of Developing and Rural communities. The majority of this difference is accounted for by the walk mode, which accounts for 14 percent of person trips in Center and Corridor communities, but only 6 percent in Developing and Rural communities. Some of the factors related to these differences are discussed in greater detail in this chapter in the "Methods and Assumptions" section, but the key factors are: more activities clustered closer to residences in Center and Corridor communities, and street patterns and pedestrian facilities (e.g., sidewalks) are more supportive of walking and biking. Also, transit service is more prevalent in Center and Corridor communities.

Recent trends in transit ridership are shown in Table 16-7. The decline in ridership in transit has been a topic of great interest in the U.S., and in the SACOG region as well. From 2008 to 2016, transit ridership in the region has declined 16 percent in total, and 22 percent on a per capita basis. Note that these figures are for all thirteen fixed route transit providers—ridership losses are higher for some operators and lower for others. Two factors impacting these declines are illustrated on the table: provision of transit service in the region, and the cost of driving in the region. On a per capita basis, transit service hours declined by 19 percent from 2008 to 2012, and increased by 10 percent

from 2012 to 2016. Overall, service declined by 10 percent from 2008 to 2016. Over that same time period, the average price of a gallon of gasoline declined by 31 percent, from $4.08 to $2.81, adjusted for inflation, and many transit operators increased transit fares. The increase of transportation network companies (TNCs) and micro-mobility are additional factors that may account for some part of the ridership decline.

Table 16-6
2018 Person Trip Mode of Travel for SACOG Region

	Community Type				
	Center & Corridor	Established	Developing	Rural	Regional
Drive Alone	42.5%	40.7%	52.6%	60.1%	42.4%
Carpool	40.4%	47.1%	38.9%	33.9%	45.4%
Walk	11.5%	7.5%	5.7%	1.3%	7.5%
Bike	2.5%	2.5%	0.8%	0.1%	2.3%
School Bus	0.3%	0.3%	0.2%	0.9%	0.3%
Transit	2.0%	1.0%	1.7%	0.6%	1.2%
TNC/Taxi	0.2%	0.2%	0.0%	0.2%	0.2%
Other	0.6%	0.8%	0.1%	2.9%	0.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Non-SOV Share	57%	59%	47%	40%	58%
Transit/Bike/Walk Share	16%	11%	8%	2%	11%

Note: 10ths of percentages are shown in the mode breakdown, purely to capture the relative magnitude of some of the modes showing less than one percent in the survey results. 10^{ths} of percentages are below the margin of error for the survey results.
Source: Data compiled by SACOG in August 2019. Based on 2018 SACOG Household Travel Survey, filtered to typical weekdays, weighted results.

Table 16-7
Transit Service and Ridership—SACOG Region

Indicator (all in 1000's)	Changes					
	2008	2012	2016	'08 to '12	'12 to '16	'08 to '16
Annual Vehicle Service Hours[1]	1,326	1,105	1,275	-17%	+15%	-4%
Annual Passenger Boardings[2]	40,951	35,287	34,212	-14%	-3%	-16%
Population (in 1000's)[2]	2,215	2,268	2,376	+2%	+5%	+7%
Boardings per Capita	18.5	15.6	14.4	-16%	-7%	-22%
VSH per Capita	0.60	0.49	0.54	-19%	+10%	-10%
Average Price of Gasoline ($ 2017)[3]	$4.08	$4.43	$2.81	+9%	-37%	-31%

[1] National Transit Database and Triennial Performance Audits, 2008-2016. For all operators of fixed route service in SACOG region.
[2] Data compiled by SACOG in July 2019
[3] Data compiled by SACOG in July 2019. Based on California Energy Commission weekly spot price data, aggregated to yearly, and adjusted for inflation to 2017 dollars base on Wester States Urban CPI.

AVIATION

An important air transportation performance measure is passengers served. In 2018, Sacramento International Airport enplaned 6,031,630passengers and deplaned 6,019,133passengers (Sacramento County 2018b). Approximately 261,520 of these passengers were from international flights, which nearly tripled compared to 2012, while domestic flights increased nearly 34 percent. International flights are projected to continue growing and overall forecast trends indicate that total demand may reach 8.5 million annual enplaned passengers by 2035 (Sacramento County 2017).

GOODS MOVEMENT

With trucks being the predominant goods movement mode, their volume on regional roadways is an important metric to monitor. Table 16-8 shows truck traffic volumes on key freeways in the SACOG region. I-5 carries the highest volume of trucks in the region followed by SR 99.

Table 16-8
Truck Percentages on Freeways in the SACOG Region, 2016

Interstate/Highway	Vehicle Average Annual Daily Traffic (AADT)	All Truck AADT	All Truck %	3+ Axle % of All Trucks
I-5 at I Street (City of Sacramento)	190,800	18,320	10%	77%
I-5 at SR-113 (City of Woodland)	38,200	8,160	21%	92%
SR-20 at Acacia (City of Yuba City)	9,700	450	5%	62%
US-50 at SR-16 (City of Sacramento)	189,000	4,740	3%	54%
SR-51 at US-50/SR-99 (City of Sacramento)	146,500	5,430	4%	63%
SR-70 at Yuba/Butte County Line	13,900	900	6%	77%
I-80 at US-50 (City of West Sacramento)	86,500	8,640	10%	63%
I-80 at I-5 (City of Sacramento)	143,900	8,250	6%	68%
I-80 at Clipper Gap (Placer County)	42,000	6,360	15%	68%
SR-99 at US-50/SR-99 (City of Sacramento)	231,700	10,450	5%	69%
SR-99 at Elverta Rd. (Sacramento County)	47,100	4,520	10%	56%

Source: Caltrans 2016

16.3 Regulatory Setting

16.3.1 Federal Regulations

FIXING AMERICA'S SURFACE TRANSPORTATION

The Fixing America's Surface Transportation (FAST) Act was signed into law on December 4, 2015 and legislates U.S. transportation funding and set expectations for metropolitan transportation planning. In general, FAST continues all the metropolitan planning requirements that were in effect under the previous federal legislation, Moving Ahead for Progress in the 21st Century Act (MAP-21).

Under MAP-21, the U.S. Department of Transportation (DOT), FHWA, and Federal Transit Administration (FTA) require that metropolitan planning organizations (MPOs) prepare and submit long-range transportation plans. In regions that are designated federal air quality non-attainment areas, these plans must be updated at least every four years. The federal requirements for metropolitan transportation plans include the following (23 U.S. Code Section 134(i)):

- **Transportation facilities.** An identification of transportation facilities (including major roadways, transit, multimodal and intermodal facilities, and intermodal connectors) that should function as an integrated metropolitan transportation system, giving emphasis to those facilities that serve important national and regional transportation functions.
- **Mitigation activities.** A long-range transportation plan shall include a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan. The discussion shall be developed in consultation with federal, state, and tribal wildlife, land management, and regulatory agencies.
- **Financial plan.** A financial plan that demonstrates how the adopted transportation plan can be implemented, indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan, and recommends any additional financing strategies for needed projects and programs. The financial plan may include, for illustrative purposes, additional projects that would be included in the adopted transportation plan if reasonable additional resources beyond those identified in the financial plan were available. For the purpose of developing the transportation plan, the metropolitan planning organization, transit operator, and state shall cooperatively develop estimates of funds that will be available to support plan implementation.
- **Operational and management strategies.** Operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods.
- **Capital investment and other strategies.** Capital investment and other strategies to preserve the existing and projected future metropolitan transportation infrastructure and provide for multimodal capacity increases based on regional priorities and needs.
- **Transportation and transit enhancement activities.** Proposed transportation and transit enhancement activities.

According to the FHWA Fact Sheet for the FAST Act (https://www.fhwa.dot.gov/fastact/factsheets/metropolitanplanningfs.cfm), the following changes or emphasis were added to MAP-21 expectations:

Scope of Planning Process

The FAST Act expands the scope of consideration of the metropolitan planning process to include -

- improving transportation system resiliency and reliability;
- reducing (or mitigating) the stormwater impacts of surface transportation; and
- enhancing travel and tourism. [23 U.S. Code 134(h)(1)(I) & (J)]

Capital Investment and Other Strategies

The FAST Act continues to require a metropolitan transportation plan to include strategies to meet current and projected transportation infrastructure needs. [23 U.S. Code 134(i)(2)(G)]

Resilience and Environmental Mitigation Activities

The FAST Act expands the focus on the resiliency of the transportation system as well as activities to reduce stormwater runoff from transportation infrastructure. In addition, it newly requires strategies to reduce the vulnerability of existing transportation infrastructure to natural disasters. [23 U.S. Code 134(d)(3) & (i)(2)(G)]

Transportation and Transit Enhancement Activities

The FAST Act continues to require a metropolitan transportation plan to include transportation and transit enhancement activities. When proposing these activities, the plan must now include—

- consideration of the role that intercity buses may play in reducing congestion, pollution, and energy consumption in a cost-effective manner; and
- strategies and investments that preserve and enhance intercity bus systems (including those that are privately owned and operated. [23 U.S. Code 134(i)(2)(H)]

Participation by Interested Parties In the Planning Process

The FAST Act explicitly adds public ports and certain private providers of transportation, including intercity bus operators and employer-based commuting programs to the list of interested parties that an MPO must provide with reasonable opportunity to comment on the transportation plan. [23 U.S. Code 134(i)(6)(A)]

Congestion Management

The Congestion Management Process (CMP) is a collaboratively developed set of objectives, performance metrics, and strategies the Sacramento region will use to monitor and manage traffic congestion on select roadways that comprise its CMP network. The Federal Highway Administration (FHWA) requires all metro regions with a population of more than 200,000 to maintain a CMP. SACOG's CMP will be part of its metropolitan transportation plan (MTP) and bring several benefits, including:

- Providing a system to quantitatively monitor the region's progress toward MTP goals,
- Identifying and prioritizing cost-effective, multi-modal strategies to address congestion, and
- Aligning specific congestion management projects and strategies with MTP policies.

SACOG's current CMP work involves developing a methodology to measure, monitor and manage congestion and reliability on the regionally significant roadways across the SACOG region. It will incorporate data from the National Performance Measurement Research Data Set, which provides detailed vehicle speed information based on data collected from millions of GPS-enabled mobile devices. SACOG is developing its CMP measurements and methodology to align with the federal MAP 21 and FAST Acts.

16.3.2 State Regulations

State requirements for long-range transportation plans are similar to the federal regulations. However, key additional requirements described in Government Code Section 65080 include:

- compliance with CEQA;
- consistency with state Transportation Improvement Program;
- use of program level performance measures that include goals and objectives;
- inclusion of a policy element, an action element, and a financial element; and
- inclusion of a Sustainable Communities Strategy for MPOs (see Senate Bill [SB] 375 discussion below).

California Transportation Commission Regional Transportation Plan Guidelines

The California Transportation Commission (CTC) publishes and periodically updates guidelines for the development of long-range transportation plans, such as SACOG's MTP/SCS. Pursuant to Government Code Section 65080(d), each regional transportation planning agency (RTPA) is required to adopt and submit an updated regional transportation plan (RTP) to CTC and Caltrans every four years. SACOG is the designated RTPA for Sacramento, Yolo, Sutter, and Yuba counties. The El Dorado County Transportation Commission (EDCTC) and the Placer County Transportation Planning Agency (PCTPA) are the RTPAS for their respective counties.

Under Government Code Section 14522, the CTC is authorized to prepare guidelines to assist in the preparation of RTPs. The most recent update to the RTP guidelines was published in 2017, and includes separate guidance for RTPAs and MPOs and new checklists for RTP content. See Appendix E: Plan Performance in the proposed MTP/SCS.

CEQA Streamlining

SB 226 (Stats. 2011, ch.469) revises the CEQA Guidelines to set forth a streamlined review process for infill projects, including performance standards to determine an infill project's eligibility for that streamlined review. One of the requirements for streamlined review is that the project be consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy.

Sustainable Communities and Climate Protection Act

California's Sustainable Communities and Climate Protection Act (SB 375) (Stats. 2008, ch.728) requires MPOs to prepare a sustainable communities strategy (SCS) that demonstrates how the region will meet its GHG per capita emissions reduction targets through integrated land use, housing, and transportation planning. Specifically, the SCS must identify a transportation network that is integrated with the forecasted development pattern for the plan area and will reduce GHG emissions (over a 2005 base year) from automobiles and light trucks in accordance with targets set by CARB. In March 2018, CARB established new GHG emissions reduction targets for all MPOs in the state. SACOG's GHG emissions reduction target for Year 2035 was increased from 16 percent to 19 percent (CARB 2017a; see Chapter 8 for more detailed discussion on the SACOG SB 375 target). While increasing the SB 375 targets, CARB also noted that the increase fell short of what

was needed to fully achieve state goals on GHG emissions reduction and climate change mitigation. In combination, the staff report and presentation materials to the CARB Board show that in total, the revised SB 375 GHG emissions reduction targets for all of the state's MPOs would result in a statewide reduction of 19 percent (compared to 18 percent from the prior SCS achievement), but that a 25 percent reduction was needed to fully meet the GHG emissions reduction goals of the *Scoping Plan* (CARB 2018b). The difference between the 19 percent resulting from CARB's updated SB 375 targets and the 25 percent identified need is referred to in other various CARB documents as the "gap."

In the SB 375 target resetting, CARB recognized that additional state action was needed to close this gap. "The recommended targets also recognize that additional State policy and funding tools are being developed to support further VMT reduction that will both help the State overall in achieving needed emission reductions and support MPOs in their ability to achieve higher targets by 2035." The categories of state action to accomplish this, with help of MPOs and other organizations, were: funding mechanisms to incentivize infill development; improved performance analysis to assist agencies in funding supportive transportation projects; expanding investment in transit and active transportation; and pricing policies and programs. A common theme to all the additional actions is the focus on VMT reduction.

Two additional state documents provide context for understanding how these GHG emissions reduction targets relate to the transportation issues discussed in this chapter. One is the *Scoping Plan* itself, which also recognizes that statewide collaboration is needed to address the gap; and further, that the gap in GHG emissions reductions would be closed through VMT reduction strategies (CARB 2017b):

> Discussions among a broad suite of stakeholders from transportation, the building community, financial institutions, housing advocates, environmental organizations, and community groups are needed to begin the process to pursue and develop the needed set of strategies to ensure that we can achieve necessary VMT reductions, and that the associated benefits are shared by all Californians. Appendix C further details potential actions for discussion that can be taken by State government, regional planning agencies, and local governments, to achieve a broad, statewide vision for more sustainable land use and close the VMT gap.

The second document, published by CARB in January 2019, provided additional detail on the scope of the challenge, and its relationship to CEQA (CARB 2019):

> An RTP/SCS that meets the applicable SB 375 targets alone will not produce the GHG emissions reductions necessary to meet state climate goals in 2030 nor in 2050. This means that SB 375 targets are not stand-alone CEQA thresholds for GHG or transportation impact analysis (though SCS compliance may nonetheless entitle projects to certain CEQA exemptions or streamlining procedures pursuant to statute). In other words, a project that is consistent with an SCS may be eligible for certain exemptions, but compliance does not necessarily more broadly imply consistency with state climate goals nor with science-based GHG reduction targets, in CARB staff's non-binding view. Some land use development projects contemplated in an SCS that will be operational in 2030 and 2050 will be consistent with state climate goals, and SB 375 defines project circumstances under which CEQA streamlining is available to qualified projects consistent with an SCS. Other projects may

need to consider additional mitigation measures to further reduce per capita light-duty transportation-related GHG emissions to levels that would not conflict with state climate goals. Likewise, certain transportation infrastructure projects that will be operational in 2030 and 2050 that substantially increase VMT may conflict with state climate goals, even if they are included in an SCS that meets the applicable SB 375 targets.

Setting aside the historic base years for the Scoping Plan (Year 1990) and for SB 375 (Year 2005), CARB focused on the VMT reductions needed over current conditions (2015-2018) to meet the state's 2030 and 2050 climate goals. CARB concluded that a 14.3 percent reduction in daily VMT per capita and a 16.8 percent reduction in light-duty VMT per capita was needed to meet these goals.

SENATE BILL 743 VEHICLE MILES TRAVELED ANALYSIS (PUBLIC RESOURCES CODE SECTION 21099)

SB 743 (Stats. 2013, ch. 386) resulted in several statewide CEQA changes. It required the Governor's Office of Planning and Research (OPR) to establish new metrics for determining the significance of transportation impacts of projects within transit priority areas (TPAs) and allows OPR to extend use of the metrics beyond TPAs. OPR selected VMT as the preferred transportation impact metric and applied their discretion to require its use statewide. This legislation also established that aesthetic and parking effects of a residential, mixed-use residential, or employment center projects on an infill site within a TPA are not significant impacts on the environment. The revised CEQA Guidelines that implement this legislation became effective on December 28, 2018, and state that vehicle level of service (LOS) and similar measures related to delay shall not be used as the sole basis for determining the significance of transportation impacts, and that as of July 1, 2020, this requirement shall apply statewide, but that until that date, lead agencies may elect to rely on VMT rather than LOS to analyze transportation impacts. Finally, the legislation establishes a new CEQA exemption for a residential, mixed-use, and employment center project a) within a TPA, b) consistent with a specific plan for which an EIR has been certified, and c) consistent with an SCS. This exemption requires further review if the project or circumstances change significantly.

To aid in SB 743 implementation, the following state guidance has been produced.

- *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018);
- The aforementioned *2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* (CARB 2019); and
- Local Development – Intergovernmental Review Program Interim Guidance, Implementing Caltrans Strategic Management Plan 2015-2020 Consistent with SB 743 (Caltrans 2016).

Of these documents, the *California Air Resources Board 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* is most relevant for transportation impact analysis of the proposed MTP/SCS. It provides recommendations for VMT reduction thresholds that would be necessary to achieve the state's GHG reduction goals and acknowledges that the SCS targets alone are not sufficient to meet climate goals.

16.3.3 Local Regulations

REGIONAL TRANSPORTATION PLANNING AGENCIES AND OTHER SUB-REGIONAL AGENCIES

Within the SACOG region are several sub-regional agencies that oversee some planning, programming, and administration functions related to planned transportation improvements. These sub-regional agencies coordinate directly with local agencies in their geographic part of the SACOG region. In some cases, these sub-regional agencies also provide transportation services, such as transit. These sub-regional agencies include:

- PCTPA – This agency is designated in state law as the RTPA for Placer County. PCTPA is also the county's Congestion Management Agency (CMA), a statutorily designated member of the Capitol Corridor Joint Powers Authority, and the airport land use planning body and hearing board for Lincoln, Auburn, and Blue Canyon Airports. As part of their Joint Powers Agreement, PCTPA is the designated administrator for the South Placer Regional Transportation Authority (SPRTA). Under an agreement with SACOG, PCTPA also represents Placer jurisdictions in federal planning and programming issues. Since the PCTPA has a local Agency-state Agreement for federal aid projects, it is also eligible to administer federal projects. PCTPA is also responsible for adopting and implementing the RTP for Placer County. As part of a memorandum of understanding with SACOG, PCTPA's RTP is integrated into SACOG's regional MTP/SCS.
- EDCTC – This agency is designated in state law as the RTPA for El Dorado County. As the RTPA, the EDCTC serves as the planning and programming authority for planned transportation improvements on the western slope of El Dorado County, excluding those areas within the Tahoe Regional Planning Agency boundaries. In 2008, the EDCTC was designated as the Airport Land Use Commission for the Placerville, Georgetown, and Cameron Park airports. EDCTC is also responsible for adopting and implementing the RTP for El Dorado County. As part of a memorandum of understanding with SACOG, EDCTC's RTP is integrated into SACOG's regional MTP/SCS.
- Sacramento Transportation Authority (STA) – This agency is a local transportation authority pursuant to the California Public Utilities Code Sections 131300—131304. The STA is primarily responsible for administering the Measure A program that is supported by a one-half percent sales tax in Sacramento County for transportation improvements. The STA also administers the Sacramento Metropolitan Freeway Service Patrol (FSP) program in cooperation with Caltrans and the California Highway Patrol. The FSP's primary objective is to reduce the traffic congestion caused by roadway incidents. The STA Governing Board and staff also serve as the Governing Board and staff of the Sacramento Abandoned Vehicle Service Authority (SAVSA). SAVSA provides funding to participating local jurisdictions for the abatement of abandoned vehicles and vehicle parts on streets and private property.

LOCAL AGENCY GENERAL PLANS

State law requires cities and counties to adopt general plans, which must include, among others, a circulation element. The circulation element is required to map and provide a policy framework for circulation via all modes and public utilities. The information in the circulation element is required to be correlated with the land use element, and serve the projected population and employment growth in a manner consistent with the general plan vision. Circulation elements generally address

expectations for transportation network operations and safety based on goals and policies of the city or county. Circulation elements typically address the roadway network and its traffic operations, goods movement, public transit, bicycle facilities, and pedestrian facilities, among other things.

AIRPORT LAND USE COMPATIBILITY PLANS

Each public airport has an Airport Land Use Commission (ALUC) that is responsible for preparing airport land use compatibility plans (ALUCP). The statutes governing ALUCs and ALUCPs are set forth in Division 9, Part 1, Chapter 4, Article 3.5, Sections 21670 – 21679.5 of the California Public Utilities Code (PUC).

The desired outcome or result of airport land use compatibility planning is to "minimize the public's exposure to excessive noise and safety hazards" while providing for the "orderly expansion of airports" according to the California Airport Land Use Planning Handbook, Caltrans, October 2011. The ALUCPs influence land use and transportation decisions near airports and have been considered in the development of the proposed MTP/SCS. SACOG serves as the ALUC for airports in Yuba, Yolo, Sutter, and Sacramento Counties; except for the UCD airport and any located on tribal land. The Placer County Transportation Planning Agency and the El Dorado County Transportation Commission serve as the ALUCs for their respective counties.

BICYCLE, PEDESTRIAN, AND TRAILS MASTER PLANS AND ACTIVE TRANSPORTATION PLANS

Bicycle, Pedestrian, Trails, and Active Transportation Plans are planning documents used to guide future development of a jurisdiction's bicycle and pedestrian facilities. At a minimum, these plans usually contain an inventory of existing facilities, a discussion of the plan's goals, recommendations for new projects, and an implementation plan. SACOG has worked with its member agencies to create and maintain the *Regional Bicycle, Pedestrian, and Trails Master Plan*, April 16, 2015. This regional plan was originally developed in 2004 and the latest version is the sixth update. Recent work in 2018 included updates of the existing and planned bikeway networks and access to the data through SACOG's open data portal. The regional plan complements the plans developed by local agencies and highlights those facilities with regional significance.

16.4 Impacts and Mitigation Measures

16.4.1 Methods and Assumptions

This program-level analysis generally evaluates the potential impacts to the environment from implementation of the proposed MTP/SCS, including the projected land use pattern and planned transportation network, compared to existing conditions in the plan area

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area's five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. Third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs, and the projected land use pattern and planned transportation improvements within these areas.

SB 375 (see above) requires MPOs to explicitly account for the combined effects of land use and planned transportation improvements in updates to the regional transportation plans. Informing the development of the proposed MTP/SCS is a body of research and knowledge on relationship between characteristics of land use and travel behavior, often referred to as "the Ds." The land use characteristics recognized as most influential to travel behavior are listed below (Ewing and Cervero 2010).

- **Regional Accessibility ("Destinations")** is a way of quantifying how "connected" a given area is to the existing development in a region and is usually stated as the number of jobs within an "average" auto commute drive time. It is a measure of how many activities are within a reasonable drive time from a given place of residence. In areas within the existing urbanized area, regional accessibility is usually higher, because these areas are surrounded by other development. In outlying areas or areas on the urban edge, where a major part of the area within a given travel time is undeveloped, this measure tends to be lower. This factor has the strongest potential effect on VMT; a 10 percent increase in this measure would, on average, result in a 2 percent decline in VMT for residents of an area.
- **Street Pattern/Urban Design ("Design")** refers to how "walkable" a given area is, based on characteristics of the street pattern in that area. It is usually measured as the density of intersections in a given area. The greater are the number of intersections, the smaller are the blocks and the more potential walking connections there are in that area. Although other factors (presence/absence of sidewalks, pedestrian amenities on the street, traffic volumes on streets, presence/absence of crosswalks, treatment of pedestrians at signalized intersections, etc.) affect walkability and walk mode share, street pattern has been used as a proxy in research, in part because it is relatively easy to assemble data. In terms of VMT reduction, this is the second strongest factor, with a 10 percent improvement resulting in, on average, a 1.2 percent reduction in VMT, a 2 percent increase in trips made by transit, and a 4 percent increase in trips made by walking.
- **Mix of Use ("Diversity")** refers to the inclusion in an area of a range of complementary land uses, which allows for more activities (e.g., working, shopping, school, etc.) to be contained within that area. Good land use mix allows for reductions in VMT through shortening of vehicle trips or shifting to other non-vehicle modes of travel like walking. The most common measures of mix of use combine the relative proportions of residential, overall jobs, retail, and other residential supporting land uses into an "entropy" formula. A 10 percent improvement in mix of use would, on average, result in a 0.9 percent reduction in VMT, and a just over 1 percent increase in walk and transit trips.
- **Distance to Transit ("Distance")** refers to the distance from a residence to the nearest transit station or stop, with VMT declining, and both walking and transit use increasing, as

distance to the nearest transit decreases. Although this factor has modest impact on VMT, with a 10 percent improvement resulting in, on average, a less-than-one percent decrease in VMT, the potential to increase transit trip-making is greater, with a nearly 3 percent increase.

- **Residential Density ("Density")** refers to the number of persons or dwellings clustered into a given area. Conceptually, density is quite easy to understand—it is the number of persons or dwellings located in a given area. However, because there are different definitions of area (net acreage, gross acreage, total area, etc.) the effects of density are often over- or under- stated. Recent research shows that a 10 percent increase in density at the place of residence might reduce VMT by about 0.4 percent.

These land use and transportation factors are not the only factors influencing travel in the SACOG region. Other important factors, which are accounted for in the modeling and forecasting tools, described in greater detail below, include:

- demographic factors such as age, income, household size, and number of workers;
- household transportation costs, in particular costs of fuel and transit fares;
- characteristics of travel in neighboring regions and the amount and extent of external, or through, travel they might generate in the SACOG region; and
- geographic features such as rivers, which may separate or divide areas.

Through the development of the proposed MTP/SCS, SACOG has taken into account the general land use and transportation relationships described above and, along with other factors, applied them to the task of developing the land use forecast and the planned transportation improvements. In particular, the following mobility principles guided development of the proposed MTP/SCS:

- The value of compact development and mixed-use development to support an efficient transportation system and reduce the need for vehicle travel for future residents engaging in work, school, and other activities within the region.
- The necessity of aligning transit services in corridors with sufficient density and concentration of uses in order to support more efficient, productive service.
- The value of providing alternatives to driving alone, including bicycle routes, transit service, and land use patterns that allow for walking to activities near home or work, as an effective way to reduce vehicle travel.
- The value of creating pleasant, high quality pedestrian environments to encourage residents to make more trips by walking.

Table 16-9 and below summarize the projected land use pattern projected by the proposed MTP/SCS, sorted by each of the four Ds and by Community Type.

- **Regional Accessibility ("Destinations")** would increase by 29 percent overall, with all community area types increasing by 27 percent or more relative to 2016. Center and Corridor Communities would have the highest level of regional accessibility in both 2016 and 2040 with implementation of the proposed MTP/SCS—in both years, accessibility to jobs would be over 40 percent higher for residents of these areas, compared to the regional average. Accessibility to jobs would decline for the remaining area types, with residents of Rural Residential Communities and Lands Not Identified for Development having the

lowest accessibility in both 2016 and 2040, with 60 percent or more below regional averages. This reflects the fact that Center and Corridor Communities are centrally located in the region, and generally are surrounded by urban development. Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are located on the urban edge, or are completely outside the urbanized area. Developing Communities, to the extent they are at the edge of the urbanized area, have access to jobs on only one side. These locational factors drive down regional accessibility and, by extension, drive up VMT generation.

- **Street Pattern ("Design")** would follow a pattern similar to regional accessibility, with Center and Corridor Communities measuring the highest of all Community Types in both 2016 and 2040. Overall, the street pattern measure (in this case, intersection density) would increase by 24 percent regionally. Each Community Type would increase by 10 percent or more.
- **Mix of Use ("Diversity")** is highest in Center and Corridor Communities and Established Communities, largely because these areas are located near jobs and commercial centers. In 2016, Rural Residential Communities were very low in measured mix of use (8) on the SACOG mix index.[1] In general, measured land mix of use is low in these areas because they are predominantly residential, with very little commercial, school, or other supportive non-residential uses within one-half mile of residences. The biggest change in mix of use between 2016 and 2040 would occur in Developing Communities. This change reflects a significant amount of growth, especially in non-residential development and schools, in the planning for these areas.
- **Distance to Transit ("Distance")** as expected, is lowest (i.e., best) in Center and Corridor Communities, with distance to the nearest transit station or stop averaging approximately one-fifth of a mile in 2016. That remains constant though 2040. Regional average distance to transit would decline from 0.91 miles in 2016 to 0.85 miles by 2040. Distance to transit is greatest in Rural Residential Communities, where average distance to transit is about 6 miles.
- **Residential density ("Density")** of developed parcels would increase overall by about 18 percent, from an average of 1.7 dwellings per net residential acre to two units per acre. The biggest change would occur in Developing Communities, where growth as a percentage of 2016 existing development would be high, and significantly higher in density than the baseline because the baseline is rural residential or undeveloped land. Established Communities would experience little change because the amount of growth would be relatively small compared to the amount of existing development in 2016. Center and Corridor Communities are both the highest in density and would experience the most significant change, with an estimated increase from about 11 units per net acre to about 14 units per acre by 2040.

[1] SACOG's mix index is a variant on an entropy index. It is defined as a residential mix, and measures the degree to which an optimal array of activities and services, which support residents, are present within a one-half mile radius (i.e., 502.6 acres) around the place of residence. The measure includes total jobs per household, retail jobs per household, K-12 school enrollments per household, and medical jobs per household. An area with a perfect balance of each of these factors would score 100; a completely homogenous area, with no mix of use, would score 0.

Table 16-9
Key Land Use / Transportation Characteristics of the Proposed MTP/SCS

Land Use/ Transportation Factor	Community Area Type				
	Center and Corridor	Established	Developing	Rural Residential	Regional Average
Year 2016					
Regional Accessibility[1] (Auto)	595,581	409,636	208,180	113,976	377,257
Regional Accessibility[1] (Transit)	26,864	2,767	137	462	4,829
Street Pattern/Urban Design[2]	132	88	47	14	91
Mix of Use[3]	33	29	9	8	28
Distance to Nearest Transit[4]	0.20	0.71	1.5	5.67	0.91
Residential Density[5]	11.0	4.5	1.8	0.2	1.2
2040 MTP/SCS					
Regional Accessibility[1] (Auto)	762,200	518,317	317,573	163,729	486,796
Regional Accessibility[1] (Transit)	86,163	17,239	2,684	1,180	22,362
Street Pattern/Urban Design[2]	170	102	111	15	113
Mix of Use[3]	37	31	22	8	30
Distance to Nearest Transit[4]	0.20	0.65	1.22	5.97	0.85
Residential Density[5]	14.0	4.7	3.2	0.2	2.0
Change from 2016					
Regional Accessibility[1] (Auto)	28%	27%	53%	44%	29%
Regional Accessibility[1] (Transit)	221%	523%	1861%	155%	363%
Street Pattern/Urban Design[2]	29%	16%	136%	8%	24%
Mix of Use[3]	12%	5%	154%	9%	7%
Distance to Nearest Transit[4]	0%	-9%	-21%	5%	-7%
Residential Density[5]	27%	5%	76%	1%	60%

Notes: All numbers are averages for residences in each community area type across the region.

[1] Total jobs within 30-minute travel time from place of residence to jobs; for drive, times based on AM peak period roadway times for transit, travel times include estimates of average walk to first station/stop, average wait time, line haul times, transfer times (if any), and walk time to final destination.

[2] Intersection density, stated as intersections per square mile, within 1/2 mile of place of residence.

[3] SACOG entropy index, 0 to 100 scale with 0 = homogenous, 100 = perfect mix of use.

[4] Shown as distance from place of residence to nearest transit station or stop, in miles per resident.

[5] Dwelling units per net residential acre, within 1/2 mile of place of residence.

Source: Data compiled by SACOG in July 2019

Travel Demand Forecasting Model

SACOG utilized its regional travel demand model to compare the proposed MTP/SCS for 2040 conditions to the 2016 baseline conditions. SACOG's primary model is the Sacramento Regional Activity-Based Simulation Model or "SACSIM." SACOG periodically updates and improves SACSIM, and releases versions of the model and data for use by member agencies when the MTP/SCS is adopted, with versions numbered according to the year the version was finalized.

SACSIM15 was used for the 2016 MTP/SCS. SACSIM19 was used for the analysis of this proposed MTP/SCS.[2]

SACSIM includes four sub-models for predicting travel demand. The major sub-model is "DAYSIM," which is an advanced-practice activity-based tour sub-model for predicting household-generated travel (TRB 2007). DAYSIM is a demand micro-simulation, which represents travel activities as tours, or series of trips, connecting the activities a person engages in during a normal day. DAYSIM allows more detailed representation of key factors influencing household-generated travel, such as detailed characteristics of land use in the region, age of residents, household income, cost of fuel, and other factors.

SACSIM also includes a more conventional, state-of-practice (TRB 2007) sub-model for predicting commercial vehicle travel. Two classes of commercial vehicles are modeled: two-axle commercial vehicles, and three-plus-axle commercial vehicles. Two-axle commercial vehicles include a wide range of vehicles, ranging from a passenger vehicle, which might be used to transport a computer repair person and their tools and equipment to an office to perform a repair, to a relatively small truck delivering produce to a restaurant or store. Three-plus-axle commercial vehicles also include a wide array of vehicles, ranging from medium-sized delivery trucks to large, five-axle tractor-trailer combinations. The common element tying these vehicles together is that they are used to transport goods and services, and are not used for personal (household-generated) travel.

SACSIM also includes state-of-practice sub-models for predicting air passenger ground access to the Sacramento International Airport, and for predicting external travel (including travel by residents of the region to locations outside the region, residents outside the region traveling to locations within the region, and travel that goes through, but does not stop within, the region).

Vehicle or transit passenger trips are assigned to detailed computer representations of the region's highway and transit networks using state-of-practice (TRB 2007) software and programs. The resulting assignments are used for evaluation of VMT on roadways, congested travel on roadways, and travel on the region' transit system.

The analysis period of SACSIM is a "typical weekday." A typical weekday is intended to represent weekday conditions during a non-summer month (i.e., a time period when most workers are at work, rather than on vacation, and when schools are normally in session). Where annual or other time periods are required, typical weekday estimates of travel are scaled up to represent those time periods.

SACSIM is adjusted to capture observed travel behavior in the base year (2016). The process of measuring the degree to which the model captures observed travel in the base year is known as "validation." This step is undertaken in compliance with guidelines provided by the California Transportation Commission (CTC 2017). In addition to validation, sensitivity testing is performed to ensure that SACSIM is appropriately sensitive to key factors affecting travel (e.g., cost of travel, household income, age, etc.).

[2] Documentation of the SACSIM model is available in "Appendix E: Plan Performance" of the proposed MTP/SCS.

For impact analysis, all impacts and thresholds are defined as differences or changes between the baseline (2016) and the MTP/SCS horizon year (2040). If base year observed data are available for a performance measure, SACSIM estimates of baseline-to-2040 change are applied to the baseline observed data to estimate 2040 totals. If observed data for baseline are unavailable for a performance measure, SACSIM estimates are used directly to estimate baseline and 2040 totals.

POTENTIAL LIMITATIONS TO TRAVEL DEMAND MODEL

While the SACSIM model ranges from state-of-practice to advanced-practice in travel modeling, travel behavior and the transportation systems are changing quickly in response to emerging trends, new technologies, and different preferences. Some of the new travel options and technologies emerging in the SACOG region are discussed below. Additionally, information about how technology is affecting travel is accumulating over time. Some of these emergent changes that could influence future travel forecasts include:

- Substitution of internet shopping and home delivery for some shopping or meal-related travel.
    - The 2018 SACOG HTS showed that adults reported receiving a home delivery of a package on 17 percent of the travel days in the survey—and additional 4 percent received packages at work, food deliveries at home, etc. How these percentages compared to earlier years is not known.
    - NHTS showed the number of online purchases with home delivery doubling between 2009 and 2017, from about 2.5 to 4.9 per household per month (FHWA 2018).
    - Comparisons of 2017 to 2009 NHTS data show that nationally, non-work trips per household declined by 11 percent. Most of that decline is attributed to lower rates of shopping trips and other family-related errands (FHWA 2018).
- Substitution of telework for commute travel.
    - The 2018 SACOG HTS showed that 17 percent of the respondents reported working at home at least one day per week.
- New travel modes and choices
    - TNCs, car share, bike share, scooter share, and on-demand micro transit have increased the travel options available to travelers in the SACOG region and have contributed to changes in traditional travel demand relationships. As noted above, the current share of resident trips served by TNCs is less than one-quarter percent, and future growth depends on TNCs developing a sustainable business model.
- Automation of vehicles
    - Both passenger vehicles and commercial vehicles and trucks are evolving to include more automation. Research, development, and deployment testing is proceeding on fully autonomous vehicles (FAVs), for which no human driver would be required, and the vehicle itself can navigate the roadways to take people or goods where they need to go. Forecasts of how quickly research, development, and deployment testing will transition to full deployment and mass marketing of FAVs vary widely both on the pace of the transition, and the market acceptance of fully autonomous operation. More uncertainty exists for the behavioral response to FAVs. In terms of impact on the transportation

system and the environment, a scenario of concern would be one in which FAVs are privately owned, like automobiles in the present, but the automated function of the vehicles would entice users to travel more. Examples of this phenomenon could include:

- Vehicles are repositioned to serve different members of a household (e.g., have a car drop a worker at their workplace, then drive back home empty to serve another trip, such as a student going to school). The repositioning of driverless vehicles could add significantly to traffic volumes and VMT.
- The time spent in a vehicle is re-evaluated by travelers, resulting in an increase in the willingness to make longer trips. For example, if a person could read or do work in a vehicle instead of focusing on driving, they might be willing to commute longer to work. Conversely, a worker who prefers to live in a rural area, but is unwilling to drive far enough to act on that preference in a conventional vehicle, may be willing to do so in an FAV.
- There may be an increasing willingness to drive more to avoid parking costs or tolls. For example, a person going to a sporting event in an area that charges for parking may use an FAV to be dropped off at the venue, with the FAV repositioning to an area that does not charge for parking.

- Connected vehicles
  - A connected vehicle (CV) can communicate wirelessly with its surroundings, including other vehicles, bicyclists, pedestrians, roadway infrastructure (i.e., traffic signals, toll facilities, traffic management facilities, etc.), and the internet. The influence that CVs may have is still speculative, but includes the potential for reductions in collisions and congestion, and greater overall network performance optimization.

SACSIM does not explicitly capture the above-mentioned new modes of travel and emerging trends in travel behavior. Through validation of the model to 2016 conditions, the cumulative effect of the new modes and changes are reflected in the resulting travel demand estimates, but the underlying behavioral impact of the modes are not modeled. Significant uncertainties exist at the present time that prevent explicit modeling of these new modes and emerging trends for the analysis of the proposed MTP/SCS.

Additionally, future deployment levels for new modes of travel are unknown. For example, Uber and Lyft have both significantly increased trips, but both continue to run large operating losses and are reliant on investors to cover losses. A sustainable business model may require significant changes to services and/or fares, both of which could affect the trajectory of use and impact on travel behavior. Similar issues apply to bike share and other micro-mobility services.

The impact of new modes on individual and household travel behavior also is not fully understood and is the subject of ongoing research. Limitations on accessing utilization data directly from TNC vendors, in particular, constrains the ability to fully understand the impact of those services. Regulatory and legislative efforts to address the limits on access are underway in California and elsewhere, but these efforts will take time. Only a few household travel surveys, including the 2018 SACOG HTS, have surveyed TNC use in detail, and the e-assist JUMP bikes were introduced partway through the 2018 SACOG HTS. Other major research studies focused on TNC use, and TNC driver behavior, are just being launched in California, and data collection and analysis has not

yet started. Until this research is completed, there is no effective way to incorporate even the known new modes into travel demand models.

SACOG is participating in some of the ongoing monitoring and research on the deployment and impact of new modes of travel and will incorporate analysis findings related to individual and household travel behavior into later versions of SACSIM.

TREATMENT OF TRAVEL INDUCED BY ADDITION OF NEW ROADWAY CAPACITY

Research suggests that provision of new roadway capacity, all other things being equal, can itself result in generating additional vehicle travel. This phenomenon is often labeled "induced travel," and is in reality composed of many different effects. Those effects fall into two general categories:

- Short-term effects--changes in the near term to individual and household travel behavior due to a new or expanded roadway. All of the short-term effects are the result of travel on the new or expanded roadway being faster or more reliable than the prior condition:
  - Driving slightly out of one's way in order to use a new facility, compared to prior routes;
  - Shifting trips made by walking, biking, transit, or some non-private-vehicle mode to a private vehicle; or
  - Making more trips using a vehicle compared to the prior condition.
- Long-term effects—changes in long-term individual or household choices, or causing new growth and development in areas where options to driving area few, or where the density and mix of uses require longer-than-average (regional) vehicle trips:
  - An individual deciding to relocate his or her place of residence from an area where lower-than-average vehicle use is required, to an area where higher-than-average vehicle use is required, simply because new roadway capacity makes the move more attractive.
  - A property owner or developer deciding to build in an area where higher-than-average vehicle use is required for future residents, simply because new roadway capacity makes that area more marketable and valuable to future homebuyers.

The proposed MTP/SCS includes policies focused on limiting the potential impact of induced travel. Almost $9 billion of the $35 billion budget is anticipated to go to expanding the transportation system. Of this capacity budget, $6.8 billion will go to road and highway expansion projects, including operational, safety, and multi-modal elements as part of large capital projects. The $6.8 billion in capacity projects were selected from nominations of over $12 billion. More than two-thirds of the $6.8 billion will be invested in existing, rather than new, streets and roads.

These investments are guided by the following policies of the proposed MTP/SCS: Policy 2, which prioritizes pursuit of "…funding opportunities that support the infrastructure improvements needed to support new housing and employment opportunities in existing urban, suburban, and rural communities." Policy 18 of the plan, which states that "system expansion investments that are not directly paid for by new development should be focused on fixing major bottlenecks that exist today, and/or incentivize development opportunities in infill areas."

For purposes of evaluating $12 billion in nominated projects, screening questions focused on identifying projects for inclusion in the proposed 2020 MTP/SCS. The screening questions were

also intended to assist in synchronizing roadway capacity investments to areas with significant existing needs, or areas with significant planned growth (SACOG 2018). The screening questions included: 1) is there evidence of significant congestion on the roadway, either in the base year or in the planning horizon year?; 2) where a capacity increase is proposed, is the scale of the capacity increase similar to the scale of the growth in demand?; and 3) with the proposed capacity increase in place, is the roadway well-utilized in peak periods in the planning horizon year? For example, if a capacity project was nominated for roadway segment "A," and there was no evidence of congestion on Segment A in either the base year or the future year, the project was flagged for potential exclusion from the proposed plan. Similarly, if the nominated project for segment "A" was widening from two lanes (one in each direction) to six lanes (three in each direction), the nominated project increased capacity by 200 percent. If the 2040 demand on segment "A" only increased 20 percent, the nominated project was flagged for potential exclusion from the proposed MTP/SCS, or for potential downscaling. Though it is impossible to boil all project decisions down to a formula, the screening questions did serve as flags for projects that could be excluded. The screening criteria were only one input into decisions on project inclusion—other criteria included safety, project readiness, financial capacity of the sponsoring agency to fund the project, connection of the project to other committed projects in the MTP/SCS, and other factors.

The analysis of the MTP/SCS using the SACSIM model also includes an analysis of the potential for induced travel, both for short-term and long-term effects. The short-term effects are captured directly in the model itself, since a) the impact of new capacity on vehicle travel speed is captured in the model, and b) the impact of speed of travel on roadways affects the frequency of trip-making, mode of travel, and travel routing.

Testing of the ability to capture long-term induced travel effects is beyond the capability of the SACSIM model alone, since the travel model itself is not integrated with a spatial economic or "land use" model. However, the SACSIM model, in combination with the process used for developing the land use forecast, and the process used for identifying roadway capacity projects through an iterative approach, does reasonably capture the effects of the land development and transportation project deployment that, based on the historical research focused on similar development in the 1990's and 2000's, resulted in estimates of the induced travel effects in use today. The growth allocation includes land uses in areas that are above regional average in VMT generation, especially in areas at the edge of the region. The transportation project list includes new roadway capacity to accommodate that growth. An elasticity analysis of the base year to future year changes in the proposed MTP/SCS was used as a reasonableness check of the SACSIM modeling results, including the long-term induced travel effects. Testing of both the short-term and long-term effects is provided in Appendix E: Plan Performance, with documentation available at SACOG during the comment period.

KEY PERFORMANCE MEASURES AND POLICY OBJECTIVES FOR ASSESSING THE TRANSPORTATION IMPACTS OF THE PROPOSED MTP/SCS

The impact analysis considers the roadway, transit, bicycle, pedestrian, aviation, agricultural, and goods movement components of the regional transportation system. Quantitative analysis focuses on the following performance measures derived from the forecasting results of the SACSIM model.

- Household-generated VMT and total VMT;

- Number of person trips made by different non-private-vehicle modes (bicycling, walking or public transit); and
- Number of transit passenger boardings and amount of transit service provided.

In addition to these quantitative measures, qualitative analysis is included to address the overall connectivity of the pedestrian and bicycle system, the ability to move agricultural goods and farm products on roadways, aviation, goods movement, construction activity associated with proposed MTP/SCS projects, and safety. Each of the quantitative and qualitative measures are described in more detail below.

Vehicle Miles Traveled Per Capita

The basic measure of the amount of vehicle travel generated by the project is VMT, defined and described above. Two slightly different measures of VMT are commonly used in analysis: household-generated VMT and total VMT. Both measures are directly from SACSIM model outputs.

Household-generated VMT is the VMT generated by residents of the SACOG region, for all travel within the region for all purposes (e.g., going to/from work, to/from school, shopping, personal business, social/recreational). Because this travel is estimated using an advanced-practice travel demand micro-simulation, it is possible to tabulate all the household-generated VMT by tracing the trips of each resident of the household throughout the day (e.g., trips the residents make away from the home, such as trip from work to a restaurant for lunch). In general, about 75 percent of all VMT is household-generated (i.e., created by residents of the SACOG region). This capability is unique to travel demand micro-simulation models and allows for geographic comparisons of VMT generation by households, and evaluation of impacts for sub-areas within the region.

Total VMT includes household-generated, plus VMT from all other sources. SACSIM adds commercial vehicle, airport passenger ground access, and external travel to household-generated travel to estimate total VMT.

For the reasons described above, household-generated VMT is the measure used in the analysis of impacts for the plan. Although the absolute amount of household-generated VMT is reported, impact analysis is based on VMT normalized to population as "per capita" rates. This metric provides a measure of travel efficiency and helps depict whether people are traveling more or less by vehicle over time. A goal of the proposed MTP/SCS is to reduce VMT per capita, even though the absolute amount of VMT may increase. A per capita decline in VMT indicates that the transportation network is operating more efficiently, and that people have more travel choices.

Person Trips by Bicycle, Walk, or Transit Modes Per Capita

Estimates of person trips by walk, bike, and public transit from SACSIM are the basic measure of non-private-vehicle travel for evaluating change in non-private-vehicle modes. A goal of the proposed MTP/SCS is to enhance the region's bike, walk, and transit systems, and to promote growth and land uses that maximize the potential for shorter trips, which are more likely to be made by walking, biking, or transit. As with VMT, because of expected population growth, total trips are normalized to population and reported as per capita rates for purposes of impact analysis.

An increase in bike, walk, and transit trips per capita indicate that the land use and planned transportation improvements in the proposed MTP/SCS are effectively working together to improve the mode share of non-auto travel. Compact and mixed land uses more effectively serve transit, support higher rates of walking and biking, and generate less vehicle travel. While it is important that the regional bike, walk, and transit trips increase per capita regionally, it is expected that local areas will see variations.

Transit Passenger Boardings per Vehicle Service Hour

Transit service and vehicles need to be well-utilized to reduce GHG and air pollution emissions. For example, buses operate on fixed schedules throughout the day regardless of how many passengers are onboard. Since buses are large and consume more fuel per mile than passenger cars, it is important for them to carry multiple passengers to achieve desired emissions reductions. It is a goal of the proposed MTP/SCS to increase the productivity and efficiency of transit service provided in the region through a combination of the projected land use pattern that better supports transit service and transit services that directly serve travel needs. Passenger boardings per service hour is the most common and widely reported measure of transit productivity and efficiency. In general, the more boardings per hour, the more productive and efficient is the system.

Connectivity of the Region's Pedestrian and Bicycle System

The proposed MTP/SCS contains a number of bicycle and pedestrian projects. These projects are generally designed to expand and complement the existing bicycle and pedestrian network. A goal of the proposed MTP/SCS is to increase connectivity of the bicycle and pedestrian networks through strategic investments and minimizing conflicts with projected land use pattern and transportation improvements.

Although some projected land use pattern and planned transportation improvements may disrupt existing or planned bicycle and pedestrian system segments, supportive land uses and strategic investments in the proposed MTP/SCS focus on improving the connectivity of the bicycle and pedestrian system. If the proposed MTP/SCS was significantly interfering with bicycle and pedestrian facilities, trips per capita would decrease as individuals would be less likely or able to choose to walk or bike.

Movement of Agricultural and Farm Products on Rural Roadways

The movement of agricultural equipment and the delivery of farm products to market are essential roles of the roadway system in many rural areas and select parts of urban areas. A goal of the proposed MTP/SCS is to preserve and, where possible, enhance the efficiency of these movements. This goal is challenged when growth requires new or expanded roads that cut through existing agricultural lands or disrupt agricultural equipment access to fields, processing destinations, or other agricultural goods movement routes.

Aviation

Aviation service is an integral component of moving people and goods in the SACOG region. The proposed MTP/SCS accommodates forecasted growth in the plan area and does not impede aviation travel for people and goods. The goal is to avoid disrupting existing and planned aviation

service due to the land use pattern or transportation improvement in the proposed MTP/SCS. Ground access for airport passengers to the Sacramento International Airport is included in the SACSIM travel demand model.

Goods Movement

Many of the planned transportation improvements in the proposed MTP/SCS are designed to help accommodate goods movement by rail, air, and roadway. Like aviation, the environmental impact assessment is focused on identifying potential disruption of existing or future goods movement.

Construction Activity

The planned transportation improvements in the proposed MTP/SCS will require substantial construction activity during the life of the plan. The environmental impact assessment recognizes the disruptive nature of construction and focuses on providing potential specifications for construction activity that implementing agencies can use to reduce travel disruptions.

Safety

Transportation safety is assessed based on how the proposed MTP projects will comply with applicable design standards of the implementing agencies.

The analysis assumes implementing agencies would ensure that transportation systems and related issues are treated in accordance with applicable federal, state and local laws and regulations.

16.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

TRN-1 Substantially interfere with achievement of VMT reductions consistent with CARB's 2017 Scoping Plan.

TRN-2 Cause combined bicycle, walk, and transit person trips per capita to be lower than the baseline average for the applicable sub-area, and cause a decline in the bicycle, walk, and transit person trips per capita that is lower than the baseline regional average.

TRN-3 Cause average transit passenger boardings per vehicle service hour to be lower than the baseline average for transit service provided in the relevant sub-area.

TRN-4 Cause interference with existing or planned bicycle and pedestrian facilities.

TRN-5 Cause a disruption to the movement of agricultural products on rural roadways.

TRN-6 Cause a disruption to aviation access or service.

TRN-7 Cause a disruption to goods movement into or through the SACOG region.

TRN-8 Cause a disruption to the ongoing operations of the applicable regional or local area transportation system due to construction activities.

TRN-9 Result in inconsistency with project design standards related to traffic safety.

16.4.3 Impacts and Mitigation Measures

IMPACT TRN-1: SUBSTANTIALLY INTERFERE WITH ACHIEVEMENT OF VMT REDUCTIONS CONSISTENT WITH CARB'S 2017 SCOPING PLAN.

Regional Impacts

The proposed MTP/SCS is based on a regional employment and population forecast and accommodates this growth through the projected land use pattern and planned transportation improvements. It does not create the growth, but is a strategy to accommodate that projected growth in a manner that increases transportation system efficiency and reduces growth in vehicle miles traveled. While the proposed MTP/SCS does not create the forecasted growth, Chapter 19 considers whether the proposed MTP/SCS has the potential to induce growth beyond the current forecasted growth.

Table 16-10 provides estimates of household-generated VMT for the region as a whole. The proposed MTP/SCS forecasts that household-generated VMT will increase by approximately 6.9 million miles per weekday. This increase is primarily due to the addition of 620,520 new residents by 2040. However, the projected household-generated VMT per capita rate would decrease by about 8 percent by 2040.

Table 16-10
Regional Vehicle Miles Traveled Per Capita

Variable	Baseline (2016)	MTP/SCS (2040)
Household-Gen. VMT[1]	42,579,646	49,478,847
Population	2,376,311	2,996,832
HH-Gen VMT per Capita	**17.92**	**16.51**
% Change from Baseline		***-7.86%***

[1]Includes household-generated VMT for all residents of the SACOG region, for travel within the region. This is a subset of total VMT. Estimates and forecasts from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b.

The VMT per-capita decline indicates that the projected land use pattern and planned transportation improvements assumed in the proposed MTP/SCS would effectively work together to improve system efficiency and minimize increases in VMT. A summary of the main reasons for this include the following:

- The proposed MTP/SCS reflects a more compact development form for the region. Compact land uses across the region in the proposed MTP/SCS are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher

rates of non-motorized travel. Further benefits result from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.

- The proposed MTP/SCS places an emphasis on transit service and complete streets near transit, walk, and bicycle supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points, while other Blueprint supportive programs and transportation systems management strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure.
- Other factors affecting future VMT are aging of the population and forecasted increases in auto operating costs, including transitioning from a fuel tax to a pay-as-you-go mileage fee.

The proposed MTP/SCS's emphasis on transit service, and the projection of transit use counters the information above showing a significant decline in transit ridership since 2008. The proposed MTP/SCS's investment and policy strategies are directed at reversing this trend through the following:

- Increasing transit service hours by 60 percent; from 0.54 hours per person per year in 2016 to 0.85 hours per person per year in 2040. Providing more transit service allows for higher frequency service on productive corridors, broader coverage during the weekday (e.g., more evening service), and more service during weekend hours. These strategies have increased transit ridership in other regions.
- Promoting growth and higher density in areas with frequent transit service. In 2016, only 15 percent of residents lived near a high-frequency transit line. By expanding the number of high-frequency transit lines, and focusing growth in areas served by those lines, the proposed MTP/SCS would result in 42 percent of residents living near a high-frequency transit line by 2040.
- Generating revenues on roadway express lanes that can partially subsidize express bus service in those corridors. Subsidizing fares in express lanes corridors, and increasing frequency of service, will increase transit ridership in those corridors.
- Implementing a Next Generation Transit study to help transit operators adapt to the changing transportation marketplace. One element of this initiative is comprehensive updates to bus routes, that in some cases have not be evaluated for many years. Sacramento Regional Transit recently completed planning work on such a route update and is in the process of implementing the planned changes.

Notwithstanding past and projected progress on VMT reductions in the SACOG region, recent progress reports the state's climate goals suggest that additional VMT reductions are required. As discussed in detail in the Regulatory Setting above, both in its target resetting process and in its 2018 progress report pursuant to SB 150, CARB noted:

- The regional 2035 GHG emissions reduction targets under SB 375 are not adequate to fully meet the goals of the state's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target. As CARB noted, "An RTP/SCS that meets the applicable SB 375 targets alone will not produce the GHG emissions reductions necessary to meet state climate goals in 2030 nor in 2050." CARB identified a 6% gap between the 19%

emissions reductions targets set for the regions (over a base year of 2005) and the 25% reductions required to meet the Scoping Plan goal.

- Much greater reductions in VMT will be required to meet the state climate goals for 2030 and 2050. CARB concluded that a 14.3 percent reduction in total VMT per capita and a 16.8 percent reduction in light-duty VMT per capita (over current conditions; 2015-2018) was needed to meet these goals.
- California – at the state, regional, and local levels – has not yet gone far enough in making the systemic and structural changes to how we build and invest in communities that are needed to meet state climate goals. It will take collaboration among all these levels of government, and supporting actions by other organizations and actors, to achieve the state's climate goals because the MPOs do not have the land use authority or resources to meet challenge alone.

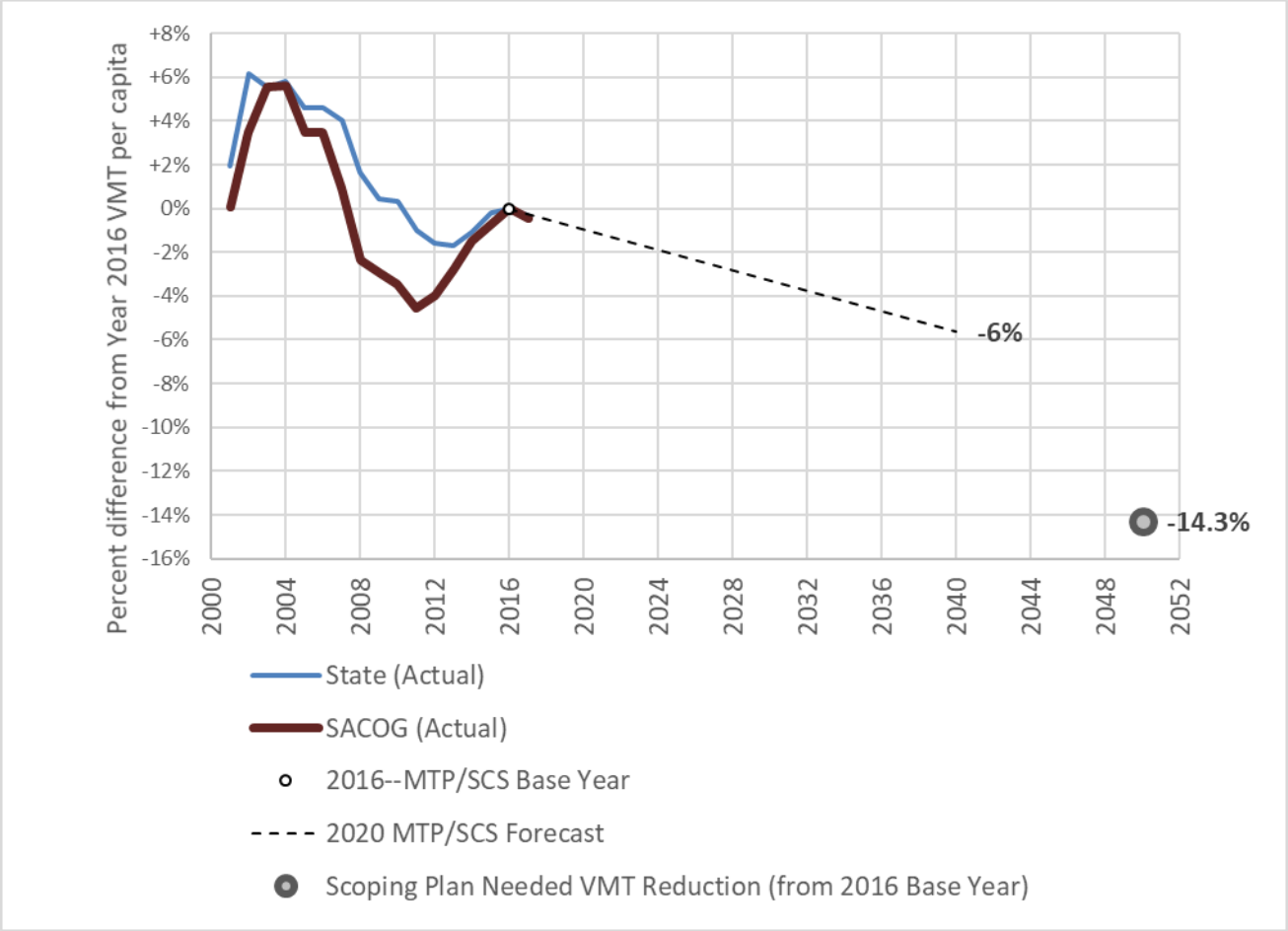
For its part, SACOG has reported on the region's progress to meet goals set in the Blueprint and in its 2016 MTP/SCS, and noted several areas where the region is not staying on track to meet those goals (SACOG 2017):

- The share of attached and small lot housing growth for 2005 to 2015 was about 47 percent of all dwelling units, compared to a goal of 73 percent in the MTP/SCS.
- While about 15 percent of the land identified for residential growth in the Blueprint was consumed from 2005 to 2015, only about 8 percent of the Blueprint dwelling unit growth occurred over that period. The density of housing growth is below the target set in the Blueprint.
- VMT, which dipped significantly during the Great Recession, has increased in the region starting in 2011.
- Transit ridership has declined since 2008, as discussed above and shown in Table 16-7.

Figure 16-7 provides information on progress toward reducing total VMT in the SACOG region. "Total VMT" includes VMT from all sources (household generated, commercial, external or through travel, etc.). The figure is based estimates of actual total VMT occurring on roadways within the SACOG region, divided by the population of the SACOG region. The historic high for total VMT per capita in the SACOG region occurred in 2004. Starting in 2004, total VMT per capita began to decline, and this decline continued as the Great Recession took hold in 2008. As the economy in the SACOG region began to recover starting in 2011 and 2012, total VMT per capita began to increase again, though the region remains 6 percent below the historic high in 2004. This source shows a small decrease in total VMT per capita between 2016 and 2017, the most recent data available. Future monitoring will determine how enduring this one-year decline may be. Also shown on this Figure are:

- The trendline in total VMT per capita for the proposed MTP/SCS between 2016 and 2040. The reduction in total VMT per capita by 2040 is 6 percent relative to 2016.
- The statewide total VMT per capita reduction recommended by CARB, to fully make up the gap between the SB 375 GHG emissions reduction target and the needs identified in the *2017 Scoping Plan*. This issue is discussed in greater detail in the Regulatory Settings above. CARB concluded that a statewide reduction of 14.3 percent in total VMT per capita was needed by 2050.

It is clear that the trendline, which shows a six percent reduction in total VMT per capita by 2040, would not support achievement of the 14.3 percent identified by CARB statewide.



Source: Data compiled by SACOG in August 2019, based on:
-California Public Road reports for actual vehicle miles traveled.
-California Department of Finance for population estimates to compute per capita values.
-SACOG forecasts of total VMT per capita prepared for the 2020 MTP/SCS.
-California Air Resources Board, 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals, January 2019, for recommended VMT reduction for total VMT per capita statewide.

Figure 16-7
VMT Trends and VMT Reduction Targets

Therefore, although the region is making progress in VMT reductions and is making significant strides in the development of new initiatives, projects, and programs in the 2020 MTP/SCS, and is not directly interfering with the statewide VMT reductions required to meet the state's climate goals, the plan does not clearly establish the necessary level of VMT reductions now forecast by the state. And although the state acknowledges that SACOG and other MPOs cannot meet this need without the collaboration and help of the state itself, as well as local partners, at the time of writing this Draft EIR it is unknown how CARB and other state agencies, through statewide programs or in coordination with local and regional governments, would meet the identified higher VMT reductions. And while SACOG stands ready to contribute to this statewide effort, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB's *2017 Scoping Plan* at the regional level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

Localized Impacts

Center and Corridor Communities
The proposed MTP/SCS projected land use pattern and planned transportation improvements in Center and Corridor Communities would reduce the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations, and by increasing opportunities to bicycle, walk, or ride transit. Table 16-11 provides estimates of household-generated VMT for Center and Corridor Communities. The proposed MTP/SCS would reduce (relative to the baseline) household-generated VMT per capita in Center and Corridor Communities by 9.12 percent.

Table 16-11
Local Area VMT Per Capita—Center and Corridor Communities

Geography/Variable	Baseline (2016)	2040 MTP/SCS
Household-Gen. VMT[1]	3,222,163	4,880,398
Population	256,882	428,119
HH-Gen VMT per Capita	**12.54**	**11.40**
% Change from Baseline		***-9.12%***

[1]Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b.

Consistent with the regional VMT impact analysis above, notwithstanding SACOG's achievement of per capita VMT reductions in Center and Corridor Communities by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state's climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB's *2017 Scoping Plan* at the Center and Corridor Community level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

Established Communities
The proposed MTP/SCS land use and planned transportation improvements in Established Communities would decrease household-generated VMT by 7.50 percent, relative to the baseline year (Table 16-12).

Table 16-12
Local Area VMT Per Capita—Established Communities

Geography/Variable	Baseline 2016	2040 MTP/SCS
Household-Gen. VMT[1]	32,232,897	32,913,683
Population	1,886,607	2,082,544
HH-Gen VMT per Capita	**17.09**	**15.80**
% Change from Baseline		***-7.50%***

[1]Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b.

Consistent with the regional VMT impact analysis above, notwithstanding SACOG's achievement of per capita VMT reductions in Established Communities by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state's climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB's *2017 Scoping Plan* at the Established Community level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

Developing Communities
The proposed MTP/SCS land use and planned transportation improvements in Developing Communities would decrease household-generated VMT per capita by 13.30 percent relative to the baseline year (Table 16-13).

Table 16-13
Local Area VMT Per Capita—Developing Communities

Geography/Variable	Baseline 2016	2040 MTP/SCS
Household-Gen. VMT[1]	1,536,946	6,059,556
Population	67,888	308,699
HH-Gen VMT per Capita	**22.64**	**19.63**
% Change from Baseline		***-13.30%***

[1]Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b.

Consistent with the regional VMT impact analysis above, notwithstanding SACOG's achievement of per capita VMT reductions in Developing Communities by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state's climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB's *2017 Scoping Plan* at the Developing Community level is

considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

Rural Residential Communities The proposed MTP/SCS land use and planned transportation improvements in Rural Residential Communities would decrease household-generated VMT by 6.44 percent, relative to the baseline year (Table 16-14).

Table 16-14
Local Area VMT Per Capita—Rural Residential Communities

Geography/Variable	Baseline 2016	2040 MTP/SCS
Household-Gen. VMT[1]	5,587,640	5,624,966
Population	164,934	177,466
HH-Gen VMT per Capita	**33.88**	**31.70**
% Change from Baseline		***-6.44%***

[1]Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Consistent with the regional VMT impact analysis above, notwithstanding SACOG's achievement of per capita VMT reductions in Rural Residential Communities by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state's climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB's *2017 Scoping Plan* at the Rural Residential Community level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. With no growth and limited planned transportation improvements, household-generated VMT per capita in these areas is not expected to change.

Therefore, the potential to substantially interfere with achievement of the state's VMT goals as identified in the *2017 Scoping Plan* related to implementation of the projected land use pattern, planned transportation improvements, and other transportation strategies of the proposed MTP/SCS in Lands not Identified for Development are considered less than significant (LS) for Impact TRN-1. No mitigation is required.

High Frequency Transit Area Impacts

The proposed MTP/SCS analyzes localized impacts using household-generated VMT per capita, which constitutes about 75 percent of all VMT in the region. As discussed in the Methods and Assumptions section, regional non-household travel (commercial vehicles, airport access, thru traffic) is not attributable to specific sub-areas, including HFTAs, leaving only household-generated VMT for examining localized HFTA impacts.

Placer County High Frequency Transit Areas
The proposed MTP/SCS land use and planned transportation improvements would decrease household-generated VMT in Placer County HFTAs, relative to 2016, by 8.45 percent (Table 16-15).

Table 16-15
Local Area VMT Per Capita—Placer County High Frequency Transit Areas

Geography/Variable	Baseline (2016)	2040 MTP/SCS
Household-Gen. VMT[1]	826,491	1,235,943
Population	45,690	74,635
HH-Gen VMT per Capita	**18.09**	**16.56**
% Change from Baseline		***-8.45%***

[1]Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Consistent with the regional VMT impact analysis above, notwithstanding SACOG's achievement of per capita VMT reductions in Placer County HFTAs by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state's climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains.

As a result, the potential to substantially interfere with achievement of the VMT reductions set forth in the *2017 Scoping Plan* related to implementation of the projected land use pattern, planned transportation improvements, and other transportation strategies of the proposed MTP/SCS in Placer County HFTAs is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

Sacramento County High Frequency Transit Areas
The proposed MTP/SCS land use and planned transportation improvements would decrease household-generated VMT in Sacramento County HFTAs, relative to 2016, by 8.75 percent (Table 16-16).

Table 16-16
Local Area VMT Per Capita—Sacramento County High Frequency Transit Areas

Geography/Variable	Baseline (2016)	2040 MTP/SCS
Household-Gen. VMT[1]	10,841,665	11,764,485
Population	786,456	935,217
HH-Gen VMT per Capita	**13.79**	**12.58**
% Change from Baseline		***-8.75%***

[1]Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Consistent with the regional VMT impact analysis above, notwithstanding SACOG's achievement of per capita VMT reductions in Sacramento County HFTAs by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state's climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB's *2017 Scoping Plan* at the Sacramento County HFTA level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

Yolo County High Frequency Transit Areas
The proposed MTP/SCS land use and planned transportation improvements would decrease household-generated VMT in Yolo County HFTAs, relative to 2016, by 11.22 percent (Table 16-17).

Table 16-17
Local Area VMT Per Capita—Yolo County High Frequency Transit Areas

***Geography* / Variable**	**Baseline (2016)**	**2040 MTP/SCS**
Household-Gen. VMT[1]	1,872,817	2,191,891
Population	116,622	153,736
HH-Gen VMT per Capita	**16.06**	**14.26**
% Change from Baseline		***-11.22%***

[1]Includes household-generated VMT for all residents of the listed geography.
Estimates and forecasts from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Consistent with the regional VMT impact analysis above, notwithstanding SACOG's achievement of per capita VMT reductions in Yolo County HFTAs by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state's climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB's *2017 Scoping Plan* at the Yolo County HFTA level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of other public agencies. However, implementation of the following measure(s) would reduce VMT impacts and local agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure TRN-1: Strategies to reduce VMT from existing and proposed land use development.

The state recognized that additional state policy actions and funding would be required to close the VMT gap between what the MPOs could achieve through implementation of their SCSs, and reductions needed to meet state goals. Though the state must initiate these additional actions and funding programs, the exact form of the policies and funding programs must be collaboratively developed with input from MPOs, local agencies, and other organizations to ensure they provide the tools and incentives necessary to go beyond the SCSs in reducing VMT. SACOG shall be an active

participant in this process. As part of the development of this proposed MTP/SCS, SACOG developed the "Green Means Go" program, which SACOG shall implement and is intended to serve as a pilot for some of the infill incentives and support for transit and innovative mobility that are envisioned in the *2017 Scoping Plan* as key elements of filling that VMT gap.

In addition, implementing agencies shall comply with state guidance on VMT reduction, which may be achieved by implementation of the following:

- Implementing agencies shall require project modifications during the project design and environmental review stage of project development that would reduce VMT effects in a manner consistent with state guidance on VMT reduction. For roadway capacity expansion projects, this would include but is not limited to demand management through transportation systems management and operations (TSMO) including the use of pricing. This mitigation is consistent with project VAR-5 in the MTP/SCS that identifies the implementation of an express lanes network, which can consider re-purposing existing lanes and using tolls that vary based on traffic levels and time of day. Other project modifications may include, but are not limited to:
    - improve or increase access to transit;
    - increase access to common goods and services, such as groceries, schools, and daycare;
    - incorporate affordable housing into the project;
    - incorporate neighborhood electric vehicle network;
    - orient the project toward transit, bicycle and pedestrian facilities;
    - improve pedestrian or bicycle networks, or transit service;
    - provide traffic calming;
    - provide bicycle parking;
    - limit or eliminate parking supply;
    - unbundle parking costs;
    - provide parking cash-out programs;
    - implement roadway pricing;
    - implement or provide access to a commute reduction program;
    - provide car-sharing, bike sharing, and ride-sharing programs;
    - provide transit passes;
    - shifting single occupancy vehicle trips to carpooling or vanpooling, for example providing ride-matching services;
    - providing telework options;
    - providing incentives or subsidies that increase the use of modes other than single-occupancy vehicle;

- providing on-site amenities at places of work, such as priority parking for carpools and vanpools, secure bike parking, and showers and locker rooms;
- providing employee transportation coordinators at employment sites;
- providing a guaranteed ride home service to users of non-auto modes;
- locate the project in an area of the region that already exhibits low VMT;
- locate the project near transit;
- increase project density;
- increase the mix of uses within the project or within the project's surroundings;
- increase connectivity and/or intersection density on the project site; and/or
- deploy management strategies (e.g., pricing, vehicle occupancy requirements) on roadways or roadway lanes.

- Implementing agencies shall require implementation of VMT reduction strategies through transportation demand management programs, impact fee programs, mitigation banks or exchange programs, in-lieu fee programs, or other land use project conditions that reduce VMT in a manner consistent with state guidance on VMT reduction. Programs should be designed to reduce VMT from existing land uses, where feasible, and from new discretionary residential or employment land use projects. Project conditions should be reserved for situations where programs are not feasible. The design of programs and project conditions should focus on VMT reduction strategies that increase travel choices and improve the comfort and convenience of sharing rides in private vehicles, using public transit, riding bicycles/scooters, or walking.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact TRN-1 would be reduced to a less than significant (LS) level in some communities, although additional state policy actions and funding would be required to close the gap at the state level. The strategies identified are programmatic; they would need to be refined and matched to local conditions in any subsequent project level environmental analysis. For projects proposing to streamline environmental review, lead agencies must comply with state guidance on VMT reduction and conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the VMT impact to less than significant. However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact TRN-1 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT TRN-2: CAUSE COMBINED BICYCLE, WALK, AND TRANSIT PERSON TRIPS PER CAPITA TO BE LOWER THAN THE BASELINE AVERAGE IN THE APPLICABLE SUB-AREA, AND CAUSE A DECLINE IN THE BICYCLE, WALK, AND TRANSIT PERSON TRIPS PER CAPITA THAT IS LOWER THAN THE BASELINE REGIONAL AVERAGE.

Regional Impacts

Table 16-18 provides estimates of weekday person trips by bicycle, walk or transit modes for the region as a whole. Total weekday person trips by all three modes increase by 532,130 (a 55 percent increase

from the baseline). This is achieved through compact land uses, which are more effectively served by transit and support potentially higher rates of walking and biking, and investment in supporting transportation infrastructure. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefits result from concentrating development in high-quality transit corridors, where residents are more likely to use available transit. Table 16-18 shows the proposed MTP/SCS would increase per capita trips by bicycle, walk or transit from 0.41 in 2016 to 0.50 in 2040, a 23 percent increase. Therefore, the bicycle, walk, or transit person trips per capita impacts related to land use and planned transportation improvements from implementation of the proposed MTP/at the regional level are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-18
Regional Bicycle, Walk, or Transit Person Trips Per Capita

Geography/Variable	Baseline (2016)	2040 MTP/SCS
Weekday Bike+Walk+Transit Trips[1]	963,444	1,495,574
Population	2,376,311	2,996,832
Trips Per Capita	**0.41**	**0.50**
% Change from Baseline		*23.09%*

[1]Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Local Impacts

Center and Corridor Communities
Table 16-19 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in Center and Corridor Communities by 29.88 percent from 0.75 in 2016 to 0.97 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS at the Center and Corridor Communities level are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-19
Bicycle, Walk, or Transit Person Trips Per Capita—Center and Corridor Communities

Geography/Variable	Baseline (2016)	2040 MTP/SCS
Weekday Bike+Walk+Transit Trips[1]	192,471	416,617
Population	256,882	428,119
Trips Per Capita	**0.75**	**0.97**
% Change from Baseline		*29.88%*

[1]Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Established Communities
Table 16-20 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in Established Communities by 18.45 percent from 0.39 in 2016 to 0.46 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS at the Established Communities level are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-20
Bicycle, Walk, or Transit Person Trips Per Capita—Established Communities

Geography/Variable	Baseline (2016)	2040 MTP/SCS
Weekday Bike+Walk+Transit Trips[1]	734,195	959,956
Population	1,886,607	2,082,544
Trips Per Capita	**0.39**	**0.46**
% Change from Baseline		*18.45%*

[1]Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Developing Communities

Table 16-21 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in Developing Communities by 45.64 percent from 0.20 in 2016 to 0.30 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS at the Developing Communities level are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-21
Bicycle, Walk, or Transit Person Trips Per Capita—Developing Communities

Geography/Variable	Baseline (2016)	2040 MTP/SCS
Weekday Bike+Walk+Transit Trips[1]	13,852	91,734
Population	67,888	308,699
Trips Per Capita	**0.20**	**0.30**
% Change from Baseline		*45.64%*

[1]Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Rural Residential Communities

Table 16-22 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in Rural Residential Communities by 10.54 percent from 0.14 in 2016 to 0.15 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS at the Rural Residential Communities level are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-22
Bicycle, Walk, or Transit Person Trips Per Capita—Rural Residential Communities

Geography/Variable	Baseline (2016)	2040 MTP/SCS
Weekday Bike+Walk+Transit Trips[1]	22,926	27,267
Population	164,934	177,466
Trips Per Capita	**0.14**	**0.15**
% Change from Baseline		*10.54%*

[1]Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. The focus for the limited investments is on road maintenance, safety enhancements, and other roadway operational improvements. These limited planned transportation improvements in Lands Not Identified for Development would not measurably change bicycle, walk, or transit trips within these areas. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

High Frequency Transit Area Impacts

Placer County High Frequency Transit Areas
Table 16-23 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in the Placer County HFTAs by 24.17 percent from 0.31 in 2016 to 0.38 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Placer County HFTAs are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-23
Bicycle, Walk, or Transit Person Trips Per Capita—Placer County High Frequency Transit Areas

Geography/Variable	Baseline (2016)	2040 MTP/SCS
Weekday Bike+Walk+Transit Trips[1]	14,150	28,701
Population	45,690	74,635
Trips Per Capita	**0.31**	**0.38**
% Change from Baseline		*24.17%*

[1]Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Sacramento County High Frequency Transit Areas
Table 16-24 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in the Sacramento County HFTAs by 32.23 percent from 0.52 in 2016 to 0.69 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County HFTAs are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-24
Bicycle, Walk, or Transit Person Trips Per Capita—Sacramento County High Frequency Transit Areas

Geography/Variable	Baseline (2016)	2040 MTP/SCS
Weekday Bike+Walk+Transit Trips[1]	412,838	649,145
Population	786,456	935,217
Trips Per Capita	**0.52**	**0.69**
% Change from Baseline		*32.23%*

[1]Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Yolo County High Frequency Transit Area

Table 16-25 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in the Yolo County HFTAs by 27.28 percent from 0.78 in 2016 to 0.99 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Yolo County HFTAs are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-25
Bicycle, Walk, or Transit Person Trips Per Capita—Yolo County High Frequency Transit Areas

Geography/Variable	Baseline (2016)	2040 MTP/SCS
Weekday Bike+Walk+Transit Trips[1]	91,157	152,949
Population	116,622	153,736
Trips Per Capita	**0.78**	**0.99**
% Change from Baseline		*27.28%*

[1]Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

MITIGATION MEASURES

None required.

IMPACT TRN-3: CAUSE AVERAGE TRANSIT PASSENGER BOARDINGS PER VEHICLE SERVICE HOUR TO BE LOWER THAN THE BASELINE AVERAGE FOR TRANSIT SERVICE PROVIDED IN THE RELEVANT SUB-AREA .

Regional Impacts

The projected land use pattern of the proposed MTP/SCS, in combination with the planned transportation improvements, would improve transit productivity throughout the region. This would be achieved by emphasizing transit service and complete streets near transit, walk, and bicycle supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Table 16-26 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for each county and the plan area as a whole. Transit productivity, as measured by passenger boardings per service hour, would increase regionally by 57 percent.

Table 16-26
Passenger Boardings Per Service Hour for All Weekday Transit Service—Regional and Local Area

County/ Service	Passenger Boardings		Vehicle Service Hours		Passenger Boardings Per Service Hour		
	Baseline (2016)	2040 MTP/SCS	Baseline (2016)	2040 MTP/SCS	Baseline (2016)	2040 MTP/SCS	Change
El Dorado	1,235	2,057	130	160	9.5	12.8	+35%
Placer	2,746	22,542	341	978	8.1	23.1	+186%
Sacramento	86,865	306,402	2,578	5,568	33.7	55.0	+63%
Sutter	1,828	3,940	126	165	14.5	23.9	+66%
Yolo	25,614	49,149	690	1,161	37.1	42.3	+14%
Yuba	2,192	4,051	130	177	16.9	22.8	+35%
Total	**120,480**	**388,142**	**3,994**	**8,209**	**30.2**	**47.3**	**+57%**

Source: Data compiled by SACOG in July 2019.

As explained above for bicycle, walk, and transit trips, these predicted increases are based on the SACSIM model. The same limitations described above could influence the forecasts of transit passenger boardings per vehicle service hour. This information does not change potential impact conclusions related to this metric since the basis for a significant impact is whether the proposed MTP/SCS would cause a decrease. The proposed MTP/SCS is specifically designed to improve transit performance as discussed above, but other travel behavior factors beyond the influence of the proposed MTP/SCS may result in lower levels of future ridership that could result in transit service hours to be less productive.

Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN-3. No mitigation is required.

Local Impacts

Center and Corridor Communities, Established Communities, and Developing Communities
While SACOG does not model passenger boardings and vehicle service hours at the Community Type level, Table 16-26 illustrates major increases in transit productivity within each county in the plan area of the proposed MTP/SCS. The regional and county level transit productivity improvements would be expected to extend to the Community Types with Centers and Corridors, Established and Developing Communities each experiencing an increase in high quality local and commuter transit service and more transit-supportive land uses in 2040, as compared to the baseline. Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor, Established, and Developing Communities are considered less than significant (LS) for Impact TRN-3. No mitigation is required.

Rural Residential Communities
Regional and county level transit productivity improvements discussed above and illustrated in Table 16-26 would also extend to Rural Residential Communities. Although transit trips would remain a small share of travel in these areas, strategic investments made to lifeline rural and commuter bus services that serve these areas would be more productive in 2040, as compared to the baseline. Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact TRN-3. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. The limited number of planned transportation improvements focus on road maintenance, safety enhancements, and other roadway operational improvements. With little to no transit service currently in these areas, the planned transportation improvements in the proposed MTP/SCS would not negatively affect transit passenger boardings per service hour. Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development in the Proposed MTP/SCS are considered less than significant (LS) for Impact TRN-3. No mitigation is required.

High Frequency Transit Area Impacts

Placer County High Frequency Transit Areas
In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS would further support shorter vehicle trips and higher rates of non-motorized travel in the Placer County HFTAs. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.

Table 16-27 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for the Placer County HFTAs. The table reflects only that transit service that meets the SB 375 requirements for high quality transit service of 15 minutes or better headways or rail transit of any frequency. As such, no qualifying service existed in 2016 but the plan would add service generating 44.4 passenger boardings per service hour in 2040.

Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Placer County HFTAs are considered less than significant (LS) for Impact TRN-3. No mitigation is required.

Table 16-27
Passenger Boardings Per Service Hour for TPA-Qualifying All Service1—Placer County HFTA

County/ Service	Passenger Boardings		Vehicle Service Hours		Passenger Boardings Per Service Hour		
	Baseline (2016)	2040 MTP/SCS	Baseline (2016)	2040 MTP/SCS	Baseline (2016)	2040 MTP/SCS	Change
Placer	0	7,134	0	161	n/a	44.4	n/a

[1]"TPA Qualifying" transit service is defined in SB375 legislation as any transit service operating at 15-minute or better headway (i.e., 4 schedules per hour) during the peak period, or rail transit service of any service frequency. Source: SACOG 2019a; SACOG 2019b

Sacramento County High Frequency Transit Areas
In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS would further support shorter vehicle trips and higher rates of non-motorized travel in the Sacramento County HFTAs. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.

Table 16-28 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for the Sacramento County HFTAs. The table reflects only that transit service that meets the SB 375 requirements for high quality transit service of 15 minutes or better headways or rail transit of any frequency. Boardings per vehicle service hour on this type of transit service would increase 46 percent from 55.2 in 2016 to 80.4 in 2040. Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County HFTAs are considered less than significant (LS) for Impact TRN-3. No mitigation is required.

Table 16-28
Passenger Boardings Per Service Hour for TPA-Qualifying All Service1—Sacramento County HFTA

County/ Service	Passenger Boardings		Vehicle Service Hours		Passenger Boardings Per Service Hour		
	Baseline (2016)	2040 MTP/SCS	Baseline (2016)	2040 MTP/SCS	Baseline (2016)	2040 MTP/SCS	Change
Sacramento	60,237	218,977	1,091	2,723	55.2	80.4	+46%

[1]"TPA Qualifying" transit service is defined in SB375 legislation as any transit service operating at 15-minute or better headway (i.e., 4 schedules per hour) during the peak period, or rail transit service of any service frequency. Source: SACOG 2019a; SACOG 2019b

Yolo County High Frequency Transit Areas

In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS would further support higher rates of non-motorized travel in the Yolo County HFTAs. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.

Table 16-29 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for the Yolo County HFTAs. The table reflects only that transit service that meets the SB 375 requirements for high quality transit service of 15 minutes or better headways or rail transit of any frequency. Boardings per vehicle service hour on this type of transit service would increase 16 percent from 51.8 in 2016 to 59.5 in 2040.

Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Yolo County HFTAs are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

Table 16-29
Passenger Boardings Per Service Hour for TPA-Qualifying All Service1—Yolo County HFTA

County/ Service	Passenger Boardings		Vehicle Service Hours		Passenger Boardings Per Service Hour		
	Baseline (2016)	2040 MTP/SCS	Baseline (2016)	2040 MTP/SCS	Baseline (2016)	2040 MTP/SCS	Change
Yolo	21,523	37,300	415	627	51.8	59.5	+15%

[1]"TPA Qualifying" transit service is defined in SB375 legislation as any transit service operating at 15-minute or better headway (i.e., 4 schedules per hour) during the peak period, or rail transit service of any service frequency. Source: SACOG, July 2019.

MITIGATION MEASURES

None required.

IMPACT TRN-4: CAUSE INTERFERENCE WITH EXISTING OR PLANNED BICYCLE AND PEDESTRIAN FACILITIES.

Regional Impacts

Compact land uses are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS would support higher rates of non-motorized travel. Table 16-30 provides estimates for total bicycle and walk trips and trips per capita in 2016 and 2040. Bicycle and walk trips per capita would increase by 12.51 and 15.24 percent, respectively.

Table 16-30
Bicycle and Walk Travel in the SACOG Region: 2016 and Proposed MTP/SCS

Mode of Travel	2016	2040 Proposed MTP/SCS
Weekday Person Trips by Walk/Bike		
Bicycle Trips	210,122	298,139
Walk Trips	652,288	948,006
Population	2,376,311	2,996,832
Bicycle Trips Per Capita	*0.09*	*0.10*
Walk Trips Per Capita	*0.27*	*0.32*
Percent Change in Trips Per Capita from 2016		
Bicycle Trips	n/a	12.51%
Walk Trips	n/a	15.24%

Source: SACOG 2019a; SACOG 2019b

In terms of planned transportation improvements, the proposed MTP/SCS would invest in a number of improvements to the transportation system in the plan area. These investments include $2.5 billion (current dollars) in exclusively bicycle and pedestrian investments and additional bicycle and pedestrian infrastructure as part of roadway projects in the proposed MTP/SCS. An estimated 8 percent of road capital projects in the proposed MTP/SCS include bicycle and pedestrian improvements and all projects awarded funds managed by SACOG are anticipated to maintain or improve bicycle and pedestrian travel. Despite this policy support for bicycle and pedestrian travel, some of these roadway projects in the proposed MTP/SCS may interfere with the existing or planned bicycle or pedestrian system. Interferences may include:

- roadway improvement projects or the projected land use pattern which result in higher vehicle volumes or speeds adjacent to bike facilities;
- roadway improvement projects that eliminate bike facilities;
- projects that make pedestrian or bicycle traffic crossing roadways more difficult by increasing roadway width or resulting in higher volumes of vehicles;
- projects that interfere with the right-of-way or construction of future planned bike or pedestrian facilities; and
- other projects which may interfere with or interrupt bike routes or pedestrian facilities.

Although some proposed MTP/SCS projects may interfere with existing or planned bicycle and pedestrian system elements, Table 16-30 illustrates significant increases in forecasted bike and walk trips in the plan area. As a result of proposed MTP/SCS investments for bicycle and pedestrian supportive transportation infrastructure and the underlying land use patterns, the plan is forecasted to increase regional bicycle and pedestrian trips per capita. If the proposed MTP/SCS would significantly interfere with bicycle and pedestrian facilities, trips per capita would decrease as individuals would be less likely or able to choose to walk or bicycle.

The proposed MTP/SCS would also result in a significant expansion of the region's bicycle and pedestrian system. Table 16-31 provides tabulation of baseline mixed-use trail (Class I) and on road bicycle lane (Class II) mileage, and an estimate of the increase in mileage, which could be funded through the proposed MTP/SCS. Total mileage would increase 97 percent combining both Class I and Class II route types, and 56 percent on a per 100,000 population basis. Because the proposed

MTP/SCS would expand the network of Class I and Class II facilities well above population growth, implementation of the proposed MTP/SCS would improve overall connectivity of the region's bicycle system. It is also possible that the region will fund new Class IV bikeways, which have already been constructed in Davis through continued competitive regional funding round opportunities. These are a new classification with evolving design standards so a specific forecast of planned miles was not available for this plan update.

While Class I paths serve both bicyclists and pedestrians, they do not fully represent the full investment in pedestrian specific improvements such as sidewalks, crossing signals, and other intersection improvements. Although no quantifiable accounting of the region's pedestrian system is available, the overall improvements in land use pattern and street pattern described above would make walking a more attractive option.

Table 16-31
Bicycle Route Miles

County	Class 1	Class 2	Both Classes
2016[1]			
El Dorado[2]	11	23	34
Placer[2]	109	221	330
Sacramento	288	678	966
Sutter	11	44	55
Yolo	65	172	237
Yuba	9	11	20
Region	**493**	**1,150**	**1,643**
Miles Per 100k Population	*20.7*	*48.4*	*69.1*
2040 MTP/SCS[3]			
El Dorado[2]	58	206	264
Placer[2]	179	275	454
Sacramento	512	1,400	1,912
Sutter	34	64	98
Yolo	134	291	425
Yuba	33	43	76
Region	**950**	**2,280**	**3,230**
Miles Per 100k Population	*31.7*	*76.1*	*107.8*
Change from 2016			
El Dorado[2]	427%	796%	676%
Placer[2]	64%	24%	38%
Sacramento	78%	106%	98%
Sutter	209%	45%	78%
Yolo	106%	69%	79%
Yuba	267%	291%	280%
Region	**93%**	**98%**	**97%**
Miles Per 100k Population	*53%*	*57%*	*56%*

[1]2016 route mileage from SACOG's regional GIS centerline data.
[2]El Dorado and Placer Counties exclude the Tahoe Basin portions.

[3]Estimates of 2040 MTP/SCS are based on explicitly identified bicycle lane projects, plus an estimate of currently adopted bicycle master plans which may be funded or implemented through other planned transportation improvements, or as stand-alone projects.
Source: SACOG 2019a; SACOG 2019b

Therefore, the impacts to the connectivity of the region's bicycle and pedestrian system related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

Local Impacts

Center and Corridor Communities, Established Communities, and Developing Communities
All Community Types would have various transportation improvements by 2040 and a limited number of these projects may create interference to the existing or planned bicycle or pedestrian system. Due to a land use pattern that is supportive of non-motorized travel and strategic investments in the plan area, the proposed MTP/SCS is forecasted to increase regional transit, bicycle and pedestrian trips per capita. If the proposed MTP/SCS would significantly interfere with bicycle and pedestrian facilities, trips per capita would decrease as individuals would be less likely or able to choose to walk or bicycle.

It is anticipated that the regional and county level transit productivity improvements summarized in Table 16-26 would extend to the Community Type level. Centers and Corridors, Established and Developing Communities would each experience a substantial increase in bicycle and pedestrian infrastructure and more compact and mixed land uses in 2040 that are more supportive of walking and biking. Table 16-19, Table 16-20, and Table 16-21 in the preceding impact discussion demonstrate that the combined walk, bike and transit mode shares would increase significantly in each of these three Community Types by 2040.

Combined with the projected land use pattern in these Community Types, the planned transportation improvements in the proposed MTP/SCS would improve connectivity of the bicycle and pedestrian systems in these areas.

Therefore, the impacts to the connectivity of the region's bicycle and pedestrian system related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the Center and Corridor, Established, and Developing Communities level are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

Rural Residential Communities
All Community Types would have various transportation improvements by 2040 and a limited number of these projects may create interference to the existing or planned bicycle or pedestrian system. Most existing and planned bicycle and pedestrian facilities in Rural Residential Communities consist of Class III bicycle routes along rural roadways and limited sidewalks or shoulder paths. It is unlikely that the limited transportation improvements or traffic increases in these areas would significantly interfere with these types of facilities. If the proposed MTP/SCS would significantly interfere with bicycle and pedestrian facilities, trips per capita would decrease as individuals would be less likely or able to choose to walk or bicycle.

It is anticipated that the regional per capita increase in bike and walk travel identified in Table 16-30 would extend to the local level in Rural Residential Communities given the limited projected land use pattern in these areas and the transportation investment focus on safety and road rehabilitation investments along county roads that also include Class III bicycle facilities. Furthermore, Table 16-22 demonstrates that the combined walk, bike and transit mode shares would increase in Rural Residential Communities by 2040, as compared to the 2016 baseline. Combined with the land use patterns in Rural Residential Communities, the planned transportation improvements in the proposed MTP/SCS would improve connectivity of the bicycle and pedestrian systems in these areas.

Therefore, the impacts to the connectivity of the region's bicycle and pedestrian system related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the Rural Residential level are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Since no growth is assumed in the proposed MTP/SCS in this Community Type, the proposed MTP/SCS would make a very limited number of planned transportation improvements in this Community Type by 2040. The limited number of planned transportation improvements focus on road maintenance, safety enhancements, and other roadway operational improvements that would not disrupt the minimal bicycle and pedestrian system in these areas. Therefore, the impacts to the connectivity of the region's bicycle and pedestrian system related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS Lands Not Identified for Development are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The regional per capita increase in non-motorized travel identified in Table 16-30 is expected to apply in all the HFTAs given the land uses in these areas and the focus on bicycle and pedestrian investments. Furthermore, Table 16-23 Table 16-24, and Table 16-25 demonstrate that the combined walk, bike and transit mode shares would increase in each of the three county HFTAs by 2040, as compared to 2016. The projected land use pattern in HFTAs, in combination with the planned transportation improvements, would improve the connectivity of the bicycle and pedestrian systems in these areas. Therefore, the impacts to the connectivity of the region's bicycle and pedestrian system related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS in the Placer County HFTAs, Sacramento County HFTAs, and Yolo County HFTAs are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

MITIGATION MEASURES

None required

Regional Impacts

Focusing on rural areas within the region, less than two percent of the growth in housing and employment would take place in Rural Residential Communities, keeping the makeup of the land use patterns in these areas largely the same as they are in the 2016 baseline. Forecasted growth along the urban/rural edge, however, would lead to some conversion of agricultural lands which is addressed under Impacts AG-1, AG-2, AG-4, and AG-6, in Chapter 4 – Agricultural Resources. Planned transportation improvements to accommodate growth in these areas, may disrupt the movement of agricultural and farm products on rural roadways in the following situations:

- new or expanded roads that cut through existing agricultural lands and access roads; and
- new or expanded roads that disrupt agricultural or farm equipment access to, along or across roads used for accessing fields, processing destinations, or other agricultural goods movement routes.

In cases where planned transportation improvements may interfere with the movement of agricultural or farm products, the proposed MTP/SCS includes a regional policy and related strategies to support planned transportation improvements that help implement the Rural-Urban Connections Strategy (RUCS). This policy support has been reflected in the last two SACOG regional funding rounds that included funding support for regionally important farm-to-market goods movement travel investments.

Little growth and limited roadway expansions in the proposed MTP/SCS would occur in rural areas away from the edge or urban development. Also, rural roadways are a small share of the regional transportation network lane miles and an even smaller share of overall travel for both the baseline and 2040 horizon year. Two of the region's Community Types (Centers and Corridors and Established Communities) comprise the largest share of baseline and 2040 population, lane miles and travel demand. Neither of these Community Types contains agricultural land uses or rural roadways.

Therefore, impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN-5. No mitigation is required.

Local Impacts

Center and Corridor Communities and Established Communities
Center and Corridor and Established Communities do not contain rural land uses or rural roadways.

Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS for lands in the Center and Corridor and Established Communities are considered less than significant (LS) for Impact TRN-5. No mitigation is required.

Developing Communities
Developing communities would not see the same mix of planned transportation improvements as Center and Corridor Communities and Established Communities. Developing Communities would see more road widening projects and newly constructed road projects adjacent to agricultural areas to serve the new residential and employment developments that would be built by 2040. Therefore, there is a greater risk of disrupting the movement of agricultural products on rural roadways.

Planned transportation improvements to serve development in Developing Communities may interfere with the movement of agricultural and farm products on rural roadways in the following situations:

- new or expanded roads that cut through existing agricultural lands and access roads; and
- new or expanded roads that disrupt agricultural or farm equipment access to, along or across roads used for accessing fields, processing destinations, or other farm-to-market goods movement routes.

These disruptions are partially addressed through policies and investments to support agricultural goods movement travel. In cases where planned transportation improvements may interfere with the movement of agricultural or farm products, the proposed MTP/SCS includes a regional policy and related strategies to support planned transportation improvements that help implement the Rural-Urban-Connections-Strategy (RUCS). This policy support has been reflected in the last two SACOG regional funding rounds that included funding support for regionally important farm-to-market goods movement travel investments.

Despite a regional policy commitment to efficient agricultural and farm product movement on rural roadways, a significant share of the new growth in the proposed MTP/SCS would be in areas adjacent to farmland and agricultural operations. The planning, design, construction and operation of expanded roadways adjacent to agricultural lands may take into account the needs of agricultural activity. Nevertheless, it is possible that some of the new and expanded roadways in Developing Communities would have a negative impact on the movement of agricultural and farm products.

Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the Developing Communities level are considered potentially significant (PS) for Impact TRN-5. Mitigation is required. Mitigation measure TRN-2 is described below.

Rural Residential Communities
Rural Residential Communities would have significantly less growth than Developing Communities and limited new or expanded roadways. Disruptions to the movement of agricultural and farm equipment on rural roadways are possible, however, because virtually all growth in these areas would be near or adjacent to agricultural lands and the largest share of passenger travel increases would be on rural roadways that also support agricultural truck and equipment movements. These disruptions can be minimized through RUCS policies and investments to support agricultural goods movement travel.

As described in the preceding Developing Communities impact discussion, some of the proposed MTP/SCS transportation improvements may interfere with the movement of agricultural and farm products on rural roadways. It is possible that some of the MTP/SCS improvements would have a negative impact on the movement of agricultural and farm products in Rural Residential Communities.

For example, an increase in higher-speed traffic volumes along rural roads may reduce safety and access to farm fields for agricultural vehicles. Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the Developing Communities level are considered potentially significant (PS) for Impact TRN-5. Mitigation is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. The limited number of planned transportation improvements focus on road maintenance, safety enhancements, and other roadway operational improvements. Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact TRN-5. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The HFTAs do not contain rural land uses or rural roadways. Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS for lands in the MTP/SCS HFTAs are considered less than significant (LS) for Impact TRN-5. No mitigation is required.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measure(s) at a project-level would reduce the impacts to the transportation system as they relate to the movement of agricultural products on rural roadways and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure TRN-2: Strategies to support the movement of agricultural products on rural roadways near growth areas.

Implementing agencies shall require implementation of best practice goods movement standards regarding agricultural products transport and apply recommended applicable mitigation measures as defined by state and federal agencies for new growth in Developing Communities or Rural Residential Communities. To reduce the impacts to the movement of agricultural products on rural roadways related to land use and planned transportation improvements from the implementation of the proposed MTP/SCS, one or more of the following measures shall be implemented by local agencies for new growth in Developing Communities or Rural Residential Communities:

- During site design and phasing of development adjacent to rural roads, access needs for agricultural uses shall be considered. Balancing the needs from increased passenger vehicle

travel in Developing Communities with the preservation of key access points for trucks and agricultural equipment can increase safe and efficient agricultural operations.

- Projects in Developing Communities and Rural Residential areas shall prioritize safety and design improvements along rural roadways that are important farm-to-market routes and projected to accommodate future traffic increases. Focusing available local funding improvements to make these roadways consistent with local design standards (such as horizontal curvature, site distance, etc.) improves safety and reduces friction between agricultural operations, trucks, and passenger vehicles on the corridors with the greatest need.

- Local agencies shall reduce the growth in passenger VMT in Developing Communities and Rural Residential areas through increased local investments in transit and active transportation network improvements. Transportation demand management strategies identified in Mitigation Measure TRN-1 that divert some single occupancy auto trips to alternative modes reduces friction with travel for agricultural operations along rural roadways shall be implemented.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact TRN-5 would be reduced to a less than significant (LS) level. The strategies identified are programmatic; they would need to be refined and matched to local conditions in any subsequent project level environmental analysis. Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact TRN-5 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT TRN-6: CAUSE A DISRUPTION TO AVIATION ACCESS OR SERVICE.

Regional, Local, and High Frequency Transit Area Impacts

The proposed MTP/SCS contains various projects that would modify or expand the regional transportation network. These projects were developed based on existing deficiencies and anticipated future needs given projected population, employment, and travel growth in the region. Anticipated future needs accounted for growth in aviation demand for moving people and goods and the proposed MTP/SCS includes projects to improve existing aviation access and service, such as a lengthened deceleration lane on the Airport Boulevard northbound off-ramp from Interstate 5. A full list of planned transportation improvements contained in the proposed MTP/SCS is available in Appendix A. Therefore, implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional, local, and HFTA levels are considered less than significant (LS) for Impact TRN-6. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT TRN-7: CAUSE A DISRUPTION TO GOODS MOVEMENT INTO OR THROUGH THE SACOG REGION.

Regional, Local, and High Frequency Transit Area Impacts

The proposed MTP/SCS contains various projects that would modify or expand the regional transportation network. These projects were developed based on existing deficiencies and anticipated future needs given projected population, employment, and travel growth in the region. Anticipated future needs accounted for growth in goods movement and the proposed MTP/SCS includes projects to improve existing transportation facilities associated with the increased demand, such as construction of a third track along the Union Pacific mainline between Sacramento and Placer Counties, a truck climbing lane on I-80 near Colfax, and a number of highway improvements that will benefit both passenger vehicles and trucks. A full list of planned transportation improvements contained in the proposed MTP/SCS is available in Appendix A. Therefore, implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional, local, and HFTA levels are considered less than significant (LS) for Impact TRN-7. No mitigation is required.

MITIGATION MEASURES

None required.

IMPACT TRN-8: CAUSE A DISRUPTION TO THE ONGOING OPERATIONS OF THE APPLICABLE REGIONAL OR LOCAL AREA TRANSPORTATION SYSTEM DUE TO CONSTRUCTION ACTIVITIES.

Regional Impacts

Construction activities from the implementation of the proposed MTP/SCS would be short term, intermittent, and dispersed geographically. At the regional level, these disruptions would likely impact a very small portion of the overall roadway network and would not significantly impact the operations of the overall regional transportation system. Therefore, construction activities that interfere with the ongoing operations of the transportation system from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN-8. No mitigation is required.

Local and High Frequency Transit Area Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, Lands Not Identified for Development in the Proposed MTP/SCS, Placer County, Sacramento County, and Yolo County High Frequency Transit Areas

The construction activities associated with implementing the land use and planned transportation improvements in the proposed MTP/SCS would potentially interfere with the normal operations of the localized transportation system. These construction activities include land development projects and new transit, non-motorized and roadway projects. Interference with the normal operations of a local transportation system could occur from detours or bottlenecks where activities disrupt traffic in one or more travel lanes, sidewalks, or bicycle routes. Also, certain large construction projects may increase travel on local roads not designed for heavier traffic volumes as workers and supplies travel to and from the sites.

Large numbers of construction projects occurring at the same time in a local area, or the construction of many projects consecutively in a local area, could result in localized delay impacts or emergency response delays. These potential impacts should be evaluated at the project level as more information about the timing, design, scope and construction program are available. Therefore, construction activities that interfere with the ongoing operations of the transportation system from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the localized level are considered potentially significant (PS) for Impact TRN-8. Mitigation is required. Mitigation Measure TRN-3 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project-level would reduce the impacts from construction activities on the transportation system and traffic, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure TRN-3: Apply best practice strategies to reduce the localized impact from construction activities on the transportation system.

Implementing agencies shall require implementation of best practice strategies regarding construction activities on the transportation system and apply recommended applicable mitigation measures as defined by state and federal agencies. Examples of mitigation measures should include, but are not limited to, the following:

- Apply special construction techniques to minimize impacts to traffic flow and provide adequate access to important destinations in the area.
- Develop circulation and detour plans to minimize impacts to local street impacts from construction activity on nearby major arterials. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone.
- Establish truck "usage" routes that minimize truck traffic on local roadways to the extent possible.
- Schedule truck trips outside of peak morning and evening commute hours.
- Route truck trips to avoid roadway segments with at risk or failed pavement conditions.
- Limit the number of lane closures during peak hours to the extent possible.
- Identify detours for bicycles and pedestrians in all areas potentially affected by project construction and provide adequate signage to mark these routes.
- Install traffic control devices as specified in the California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones.
- Develop and implement access plans for potentially impacted local services such as police and fire stations, transit stations, hospitals, schools and parks. The access plans should be developed with the facility owner or administrator. To minimize disruption of emergency vehicle access, affected jurisdictions should be asked to identify detours for emergency vehicles, which will then be posted by the contractor.

- Store construction materials only in designated areas that minimize impacts to nearby roadways.
- Coordinate with local transit agencies for temporary relocation of routes or bus stops in works zones, as necessary.
- Conduct a public information campaign about how to use transit and other methods to reduce single-occupant vehicle use.
- Coordinate with local police, fire, sheriff, and emergency services regarding closures including magnitude and duration of closure.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact TRN-8 would be reduced to a less than significant (LS) level. Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact TRN-8 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT TRN-9: RESULT IN INCONSISTENCY WITH PROJECT DESIGN STANDARDS RELATED TO TRAFFIC SAFETY.

Regional, Local, and High Frequency Transit Area Impacts

The proposed MTP/SCS contains various projects that would modify or expand the regional transportation network. These projects were developed to address existing deficiencies and/or in anticipation of future needs given projected population, employment, and travel growth in the region. The proposed MTP/SCS projects are required to conform to the design standards of the public agency responsible for implementation. Design standard conformance is a key part of developing networks that provide common expectations for users to minimize conflicts and conditions that could contribute to collisions. These standards cover all aspects of the transportation right-of-way including physical and operational features as well as appropriate actions during construction activity. Nothing in this proposed MTP/SCS would change the applicable design standards of the implementing agencies; therefore, implementation of the proposed MTP/SCS would not result in inconsistency with design standards related to traffic safety. Therefore, implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional, local, and HFTA levels are considered less than significant (LS) for Impact TRN-9. No mitigation is required.

MITIGATION MEASURES

None required.

Chapter 17—Utilities and Service Systems

17.1 Introduction

This chapter describes existing conditions (environmental and regulatory) and assesses the potential utilities and service systems impacts that may result from implementation of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data, analysis and findings provided in this chapter were considered and prepared at a programmatic level.

This chapter focuses on sufficiency of available water supplies and the capacity of existing utility infrastructure to serve anticipated demand for service under the proposed MTP/SCS, including for water supply, wastewater treatment, fire flows, solid waste, electric power, natural gas, and telecommunications facilities. Energy supply and demand, and associated impacts, are discussed in Chapter 8 – Energy and Global Climate Change. Surface water quality, groundwater quality and supplies, hydrology, and stormwater drainage capacity are addressed in Chapter 11 – Hydrology and Water Quality. Public services including police protection, fire protection, social services, schools, libraries, parks and recreational facilities are addressed in Chapter 15 – Public Services and Recreation.

In response to the Notice of Preparation (NOP), SACOG received comments related to utilities and service systems from Yolo Local Agency Formation Commission (LAFCo) and the Sacramento Municipal Utility District (SMUD). The commenters expressed that the Draft EIR should consider the following:

- Relationship of growth areas to city and service provider boundaries, and spheres of influence
- State limitations on new public water systems
- Water supply constraints on growth
- Impacts to energy provision infrastructure

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

17.2 Environmental Setting

17.2.1 Water Supply Agencies

Water supply for the plan area of the proposed MTP/SCS is provided by several local water agencies including cities, counties, district, and companies, as well as numerous small public and private water systems. These entities provide water supply for urban, agricultural, and other uses. Water supplies are drawn from surface water and groundwater sources, recycled water, conservation measures, and water transfers. The following overview discussion of the largest existing water supply agencies (in terms of water supply volume and population served), small water purveyors, water purveyor cooperative organizations, water consumption levels, supply and conveyance infrastructure, and end uses is provided to support the programmatic analysis of water supply of the proposed MTP/SCS.

CALIFORNIA-AMERICAN WATER COMPANY – SACRAMENTO DISTRICT

The California-American Water Company—Sacramento District is a private supplier of water services throughout California. As of 2015, the California-American Water Company—Sacramento District served a population of 203,851. This population consumed approximately 29,617 acre-feet of water in 2015.

CITRUS HEIGHTS WATER DISTRICT

The Citrus Heights Water District is an Irrigation District, founded in 1920, operating under the State of California Water Code (Citrus Heights Water District 2019). In 2015, the Citrus Heights Water District provided approximately 9,974 acre-feet of drinking water to an estimated service area population of 65,093 customers. The Citrus Heights Water District operates approximately 19,600 water service connections in Sacramento and Placer Counties, including about sixty percent of the area within the boundaries of the City of Citrus Heights (Citrus Heights Water District 2019).

CITY OF DAVIS

The City of Davis Water Division operates and maintains the water production and distribution infrastructure in order to deliver clean, reliable potable water to the City of Davis' citizens. The City of Davis Water Division is responsible for water production, distribution, and storage, water meter reading/maintenance, water conservation, water quality monitoring, permitting/regulatory compliance, solving regional and state-wide water issues, and long-range utility and resource planning (City of Davis 2019). As of 2015, the City of Davis Water Division provided approximately 9,212 acre-feet of water to a population of 69,280.

CITY OF FOLSOM

The City of Folsom Environmental & Water Resources Department provides low-cost and reliable water and wastewater services to residents and businesses in the City of Folsom. The Environmental & Water Resources Department also plans, manages, and implements water and wastewater Capital Improvement Projects and provides water conservation support to all City of Folsom water customers (City of Folsom 2019). In 2015, the City of Folsom Environmental & Water Resources Department provided approximately 18,587 acre-feet of water to approximately 63,536 people.

CITY OF ROSEVILLE

The City of Roseville distributes water to its residents through operating a 100 million-gallon-per-day treatment plant; maintaining 500 miles of pipes, 4,500 hydrants, and three water tanks that equal 20 million gallons of water; and managing an active groundwater well program, for use when needed (City of Roseville 2019). The City of Roseville supplied approximately 26,941 acre-feet of water to approximately 123,572 people in 2015.

CITY OF SACRAMENTO

The City of Sacramento Department of Utilities provides more than 46 billion gallons of water to more than 130,000 customers per year. The City of Sacramento Department of Utilities' comprehensive drinking water programs focus on high quality drinking water, system improvements, and conservation. The City of Sacramento Department of Utilities treats more than 25 billion gallons of drinking water a year, maintains over 1,500 miles of water mains, and ensures that water meets or exceeds all state and federal drinking water standards (City of Sacramento 2018). In 2015, the City of Sacramento Department of Utilities provided approximately 31,8410 acre-feet of water to approximately 165,895 people.

CITY OF YUBA CITY

The City of Yuba City Public Works – Utilities Department is responsible for the treatment, distribution, and discharge of the City's water and sewer utilities through the operation of the Water Treatment Plant, Wastewater Treatment Facility, and Laboratory (City of Yuba City 2019a). The City of Yuba City Public Works – Utilities Department provided approximately 13,344 acre-feet of water to approximately 71,070 people in 2015.

EL DORADO COUNTY WATER AGENCY

The El Dorado County Water Agency (EDCWA), established in 1959, is a long-term water planning organization that leads, assists, and participates in important projects such as securing water rights and promoting water conservation for El Dorado County purveyors. EDCWA also operates the El Dorado Water & Power Authority, a joint powers authority comprised of EDCWA, El Dorado County, and El Dorado Irrigation District. EDCWA does not provide or maintain water; however, EDCWA does work closely with the County's water purveyors in its planning and coordination efforts (EDCWA 2019).

NEVADA IRRIGATION DISTRICT

Formed in 1921, the Nevada Irrigation District is headquartered in Grass Valley, California, 60 miles northeast of Sacramento. The Nevada Irrigation District is an independent special district operated by and for the people who own land within its 287,000-acre boundaries. Nevada Irrigation District's water is available in wide areas of Nevada and Placer Counties, and is stored and distributed in some areas of Sierra and Yuba Counties. Nevada Irrigation District collects water on 70,000 acres of high mountain watershed, owns and operates an extensive reservoir and canal system and network of water treatment plants, and produces hydroelectric energy (Nevada Irrigation District 2019). In 2015, Nevada Irrigation District served 50,250 people and provided 127,998 acre-feet of water.

PLACER COUNTY WATER AGENCY

Placer County Water Agency (PCWA) is the primary water resource agency for incorporated and unincorporated Placer County, with a broad range of responsibilities including water resource planning and management, retail and wholesale supply of drinking water and irrigation water, and production of hydroelectric energy. PCWA is the largest water purveyor in the county, serving more than 41,000 retail treated water customers in its Western Water System, which includes the original Zone 1 and extends east from Auburn to the communities of Applegate, Colfax, and Alta. PCWA continues to provide treated water on a wholesale basis to the City of Lincoln – a service it has also extended to California American Water Company for delivery west of Roseville, and to several historic community systems in the Loomis Basin. In addition, PCWA supplies water from its Middle Fork American River Hydroelectric Project (MFP) to the City of Roseville and San Juan Water District, which operate their own treatment facilities. PCWA operates 165 miles of canals, serving irrigation water for pastures, orchards, rice fields, farms, ranches, golf courses, and landscaping. PCWA's MFP is the eighth largest public power project in California. It has five interconnected hydroelectric power plants, two major storage reservoirs (French Meadows and Hell Hole) and twenty-four miles of tunnels. The MFP can generate, at peak power, 224 megawatts. (Placer County 2019a). In 2015, PCWA provided approximately 110,039 acre-feet of water to a population of approximately 98,128 people.

SACRAMENTO COUNTY WATER AGENCY

The Sacramento County Water Agency provides drinking water to over 55,000 homes and businesses in the Laguna-Vineyard area of the South County, Mather-Sunrise, Arden Park-Sierra Oaks, Hood, Northgate, and Southwest Track. The boundaries are identical to the boundaries of the County of Sacramento. It performs the planning of groundwater, surface water, and recycled water facilities to provide water supply to new development and determines the development necessary to fund these plans. Sacramento County Water Agency also manages water supply facility capital improvement projects and oversees operations and maintenance of water supply infrastructure including pipes, pumps, tanks, and water treatment plants. (Sacramento County 2019c). In 2015, Sacramento County Water Agency provided approximately 27,502 acre-feet of water to approximately 173,380 people.

SACRAMENTO SUBURBAN WATER DISTRICT

The Sacramento Suburban Water District (SSWD) is a publicly-owned and operated water utility agency regulated by the State of California Division of Drinking Water and State Water Code laws. SSWD provides water to its customers from 72 operational groundwater production wells, and a groundwater production capacity of 77,563 gallons per minute. In addition, the SSWD has contractual rights to 26,064 acre-feet from the City of Sacramento water entitlements, and a contract to purchase up to 29,000 acre-feet of surface water per year from Placer County Water Agency. SSWD includes a service area of 26 square miles, 46,268 service connections, 41,958 metered connection and 70 full time employees. SSWD's distribution system includes 698 miles of distribution and transmission systems, 12,416 mainline valves, 6,210 fire hydrants, and 49 emergency interties, and has a storage tank capacity of 15.8 million gallons. Based on 2009-2018 data, the maximum day demand for SSWD is 90.4 million gallons. SSWD produced a total of 10,061 million gallons of water in 2019, for an average daily demand of 27.6 million gallons (SSWD 2019). In 2015, the SSWD provided approximately 86,031 acre-feet of water to a population of approximately 480,105.

Sutter County Water Agency

The boundaries of the Sutter County Water Agency are coterminous with the boundaries of the County of Sutter. The principal function of the Water Agency is to provide, operate and maintain drainage systems within the Agency boundaries including Live Oak Canal. It also implements water resource programs such as groundwater monitoring and Clean Water Act requirements (Sutter County 2019).

Yolo County Flood Control and Water Conservation District

The Yolo County Flood Control and Water Conservation District manages a small hydroelectric plant, two reservoirs, more than 150 miles of canals and laterals, and three dams. It controls, manages, and distributes water resources for beneficial use within the District's boundaries, which cover 195,000 acres of Yolo County, including the cities of Woodland, Davis and Winters, and the towns of Capay, Esparto, Madison and other small communities within the Capay Valley. (Yolo County 2019c)

Yuba County Water Agency

The Yuba County Water Agency (YCWA) owns and operates facilities with a capacity of storing approximately one million acre-feet of water and generating nearly 400 megawatts of hydropower. YCWA annually releases more than 300,00 acre-feet of water to the following eight irrigation districts that convey water to farmers and ranchers in Yuba County: South Yuba Water District, Dry Creek Mutual Water Company, Brophy Water District, Cordua Irrigation District, Hallwood Irrigation Company, Ramirez Water District, Browns Valley Irrigation District, and Wheatland Water District. (Yuba County 2019)

Small Water Purveyors by County

The plan area of the proposed MTP/SCS has many community drinking water systems that are considered small (serving fewer than 3,000 connections) with most small water systems serving fewer than 500 people. Small water systems face unique financial and operational challenges. Their small customer base often cannot develop the financial resources needed to upgrade infrastructure or to comply with changing regulations. The region also has many small agricultural water purveyors that acquire and deliver water to specific farm lands. Small water purveyors within the region include:

- **El Dorado County:** Grizzly Flats Community Services District and the Kyburz Mutual Water System.
- **Placer County:** Midway Heights Community Water District and, in the Lahontan Hydrologic Region of Placer County, Squaw Valley Public Service District, Squaw Valley Mutual Water Company, and Northstar Community Services District.
- **Sacramento County:** Clay Water District, Del Paso Manor, Florin County Water District, Fruitridge Vista Water Company, Galt Irrigation District, Natomas Central Mutual Water Company, North Delta Water Agency, Omochumne-Hartnell Water District, Rancho Murieta Community Service District, and Tokay Park Water Company.

- **Sutter County:** City of Live Oak, East Nicolaus Mutual Water Company, Sutter County Waterworks District No. 1 (Sutter County 2019), and Sutter Community Service District.

  Several entities also supply agricultural irrigation water in Sutter County. The major sources of water are diversions from the Feather and Sacramento rivers. This is supplemented by groundwater and transfers from other water suppliers. The list of existing suppliers in Sutter County includes: Garden Highway Mutual Water Company; Meridian Farms Water Company; Pleasant Grove/Verona Mutual Water Company; Sutter Bypass Butte Slough Water User Association; Sutter Extension Water District; Sutter Mutual Water Company; Tisdale Irrigation and Drainage Company; Tudor Mutual Water Company; Butte Water District; Biggs-West Gridley Water District; Feather Water District; Oswald Water District; Pelger Water District; Tisdale Water District, and Swinford Tract Irrigation District (Sutter County 2008).
- **Yolo County:** Cacheville Community Service District, Colusa County Water District, Dunnigan Water District, City of Winters, Esparto Community Service District, Knights Landing Community Service District, Knights Landing Ridge Drainage District, Madison Community Service District, North Davis Meadows County Service Area, North Delta Water Agency, Wild Wings County Service Area, Yolo-Zamora Water District (Yolo County 2015).
- **Yuba County:** Beale Air Force Base, Camp Far West Irrigation District, Camptonville Community Service District, North Yuba Water District, Plumas Mutual Water Company, Ramirez Water District, River Highlands Community Service District, and City of Wheatland. (NCWA 2019)

WATER PURVEYOR COOPERATIVE ORGANIZATIONS

The scale and complexity of meeting water demand requires water purveyors to partner with other stakeholders in the region. These cooperative organizations enable their partners to pursue grant funding, share costs, and plan with greater vision. The following organizations have varying structures of self-governance, goals, and membership.

Southeast Sacramento County Agricultural Water Authority

The Southeast Sacramento County Agricultural Water Authority is located in the southeast portion of Sacramento County, and is comprised of three public agencies: Omochumne-Hartnell Water District, Galt Irrigation District, and Clay Water District. In 2002, these districts formed a Joint Powers Authority to develop, implement and manage the water resources available to them.

The three districts cover approximately 70,980 acres, of which approximately 25,000 acres are devoted to irrigated agriculture. Most of the water demands within the Authority are met from private wells; although minor amounts of purchased surface water and riparian water are diverted from seasonal rivers and creeks that flow through the Authority's boundaries (Southeast Sacramento County Agricultural Water Authority 2019).

Sacramento Area Water Forum

The Sacramento Area Water Forum (Water Forum) successfully joined together water purveyors, environmentalists, agriculturalists, business leaders, along with city and county governments in Sacramento, El Dorado, and Placer counties in an agreement to secure the future of the Sacramento

region water supply for those three counties to the year 2030. Signed by 40 stakeholder organizations in April 2000, and a comprehensive update in 2015, the Water Forum has already successfully implemented programs that will maintain the long-term sustainable yield of the North Area Groundwater Basin, conserve municipal and industrial water use, and protect fish and other public trust assets in the lower American River.

The Agreement also provides important provisions assuring each signatory that, as it fulfills its responsibilities, other signatory organizations are also honoring their commitments. These understandings are included in the MOU for the Water Forum Agreement. The Water Forum Agreement (Agreement) contains seven elements – categories of complementary actions that are necessary for a solution to work. The seven elements are:

- increased surface water diversions,
- actions to meet customer needs while reducing diversion impacts in drier years,
- support for improved pattern of fishery flow releases from Folsom Reservoir,
- lower American River habitat management,
- water conservation,
- groundwater management, and
- water Forum Successor Effort.

Since the 2000 Agreement was signed, the Sacramento Water Forum Successor Effort has continued implementation of the seven elements (Water Forum 2019).

Regional Water Authority

The Regional Water Authority (RWA) is a local public agency formed in 2001 under the Joint Exercise of Powers Act (Government Code Sections 6500–6599.3). RWA formed after an extensive 18-month review process to determine the most appropriate type of agency to assist local water suppliers in implementing the April 2000 Agreement. RWA members are successfully implementing a regional conjunctive use program and a regional water efficiency program in support of the Agreement. RWA serves and represents the interests of over 20 water providers and associated agencies in the greater Sacramento area (RWA 2013).

Sacramento Valley Water Quality Coalition

The Sacramento Valley Water Quality Coalition is made up of more than 8,600 farmers and wetlands managers, covers 1.1 million acres of irrigated land and is comprised on 13 sub-watershed groups. The main purpose of the coalition is to provide support for growers and help them maintain compliance with the Central Valley Regional Water Quality Control Board (CV-RWQCB) Basin Plan water quality requirements. The coalition also provides surface and groundwater monitoring reports (Sacramento Valley Water Quality Coalition 2019).

North State Water Alliance

The North State Water Alliance (NSWA) is a growing coalition of cities, counties, water providers, business, agriculture, and community groups in Northern California. Supporters include SACOG,

Mountain Counties Water Resources Association, Northern California Water Association and many cities and counties throughout the region. NSWA focuses on working with the government to create sustainable statewide cooperative agreements and improve water infrastructure in addition to promoting water conservation as a way of life (NSWA 2019).

Association of California Water Agencies

The Association of California Water Agencies (ACWA) is the largest statewide coalition of public water agencies in the country. Its 430 public agency members collectively are responsible for 90 percent of the water delivered to cities, farms and businesses in California. ACWA is actively working on these priority issues (ACWA 2018a):

- Promote Safe Drinking Water Solutions for Disadvantaged Communities
- Promote Policy Advances on Headwaters & Forest Management
- Provide Leadership on Bay-Delta Flows & Conveyance Solutions
- Identify Strategies to Increase Groundwater Sustainability & Replenishment
- Promote Water Storage Investments
- Advance Sound Energy Policies
- Promote Long-Term Water-Use Efficiency Measures

Mountain Counties Water Resources Association

The Mountain Counties Water Resources Association (MCWRA) includes water purveyors from Alpine, Amador, Calaveras, El Dorado, Madera, Mariposa, Nevada, Placer, Plumas, Sierra, Tuolumne, Yuba counties and portions of Butte, Fresno and Lassen counties. In 1979, MCWRA was reorganized to represent the Counties of Origin in gaining water rights protection and development. MCWRA's geographic and economic scope includes (MCWRA 2019):

- more than 100 local governmental agencies and districts – mostly serving from 1,000 to more than 100,000 customers,
- 40 percent of the state's developed water supply originates from Mountain Counties Areas,
- 15,758 square miles or 9.9 percent of the State,
- 383 miles of Wild and Scenic Rivers under Federal and State Law,
- managed Wetlands in the lower Bear watershed and in the upper Feather watershed,
- ten major watershed areas – 13,236 square miles, and
- 17 million acre-feet (af) of natural runoff.

WATER DEMAND MANAGEMENT

The plan area of the proposed MTP/SCS supports intensive urban, suburban, industrial and agricultural water users. This demand is met by conveying surface water through a complex infrastructure and widespread groundwater pumping. Purveyors operate according to the needs of their customers. Water suppliers that serve agriculture often have few connections, but may control

delivery of large volumes of untreated water. Purveyors who provide to urban areas treat water according to drinking water standards. In order to accomplish large improvement projects, and cooperatively address regional issues, water purveyors frequently form entities to determine mutually beneficial solutions for the group.

Urban

Every urban water supplier that provides over 3,000 acre-feet of water annually or serves more than 3,000 urban connections is required to assess the reliability of its water sources over a 20-year planning horizon, and report its progress toward 20 percent reduction in per-capita urban water consumption by the year 2020. These plans, called Urban Water Management Plans (UWMPs) provide a snapshot of water consumption patterns and supply availability. These values account for both groundwater and surface water supplies within their regions as well as projected imported water, stormwater, wastewater, exchanges and transfer, and existing and future projects. Table 17-1 shows existing (2015) water consumption and service population for each urban water supplier in the plan area of the proposed MTP/SCS. It also shows that 2015 per-capita water consumption is lower than 2020 target consumption for each urban water supplier, demonstrating the effectiveness of water conservation strategies.

Table 17-1
Existing (2015) Consumption and Population for Urban Water Suppliers in the Plan Area of the Proposed MTP/SCS

Urban Water Suppliers	Acre-Feet Consumption (2015)	Population (2015)	Consumption Rate (gallons/ capita/day) (2015)	2020 Target Consumption (gallons/ capita/day)
California Water Service Company - Marysville	1,742	12,177	128	201
California-American Water Company - Sacramento District	29,617	203,851	130	173
Carmichael Water District	7,131	37,897	168	237
Citrus Heights Water District	9,974	65,093	137	229
Davis, City of	9,212	69,280	119	172
El Dorado Irrigation District	30,195	107,578	187	241
Elk Grove Water District	5,311	42,867	111	191
Fair Oaks Water District	8,130	35,114	207	279
Folsom, City of	18,587	63,536	261	352
Galt, City of	4,766	23,556	158	177
Georgetown Divide Public Utilities District	3,016	8,994	152	167
Golden State Water Company - Cordova	11,593	44,128	235	320
Lincoln, City of	9,104	45,837	149	193
Linda County Water District	2,796	18,105	138	172
Nevada Irrigation District	127,998	50,250	130	197
Olivehurst Public Utilities District	3,106	20,626	134	167
Orangevale Water Company	3,256	16,480	176	241
Placer County Water Agency	110,039	98,128	203	261
Rio Linda-Elverta Community Water District	2,109	14,813	127	181
Roseville, City of	26,941	123,572	165	247

Urban Water Suppliers	Acre-Feet Consumption (2015)	Population (2015)	Consumption Rate (gallons/ capita/day) (2015)	2020 Target Consumption (gallons/ capita/day)
Sacramento, City of	31,841	165,895	153	236
Sacramento County Water Agency	27,502	173,380	142	206
Sacramento Suburban Water District	86,031	480,105	158	225
San Juan Water District	40,889	29,452	293	413
South Feather Water and Power Agency	4,471	16,405	243	247
West Sacramento, City of	10,111	49,504	183	234
Woodland, City of	8,650	57,525	134	232
Yuba City, City of	13,344	71,070	163	192

Note: The 2015 water year's observed gallons per day per capita use figures were recorded during a multi-year drought, wherein the Governor declared a state of emergency due to California's drought condition. Due to these extraordinary circumstances, many water users made concerted efforts to conserve water, resulting in many cases in reduced rate of consumption as compared with typical consumption years.
Source: DWR 2019a

Table 17-2
Existing and Projected Population Growth for Urban Water Suppliers in the Plan Area of the Proposed MTP/SCS, 2015 to 2040

Urban Water Suppliers	2015	2020	2025	2030	2035	2040
California Water Service Company - Marysville	12,177	12,382	12,593	12,810	13,033	13,261
California-American Water Company - Sacramento District	203,851	211,886	224,332	238,511	254,922	--
Carmichael Water District	37,897	38,061	38,223	39,285	40,347	41,409
Citrus Heights Water District	65,093	66,720	68,348	69,975	71,602	--
Davis, City of	69,280	72,341	75,286	75,286	75,286	75,286
El Dorado Irrigation District	107,578	113,118	118,944	125,069	131,511	138,283
Elk Grove Water District	42,867	44,902	49,549	50,530	50,604	50,678
Fair Oaks Water District	35,114	37,659	38,587	39,537	40,510	--
Folsom, City of	63,536	69,196	74,855	81,223	88,552	96,787
Galt, City of	23,556	26,008	28,715	31,703	35,003	38,646
Georgetown Divide Public Utilities District	8,994	9,453	9,935	10,442	10,974	--
Golden State Water Company - Cordova	44,128	45,639	47,499	49,936	49,936	49,936
Lincoln, City of	45,837	53,747	62,153	73,175	86,001	102,563
Linda County Water District	18,105	19,987	22,065	24,359	26,892	29,688
Nevada Irrigation District	50,250	57,465	65,484	74,409	84,353	94,586
Olivehurst Public Utilities District	20,626	30,700	45,800	68,300	68,300	68,300
Orangevale Water Company	16,480	16,974	17,469	17,963	18,457	--
Placer County Water Agency	98,128	103,885	110,387	117,368	133,706	141,365
Rio Linda-Elverta Community Water District	14,813	23,976	28,538	33,586	37,922	--
Roseville, City of	123,572	133,243	144,113	155,983	165,854	175,724
Sacramento, City of	165,895	196,560	230,619	267,121	306,068	347,454
Sacramento County Water Agency	173,380	184,385	187,987	190,319	190,659	190,659
Sacramento Suburban Water District	480,105	528,866	560,278	600,339	640,381	695,830
San Juan Water District	29,452	30,083	30,728	31,386	32,058	32,745

Urban Water Suppliers	2015	2020	2025	2030	2035	2040
South Feather Water and Power Agency	16,405	17,333	18,313	19,348	20,442	21,598
West Sacramento, City of	49,504	56,602	64,717	73,996	84,605	96,735
Woodland, City of	57,525	61,226	65,510	70,095	75,000	80,160
Yuba City, City of	71,070	82,390	95,513	110,725	128,361	148,806

Source: DWR 2019a

Agriculture

The Sacramento Valley is an agricultural region of national significance. This success was predicated by abundant surface water supplies, and agriculture is the largest water user in the plan area of the proposed MTP/SCS. For a description of existing agricultural resources in the plan area of the proposed MTP/SCS and analysis of the agricultural resources impacts of the proposed MTP/SCS see Chapter 4 – Agriculture and Forestry Resources. Unlike urban water supplies, water supplied for agricultural uses is not subject to treatment.

Other Water Uses

Fisheries Releases
The federal Endangered Species Act requires the National Marine Fisheries Service to develop and implement recovery plans for listed species. The recovery plan for Sacramento River and Central Valley salmon and steelhead species was released in July 2014. The plan identifies site-specific actions necessary for species recovery and provides measurable criteria necessary for delisting the species. Priorities for the reintroduction of selected species are also identified. The recovery plan is not a regulatory document, but serves as guidance for recovery efforts (NOAA 2019).

The Delta Reform Act of 2009 requires the State Water Resources Control Board (SWRCB) and California Department of Fish and Wildlife to complete instream flow studies for high priority rivers and streams by 2018. The flow studies are based on fishery protection. The studies do not take other beneficial uses into account, such as municipal and agricultural water supplies and recreational uses. SWRCB recognizes that establishing flow objectives is a multidimensional balancing effort and that fishery protection represents only one of the factors (SWRCB 2019).

Delta Salinity Control
Besides maintaining sufficient river flows to preserve native, anadromous fish runs, water needs to continuously flow through the Delta to prevent the intrusion of salt water into the Delta. During periods of low flows, lower Delta diverters are at risk of losing access to fresh water (DWR 2013).

17.2.2 Water Supply and Conveyance

Water supply systems obtain water from several sources including groundwater, surface water (lakes and rivers), and treated and recycled wastewater. Potable water supply comes from surface water and groundwater sources.

SURFACE WATER INFRASTRUCTURE

The state and federal government and private interests have constructed numerous projects to collect, store, transfer, and deliver water. As shown in Table 17-3 there are 16 major lakes and reservoirs in the plan area for the proposed MTP/SCS.

Table 17-3
Major Lakes and Reservoirs in the Plan Area of the Proposed MTP/SCS

Major Lake or Reservoir	Location	Capacity (acre-feet)
American River Watershed		
Folsom Lake	Convergence of the North and South Forks of the American River	977,000
Lake Clementine	Convergence of the North and Middle Forks of the American River	14,700
Lake Natoma	Main branch of the American River	9,000
Union Valley Reservoir	South Fork American River	266,369
Hell Hole Reservoir	Rubicon River Drainage	207,600
Loon Lake	Rubicon River Drainage[1]	69,306
Slab Creek	South Fork American River	16,600
Stumpy Meadows	Pilot Creek	20,000
Ice House Reservoir	South Fork Silver Creek	43,496
Caples Lake	Caples Creek	22,340
Silver Lake	Silver Fork of the South Fork	8,640
Bear River Watershed		
Camp Far West Reservoir	Bear River	104,500
Rollins Reservoir	Bear River	66,000
Middle Sierra Watershed		
Sly Park Reservoir/Jenkinson Lake	Cosumnes River	41,000
Yuba River Watershed		
New Bullard's Bar Reservoir	Yuba River	966,000
Englebright Reservoir	Yuba River	70,000

[1] *Located within the Rubicon River drainage but is diverted into the South Fork American watershed.*
Source: DWR 2019b; CDPR 2019.

MAJOR WATER PROJECTS

The Central Valley Project (CVP) and the State Water Project (SWP) produce the majority of California's surface water supplies, coordinate operations to provide flood control and meet water delivery commitments, cooperate to meet water quality objectives of the Sacramento-San Joaquin Delta, and manage water rights held by the State and federal government for the benefit of their wholesale contractors. Additional information is presented below regarding these major water projects and how they help serve water suppliers in the plan area of the proposed MTP/SCS.

Central Valley Project: U.S. Bureau of Reclamation

The U.S. Bureau of Reclamation (USBR), part of the Department of the Interior, is responsible for developing and conserving most water resources in the western U.S. Its functions include: municipal and industrial water supply (e.g., CVP); hydroelectric power generation; agricultural irrigation water supply; water quality improvement; flood control; river navigation; river regulation and control, including fish and wildlife enhancement; recreation management; and research. In the plan area for the proposed MTP/SCS, USBR purchases water from various water agencies for the CVP, oversees some levees, operates Folsom reservoir, and several canals, including Auburn-Folsom South Unit, Delta Division, Folsom Units, and Sacramento Canals Unit (USBR 2019).

State Water Project

The SWP delivers water from Northern California to more than 27 million users in the lower Sacramento Valley, San Francisco Bay area, San Joaquin Valley, and Southern California. The California Department of Water Resources (DWR) Oroville Field Division operates and maintains the facilities extending from Feather River lakes in Plumas County to the Oroville-Thermalito Complex on the Feather River. DWR operates the facility for water supply, power generation, recreation, fish and wildlife enhancement, and salinity control. In the plan area for the proposed MTP/SCS, only Yuba City holds long-term contracts for SWP supply (DWR 2019a).

Other Water Projects

Water stored and released from Clear Lake and Indian Valley Reservoir into Cache Creek is diverted by the Yolo County Flood Control and Water Conservation District for irrigation in Yolo County. In Sutter County and in western Placer County, South Sutter Water District (SSWD) supplies irrigation water from Camp Far West Reservoir on the lower Bear River. SSWD also purchases surface water from Nevada Irrigation District (NID) to supplement irrigators' groundwater supplies. NID's water supplies come from its reservoir on the Yuba-Bear River system. Yuba River supplies have also been developed by Yuba County Water Agency, which is New Bullards Bar Reservoir, the river's largest reservoir at 966 taf. The Sacramento metropolitan area is served by more than 20 water purveyors and is also the largest urban surface water user in the region (NID 2019). Within Sacramento County, the City of Sacramento relies primarily on surface water (approximately 80 to 90 percent); water purveyors in unincorporated areas use both surface water and groundwater. The City of Folsom takes surface water from Folsom Lake.

Groundwater

Groundwater contributes about a third of the total water supply in the Sacramento Hydrologic Region. Most groundwater extraction in the region (75 percent) occurs for agricultural water use, and approximately 25 percent of all groundwater extraction in the region is for urban water use and provides about half of the urban water needs (DWR 2013).

Recycled Water

Water demand for non-potable uses, such as landscape and agricultural irrigation, can use recycled water. The region does not have any treatment plants that recycle wastewater for use as drinking

water. Irrigation runoff, especially from draining flooded rice fields, is often used on other crops rather than being discharged to native surface water channels (DWR 2013).

CONSERVATION

All water purveyors in the plan area for the proposed MTP/SCS have instituted water conservation strategies and programs. These programs can include water survey programs for residential customers, residential plumbing retrofits, system water audits, leak detection and repair, high-efficiency washing machine rebate programs, public information campaigns, school education programs, ultra low–flow toilet replacement program, and conservation pricing.

WATER TRANSFERS

Surface water supplies are managed through complex infrastructure and water rights systems. Many water purveyors in this region do not directly hold a water right to divert from a stream, but receive water as a contractor from a water district or from the state or federal government through the SWP or CVP, respectively. Water transfers are exempt from CEQA for short-term (year-to-year) water sale agreements, are negotiated directly between willing sellers and willing buyers, and are approved by the DWR. They allow water to be sold by a water rights holder with temporary excess supply and purchased by a buyer in need of a short-term supply. Typically, the transferred water originates from a different location and with a different beneficial use than the destination and purpose of the purchased water right. Short-term water transfers have been common since the early 1990s, are especially important in dry years, include primarily water sellers from the plan area for the proposed MTP/SCS, and will likely increase over time as water supplies become more constrained and demands increase due to population growth and climate change. Several agencies (SSWD, San Joaquin Water District, Placer County Water Agency, NID) are currently constructing interties between their systems to facilitate water transfers, increase water delivery reliability, and allow for operational flexibility in the systems, particularly between ground water and surface water supplies (DWR 2014).

17.2.3 Wastewater and Wastewater Treatment Systems

Once water is used, wastewater is typically discharged into a sewer system and treated in a wastewater treatment plant (WWTP) before being discharged into a body of water or reused for landscaping, irrigation, or industrial use. Wastewater is generally classified as domestic, industrial, or storm, according to its origin. Wastewater may contain dissolved organic and inorganic materials, suspended solids, and microorganisms, including bacteria and viruses. Domestic wastewater is generated through normal activity in homes, businesses, and institutions including use of use toilets, urinals, sinks, showers and bathtubs, dishwashers, and washing machines, among others. Wastewater from landscaping activities may also fall under domestic waste. Wastewater from toilets and urinals is often referred to as black water, while the other types of domestic wastewater are often called grey water.

The character of industrial wastewater depends on the type of industry using the water. Some industrial wastewaters can be treated in the same manner as domestic wastes without difficulty. Others may contain toxic substances or high concentrations of organic materials or solids, which complicate treatment. In such cases, the industrial plant may have to pretreat its wastewater to remove these pollutants or reduce them to treatable levels before they are accepted into a publicly-owned treatment facility.

Although stormwater has its own collection process, it often goes through WWTP, despite its generally low pollutant level. Great amounts of stormwater can interfere with treatment efficiency by causing too much dilution of the wastewater and overloading the hydraulic systems of the plant.

The goal of wastewater treatment is to remove pollutants from water by getting them to either settle or float, and then removing them. Some pollutants are easily removable. Others must be converted to a settleable form before they can be removed. Important characteristics to consider include the amount or flow of wastewater produced, the type of treatment provided onsite, and the amount and type of pollutant loadings contained in wastewater.

Treatment facilities are designed in stages. Each stage either removes particles from the wastewater or changes dissolved and suspended material to a form that can be removed. Influent is the raw material that has been collected and conveyed to the plant for treatment. It includes all the water and debris that entered the collection system.

Pretreatment removes materials that can be collected easily from the raw wastewater before they damage or clog the pumps and skimmers of primary treatment clarifiers (trash, tree limbs, leaves, etc.). During primary treatment lighter organic solids remain suspended in the water and flow into large tanks. The heavier organic solids settle by gravity. These settled solids, called primary sludge, are removed along with floating scum and grease and pumped to anaerobic digesters for further treatment. Secondary treatment involves continuing the process with biological decomposers to rid the effluent (liquid waste) of living organisms. Tertiary treatment removes suspended and dissolved substances that remain after secondary treatment. Tertiary treatment may be used to remove such things as color, metals, organic chemicals, and nutrients such as phosphorus and nitrogen. Before the final effluent is released into the receiving waters, it may be disinfected to reduce the disease-causing microorganisms, if appropriate.

Table 17-4 shows the agencies responsible for wastewater collection and treatment in the region. There are three basic types of treatment systems employed in the plan area of the proposed MTP/SCS. Municipal treatment systems serve incorporated areas and may, in some cases, also service unincorporated areas that are within the jurisdiction's sphere of influence or otherwise connected with the jurisdiction. Another type of system commonly found in the plan area for the proposed MTP/SCS is the Community Services District (CSD) system. CSDs usually service unincorporated areas with concentrated population centers. A third type of system is the on-site wastewater treatment system, also known as a septic system. In unincorporated areas not served by a municipal system or a CSD, septic systems are used to treat wastewater from individual properties.

Table 17-4
Wastewater Treatment in the Plan Area of the Proposed MTP/SCS, by County

County	Agencies Responsible for Wastewater Collection and Treatment
El Dorado County	El Dorado Irrigation District, Georgetown Divide Public Utility District, City of Placerville
Placer County	City of Roseville, City of Auburn, Tahoe-Truckee Sanitation Agency, Placer County
Sacramento County	Sacramento Area Sewer District, Sacramento Regional County Sanitation District, City of Sacramento, City of Folsom, City of Galt
Sutter County	City of Yuba City, City of Live Oak, Sutter County Water Works District #1, Sutter County Rio Ramaza Community Services District

County	Agencies Responsible for Wastewater Collection and Treatment
Yolo County	City of Davis, City of Winters, City of Woodland, Yoho Yocha Dehe Wintun Nation, University of California, Davis
Yuba County	City of Linda, City of Olivehurst, City of Wheatland

Source: City of Auburn 2019; City of Davis 2019; City of Folsom 2019; City of Galt 2019; City of Live Oak 2019; City of Placerville 2019; City of Roseville 2019; City of Winters 2019; City of Woodland 2019; City of Yuba City 2019b; El Dorado County 2019; El Dorado Local Agency Formation Commission 2019; El Dorado Irrigation District 2019; Georgetown Divide Public Utility District 2019; City of Placerville 2019; Placer County 2019a; Sacramento County 2019; University of California 2019; Yocha Dehe Wintun Nation 2019, Yuba Water Agency 2019

EL DORADO COUNTY WASTEWATER TREATMENT

El Dorado Irrigation District

The El Dorado Irrigation District collects wastewater from thousands of customers. It operates and maintains four wastewater treatment facilities, approximately 560 miles of pipeline and 64 lift stations. The four treatment facilities treat an average of 5 million gallons of wastewater per day to tertiary levels. The treatment plants produce recycled water used to irrigate front and back yards of more than 5,000 homes, as well as commercial and public landscapes (El Dorado Irrigation District 2019).

Georgetown Divide Public Utility District

The Georgetown Divide Public Utility District operates one community disposal system in the Auburn Lake Trails Subdivision. The remainder of the homes in the service area use on-site wastewater treatment systems (Georgetown Divide Public Utility District 2019).

City of Placerville

The City of Placerville wastewater collection system serves slightly less than 10,000 people with approximately 2,700 residential and 530 commercial sewer connections. The Hangtown Creek Water Reclamation Facility discharges into Hangtown Creek just above the confluence with Weber Creek. The sewer collection system includes almost 50 miles of pipe and five lift stations (City of Placerville 2012).

PLACER COUNTY WASTEWATER TREATMENT

Most incorporated areas of Placer County are served by wastewater treatment plants. Rural, outlying, and low-density areas are served by individual septic systems. The City of Auburn, the City of Colfax, and the City of Lincoln provide municipal wastewater treatment in their communities (Placer County 2008).

City of Roseville

The City of Roseville Environmental Utilities (EU) provides wastewater collection and treatment to the City of Roseville and surrounding areas. EU owns and operates the Dry Creek and Pleasant Grove wastewater treatment plants, both of which produce recycled water that meets all the California Department of Health Services (DHS) requirements for "full unrestricted reuse." EU owns and operates the network of gravity sewers, pump stations, and force mains that serve customers within the City's limits, and provides treatment service to the South Placer Municipal Utility District

(SPMUD) and southern Placer County. SPMUD owns and operates gravity sewers, pump stations, and force mains in portions of southern Placer County, including Rocklin and Loomis.

City of Auburn

The City of Auburn owns and operates its own wastewater treatment and collection system that serves the municipal boundaries of the City. The City treatment facility is located in the Ophir area. The facility provides tertiary treatment and is permitted to discharge a maximum of 1.65 million gallons per day into the Auburn Ravine Creek. The City maintains over 85 miles of wastewater collection lines, over 1,500 manholes, and 11 lift stations throughout its service area.

Tahoe-Truckee Sanitation Agency

The Tahoe-Truckee Sanitation Agency (T-TSA) processes wastewater in the very northeast of the SACOG region. They collect sewage from the Squaw Valley Public Service District and the Northstar Community Services District. The 9.6 million gallon per day (mgd) plant provides primary and secondary treatment, phosphorus removal, biological nitrogen removal, disinfection, and effluent filtration. The effluent is routed through a Soil Aquifer Treatment system (Tahoe-Truckee Sanitation Agency 2019).

Placer County

Placer County operates and maintains five wastewater treatment facilities. Areas served include unincorporated portions of North Auburn, Granite Bay, Loomis, western Placer County (Dry Creek), Livoti, Sunset Industrial area, Sheridan, Applegate and Blue Canyon.

SACRAMENTO COUNTY WASTEWATER TREATMENT

Sacramento Area Sewer District and Sacramento Regional County Sanitation District

The Sacramento Area Sewer District (SASD) is a sewer utility providing service to more than one million residential, commercial, and industrial customers in the plan area for the proposed MTP/SCS, including the unincorporated areas of Sacramento County, the cities of Citrus Heights, Rancho Cordova, and Elk Grove, as well as portions of the cities of Folsom and Sacramento (SASD 2016).

The SASD owns and operates thousands of miles of pipes to collect sewage. Once collected, sewage flows into the Sacramento Regional County Sanitation District (SRCSD) interceptor system, where it is conveyed to the Sacramento Regional Wastewater Treatment Plant (SRWTP) near Elk Grove (SASD n.d.).

The SRCSD provides regional wastewater conveyance and treatment services to residential, industrial, and commercial customers throughout unincorporated Sacramento County, and the cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, Sacramento, and West Sacramento. The wastewater travels through 145 miles of interceptor pipelines to the SRWTP, where approximately 150 million gallons of wastewater are treated each day and discharged into the Sacramento River. The plant is designed to operate as a secondary treatment plant at this time (SRCSD 2015).

City of Folsom and the City of Sacramento

The City of Folsom and the City of Sacramento operate over 1,200 miles of pipeline to collect wastewater and convey it to the SRCSD interceptor system to be treated at the SRWTP. Parts of the City of Sacramento use a combined sewer system (CSS). The CSS provides sewage and drainage service to more than 24,000 parcels in Downtown, Midtown, Land Park, and East Sacramento. The system, originally established in the 1800s, collects sewage and stormwater in the same pipe. The combined wastewater is pumped to the SRWTP where it is treated and released back to local rivers. During heavy rain events, excess stormwater is also treated at several city facilities before being released back to the rivers.

City of Galt

The City of Galt Utilities Division is responsible for the operation and maintenance of the WWTP located on Twin Cities Road and 12 sewer lift stations. Necessary functions include operation and maintenance of pump stations, mechanical aerators, biological treatment of wastewater, solids handling, laboratory analysis of raw and treated wastewater, disinfection of treated wastewater, and disposal of treated wastewater and biosolids.

The sewer lift stations pump raw wastewater that is collected throughout the city to the WWTP. The WWTP is currently operating at approximately 2.2 million mgd with a plant capacity of 3.0 mgd. The treated wastewater is reclaimed for irrigation of crops during the dry season of May through October and discharged to Laguna Creek during the wet season of November through April. Wastewater collection and treatment occurs 24 hours a day, seven days a week.

Sutter County Wastewater Treatment

Privately owned septic systems provide for the treatment and disposal of wastewater throughout much of Sutter County. The cities of Yuba City, Live Oak, and the communities of Robbins and Rio Ramaza are the only areas with sanitary sewer collection systems and wastewater treatment facilities within the county. Throughout the remaining portion of the unincorporated county, wastewater from individual homes or businesses (or small groups of homes/businesses) is treated and disposed of through onsite wastewater treatment systems.

Sutter County – Water Works District No. 1

Sutter County operates Water Works District No. 1 (WWD #1), which is responsible for providing water and wastewater services for the communities of Robbins and Rio Ramaza. The wastewater system is composed of a septic tank effluent pumping (STEP) system constructed in 1997 and funded by a small community grant, a state loan, and a county general fund loan. The wastewater system treats on average 10 million gallons of wastewater per year using primary and secondary treatment technology (Sutter County 2019).

City of Yuba City

The City of Yuba City Utilities Division operates and maintains a sewer system that accommodates over 100,000 people. Its wastewater treatment facility processes up to 6.5 mgd (City of Yuba City 2019a).

City of Live Oak

The City of Live Oak has a population 8,400 and a service area of 1.9 square miles. Within that are 25.1 miles of gravity sewer line, six pump stations and 4.9 miles of force mains (Live Oak 2010).

YOLO COUNTY WASTEWATER TREATMENT

In Yolo County, established sewage treatment exists in the concentrated urban centers of the City of Davis, City of Winters, and City of Woodland. These three jurisdictions have municipal wastewater treatment plants to treat domestic and industrial wastewater. The City of Davis and City of Winters facilities provide primary and secondary treatment, while the City of Woodland facility is able to provide tertiary treatment. These municipal facilities serve unincorporated areas of Yolo County only where the unincorporated area is within the sphere of influence of the cities and where annexation is anticipated. Esparto, Madison and Knights Landing have primary/secondary treatment. Country Fair Mobile Home Park in Dunnigan has primary treatment, as do several other businesses in Dunnigan. The Yocha Dehe Wintun Nation also has its own WWTP that provides tertiary treatment to the casino. The unincorporated community of Wild Wings also has a small tertiary treatment plant. This WWTP is not a public system. The University of California, Davis also operates a WWTP.

Although some unincorporated areas are served by municipal systems, the majority of the wastewater generated in the unincorporated areas of the county is treated through the use of onsite wastewater treatment systems (OWTSs), which generally rely upon septic tanks and on-site disposal using leach fields and other types of soil absorption systems. The waste is pumped into septic trucks and then taken to a disposal facility. Typically, waste is taken to Vallejo Regional WWTP in Solano County or to a private facility in the City of Lincoln in Placer County.

Finally, some unincorporated areas are served by CSDs. Unincorporated areas that have a higher concentration of development typically use this method. CSDs usually treat wastewater by collecting wastewater through a system of pipes that transfers wastewater to a WWTP that uses stabilization and evaporation ponds to dispose of treated wastewater (Yolo County 2009).

YUBA COUNTY WASTEWATER TREATMENT

In Yuba County, there are four small treatment plants that serve the communities of Marysville, Linda, Olivehurst, and Wheatland. These WWTPs provide secondary treatment. Most rural Yuba County residents are served by OWTSs.

City of Marysville and Linda

The City of Marysville has a population 12,500 and operates 63 miles of sewage collection line and 6 pumping stations. Its WWTP was closed in 2012. A new wastewater treatment plant that has a 5 mgd capacity was constructed for the Linda County Water District, which serves both the City of Marysville and Linda (City of Marysville 2019).

City of Olivehurst

The Olivehurst Public Utility District (OPUD) operates a tertiary wastewater treatment facility, permitted for 3 mgd discharge. OPUD also maintains 40 miles of gravity and pressure line and 18 pump stations (OPUD 2017).

City of Wheatland

The City of Wheatland's wastewater treatment facility is classified as a Class II extended aeration process plant. Originally constructed in 1969, it was most recently upgraded in 1990 (City of Wheatland 2019).

17.2.4 Stormwater

Stormwater is collected in municipal systems within urbanized areas of the plan area for the proposed MTP/SCS and conveyed to rivers and streams, in accordance with state water quality regulations. Stormwater services are provided by municipal public works departments, community service districts, reclamation districts, or other special districts. In addition to stormwater collection services, many agencies in the plan area for the proposed MTP/SCS coordinate comprehensive stormwater management systems. For example, the Sacramento Stormwater Quality Partnership, which Sacramento County, City of Sacramento, City of Citrus Heights, City of Rancho Cordova, City of Elk Grove, City of Galt, and City of Folsom formed, is a cooperative agency that aims to educate the public about stormwater runoff issues and encourage pollution prevention (Sacramento Stormwater Quality Partnership 2019). Stormwater infrastructure is addressed in more detail in Chapter 11 – Hydrology and Water Quality.

17.2.5 Solid Waste Management

Solid waste generally refers to garbage, refuse, or other solid discarded materials generated through residential, commercial, and industrial activities. The California Department of Resources Recycling and Recovery (CalRecycle) identifies 10 categories of solid waste: paper, glass, metal, electronics, plastic, other organic waste, construction and demolition waste, household hazardous waste, special waste, and mixed residue. Household hazardous waste generally consists of items used in a home that require special disposal because they contain chemicals that may be harmful, such as antifreeze, batteries, light bulbs, used motor oil and filters, and paint.

Solid waste generation is measured by disposal and diversion. Solid waste is collected and disposed of in landfills that fall into three classes based on the types of waste accepted (CalRecycle 2018a). Class I sites may accept hazardous and nonhazardous wastes (for a discussion of hazardous waste see Chapter 10 − Hazards and Hazardous Materials). Class II sites may accept "designated" and nonhazardous wastes. Class III sites may accept nonhazardous wastes. Solid waste diversion includes programs and practices such as waste prevention and source reduction, recycling, reuse, and composting that reduce the total amount of waste that requires disposal.

Solid Waste and recycling Service Providers

County governments generally address solid waste management by both providing solid waste treatment facilities within their own jurisdictions and by exporting waste outside the plan area for

the proposed MTP/SCS. Sacramento and El Dorado counties, and to a more limited extent, Placer County, export a nontrivial amount of waste to landfills in Nevada. In the plan area for the proposed MTP/SCS, there are 36 solid waste transfer facilities where municipal solid waste is unloaded from collection vehicles and briefly held before being reloaded onto larger long-distance transport vehicles for shipment to landfills or other treatment or disposal facilities (CalRecycle 2019a). Table 17-5 shows major landfill information for facilities that store and treat solid waste within the plan area for the proposed MTP/SCS. Figure 17-1 shows the location of these major landfills, as well as transfer and recycling facilities in the region.

El Dorado County Solid Waste Management

El Dorado County and the City of Placerville have entered into franchise agreements with several solid waste companies, which provide solid waste collection, recycling, and disposal services. El Dorado Disposal, American River Disposal, Amador Disposal, and Sierra Disposal serve the plan area for the proposed MTP/SCS. The Union Mine Disposal Site is the last remaining and active landfill property in the county; however, it has been closed to the public since 1996 (El Dorado County 2019c). The Class III landfill is located on a 35.3-acre site and no longer accepts waste (Regional Water Quality Control Board 2006). There is also one material recovery facility in Diamond Springs (El Dorado County 2019b).

Placer County Solid Waste Management

In Placer County, the Western Placer Waste Management Authority (WPWMA), a regional agency comprised of the cities of Lincoln, Rocklin, and Roseville, and the County of Placer, provides recycling and waste disposal services to these communities as well as the City of Auburn and the Town of Loomis. County-owned facilities include the Eastern Regional Materials Recovery Facility in the Tahoe area, transfer stations in Meadow Vista and Foresthill, and four closed landfills (Placer County 2019b). WPWMA operates the Class II and III Western Regional Sanitary Landfill. On the 291-acre landfill site, 231 acres are permitted for disposal activities (WPWMA 2003)

Sacramento County Solid Waste Management

The Sacramento County Department of Waste Management and Recycling provides solid waste services to the unincorporated portions of Sacramento County, while the City of Sacramento provides solid waste services to city residents and businesses. Both agencies provide solid waste, recycling, and greenwaste collection. Kiefer Landfill is the primary solid waste disposal facility in the County. The Class III landfill facility sits on 1,084 acres located near the intersection of Kiefer Boulevard and Grant Line Road. Currently using 250 acres, the landfill is permitted to use up to 660 acres. Sacramento County also owns and operates the North Area Recovery Station located in North Highlands. The City of Sacramento operates a household hazardous waste collection center under contract with the Sacramento Recycling and Transfer Station and the City of Elk Grove operates a special waste collection center that accepts household hazardous waste, tires, sharps, and unused medications. There are various other transfer stations and small, privately-owned landfills throughout Sacramento County, located mainly within the boundaries of the City of Sacramento (Sacramento County 2019b).

Table 17-5
Major Landfills in the Plan Area of the Proposed MTP/SCS, Capacity and Estimated Closure

Landfill Name	Location	Capacity (cubic yards)	Used (cubic yards)	% Used	Remaining (cubic yards)	% Remaining	Estimated Closure
Union Mine Disposal Site	5700 Union Mine Road El Dorado CA, 95623	195,000	60,000	31%	135,000	69%	2040
L&D Landfill Co	8635 Fruitridge Road Sacramento CA, 95826	18,300,000	16,363,919	89%	1,936,081	11%	2023
Recology (Norcal) Ostrom Road LF Inc.	5900 Ostrom Road Wheatland CA, 95692	43,467,231	4,244,231	10%	39,223,000	90%	2066
Sacramento County (Kiefer) Landfill	12701 Kiefer Boulevard Sloughhouse CA, 95683	117,400,000	4,500,000	4%	112,900,000	96%	2064
Western Regional Landfill	3195 Athens Road, Ap #17-060-02 Lincoln CA, 95648	36,350,000	7,256,181	20%	29,093,819	80%	2058
Yolo County Central Landfill	44090 County Road 28H Woodland, CA 95776	49,035,200	14,435,963	29%	34,599,237	71%	2074

Note: Table is reflective of major landfills in the MTP/SCS plan area. Smaller disposal sites, for which capacity information was unavailable, are described in the text but not included in the table. Landfills outside the MTP/SCS plan area that are used by MTP/SCS plan area jurisdictions are described in the text but not included in the table. Data for the Yolo County Central Landfill's remaining capacity was not reported in the CalRecycle SWIS system.
Source: CalRecycle 2000; Yolo County 2019

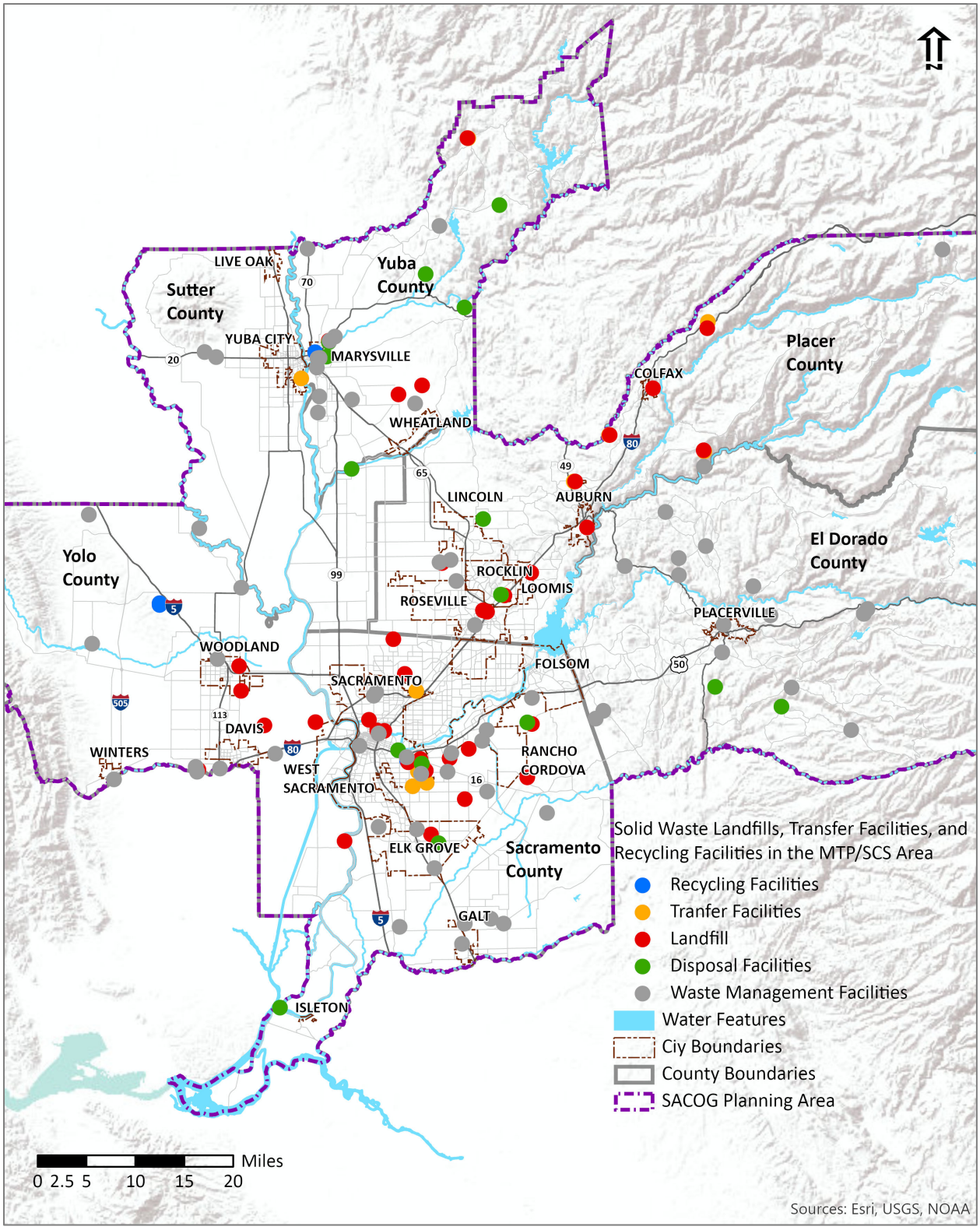


Figure 17-1
Solid Waste Landfills, Transfer Facilities, and Recycling Facilities in the Plan Area of the Proposed MTP/SCS

Sutter and Yuba Counties Solid Waste Management

The Yuba-Sutter Regional Waste Management Authority (RWMA) was formed in 1990 to provide solid waste services to Sutter and Yuba counties and the Cities of Live Oak, Marysville, Wheatland, and Yuba City. RWMA works in conjunction with Recology Yuba-Sutter (formerly Yuba-Sutter Disposal, Inc.) to provide for the collection, recycling, and disposal of municipal solid waste from each member jurisdiction. Recology Yuba-Sutter operates the Marysville Integrated Waste Recovery Facility, which includes refuse transfer station, material recovery (recycling) facility, composting facility, buy-back recycling center and certified used oil collection center. The Ostrom Landfill is a 261-acre site, 225 acres of which are permitted as a Class II Landfill (CalRecycle 2019b). It is the primary disposal site for waste collected by Recology Yuba-Sutter. RWMA and Recology Yuba-Sutter provide a number of recycling facilities and programs (Yuba-Sutter RWMA 2019).

Yolo County Solid Waste Management

Yolo County contracts with Waste Management and Davis Waste Removal for garbage and recycling collection. Most of the waste generated in the county is taken to either the Yolo County Central Landfill, located four miles northeast of the City of Davis, or the Esparto Convenience Center, which is also a recycling center and transfer station (Yolo County 2019b). The Yolo County Central Landfill is a 722-acre Class III solid waste facility. The UC Davis Landfill, Grover Landscape Services Composting Facility, and Davis Waste Removal's Green Material Facility also provide solid waste disposal and greenwaste processing services.

Waste Generation and Disposal

In 2017, the plan area for the proposed MTP/SCS reported disposal of over 2.1 million tons of waste. Within the region, Sacramento County disposes the most waste, while El Dorado County disposes the least. (CalRecycle 2019b). Table 17-6 and Table 17-7 show the waste generation total in tons and the waste generation rate (tons per capita) for the counties within the plan area for the proposed MTP/SCS.

Table 17-6
Existing Solid Waste Generation (in tons) and per Capita

County	Disposal (tons)	Export (tons)	Total (tons)	Per Capita Waste (tons per person)
El Dorado	101,876	47,482	149,358	0.80
Placer	291,107	25,469	316,576	0.83
Sacramento	1,359,862	38,218	1,398,080	0.92
Yolo	152,387	2,495	154,882	0.71
Yuba-Sutter	125,012	---	125,012	0.72
Total	**2,030,244**	**113,664**	**2,143,908**	**0.87**

Note: Data for Yuba-Sutter is waste originating from the Yuba/Sutter RWMA which covers both counties.

Data for El Dorado and Placer Counties includes the Tahoe Basin, which is not a part of the plan area of the Proposed MTP/SCS.

Source: CalRecycle 2017b; DOF 2017

Reducing the overall amount of waste generated at the source, as well as recycling waste that is disposed of, means less solid waste that ultimately ends up in landfills. Diversion can be achieved by reducing the amount of materials that may be disposed of (e.g., minimizing product packaging), by reusing materials that may generally be disposed of or by recycling. Most paper products and metals, glass, and plastics can be recycled. Special facilities are available to recycle construction, demolition, and inert debris, to chip and grind greenwaste, and/or compost certain greenwaste, food, and paper products. There are 36 facilities that receive and process recycled materials in the region. One solid waste transfer facility is located in Sutter County, four are located in each of El Dorado, Yuba, and Yolo counties, and seven are located in Placer County, and 16 are located in Sacramento County. Recycling facilities are included in Figure 17-1.

Composting, Chipping, and Grinding

Compostable materials include yard trimmings, wood chips, vegetable scraps, paper products, manures, and wastewater sludges. Chipping and grinding facilities reduce the size of compostable material. Composting facilities collect, mix, pile, and add moisture and air to organic materials to speed natural decay and transform organic waste products into a nutrient-rich soil amendment (CalRecycle 2018b). There are 26 composting facilities and three chipping and grinding facilities within the plan area for the proposed MTP/SCS (CalRecycle 2019a).

Construction and Demolition and Inert Debris Facilities

The most recent waste characterization study conducted by CalRecycle in 2015 (with final revisions published in 2017) found that construction, demolition, and inert (CDI) materials made up 20 percent of California's waste disposal (CalRecycle 2017a). CDI materials include lumber, drywall, metals, masonry (e.g., brick, concrete), carpet, and pipe generated from building demolition or left over from land development. Metals are the most commonly recycled material while lumber makes up the majority of debris entering landfills. However, lumber can be and has been reclaimed and reused in new buildings seeking green building certification. There are three CDI recyclers and inert fill-disposal operations in the region (CalRecycle 2018c).

Disposal Rates

Disposal is defined as "the final deposition of solid wastes onto land, into the atmosphere, or into the waters of the state" (Public Resources Code [PRC] Section 40192). This includes all wastes created by all sources. This waste is disposed at CalRecycle permitted landfills or transfer facilities, or exported out of the state to other permitted facilities. Diversion is defined as any combination of waste prevention, recycling, reuse and composting activities that reduces waste disposed of at permitted landfill and transfer facilities (CalRecycle 2019b).

In order to measure progress towards waste diversion goals, CalRecycle establishes waste disposal reduction targets to reduce the amount of waste entering landfills. The Integrated Waste Management Act of 1989 (Assembly Bill [AB] 939) set forth aggressive solid waste regulations requiring California cities and counties to reduce the volume of waste sent to landfills by 50 percent through recycling, reuse, composting, and other means. Senate Bill (SB) 1016 shifted from using calculated generation and estimated diversion to set the per capita compliance targets, to using actual

annual disposal per capita. The per capita disposal rate uses only two factors: a jurisdiction's population and/or employment, and disposal as reported by its disposal facilities.

In 2015, CalRecycle determined that all jurisdictions in the plan area for the proposed MTP/SCS had met the 50 percent equivalent per capita disposal targets for the period from 2012 to 2015. As currently reported up to 2017, all jurisdictions in the plan area of the proposed MTP/SCS are still meeting their population and employment per capita disposal targets (CalRecycle 2017a). Compliance for these areas is currently under review for the 2016–2019 period. Table 17-7 provides information on the number of diversion programs and annual and target disposal per capita by population and employment.

Table 17-7
Disposal Rates Per Capita in the Plan Area of the Proposed MTP/SCS, by County (2017)

Jurisdiction	Diversion Programs Implemented	Population Disposal (PPD) Target	Population Disposal (PPD) Annual	Employment Disposal (PPD) Target	Employment Disposal (PPD) Annual
Auburn	48	7.4	5.2	10.6	9.4
Citrus Heights	33	4.2	3.1	18.7	15.7
Colfax	32	8.4	3.6	24.2	13.7
Davis	43	3.8	2.8	16.6	12
El Dorado-Unincorporated	47	5.3	3.6	23.2	15.3
Elk Grove	44	5.9	2.8	27.5	13.9
Folsom	49	7	4.1	13.1	8.4
Galt	35	4.1	3	25.5	18
Isleton	30	5.8	3.9	35	48.9
Lincoln	48	7.9	3	47.4	19.2
Loomis	45	6.2	5	10.8	8.9
Placer- Unincorporated	45	6.3	5.1	20.2	15.7
Placerville	45	6.9	5.7	10.3	5.8
Rancho Cordova	38	7.5	4.5	8.3	6.3
Rocklin	42	4.2	3.1	15.1	8.7
Roseville	49	8.9	4.3	14.4	7.5
Sacramento	37	6.9	5.9	10.8	9.5
Sacramento-Unincorporated	40	7.7	4.6	23.2	14.9
West Sacramento	41	9.8	6.7	14.7	10.7
Winters	38	5.5	4.9	23.4	16.9
Woodland	40	5.7	5.3	14.5	12.9
Yolo- Unincorporated	43	10.6	5.1	8.2	5.8
Yuba/Sutter Regional Waste Management Authority	36	6.9	4.5	24.9	16.4

PPD = Pounds per Day.

Note: The per capita disposal rate is a jurisdiction-specific index and cannot be compared between jurisdictions. The per capita disposal rate is used as one of several "factors" in determining a jurisdiction's compliance with the intent of AB 939, and allows the California Department of Resources Recycling and Recovery (CalRecycle) and jurisdictions to set their primary focus on successful implementation of diversion programs. Meeting the disposal rate targets is not necessarily an indication of compliance.

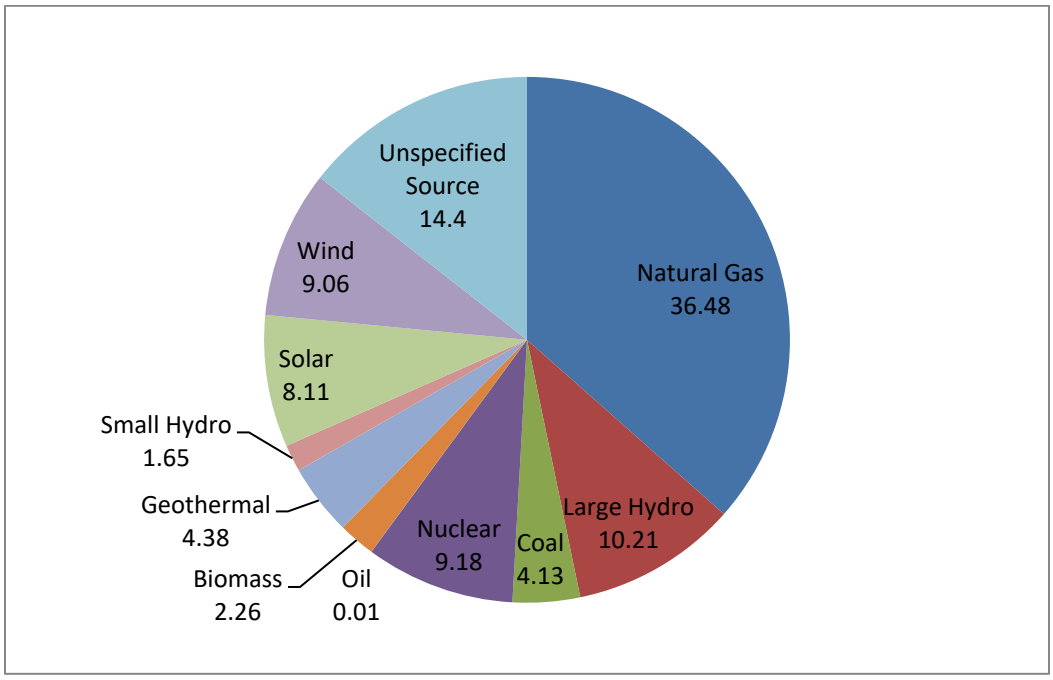
Information is from a CalRecycle online database, which contains some disposal rates calculated with data as submitted by the jurisdiction. This data is subject to change during the formal Jurisdiction Review process or when a jurisdiction submits updated information. The Per Resident and Per Employee Disposal rate targets reported reflect the most current targets as calculated by CalRecycle staff.

Source: CalRecycle 2017a

17.2.6 Energy Services

Energy can come from a variety of sources both non-renewable and renewable. Nonrenewable sources of energy primarily include coal, oil, natural gas, and nuclear. Fuels derived from nonrenewable sources generally produce more greenhouse gas emissions and pollutants than energy derived from renewable sources. Renewable sources of energy primarily include wind, water, solar, geothermal (earth's crust), and biomass (biological material). These sources are not depleted after a single use and are more readily available. Alternative sources of renewable energy include ethanol produced from agricultural feedstock, hydrogen extracted from water or methane, biodiesel derived from corn, and methanol produced by gasification of organic materials like those disposed of in landfills.

Most power in California is derived from natural gas, followed by unspecified, hydro, wind, and coal sources. In 2016, California generated 68 percent of power in-state and imported the remaining 32 percent, mainly from the southwest area of the nation. The state's electricity system included 290,567 total gigawatt hours (GWh) of power that year (CEC 2019). Figure 17-2 provides details on the share of nonrenewable and renewable sources of energy used to produce California's electricity in 2016. For additional discussion of the environmental setting for energy consumption in the plan area of the proposed MTP/SCS see Chapter 8 – Energy and Global Climate Change.



Source: CEC 2017

Figure 17-2
2016 California Total Electricity System Power (GWh)

ENERGY SERVICE PROVIDERS

Pacific Gas and Electric Company (PG&E), SMUD, Pioneer Community Energy, Valley Clean Energy, and Roseville Electric provide natural gas and electricity services to the plan area for the proposed MTP/SCS. Energy service providers usually complete improvements for an area to meet customer demand as the need arises.

Pacific Gas and Electric Company

The Pacific Gas and Electric Company (PG&E) is one of the largest combination natural gas and electric utilities in the U.S. The company, a subsidiary of PG&E Corporation, serves approximately 16 million people in 70,000 square miles of northern and central California. Within the plan area for the proposed MTP/SCS, PG&E provides electric service to El Dorado, Sutter, Yolo, and Yuba counties, and large portions of Placer County west of the Tahoe Basin. PG&E also provides gas service to the entire Sacramento metropolitan area.

PG&E obtains its electricity from natural gas, fossil fuels, nuclear, and hydroelectric and eligible renewable resources under California law. In 2016, 69 percent of the electricity PG&E delivered to its customers came from a combination of eligible renewable resources (33 percent) and greenhouse gas-free resources (45 percent). In 2017, approximately 33 percent of power provided by PG&E came from eligible renewable resources (PG&E 2018).

PG&E provides incentives for rooftop solar, solar water heating, fuel cells, wind, battery storage, advanced LED lighting, and other advanced technologies that help customers reduce their energy bills and their carbon footprint. PG&E also continues to encourage customers to invest in cost-effective energy efficiency measures and offers electric vehicle (EV) charging pricing plans (PG&E 2018).

Sacramento Municipal Utility District

The Sacramento Municipal Utility District (SMUD) supplies electric service to Sacramento County and to a five-square-mile area in the Dry Creek/West Placer area west of the City of Roseville in Placer County. SMUD is the sixth-largest publicly-owned utility in the United States, in terms of the number of customers served. SMUD obtains its electricity from a variety of sources, including hydro-generation, natural gas fired generators, cogeneration plants, advanced and renewable technologies (such as wind, solar, and biomass and landfill gas power), and power purchased on the wholesale market.

A large portion of SMUD's generated power is produced by the Upper American River Project (UARP), a hydroelectric facility on the western slope of the Sierra Nevada. This project, consisting of 11 reservoirs and eight powerhouses, generates enough electricity to meet about 20 percent of SMUD's customer demand. In a normal water year, UARP provides roughly 1.8 billion kilowatt-hours (kwh) of electricity, which is enough to power 180,000 homes.

SMUD acquired an updated Federal Energy Regulatory Commission (FERC) operating license for the UARP in 2014, which will be effective through 2064. Under the conditions of the 2014 operating license, SMUD agreed to release more water from dams to support fish and whitewater boating, to carry out extensive ecological monitoring and reporting over the term of the operating

license, and to improve public recreation facilities around reservoirs in the Crystal Basin Recreation Area (SMUD 2019a).

SMUD is currently planning a new project, Solano 4 Wind, at the Solano County Wind Farm. The project includes the replacement of existing wind turbines with up to 22 modernized turbines, which would generate an estimated 92 megawatts (MW) of renewable energy for the electric grid. Project construction is anticipated to begin in 2020 and be completed in early 2022, increasing the Wind Farm's total production to 207 MW (SMUD 2019b).

SMUD offers a variety of programs to preserve natural resources and reduce pollution, including incentives for purchasing and installing photo-voltaic solar panels and charging pricing plans for electric vehicles. SMUD also offers rebates for energy-efficient appliances, energy-efficient heating and cooling systems, energy-efficient lighting, and for saving energy through the home performance program. Through SMUD's Greenergy program, members can choose to buy energy from natural resources, such as the sun, wind, or methane gas, and can also choose to purchase carbon offsets on their monthly bill (SMUD 2019c).

Pioneer Community Energy

Pioneer Community Energy began in 2018 as a partnership between the County of Placer and the cities of Auburn, Colfax, Lincoln, Rocklin, and the Town of Loomis. Pioneer's service area includes most of Placer County, except for those covered by SMUD and Roseville Electric or the Tahoe Basin. Pioneer supplies the electricity which is then delivered by PG&E, who will continue to own, operate, repair, and service the poles and wires (Pioneer Community Energy 2019).

Valley Clean Energy

Valley Clean Energy is the locally governed electricity provider for unincorporated Yolo County as well as the cities of Davis and Woodland. Valley Clean Energy purchases power with higher renewable and lower greenhouse gas content. PG&E then delivers the electricity, maintaining the power lines, handling billing, and responding to service calls and emergencies (Valley Clean Energy 2019).

City of Roseville

The City of Roseville supplies its own electrical service to its residents through Roseville Electric, a municipal-owned utility. The City serves more than 53,000 residential and business customers. Roseville Electric offers rebates to customers for energy-efficient air conditioners, freezers, refrigerators, pool pumps, sun window screens, whole house fans, and solar energy systems. Customers can also receive a credit on their bill for enrolling in the Power Partners program to cycle their central air conditioning compressor on and off during high energy demand times in the summer.

Roseville Electric generates power from the Roseville Energy Park, a 160-MW natural gas fire plant that generates enough energy to meet 40 percent of the city's needs. The remainder of Roseville's electricity is purchased. However, in 2019, Roseville Electric plans to unveil its first community solar project, which will provide up to 300 customers with solar power from 3,000 panels. In 2018, 36 percent of Roseville Electric's power was generated through eligible renewable resources (City of Roseville 2018).

Power Plants

Energy resources are converted to power through processes performed in an industrial facility or power plant before being distributed by service providers for public use. There are 112 power plants located within and providing energy for the region. Most power plants in the plan area for the proposed MTP/SCS are solar (50), followed by hydroelectric (39), oil and/or gas (15), waste-to-energy landfill gas or biomass (7), and wind (1). Power plants are most commonly located in Sacramento (47), Placer (27), and El Dorado (16) counties. The majority of these facilities provide power for the PG&E service area, although nearly half of the plants are located in Sacramento County and provide power for SMUD. Table 17-8 provides information on the capacity, type, and service area of power plants.

Natural Gas Pipelines

Natural gas is primarily used for electric power generation and as a residential, commercial, and industrial energy resource. Natural gas-generated electricity accounted for nearly 50 percent of all power generated in California in 2016, the largest source of power in the state. Almost 90 percent of natural gas in California is generated out of state and is imported through interstate pipelines from the southwest, the Rocky Mountains, and Canada (CEC 2019).

PG&E, SMUD, and the Western Area Power Administration (WAPA) run natural gas transmission pipelines are located throughout the plan area for the proposed MTP/SCS. Natural gas pipelines are located at the intersection of White Rock and Latrobe roads and along Green Valley Road from the County line to Salmon Falls Road in El Dorado County. In Placer County, natural gas pipelines are generally located near State Route (SR) 65 through Sheridan to Lincoln and along I-80 from Roseville to Auburn. Pipelines are located generally near Interstate-80 (I-80) and along south I-5 in Sacramento, with additional east-west running pipelines in the northern, central, and southern city. In Sutter County, natural gas pipelines are located adjacent to north SR 99 and near SR 20 with an additional pipeline running east-west in the southern portion of the county. There are also natural gas pipelines near north I-5, I-80, and SR 113, and running east-west from the community of Yolo to West Sacramento in Yolo County. Finally, in Yuba County pipelines are located generally near SR 70, SR 65, South Beale Road, and Warren Shingle Road (U.S. Pipeline and Hazardous Materials Safety Administration 2018).

Table 17-8
Power Plants in the Plan Area of the Proposed MTP/SCS

Plant Name	Online MW	Facility Type	City or Area	Service Provider
Alta	2	Hydroelectric	Alta	PG&E
Drum #1	55.5	Hydroelectric	Alta	PG&E
Drum #2	49.5	Hydroelectric	Alta	PG&E
Dutch Flat #1	22	Hydroelectric	Alta	PG&E
Halsey	11	Hydroelectric	Auburn	PG&E
Newcastle	11.5	Hydroelectric	Auburn	PG&E
Swiss America	0.1	Hydroelectric	Auburn	PG&E
Wise	14	Hydroelectric	Auburn	PG&E

Plant Name	Online MW	Facility Type	City or Area	Service Provider
Browns Valley (Rated 0.995MW) NO REPORT REQUIRED**	1.3	Hydroelectric	Browns Valley	PG&E
Narrows 2	46.75	Hydroelectric	Browns Valley	PG&E
Rock Creek L.P.	3.6	Hydroelectric	Camino	PG&E
Slab Creek	0.4	Hydroelectric	Camino	PG&E
Camp Far West	6.8	Hydroelectric	Camp Far West	PG&E
Deadwood Creek	2	Hydroelectric	Challenge	PG&E
Rollins	13.5	Hydroelectric	Colfax	PG&E
MM Yolo Power LLC Facility	5.7	WTE - Landfill Gas	Davis	PG&E
University of California Davis - Indefinite Shutdown	3	Gas	Davis	SMUD
Colgate	315	Hydroelectric	Dobbins	PG&E
Green Acres Solar Facility 1	3	Solar	Elk Grove	SMUD
Green Acres Solar Facility 2	1	Solar	Elk Grove	SMUD
Grundman-Wilkinson Solar Farm (Bruceville Road)	18	Solar	Elk Grove	SMUD
Point Pleasant (Lawrence Solar Farm)	1	Solar	Elk Grove	SMUD
RE Bruceville Solar 1	6.65	Solar	Elk Grove	SMUD
RE Bruceville Solar 2	6.65	Solar	Elk Grove	SMUD
RE Bruceville Solar 3	6.65	Solar	Elk Grove	SMUD
RE Kammerer Road 2	6.65	Solar	Elk Grove	SMUD
RE Kammerer Road 3	6.65	Solar	Elk Grove	SMUD
Aerojet I (3.6MW) Solar Plant	3.6	Solar	Folsom	SMUD
Folsom	198.72	Hydroelectric	Folsom	SMUD
Nimbus	13.5	Hydroelectric	Folsom	SMUD
Oxbow	6	Hydroelectric	Forest Hill	PG&E
French Meadows	15	Hydroelectric	Foresthill	PG&E
Hell Hole	0.73	Hydroelectric	Foresthill	PG&E
Middle Fork	116	Hydroelectric	Foresthill	PG&E
Ralston	79	Hydroelectric	Foresthill	PG&E
Sierra Energy Co.	0.2	Hydroelectric	Forestville	PG&E
Loon Lake	82	Hydroelectric	Foresthill	PG&E
Boessow (Van Connett Solar Farm)	3	Solar	Galt	SMUD
Kost (Fleshman Solar Farm)	3	Solar	Galt	SMUD
RE McKenzie 1	5	Solar	Galt	SMUD
RE McKenzie 2	5	Solar	Galt	SMUD
RE McKenzie 3	5	Solar	Galt	SMUD
RE McKenzie 4	5	Solar	Galt	SMUD
RE McKenzie 5	5	Solar	Galt	SMUD
RE McKenzie 6	5	Solar	Galt	SMUD
Buckeye	4	Hydroelectric	Georgetown	PG&E
Tunnel Hill	0.6	Hydroelectric	Georgetown	PG&E
Cosumnes Power Plant	500	Gas	Herald	SMUD
Rio Bravo Rocklin	24.3	WTE - Biomass	Lincoln	PG&E
SPI - Lincoln	32.2	WTE - Biomass	Lincoln	PG&E

Plant Name	Online MW	Facility Type	City or Area	Service Provider
Lomo Cold Storage LLC	1	Solar	Live Oak	PG&E
Cemex Construction Materials Pacific LLC	1	Solar	Madison	PG&E
Cemex Madison	1	Wind	Madison	PG&E
Fish Power (NPCap = 0.15MW - No Reporting RQD)	0.15	Hydroelectric	Marysville	PG&E
Yuba College	1	Solar	Marysville	PG&E
Yuba County Government Center	1	Solar	Marysville	PG&E
Combie South (3 @ 500kW = 1.5MW)	1.5	Hydroelectric	Placer City	PG&E
Lincoln Solar Millennium Fund LLC_(Lincoln Solar #A)	1.5	Solar	Placer County	PG&E
Lincoln Solar Millennium Fund LLC_(Lincoln Solar #B)	1.5	Solar	Placer County	PG&E
Lincoln Solar Millennium Fund LLC_(Nicholas Solar #C)	1.5	Solar	Placer County	PG&E
Chili Bar	7.02	Hydroelectric	Placerville	PG&E
White Rock	230	Hydroelectric	Placerville	PG&E
Camino	308	Hydroelectric	Pollock Pines	PG&E
El Dorado	20	Hydroelectric	Pollock Pines	PG&E
Jaybird	154	Hydroelectric	Randall	PG&E
Jones Fork	11.5	Hydroelectric	Randall	PG&E
Robbs Peak	29.5	Hydroelectric	Randall	PG&E
Union Valley	46.7	Hydroelectric	Randall	PG&E
Foods Inc. United Natural	1	Solar	Rocklin	PG&E
Roseville	50.4	Gas	Rocklin	PG&E
Lincoln Landfill - WPWMA	0.81	Landfill Gas	Roseville	PG&E
Roseville Energy Park (REP)	50	Gas	Roseville	Roseville Electric
Aerojet II (2.4MW) Solar Plant	2.4	Solar	Sacramento	SMUD
Campbell Soup Supply Company LLC	2	Solar	Sacramento	SMUD
FAA Norcal TRACON	1	Solar	Sacramento	SMUD
Granite Construction Company	1.1	Solar	Sacramento	SMUD
Hedge PV	0.2	Solar	Sacramento	SMUD
Intel Corporation	1	Solar	Sacramento	SMUD
Intel Corporation	1	Solar	Sacramento	SMUD
McClellan	74.2	Gas	Sacramento	SMUD
Sacramento Campbell Soup SPA	173.9	Gas	Sacramento	SMUD
Sacramento Carson - Carson Ice CG	119.5	Gas	Sacramento	SMUD
Sacramento SCA	193.4	Gas	Sacramento	SMUD
Siemens Industry Inc.	1	Solar	Sacramento	SMUD
SMUD HQ**	0.2	Gas	Sacramento	SMUD
Strata Roof 1	1	Solar	Sacramento	SMUD
U.S. National Leasing LLC_(Depot Park)	2.5	Solar	Sacramento	SMUD
South Sutter	0.395	Hydroelectric	Sheridan	PG&E

Plant Name	Online MW	Facility Type	City or Area	Service Provider
Kiefer Landfill Gas-to-Energy Facility	9.15	WTE - Landfill Gas	Sloughhouse	SMUD
RE Dillard Road 1	3.99	Solar	Sloughhouse	SMUD
RE Dillard Road 2	3.99	Solar	Sloughhouse	SMUD
RE Dillard Road 3	3.99	Solar	Sloughhouse	SMUD
RE Dillard Road 4	0.53	Solar	Sloughhouse	SMUD
RE Kammerer Road 1	6.65	Solar	Sloughhouse	SMUD
David O. Harde	0.1	Hydroelectric	Somerset	PG&E
Pristine Sun Fund 1 LLC_(2127_Harris)	1.25	Solar	Sutter County	PG&E
Port Of West Sacramento	0.6	Solar	West Sacramento	PG&E
Tony's Fine Foods	1	Solar	West Sacramento	PG&E
Ostrom Road	3.2	WTE - Landfill Gas	Wheatland	PG&E
Nilsen Farms	1.1	Solar	Wilton	SMUD
Soleil Solar	1.25	Solar	Wilton	SMUD
Amir Development Company	1.1	Solar	Woodland	PG&E
Co. Inc. #21 Walgreens	1	Solar	Woodland	PG&E
West Biofuels	0.25	WTE - Biomass	Woodland	PG&E
Woodland Biomass Power Ltd	28	WTE - Biomass	Woodland	PG&E
Yolo County Solar Project	1	Solar	Woodland	PG&E
Putah Creek Solar Farm	2	Solar	Yolo County	PG&E
Calpine Greenleaf Inc.	72	Gas	Yuba City	PG&E
Calpine Greenleaf Inc.	50	Gas	Yuba City	PG&E
City of Yuba	1	Solar	Yuba City	PG&E
Feather River Energy Center	48.1	Gas	Yuba City	PG&E
Sutter Energy Center - Calpine Construction Finance Co	364.8	Gas	Yuba City	PG&E
Yuba City Cogeneration Partners LP	49	Gas	Yuba City	PG&E
Yuba City Energy Center	48.1	Gas	Yuba City	PG&E
Yuba City WWTP	0.14	Gas	Yuba City	PG&E
Pristine Sun Fund 8 Sutter PGE LLC_(2179_Smotherman)	0.5	Solar	Yuba County	PG&E
Alta	2	Hydroelectric	Alta	PG&E
Drum #1	55.5	Hydroelectric	Alta	PG&E
Drum #2	49.5	Hydroelectric	Alta	PG&E
Dutch Flat #1	22	Hydroelectric	Alta	PG&E
Halsey	11	Hydroelectric	Auburn	PG&E
Newcastle	11.5	Hydroelectric	Auburn	PG&E
Swiss America	0.1	Hydroelectric	Auburn	PG&E
Wise	14	Hydroelectric	Auburn	PG&E
Browns Valley (Rated 0.995MW) NO REPORT REQUIRED**	1.3	Hydroelectric	Browns Valley	PG&E
Narrows 2	46.75	Hydroelectric	Browns Valley	PG&E
Rock Creek L.P.	3.6	Hydroelectric	Camino	PG&E
Slab Creek	0.4	Hydroelectric	Camino	PG&E

Plant Name	Online MW	Facility Type	City or Area	Service Provider
Camp Far West	6.8	Hydroelectric	Camp Far West	PG&E
Deadwood Creek	2	Hydroelectric	Challenge	PG&E
Rollins	13.5	Hydroelectric	Colfax	PG&E
MM Yolo Power LLC Facility	5.7	WTE - Landfill Gas	Davis	PG&E
University of California Davis - Indefinite Shutdown	3	Gas	Davis	SMUD
Colgate	315	Hydroelectric	Dobbins	PG&E
Green Acres Solar Facility 1	3	Solar	Elk Grove	SMUD
Green Acres Solar Facility 2	1	Solar	Elk Grove	SMUD
Grundman-Wilkinson Solar Farm (Bruceville Road)	18	Solar	Elk Grove	SMUD
Point Pleasant (Lawrence Solar Farm)	1	Solar	Elk Grove	SMUD
RE Bruceville Solar 1	6.65	Solar	Elk Grove	SMUD
RE Bruceville Solar 2	6.65	Solar	Elk Grove	SMUD
RE Bruceville Solar 3	6.65	Solar	Elk Grove	SMUD
RE Kammerer Road 2	6.65	Solar	Elk Grove	SMUD
RE Kammerer Road 3	6.65	Solar	Elk Grove	SMUD
Aerojet I (3.6MW) Solar Plant	3.6	Solar	Folsom	SMUD

Note: "WTE" refers to waste-to-energy, the process of generating energy from the incineration of waste.
Source: CEC 2019

Liquid Energy Pipelines

Liquid energy pipelines transport many other energy sources, including crude oil, Ethanol, liquid natural gas (regasified after transport), and liquid petroleum gas also known as propane (U.S. Pipeline and Hazardous Materials Safety Administration 2018). Though they make up a much smaller proportion of California's electricity system, liquid energy resources like propane can be used as an additional energy source in areas without access to natural gas distribution lines. From the refinery or processing plant, propane is shipped to an intermediate terminal; from there, it is shipped to the local propane supplier for delivery to commercial and residential end users. Propane is transported under pressure in its more compact liquid form. Typically, propane is transported by trucks or pipelines. Similarly, liquid energy pipelines transport crude oil and ethanol, which are converted into fuel for machines, airplanes and rockets, and commercial, agricultural, and personal vehicles. For more information about the transport of crude oil and other hazardous liquids, see Chapter 10 – Hazards and Hazardous Materials.

There are many petroleum oil and other liquid energy transmission pipelines within the plan area for the proposed MTP/SCS. There are transmission pipelines located adjacent to I-80 and SR 65 in Placer County. Transmission pipelines in Sacramento County are located adjacent to Bradshaw road from US 50 to SR 99 and following SR 99 to the county line. There is also a pipeline running from the Sacramento International Airport to I-80 in Yolo County. In Sutter County, transmission pipelines follow northern SR 99. There are transmission pipelines located adjacent to SR 84 and I-80 in Yolo County. In Yuba County, transmission pipelines are located adjacent to SR 65 and continue along South Beale Road to Beale Air Force Base (U.S. Pipeline and Hazardous Materials Safety Administration 2018). There are no petroleum refineries located in the plan area for the MTP/SCS, as the majority of the state's refineries are located in the San Francisco Bay Area, Los Angeles, and

other parts of the Central Valley. However, there are three refined products terminals, which receive petroleum products by tanker, barge, pipeline, rail, or truck in Sacramento County (CEC 2019).

17.2.7 Telecommunications Services

Telecommunications services in any given area can vary widely as they are mainly a privately-owned enterprise and are offered by a variety of companies with different service capacities. The number of providers offering the service, the type of service available, and the transmission speed of the service all impact the quality of telecommunications. This differs from other utilities that are generally publicly-owned or offered by a limited number of service providers.

TELECOMMUNICATIONS SERVICE PROVIDERS

Many telecommunications providers offer phone, internet, and/or television service in the plan area for the proposed MTP/SCS as shown in Table 17-9. Residents often bundle their phone, internet, and television services with the same provider to take advantage of service discounts or other promotional offers. Telecommunications providers will usually complete infrastructure and other service improvements for an area as the need arises to meet customer demand.

TELEPHONE AND CELLULAR PHONE

Local phone service is provided primarily by AT&T, Inc. (AT&T), although a number of independent telephone companies operate in the plan area for the proposed MTP/SCS as well, including Frontier Communications Corporation, MetroPCS Wireless, and Consolidated Communications (National Telecommunications and Information Administration and FCC 2018). Long distance telephone service is provided by several carriers, including AT&T and Sprint Nextel Corporation, among others.

AT&T, Sprint Nextel Corporation, T-Mobile, and Verizon Wireless are among the multiple cellular telephone providers that provide service in the region (National Telecommunications and Information Administration and FCC 2018). Providers use a combination of underground lines and above ground cellular towers to provide telephone service to the plan area for the proposed MTP/SCS. Cellular towers are often located in industrial areas or close to freeways, and are often designed to blend into the surroundings.

5G WIRELESS TECHNOLOGY

5G is an umbrella term for a set of international wireless standards. Capabilities and advantages of a 5G wireless technology include enhanced mobile broadband, up to 100x faster speeds than 4G, cheap connectivity and ultra-reliable, resilient, and instantaneous connectivity that allows for connection of a variety of devices. Additional advantages include large coverage areas that are ideal for rural, non-line of site locations, high user capacities, and fiber like speeds ideal for urban areas (CPUC 2019).

CABLE TELEVISION AND INTERNET

Internet services are provided by AT&T, Comcast, Consolidated Communications, and Integra Telecom, Inc., in addition to satellite and other providers. Internet service may be provided through

mobile (i.e., cellular phone), wireless (Wi-Fi), hotspots (i.e., wireless local area network), phone line (i.e., integrated services digital network), or broadband (i.e., DSL, cable) connections. Cable television is primarily provided by Comcast Cable, AT&T, and Consolidated Communications through cable or satellite connections (National Telecommunications and Information Administration and FCC 2018).

Cable fibers and copper wires are generally co-located and installed concurrently with other utility infrastructure. This infrastructure is usually installed underground within new development in order to reduce visual and aesthetic impacts and any potential safety hazards. Fiber cables, the fastest form of communications infrastructure, are also co-located and installed underground. However, fiber optic networks generally serve larger urban areas where demand offsets the high cost of installing the fiber optics. Additionally, television and internet services can be provided through satellite connections and Wi-Fi networks that allow electronic devices to communicate using radio waves rather than a wire.

Table 17-9
Telecommunications Service Providers in the Plan Area of the Proposed MTP/SCS

Telecommunications Service Provider	Type of Broadband	MTP/SCS Plan Area Service Reach (not complete coverage)
Allstream Business US, Inc.	Asymmetric xDSL, Other Copper Wireline, Optical Carrier/Fiber to the End User.	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba
AT&T California	ADSL2, ADSL2+, Asymmetric xDSL, Optical Carrier/Fiber to the End User, VDSL	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba
AT&T Mobility	Mobile Wireless	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba
Broadview Networks Holdings, Inc.	Other Copper Wireline	Placer
Cal.net Inc.	Terrestrial Fixed Wireless	El Dorado, Placer, Sacramento, Yuba
California Broadband Services	Terrestrial Fixed Wireless	Sacramento, Yolo, Yuba
Call One Inc.	Optical Carrier/Fiber to the End User, Symmetric xDSL*	Placer, Sacramento, Yolo
Charter Communications, Inc.	Cable Modem DOCSIS 3.0, Optical Carrier/Fiber to the End User	El Dorado, Placer, Sacramento, Yuba
ColfaxNet	Terrestrial Fixed Wireless	Placer, Yuba
Comcast	Cable Modem DOCSIS 3.0, Cable Modem DOCSIS 3.1	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba
Consolidated Communications	ADSL2, ADSL2+, Optical Carrier/Fiber to the End User	Placer, Sacramento, Sutter, Yolo, Yuba
Consolidated Smart Broadband Systems, LLC	Cable Modem DOCSIS 3.0	Sacramento, Yuba
Cox Communications	Cable Modem DOCSIS 3.0	Sacramento
DigitalPath, Inc	Terrestrial Fixed Wireless	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba
EarthLink Business, LLC	Asymmetric xDSL, Cable Modem other than DOCSIS 1, 1.1 or 2.0,	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba

Telecommunications Service Provider	Type of Broadband	MTP/SCS Plan Area Service Reach (not complete coverage)
	Other Copper Wireline, Symmetric xDSL*	
Exwire	Terrestrial Fixed Wireless	Placer, Yuba
Frontier	ADSL2, ADSL2+, Asymmetric xDSL, VDSL	Sacramento, Sutter, Yolo, Yuba
GeoLinks	Terrestrial Fixed Wireless	El Dorado, Sutter, Yuba
Google Fiber California, LLC	Optical Carrier/Fiber to the End User	Sacramento
Internet Free Planet	Terrestrial Fixed Wireless	Yolo, Yuba
Level 3	Optical Carrier/Fiber to the End User, Other Copper Wireline	Placer, Sacramento, Sutter, Yolo, Yuba
MCI	Optical Carrier/Fiber to the End User, Other Copper Wireline	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba
McLeodUSA Telecommunications Services, LLC	ADSL2, ADSL2+, Optical Carrier/Fiber to the End User	Sacramento
NetFortris Acquisition Co. Inc.	Optical Carrier/Fiber to the End User, Other Copper Wireline	El Dorado, Placer, Sacramento, Yolo, Yuba
PAETEC Communications Inc	ADSL2, ADSL2+, Optical Carrier/Fiber to the End User	El Dorado, Placer, Sacramento, Yolo
Plumas Sierra	Optical Carrier/Fiber to the End User	Placer
Ruralnet Wireless LLC	Terrestrial Fixed Wireless	El Dorado, Placer, Yolo, Yuba
Sebastian - Audeamus	Optical Carrier/Fiber to the End User	Placer, Yuba
Sebastian - Foresthill	Asymmetric xDSL, Optical Carrier/Fiber to the End User	El Dorado, Placer, Yuba
SmarterBroadband, Inc.	Terrestrial Fixed Wireless	Placer, Yuba
Softcom Internet Communications, Inc.	Terrestrial Fixed Wireless	Sacramento, Yuba
Sonic.net	ADSL2, ADSL2+, Optical Carrier/Fiber to the End User, Other Copper Wireline, Symmetric xDSL*, VDSL	Placer, Sacramento, Yolo, Yuba
South Valley Internet	Other Copper Wireline	Placer
Sprint	Mobile Wireless	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba
Succeed, Inc.	Terrestrial Fixed Wireless	Placer, Sacramento, Sutter, Yolo, Yuba
Suddenlink Communications	Cable Modem DOCSIS 3.0, Cable Modem DOCSIS 3.1, Optical Carrier/Fiber to the End User	Placer, Yuba
T-Mobile	Mobile Wireless	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba
Transbeam, Inc.	Optical Carrier/Fiber to the End User	Sacramento
U.S. TelePacific Corp.	Optical Carrier/Fiber to the End User, Other Copper Wireline, Symmetric xDSL*	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba
Vast Networks	Optical Carrier/Fiber to the End User	El Dorado, Placer, Sutter, Yuba
Verizon Wireless	Mobile Wireless	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba

Telecommunications Service Provider	Type of Broadband	MTP/SCS Plan Area Service Reach (not complete coverage)
Volcano	ADSL2, ADSL2+, Optical Carrier/Fiber to the End User, Terrestrial Fixed Wireless	El Dorado, Sacramento, Yuba
Wave	Cable Modem DOCSIS 3.0	Placer, Sacramento, Yolo, Yuba
Winters Broadband LLC	Terrestrial Fixed Wireless	Yolo, Yuba
XO Communications	Optical Carrier/Fiber to the End User, Other Copper Wireline	El Dorado, Placer, Sacramento, Yolo, Yuba
ZayoGroupLLC	Optical Carrier/Fiber to the End User	Sacramento, Yolo

Source: CPUC 2017 Broadband

Broadband refers to a high-speed connection to the internet that is always on, as opposed to other connections (e.g., dial-up) that need to be turned on with every use. The region is fully served by mobile broadband except in the mountainous areas in the western tip of Yolo County, the middle of Placer County, and north and south El Dorado County. Fixed wireless broadband service is available at varying speeds throughout the plan area for the proposed MTP/SCS, except for the northwest portion of Yolo County, the very tip of northern Yuba, and mid to east Yolo and El Dorado counties. Wireline broadband is the least available service as it is generally offered only near more developed areas. Wireline broadband is available along the Sutter/Yuba border, in cities in Yolo county, in a large cluster near the connection of highways in El Dorado County, along I-80 in Placer County, and in most of northern Sacramento county.

There are 13 telecommunications providers offering services in El Dorado and Sutter counties, 20 offering services in Placer County, 24 offering services in Sacramento County, 23 offering services in Yolo County, and 10 offering services in Yuba County. As shown in Table 17-10, Placer, Sacramento, Sutter, and Yolo counties have access to wireless and wireline download speeds greater than 10 megabytes per second which are greater than the national average. El Dorado and Yuba counties have access greater than the national average for wireless services, but not wireline services. All counties in the plan area for the proposed MTP/SCS have access to wireless technology that exceeds the national average. Sacramento, Sutter, and Yolo counties have access that is greater than the national average for DSL; Placer and Sacramento counties have access that is greater than the national average for Fiber; and Placer, Sacramento, and Sutter counties have access that is greater than the national average for Cable (National Telecommunications and Information Administration and FCC 2018).

Table 17-10
2017 Access to Telecommunications Technology by Type by County in the Plan Area of the Proposed MTP/SCS (≥ 25/3 Mbps)

Technology	El Dorado	Placer	Sacramento	Sutter	Yolo	Yuba	Nation
ADSL	32.16%	26.00%	62.72%	72.48%	76.94%	60.44%	39.92%
Fiber	1.88%	31.44%	31.62%	1.81%	5.23%	1.90%	30.80%
Cable	76.06%	88.16%	95.32%	90.39%	85.59%	75.86%	88.29%
Fixed Wireless	75.95%	52.72%	7.11%	1.08%	72.65%	6.62%	19.39%

Note: Results are shown for access at or above the FCC existing speed benchmark of 25 Mbps download/3 Mbps upload (25 Mbps/3 Mbps) for fixed services.
Source: FCC 2017

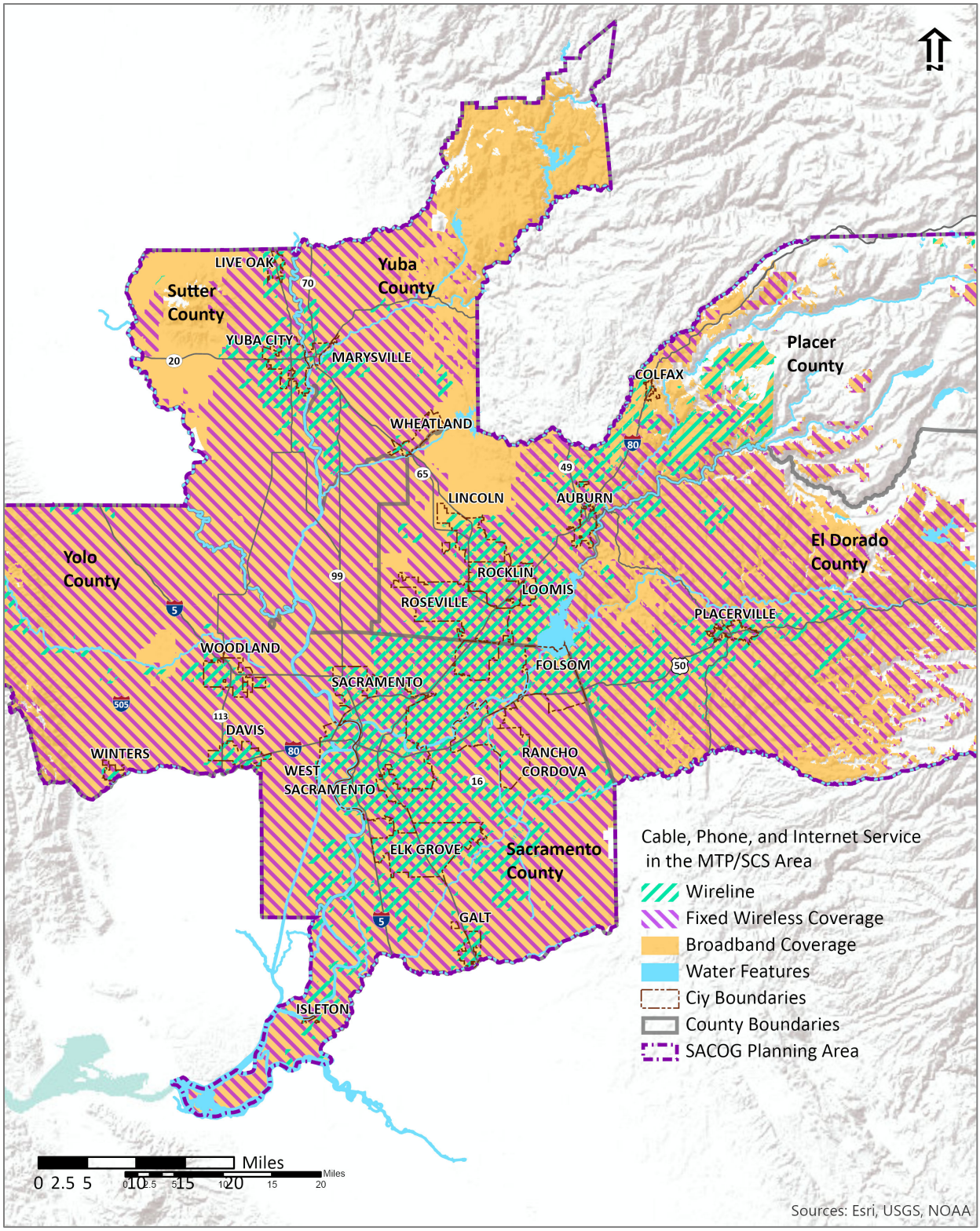


Figure 17-3
Cable, Phone, and Internet Service in the Plan Area of the Proposed MTP/SCS

17.3 Regulatory Setting

17.3.1 Federal Regulations

FEDERAL POWER ACT OF 1935

The Federal Power Act of 1935 (16 U.S. Code Section 791 et seq.) created FERC, an independent regulatory agency with authority over both the interstate transmission of electricity and the sale of hydroelectric power at the wholesale level. The act requires the commission to ensure that electricity rates are "reasonable, nondiscriminatory, and just to the consumer." The Federal Power Act also amended the criteria that the commission must apply in deciding whether to license the construction and operation of new hydroelectric facilities. FERC acts under the legal authority of the Federal Power Act, the Public Utility Regulatory Policies, and the Energy Policy Act (EPAct) (42 U.S. Code Section 13201 note), as well as other federal acts.

NATURAL GAS ACT OF 1938

Together with the Federal Power Act, the Natural Gas Act (NGA) (15 U.S. Code Section 717 et seq.) was an essential piece of energy legislation in the first half of the twentieth century. These statutes regulated interstate activities of the electric and natural gas industries, respectively. The NGA enabled federal regulators to set prices for gas sold in interstate commerce in exchange for exclusive rights to transport the gas.

UNITED STATES DEPARTMENT OF TRANSPORTATION - ACT OF CONGRESS 1966

United States Department of Transportation (USDOT) is a federal department of the U.S. government concerned with transportation that was established by an act of Congress in 1966. Propane transportation is regulated by USDOT. With authority stated in Title 49 of the Code of Federal Regulations, USDOT requires that all shipping papers contain a 24-hour-a-day telephone number where emergency assistance and information can be obtained. This service must provide information about any cargo that is classified by USDOT as a hazardous material. There are several sources in the United States that an emergency response crew leader can contact in the case of a transportation accident (NPGA 2002).

CLEAN WATER ACT OF 1972

Enacted in 1972, this federal legislation completely revised the pre-existing Water Pollution Control Act. Section 304 of the Clean Water Act (CWA) (33 U.S. Code Section 1251 et seq.) established primary drinking water standards. States are required to ensure that potable water retailed to the public meets these standards.

Construction of wastewater and stormwater infrastructure and facilities may have impacts (erosion and sedimentation) regulated by CWA. The 1972 amendments to the federal CWA prohibit the discharge of pollutants to navigable waters from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The CWA requires NPDES permits for stormwater discharges caused by general construction activity, industrial activity, and municipal drainage collection. The purpose of the NPDES program is to establish a comprehensive stormwater quality program to manage urban stormwater, reducing pollution of the environment as

much as possible. The NPDES program involves characterizing the quality of receiving water, identifying harmful constituents, targeting potential sources of pollutants, and implementing a comprehensive stormwater management program. In California, NPDES permits are issued by Regional Water Quality Control Boards (RWQCBs).

Safe Drinking Water Act of 1974 (as amended)

Safe Drinking Water Act (SDWA) (42 U.S. Code Section 300f et seq.) promulgated by Congress in 1974, amended in 1986 and 1996, establishes a Federal program to monitor and increase the safety of the nation's drinking water supply. SDWA authorizes the U.S. Environmental Protection Agency (EPA) to set and implement health-based standards to protect against both naturally occurring and man-made contaminants in drinking water. EPA is also responsible for assessing and protecting drinking water sources; protecting wells and collection systems; making sure water is treated by qualified operators; ensuring the integrity of distribution systems; and making information available to the public on the quality of their drinking water.

Resource Conservation and Recovery Act of 1976

Pursuant to the Resource Conservation and Recovery Act (RCRA) (42 U.S. Code Section 6901 et seq.) Code of Federal Regulations (CFR) Title 40, Part 258, Subtitle D establishes minimum location standards for siting municipal solid waste landfills. Because California laws and regulations governing the approval of solid waste landfills meet the requirements of Subtitle D, EPA has delegated the enforcement responsibility to the State of California. California laws and regulations governing these facilities are summarized in the section below.

Federal Energy Regulatory Commission of 1977

FERC was created by the Department of Energy Organization Act of 1977 and established within the Department of Energy (DOE). FERC regulates the transmission and sale of electricity in interstate commerce, oversees licensing of hydroelectric projects, and provides oversight of related environmental matters.

Public Utility Regulatory Policies Act of 1978

The Public Utility Regulatory Policies Act (PURPA) (Public Law 95-617) was passed in response to the unstable energy climate of the late 1970s. PURPA sought to promote conservation of electric energy. Additionally, PURPA created a new class of nonutility generators, small power producers, from which, along with qualified cogenerators, utilities are required to buy power.

The PURPA was in part intended to augment electric utility generation with more efficiently produced electricity and to provide equitable rates to electric consumers. Utility companies are required to buy all electricity from "Qfs" (qualifying facilities) at avoided cost (avoided costs are the incremental savings associated with not having to produce additional units of electricity). The PURPA expanded participation of nonutility generators in the electricity market, and demonstrated that electricity from nonutility generators could successfully be integrated with a utility's own supply. The PURPA requires utilities to buy whatever power is produced by Qfs (usually cogeneration or renewable energy).

NATURAL GAS POLICY ACT OF 1978

The Natural Gas Policy Act (NGPA) (15 U.S. Code Section 3301 et seq.) granted FERC authority over intrastate as well as interstate natural gas production. The NGPA established price ceilings for wellhead first sales of gas that vary with the applicable gas category and gradually increase over time.

ENERGY POLICY ACT OF 1992

The EPA Act (42 U.S. Code Section 13201 note) addressed energy efficiency, energy conservation and energy management, natural gas imports and exports, alternative fuels, electric motor vehicles, radioactive waste, coal power and clean coal, renewable energy, and other issues. It reformed the Public Utility Holding Company Act (Wheeler-Rayburn Act) of 1935 (15 U.S. Code Section 79 et seq.) and amended parts of the Federal Power Act of 1935.

ENERGY POLICY ACT OF 2005

On August 8, 2005, President George W. Bush signed the National Energy Policy Act of 2005 (Public Law 109–58) into law. This comprehensive energy legislation contains several electricity-related provisions that accomplish the following:

- help ensure that consumers receive electricity over a dependable, modern infrastructure;
- remove outdated obstacles to investment in electricity transmission lines;
- make electric reliability standards mandatory instead of optional; and
- give federal officials the authority to site new power lines in DOE-designated national corridors in certain limited circumstances.

The Renewable Fuel Standard (RFS) program was created under the Energy Policy Act (EPAct) of 2005 and established the first renewable fuel volume mandate in the United States. The program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders. As required under EPAct, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012.

TELECOMMUNICATIONS ACT OF 1996

The Telecommunications Act (47 U.S. Code) was the first major overhaul of United States telecommunications law in nearly 62 years, amending the Communications Act of 1934 (47 U.S. Code Section 151 et seq.). The act deregulates local phone service, and allows long-distance carriers and cable television companies to provide local phone service, and allows local telephone companies to provide long distance service.

CLEAN AIR ACT

Section 211(o) of the Clean Air Act (CAA), as amended by the Energy Policy Act of 2005, requires the Administrator of EPA to annually determine an RFS which is applicable to refiners, importers and certain blenders of gasoline, and publish the standard in the Federal Register by November 30 of each year. On the basis of this standard, each obligated party determines the volume of renewable fuel that it must ensure is consumed as motor vehicle fuel. This standard is calculated as a

percentage, by dividing the amount of renewable fuel that the CAA requires to be blended into gasoline for a given year by the amount of gasoline expected to be used during that year, including certain adjustments specified by the Act. The notice, published in December of 2017, included an RFS of 10.67 percent for 2018 (82 FR 58486).

ENERGY INDEPENDENCE AND SECURITY ACT OF 2007

The Energy Independence and Security Act (EISA) (Public Law 110-140) was signed into law by President George W. Bush on December 19, 2007. The EISA's goal is to achieve energy security in the U.S. by increasing renewable fuel production, improving energy efficiency and performance, protecting consumers, improving vehicle fuel economy, and promoting research on greenhouse gas (GHG) capture and storage. Under the EISA, the updated RFS program (RFS2) was expanded in several key ways:

1. The EISA expanded the RFS program to include diesel, in addition to gasoline.

2. The EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.

3. The EISA established new categories of renewable fuel, and set separate volume requirements for each one.

4. The EISA required EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

RFS2 lays the foundation for achieving significant reductions of GHG emissions from the use of renewable fuels, for reducing imported petroleum, and encouraging the development and expansion of our nation's renewable fuels sector. The EISA also includes a variety of new standards for lighting and for residential and commercial appliance equipment. The equipment includes residential refrigerators, freezers, refrigerator-freezers, metal halide lamps, and commercial walk-in coolers and freezers.

17.3.2 State Regulations

SENATE CONSTITUTIONAL AMENDMENT NO. 13, 1945- CALIFORNIA PUBLIC UTILITIES COMMISSION

Senate Constitutional Amendment No. 13 (Cal. Stats. 1945, Res. Ch. 145) established the California Public Utilities Commission (CPUC). CPUC regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. CPUC sets forth specific rules that relate to the design, installation, and management of California's public utilities. CPUC Decisions #77187 and #78500 state that utilities must be underground if the developable lots are less than three acres in size. CPUC Decision #81620 states that lots over three acres (large lot subdivision) are not required to underground utilities. A formal waiver from the CPUC is required for an exemption from complying with these decisions. CPUC Decision 95-08-038 governs the planning and construction of new transmission facilities, distribution facilities, and substations.

PORTER-COLOGNE WATER QUALITY CONTROL ACT OF 1969

The Porter-Cologne Water Quality Control Act (Porter Cologne Act) (Water Code Section 13000 et seq.) directs SWRCB and RWQCBs to prepare Water Quality Control Plans (Basin Plans), establishing water quality objectives and beneficial uses for each body of water within the regional boundaries including groundwater basins. A RWQCB issues waste discharge requirements (WDRs) for discharges of privately- or publicly-treated domestic wastewater to locations other than surface water. These WDRs are usually designed to protect beneficial uses of groundwater basins but can be issued to protect surface waters in areas where groundwater is known to infiltrate into surface waters. Many municipal wastewater treatment facilities do not have NPDES permits, but rather are issued WDRs for discharges to surface impoundments and percolation ponds. RWQCB also issues waste reclamation requirements (WRRs) for treated wastewater used exclusively for reclamation projects such as irrigation and groundwater recharge. The Porter Cologne Act empowers the SWRCB and RWQCBs to protect the beneficial use of California waters. Thereby, it provides broader authority than offered by the federal CWA alone.

New or expanded landfills must submit Reports of Waste Discharge to RWQCBs prior to landfill operations. In conjunction with the California Integrated Waste Management Board (CIWMB, now CalRecycle) approval of solid waste facility permits, RWQCBs issue Waste Discharge Orders, which regulate the liner, leachate control and removal, and groundwater monitoring systems at Class III landfills. While Waste Discharge Orders only apply to landfills, RWQCBs also regulate surface water runoff for all solid waste facilities by issuing stormwater discharge permits under the NPDES program. Separate NPDES permits are issued for the construction and operation of these facilities.

SUBDIVISION MAP ACT OF 1974

One of the powers granted to local jurisdictions by the Subdivision Map Act (Government Code Section 66410 et seq.) is the authority to impose drainage improvements or drainage fees and assessments. Specifically, local jurisdictions may require the provision of drainage facilities, proper grading and erosion control, dedication of land for drainage easements, or payment of fees needed for construction of drainage improvements. The types and applicable standards of the improvements may be specified in the local ordinance.

WARREN-ALQUIST ENERGY RESOURCES CONSERVATION AND DEVELOPMENT ACT OF 1974

The California Energy Commission (CEC) regulates energy resources by encouraging and coordinating research into energy supply and demand problems to reduce the rate of growth of energy consumption, through the Warren-Alquist Energy Resources Conservation and Development Act (Warren-Alquist Act) (Government Code Section 25000 et seq.).

CEC is the state's primary energy policy and planning agency. Its responsibilities include forecasting future energy needs and keeping historical energy data; licensing thermal power plants 50 megawatts or larger; promoting energy efficiency through appliance and building standards; developing energy technologies and supporting renewable energy; and planning for and directing state response to energy emergencies.

CEC develops energy efficiency standards for residential and nonresidential buildings approximately every three years. The CEC adopted the 2019 Building Energy Efficiency Standards in May 2018, and will become effective January 1, 2020.

URBAN WATER MANAGEMENT PLANNING ACT OF 1983

Urban water suppliers must prepare UWMPs to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves more than 3,000 connections is required to assess the reliability of its water sources over a 20-year planning horizon considering normal, dry, and multiple dry years. This assessment is included in each UWMP, which is prepared every 5 years and submitted to DWR. DWR reviews UWMPs for consistency with the Urban Water Management Planning Act of 1983 (Water Code Sections 10610–10656). The Water Conservation Act of 2009 (Water Code Section 10608 et seq.), also known as Sen7 (Stats. 2009, 7th Ex. Sess., ch. 4) (SB X7-7), and amendments to the Urban Water Management Planning Act of 1983 set a goal of reducing per capita daily water consumption by 20 percent by the year 2020.

SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986

Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986 (Health & Safety Code Section 25249.5, et seq.) was enacted as a ballot initiative in November 1986. Proposition 65 requires the state to publish a list of chemicals known to cause cancer or birth defects or other reproductive harm. This list, which must be updated at least once a year, has grown to include approximately 800 chemicals since it was first published in 1987.

Proposition 65 requires businesses to notify Californians about significant amounts of chemicals in the products they purchase, in their homes or workplaces, or that are released into the environment. By providing this information, Proposition 65 enables Californians to make informed decisions about protecting themselves from exposure to these chemicals. Proposition 65 also prohibits California businesses from knowingly discharging significant amounts of listed chemicals into sources of drinking water.

The Office of Environmental Health Hazard Assessment (OEHHA) administers the Proposition 65 program. OEHHA, which is part of the California Environmental Protection Agency (CalEPA), also evaluates all currently available scientific information on substances considered for placement on the Proposition 65 list.

INTEGRATED WASTE MANAGEMENT ACT OF 1989

Integrated Waste Management Act (IWMA) (PRC Section 40000 et seq.), also known as AB 939 (Stats. 1989, ch. 1095), established the CIWMB and set forth aggressive solid waste diversion requirements. Under the IWMA, every city and county in California is required to reduce the volume of waste sent to landfills by 50 percent through recycling, reuse, composting, and other means. Counties are required to prepare a CIWMP. An adequate CIWMP contains a summary plan that includes goals and objectives, a summary of waste management issues and problems identified in the incorporated and unincorporated areas of the county, a summary of waste management programs and infrastructure, information about existing and proposed solid waste facilities, and an overview of

specific steps that will be taken to achieve the goals outlined in the components of the CIWMP. On January 1, 2010, the CIWMB's duties and responsibilities were transferred CalRecycle.

ASSEMBLY BILL 341

AB 341 (Chapter 476, Statutes of 2011) makes a legislative declaration that it is the policy goal of the state that not less than 75 percent of solid waste generated by source reduced, recycled, or composted by the year 2020. It also requires specified commercial and public entities to arrange for recycles services.

CALIFORNIA SOLID WASTE RE-USE AND RECYCLING ACCESS ACT OF 1991

Subsequent to the IWMA additional legislation was passed to assist local jurisdictions in accomplishing the goals of the IWMA. The California Solid Waste Re-use and Recycling Access Act (PRC Sections 42900–42911) directed the CIWMB to draft a "model ordinance" relating to adequate areas for collecting and loading recyclable materials in development projects. The model ordinance requires that any new development project, for which an application is submitted on or after September 1, 1994, include "adequate, accessible, and convenient areas for collecting and loading recyclable materials." For subdivisions of single-family detached homes, recycling areas are required to serve only the needs of the home within that subdivision.

SHORT-LIVED CLIMATE POLLUTANTS ORGANIC WASTE METHANE EMISSIONS REDUCTIONS

In September 2016, the Governor signed into law SB 1383 (Lara, Chapter 395, Statutes of 2016), establishing methane emissions reduction targets in a statewide effort to reduce emissions of short-lived climate pollutants (SLCP) in various sectors of California's economy. The new law codifies the California Air Resources Board's Short-Lived Climate Pollutant Reduction Strategy, established pursuant to SB 605 (Lara, Chapter 523, Statutes of 2014). Actions to reduce short-lived climate pollutants are essential to address the many impacts of climate change on human health, especially in California's most at-risk communities, and on the environment.

As it pertains to CalRecycle, SB 1383 establishes targets to achieve a 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025. The law grants CalRecycle the regulatory authority required to achieve the organic waste disposal reduction targets and establishes an additional target that not less than 20 percent of currently disposed edible food is recovered for human consumption by 2025.California Water Recycling Act of 1991

The California Water Recycling Act (Water Code Section 13577) established water recycling as a priority in California. The act encourages municipal wastewater treatment districts to implement recycling programs to reduce local water demands. The Act set recycling goals of 700,000 acre-feet of water annually by year 2000 and 1 million acre-feet annually by 2010. Updates to the Water Recycling Act in 2013 prohibit the use of non-potable, recycled water in certain situations to protect public safety.

GROUNDWATER MANAGEMENT ACT OF 1992

The Groundwater Management Act (Water Code Section 10750 et seq.), also known as AB 3030 (Stat. 1992, ch. 947) provides guidance for applicable local agencies to develop voluntary Groundwater Management Plans (GMP) in state-designated groundwater basins. GMPs can allow agencies to raise revenue to pay for measures influencing the management of the basin, including extraction, recharge, conveyance, facility maintenance, and water quality.

THE WATER UTILITY INFRASTRUCTURE IMPROVEMENT ACT OF 1995

The Water Utility Infrastructure Improvement Act (PRC Section 789–790) requires water providing companies to invest proceeds from real, surplus property into water treatment and conveyance infrastructure.

WATER SUPPLY ASSESSMENT AND WATER SUPPLY VERIFICATION

SB 610 (Chapter 643, Statutes of 2001) and SB 221 (Chapter 642, Statutes of 2001) amended state law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 (California Water Code Section 10910) and SB 221 (California Government Code Section 66473.7) were passed as companion measures, which sought to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of specified large development projects. Both statutes also require this detailed information be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects. Both measures recognize local control and decision making regarding the availability of water for projects and the approval of projects.

Under SB 610, water supply assessments must be furnished to local governments for inclusion in any environmental documentation for projects of a specified minimum size from local public water providers with more than 3,000 service connections (as defined in Water Code Section 10912 [a]) subject to the California Environmental Quality Act. Under SB 221 Water Code Section 10912), approval by a city or county of residential subdivisions of more than 500 dwelling units requires an affirmative written verification of sufficient water supply.

In September 2016, the Governor signed SB 1262 to amend SB 610 and SB 221 to address the relationship between California's water supply planning laws and groundwater management requirements under the Sustainable Groundwater Management Act (SGMA). SB 1262 requires that during environment review, project's reliant on groundwater as a water source is must provide additional information in its water supply assessment and negates the identification of hauled water as a water source in a water supply assessment.

THE WATER CONSERVATION ACT OF 2009

The Water Conservation Act (Water Code Section 10608 et seq.), also known as SB 7 (Stats. 2009, 7th Ex. Sess., ch. 4) (SB X7-7) which became effective January 1, 2010, requires the state to achieve a 20 percent reduction in urban-per-capita-water use by December 31, 2020. The state is required to make incremental progress towards this goal by reducing per capita water use by at least 10 percent

on or before December 31, 2015. The act requires each urban retail water supplier to develop both long-term urban water use targets and an interim urban water use target. The act also creates a framework for future planning and actions for urban and agricultural users to reduce per capita water consumption 20 percent by 2020.

WATER QUALITY CONTROL POLICY FOR SITING, DESIGN, OPERATION AND MAINTENANCE OF ONSITE WASTEWATER TREATMENT SYSTEMS OF 2012

SWRCB adopted Resolution No. 2012-0032, adopting the Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems (OWTS; also known as septic tank system) and approving the supporting analysis. The OWTS Policy establishes a statewide, risk-based, tiered approach for regulation and management of OWTS installations and replacements, and recognizes the effectiveness of local permitting agencies. The Tiers include the following:

- Tier 0 – Existing OWTS,
- Tier 1 – Low Risk New or Replacement OWTS,
- Tier 2 – Local Agency Management Program for New or Replacement OWTS,
- Tier 3 – Advanced Protection Management Program, and
- Tier 4 – OWTS Requiring Corrective Action.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT OF 2014

The Sustainable Groundwater Management Act (SGMA) (Water Code Sections 10720–10737.8) provides local agencies with the tools to manage groundwater basins in a sustainable manner over a long-term horizon and allows for limited state intervention when necessary to protect groundwater resources. It requires the formation of local groundwater sustainability agencies (GSAs) that must assess conditions in their local water aquifer basins and adopt locally-based management plans by 2022 that address sustainable groundwater levels. SGMA requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. The SGMA provides 20 years for GSAs to implement plans and achieve long-term groundwater sustainability.

CALIFORNIA RENEWABLES PORTFOLIO STANDARD PROGRAM

The California Renewables Portfolio Standard (RPS) was established by SB 1078 in 2002 and has been revised multiple times since then by the Legislature, most recently by SB 100 (Chapter 312, Statutes of 2018). SB 100 established new goals for the RPS program of achieving a 50 percent renewable resources target by December 31, 2026, and a 60 percent target by December 31, 2030. It requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. SB 100 also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

California Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by The Title 24 California Building Standards Code, Part 6 (California Energy Code). The California Energy Code was established by CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, and provide energy efficiency standards for residential and non-residential buildings. CEC updates the California Energy Code every 3 years with more stringent design requirements for reduced energy consumption.

The 2019 California Energy Code was adopted by CEC on May 9, 2018 and will apply to projects constructed after January 1, 2020. The 2019 California Energy Code is designed to move the state closer to its zero-net energy goals for new residential development. It does so by requiring all new residences to install enough renewable energy to offset all the electricity needs of each residential unit (CCR, Title 24, Part 6, Section 150.1(c)4). CEC estimates that the combination of mandatory on-site renewable energy and prescriptively-required energy efficiency standards will result in a 53 percent reduction in new residential construction as compared to the 2016 California Energy Code. Non-residential buildings are anticipated to reduce energy consumption by 30 percent as compared to the 2016 California Energy Code primarily through prescriptive requirements for high-efficiency lighting (CEC 2018). The California Energy Code is enforced through the local plan check and building permit process. Local government agencies may adopt and enforce additional energy standards for new buildings as reasonably necessary due to local climatologic, geologic, or topographic conditions, provided that these standards exceed those provided in the California Energy Code.

California Green Building Standards Code (Title 24, Part 11)

The California Green Building Standards Code, Title 24, Part 11, of the California Code of Regulations, (CALGreen) was first adopted in 2008, made mandatory in 2010, and the updated 2019 CalGreen code adopted May 9, 2018 will become effective January 1, 2020. It includes mandatory and voluntary nonresidential standards related to green building that reduce GHG emissions, energy and water consumption, and solid waste and stormwater generation. CALGreen establishes mandatory minimum green building standards and optional Tier 1 and Tier 2 more stringent provisions. Cities and counties are required by state law to enforce Title 24 but have the discretion to adopt either optional tier as mandatory or to adopt their own stricter standards.

Title 14 California Code of Regulations Division 3

California Code of Regulations (CCR), Title 14, Chapter 3 establishes minimum standards for solid waste handling and disposal. Article 6.0 of Chapter 3 establishes minimum standards for solid waste transfer stations. Composting facility operating requirements are found in Chapter 3.1. Both of these chapters establish different standards for different size facilities. Standards found in these chapters relate to the cleaning of these facilities, drainage control, dust control, the detection of household hazardous waste, litter control, noise control, vectors, odors, and other potential impacts resulting from the operation of these facilities.

TITLE 22 CALIFORNIA CODE OF REGULATIONS DIVISION 4

Wastewater reclamation in California is regulated under Title 22, Division 4, of the CCR. The intent of these regulations is to ensure protection of public health associated with the use of reclaimed water. The regulations establish acceptable levels of constituents in reclaimed water for a range of uses and prescribe means for assurance of reliability in the production of reclaimed water. DHS has jurisdiction over the distribution of reclaimed wastewater and the enforcement of Title 22 regulations. The applicable RWQCB is responsible for issuing waste discharge requirements (including discharge prohibitions, monitoring, and reporting programs).

TITLE 23 CALIFORNIA CODE OF REGULATIONS DIVISION 3, SECTION 2-3

Title 23, Division 3, Article 2 (Waste Classification and Management), Article 3 (Waste Unit Classification and Siting), and Class III (municipal solid waste) establish criteria for the siting of landfills. These regulations address design, construction, operation, and groundwater monitoring requirements of solid waste landfills.

TITLE 27 CALIFORNIA CODE OF REGULATIONS

CalRecycle and SWRCB completed a parallel rulemaking pursuant to AB 1220 (Stats. 1993, ch. 656). AB 1220 required clarification of the roles and responsibilities of the two boards in regulating solid waste disposal sites. The approved Title 27 regulations combine prior disposal site/landfill regulations of the CIWMB and SWRCB that were maintained in Title 14 and Title 23, Chapter 15 of the CCR (which contains requirements for disposal of hazardous waste). Title 27 regulations require a significant proportion of the waste stream must be diverted from landfill disposal. Objectives of waste diversion programs address individual diversion techniques, including source reduction, curbside recycling, green waste collection, and load-checking to prevent illegal disposal at dump sites.

CALIFORNIA WATER PLAN

The 2013 California Water Plan provides a collaborative planning framework for elected officials, agencies, tribes, water and resource managers, businesses, academia, stakeholders, and the public to develop findings and recommendations and make informed decisions for California's water future. The California Water Plan, updated every five years and most recently released on October 30, 2014, presents the status and trends of California's water-dependent natural resources; water supplies; and agricultural, urban, and environmental water demands for a range of plausible future scenarios. The California Water Plan also evaluates different combinations of regional and statewide resource management strategies to reduce water demand, increase water supply, reduce flood risk, improve water quality, and enhance environmental and resource stewardship. The evaluations and assessments performed for the California Water Plan help identify effective actions and policies for meeting California's resource management objectives in the near term and to the year 2050. The 2013 Water Plan meets California Water Code requirements, guides State investments in innovation and infrastructure, and advances integrated water management and sustainable outcomes (DWR 2013). The Final California Water Plan Update 2018 was released in June 2019.

CALIFORNIA WATER BOND (PROPOSITION 1)

Proposition 1 is a $7.5 billion general obligation bond measure approved by California voters on November 4, 2014. Proposition 1 will fund investments in water projects and programs as part of a statewide, comprehensive water plan for California. In addition to funding programs from water conservation to recycling to groundwater cleanup to water storage, Proposition 1 is expected to leverage additional local and regional funds to provide a total investment of $25 billion to $30 billion to address California's water needs. The bond funds will be distributed through a competitive grant process overseen by various state agencies, including DWR, the SWRCB, and the California Water Commission. The agencies will conduct processes to solicit proposals for grants, review applications, and award the funding. The Bond funds invest in everything from local resources development to water storage to groundwater sustainability to safe drinking water. The California Water Bond was designed to help fund many elements of the 2013 California Water Plan, described above (ACWA 2018b).

SAFE DRINKING WATER PLAN FOR CALIFORNIA

On July 1, 2014, SWRCB assumed the primary enforcement authority (primary) to enforce federal and state safe drinking-water acts from CDPH. SWRCB is now responsible for the regulatory oversight of about 8,000 public water systems throughout the state.

The 2015 Safe Drinking Water Plan for California includes SWRCB's assessment of the overall quality of the state's drinking water, the identification of specific water quality problems, an analysis of the known and potential health risks that may be associated with drinking water contamination in California, and specific recommendations to improve drinking water quality. The drinking water quality regulations include revised standards for several constituents. This has forced many water purveyors to shut down wells that do not meet the new water quality standards (SWRCB 2015).

17.3.3 Local Regulations

GENERAL PLANS

Local policies related to utilities and service systems are established in each jurisdiction's general plan. In general, jurisdictions have policies in place that state that utility and service systems must be provided at the same time (or in advance of) need. In addition to these general policies, jurisdictions may have more specific policies tailored to performance objectives, such as those outlined below.

Policies and strategies for water supply might include relying on public water systems rather than individual wells where feasible, limiting additional contamination of groundwater and ensuring safe groundwater supply, and requiring new development to demonstrate availability of long-term reliable water supply.

Wastewater treatment services policies and strategies might include provisions for equal access to utilities, promote innovative and efficient solutions for wastewater treatment, encourage extension of sewer services to currently unserved areas, develop level of service standards, and encourage design and operation standards that minimize impacts to environmentally-sensitive areas and habitats.

Stormwater management policies and strategies might include provisions to ensure equal access to services, encourage sustainable practices for stormwater management, ensure that new developments are consistent with target levels of service for stormwater management services, adopt design standards to reduce impervious surfaces, and encourage coordination with regional stormwater management agencies. Additionally, Chapter 11 − Hydrology and Water Quality includes more information on stormwater management policies and strategies regarding flooding and stormwater quality.

Solid waste management policies and strategies may address issues such as ensuring adequate facilities for waste removal, establishing collection procedures, ensuring adequate buffers between waste facilities and other land use types, establishing collection fees, and encouraging alternative uses of waste such as energy production.

For electricity and natural gas service, some relevant policies include working closely with utility companies on long-range planning for newly developing areas, supporting and encouraging the utility companies to place utilities underground in new development areas, minimizing visual intrusion through siting guidelines, mitigating biological impacts, and providing guidance for land use decisions regarding cogeneration and solar facilities, as well as conventional electric facilities. Chapter 8 – Energy and Climate Change further addresses the regulatory framework associated with energy demand.

Local general plans contain policies and implementation measures relevant to the provision of telecommunications service. Some of the goals and policies related to telecommunications include working closely with utility companies on long-range planning for newly developing areas and supporting and encouraging the utility companies to place utilities underground in new development areas.

STORMWATER MANAGEMENT PLANS AND PROGRAMS

Many jurisdictions have stormwater management plans and programs. These plans and programs usually identify best management practices to reduce pollutants in stormwater runoff to the greatest extend feasible. For more information on stormwater management plans and programs, see Chapter 11 – Hydrology and Water Quality.

UTILITY MASTER PLANS AND UTILITY CAPITAL IMPROVEMENT PROGRAMS

Jurisdictions often have utility master plans or other planning documents that identify and prioritize projects needed to maintain adequate levels of utility service in the jurisdiction.

17.4 Impacts and Mitigation Measures

17.4.1 Methods and Assumptions

This analysis includes a program-level assessment of impacts related to the following utilities: water supply, wastewater, solid waste, electricity, natural gas, and telecommunications.

By 2040, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing

conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. The analysis assesses the amount of growth (population, housing, and employment) projected for the region, in each Community Type, and in the High Frequency Transit Areas (HFTAs) by 2040 and whether the provision of service from identified utilities and service systems could result in significant adverse physical effects compared to existing conditions. Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs and the projected land use pattern and planned transportation improvements within these areas. Although the proposed project sites within the plan area for the proposed MTP/SCS were not physically surveyed, a brief description of the existing utility infrastructure is given above in the settings section.

The assessment of available water supply considers regional demand and supply of water based on analyses available in adopted UWMPs for urban water suppliers in the plan area of the proposed MTP/SCS. The projections included in the UWMPs inform where additional demand may exceed the capacity of water districts as well as which water districts may have additional capacity. The EIR identifies areas where there is an existing forecasted shortage in long-term supplies that would need to be met by imported water or additional water conservation, reuse, and recycling.

Impacts related to water facilities consider whether new or expanded water supply facilities such as storage, conveyance, distribution, or treatment infrastructure may be required to serve areas where future water demand is projected to exceed supply. Impacts related to wastewater, solid waste, fire flows, electricity, natural gas, and telecommunications are qualitatively evaluated to determine whether the proposed MTP/SCS would increase demand for these public utilities to the degree that construction of new or expanded facilities would be required to maintain adequate service levels. The analysis considers the role of existing regulations in addressing impacts to these utility systems and evaluates the effects of the projected land use pattern and planned transportation network improvements.

The analysis assumes implementing agencies would ensure utilities and service systems are treated in accordance with applicable federal, state and local laws and regulations as part of project planning, design and engineering.

17.4.2 Criteria for Determining Significance

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

USS-1 Increase demand for surface or ground water in excess of available supplies during normal, dry, or multiple dry years.

USS-2 Exceed the capacity of existing water storage, conveyance, distribution, and treatment facilities such that the construction of new, expanded, or relocated facilities that could cause significant environmental effects is required.

USS-3 Exceed the capacity of existing utility infrastructure, including wastewater treatment, fire flows, solid waste, electric power, natural gas, and telecommunications such that the construction of new, expanded, or relocated facilities that could cause significant environmental effects is required.

USS-4 Generate solid waste in excess of State or local standards or otherwise conflict with federal, state, and local management and reduction statutes and regulations related to solid waste, including solid waste reduction goals.

17.4.3 Impacts and Mitigation Measures

IMPACT USS-1: INCREASE DEMAND FOR SURFACE OR GROUNDWATER IN EXCESS OF AVAILABLE SUPPLIES DURING NORMAL, DRY, OR MULTIPLE DRY YEARS.

Regional Impacts

Regional development could include a variety of land uses that provide increased goods and services to the region. Implementation of the proposed MTP/SCS will result in more compact development than existing conditions, but the increase in population and employment will, assuming similar consumption rates, result in an approximate proportional increase in total demand for water supply.

New population, employment, and housing growth would increase the demand for surface and groundwater for urban uses. As development occurs outside urbanized areas, some farmland would be converted to urban uses as a result of the projected land use pattern of the proposed MTP/SCS. In these instances, the reduced demand for agricultural water supply would relieve some demand pressure, as the corresponding urban development will generally use less water for the same area. However, agriculture water purveyors provide untreated water to their customers, which is not suitable for drinking or other urban uses without treatment. Under buildout of the proposed MTP/SCS, demand will likely increase for both potable and reclaimed (recycled) water.

Local jurisdictions must work with water purveyors and project developers to ensure that existing demand is met and that future demand has been taken into account. While supply may be reduced during drought conditions, conservation measures, such as those implemented by executive orders in 2014, can ensure that the water available is used more efficiently to meet demand. However, local jurisdictions have different goals, standards, and policies related to water supply. Additionally, specific water purveyors have different capacities and resources for expansion of their systems.

Currently, many efforts are underway to reduce per capita rates of water consumption. Water agencies may offer free water audits or rebate programs for consumers who purchase more efficient appliances and bathroom fixtures. These programs have the potential to reduce future demand for certain types of water uses. However, because many of these programs and initiatives are voluntary, it is unclear what effect they will ultimately have on overall water demand. These programs would likely continue to decrease per capita rates, but the overall demand for water from population, housing, and employment growth may still increase in such a way as to exceed available supply.

As discussed in Section 17.3 – Regulatory Setting, urban water suppliers that provide over 3,000 acre-feet of water annually or serve more than 3,000 urban connections must prepare a UWMP that must be updated every five years (California Water Codes Sections 10610–10656, 10608). UWMPs

assess the reliability of water sources over a 20-year planning periods and account for several sources of water including surface waters, groundwater, imported water, recycled water, and water exchanges. UWMPs also include growth and water demand projections within the regions they cover, as well as natural constraints such as droughts (i.e., dry years).

Projected water supplies (both groundwater and surface water) and demands for the urban water suppliers in the plan area of the proposed MTP/SCS during normal year, single dry year, and multiple dry year scenarios are compared below to evaluate whether sufficient water supplies would be available to serve the projected land use pattern and planned transportation improvements of the proposed MTP/SCS.

As shown in Table 17-11, the urban water suppliers in the plan area of the proposed MTP/SCS are projected to provide water supplies that adequately serve projected demand for their projected service populations through 2040 during normal years, with the exception of San Juan Water District, which expects to meet water demand projections up to 2035, but not for 2040.

As shown in Table 17-12, while many urban water suppliers in the plan area of the proposed MTP/SCS are projected to provide water supplies that adequately serve projected demand for their projected service populations through 2040 during a single dry year, there are exceptions including: Georgetown Divide Public Utilities District, Nevada Irrigation District, City of Roseville, and City of Yuba City, Georgetown and Nevada Irrigation District, which each expect to meet water demand projections up to 2030, but not for 2040. The City of Roseville's and the City of Yuba City's water demand is expected to exceed available supply for all years.

As summarized in Table 17-13, while many urban water suppliers in the plan area of the proposed MTP/SCS are projected to provide water supplies that adequately serve projected demand for their projected service populations through 2040 during multiple dry years, there are exceptions including: Georgetown Divide Public Utilities District, Nevada Irrigation District, City of Roseville, and City of Yuba City. Georgetown Public Utilities District expects to meet demand for all dry years (first, second, third) until 2035, but not for 2040. Nevada Irrigation District is expected to meet demands for the first, second, and third dry years until 2040; however, it is only expected to meet demand projections for a fourth dry year until 2030, not for 2035 or 2040. The City of Roseville is expected to meet demands for the first and second dry year until 2040; however, it is only expected to meet demands for the third dry year until 2030, not for 2035 or 2040. The City of Yuba City is expected to meet demands for the first dry year until 2030 (not for 2035 or 2040) and the second dry year until 2035 (not 2040). However, during the third dry year, the City of Yuba City is not expected to meet demand projections from 2020 to 2040.

The ability to provide adequate water supply for many urban water suppliers is dependent on several factors including but not limited to successful achievement of water conservation targets, substantial water conservation efforts, the completion of supply expansion projects, such as new water contracts, land acquisition, groundwater recharge, and reclaimed water distribution. Agencies with projected water supplies unable to meet projected demand of their service populations are expected to pursue additional sources (e.g., conservation measures, supply projects, treatment facilities) to accommodate projected water demand of forecasted growth under the proposed MTP/SCS.

Table 17-11
UWMP Normal Year Supply and Demand Comparison

Urban Water Suppliers	Normal Year Supply Totals (in acre-feet)					Normal Year Demand Totals (in acre-feet)					Demand Exceed Supply?
	2020	2025	2030	2035	2040	2020	2025	2030	2035	2040	
California Water Service Company Marysville	2,553	2,550	2,555	2,564	2,577	2,553	2,550	2,555	2,564	2,577	No
California-American Water Company – Sacramento District	42,290	45,244	48,730	52,926	--	42,290	45,244	48,730	52,926	--	No
Carmichael Water District	41,473	41,473	41,473	41,473	41,473	10,374	10,300	10,226	10,151	10,334	No
Citrus Heights Water District	16,969	17,383	17,798	18,210	--	16,969	17,383	17,798	18,210	--	No
Davis, City of	26,080	26,080	26,080	26,080	--	13,492	13,971	13,560	13,560	--	No
El Dorado Irrigation District	77,490	107,690	107,790	107,990	108,190	43,225	46,584	50,436	52,859	55,790	No
Elk Grove Water Service	7,694	7,917	7,972	8,039	8,059	7,694	7,917	7,972	8,039	8,059	No
Fair Oaks Water District	23,338	23,338	23,338	23,338	--	11,768	12,080	12,398	12,726	--	No
Folsom, City of	38,790	38,790	38,790	38,790	38,790	25,575	27,687	28,527	29,285	29,923	No
Galt, City of	5,760	6,296	6,889	7,543	8,266	5,760	6,296	6,889	7,543	8,266	No
Georgetown Divide Public Utilities District	12,200	12,200	12,200	12,200	--	7,140	8,426	9,748	11,119	--	No
Golden State Water Company – Cordova	17,342	17,697	18,312	18,968	19,752	17,342	17,697	18,312	18,968	19,752	No
Lincoln, City of	12,291	13,478	15,296	17,113	20,336	15,590	17,226	19,676	22,128	26,399	No
Linda County Water District	4,569	5,093	5,617	6,140	6,664	3,973	4,429	4,884	5,340	5,795	No
Nevada Irrigation District	360,800	360,800	360,800	360,800	360,800	181,241	190,535	198,928	206,238	213,019	No
Olivehurst Public Utilities District	5,742	8,568	12,776	12,776	12,776	5,742	8,568	12,776	12,776	12,776	No
Orange Vale Water Company	4,568	4,686	4,860	4,981	--	4,567	4,685	4,860	4,981	--	No
Placer County Water Agency [1]	233,800	268,300	270,800	272,800	273,800	177,351	199,450	214,954	231,056	254,250	No
Rio Linda/Elverta Community Water District	4,846	5,681	6,650	7,462	--	4,846	5,681	6,650	7,462	--	No
Roseville, City of	70,421	70,791	72,759	73,143	73,458	45,475	48,091	51,333	54,405	56,865	No
Sacramento, City of [1]	316,505	336,005	353,005	353,005	353,005	163,818	178,266	198,468	207,799	220,615	No
Sacramento County Water Agency [1]	87,900	87,900	93,900	104,900	104,900	52,241	60,315	69,021	77,378	86,047	No

Urban Water Suppliers	Normal Year Supply Totals (in acre-feet)					Normal Year Demand Totals (in acre-feet)					Demand Exceed Supply?
	2020	2025	2030	2035	2040	2020	2025	2030	2035	2040	
Sacramento Suburban Water District	60,500	56,500	56,500	56,500	56,500	40,005	40,814	41,345	41,340	41,303	No
San Juan Water District [1]	98,055	98,973	99,824	100,709	101,593	74,345	81,214	87,938	94,755	101,593	No
South Feather Water and Power Agency	780,562	780,562	780,562	780,562	780,562	4,005	4,118	4,177	4,232	4,290	No
West Sacramento, City of	25,960	26,312	29,012	31,212	33,912	14,837	16,964	19,397	22,178	25,357	No
Woodland, City of	20,960	20,960	20,960	25,450	25,450	15,911	17,024	18,217	19,492	20,833	No
Yuba City, City of	31,045	31,045	31,045	31,045	31,045	18,088	20,908	24,177	27,961	32,346	Yes (2040)

[1] Entity supplies both retail and wholesale water; data shown in table includes total supply and demand information for both retail and wholesale customers.
Source: DWR 2015

Table 17-12
UWMP Single Dry Year Supply and Demand Comparison

Urban Water Suppliers	Single Dry Year Supply Totals (in acre-feet)					Single Dry Year Demand Totals (in acre-feet)					Demand Exceed Supply?
	2020	2025	2030	2035	2040	2020	2025	2030	2035	2040	
California Water Service Company Marysville	2,704	2,701	2,706	2,716	2,730	2,704	2,701	2,706	2,716	2,730	No
California-American Water Company Sacramento District	42,291	45,244	48,730	52,926	--	42,291	45,244	48,730	52,926	--	No
Carmichael Water District	23,325	23,325	23,325	23,325	23,325	10,893	10,815	10,737	10,659	10,851	No
Citrus Heights Water District	14,424	14,775	15,127	15,478	--	14,424	14,775	15,127	15,478	--	No
Davis, City of	22,390	22,390	22,390	22,390	--	13,492	13,971	13,560	13,560	--	No
El Dorado Irrigation District	66,325	71,525	71,625	71,825	72,025	45,651	49,175	53,231	55,784	58,871	No
Elk Grove Water Service	8,078	8,313	8,291	8,280	8,300	8,078	8,313	8,291	8,280	8,300	No
Fair Oaks Water District	21,138	21,138	21,138	21,138	--	11,768	12,080	12,398	12,726	--	No
Folsom, City of	37,040	37,040	37,040	37,040	37,040	26,853	29,070	29,668	30,162	30,819	No
Galt, City of	5,760	6,296	6,889	7,543	8,266	5,760	6,296	6,889	7,543	8,266	No

Urban Water Suppliers	Single Dry Year Supply Totals (in acre-feet)					Single Dry Year Demand Totals (in acre-feet)					Demand Exceed Supply?
	2020	2025	2030	2035	2040	2020	2025	2030	2035	2040	
Georgetown Divide Public Utilities District	11,060	11,060	11,060	11,060	--	7,140	8,426	9,748	11,119	--	Yes (2035)
Golden State Water Company Cordova	17,342	17,697	18,312	18,968	19,752	17,342	17,697	18,312	18,968	19,752	No
Lincoln, City of	12,905	14,152	15,908	17,627	20,947	12,905	14,152	15,908	17,627	20,947	No
Linda County Water District	4,569	5,093	5,617	6,140	6,664	3,973	4,429	4,884	5,340	5,795	No
Nevada Irrigation District	202,611	202,611	202,611	202,611	202,611	178,919	187,960	196,076	203,080	209,521	Yes (2035, 2040)
Olivehurst Public Utilities District	5,742	8,568	12,776	12,776	12,776	5,742	8,568	12,776	12,776	12,776	No
Orange Vale Water Company	3,883	3,983	4,131	4,234	--	3,883	3,983	4,131	4,234	--	No
Placer County Water Agency [1]	138,450	156,950	161,450	163,450	165,450	98,673	106,892	116,988	128,069	146,915	No
Rio Linda/Elverta Community Water District	5,330	6,248	7,315	8,208	--	5,330	6,248	7,315	8,208	--	No
Roseville, City of	42,421	42,791	44,759	45,143	45,458	45,475	48,091	51,333	54,405	56,865	Yes (all years)
Sacramento, City of [1]	293,612	313,112	330,112	330,112	330,112	140,924	155,372	175,575	184,906	197,722	No
Sacramento County Water Agency [1]	75,200	75,500	80,600	90,600	90,800	52,241	60,315	69,021	77,378	86,047	No
Sacramento Suburban Water District	50,000	50,000	50,000	50,000	50,000	40,004	40,813	41,345	41,340	41,304	No
San Juan Water District [1]	68,561	69,393	70,164	70,965	71,767	55,858	58,125	60,269	62,492	64,733	No
South Feather Water and Power Agency	155,522	155,522	155,522	155,522	155,522	12,291	12,638	12,819	12,988	13,166	No
West Sacramento, City of	25,960	26,312	29,012	31,212	33,912	14,837	16,964	19,397	22,178	25,357	No
Woodland, City of	19,990	19,990	19,990	25,080	25,080	15,911	17,024	18,217	19,492	20,833	No
Yuba City, City of	15,924	15,924	15,924	15,924	15,924	18,088	20,905	24,171	27,958	32,346	Yes (all years)

[1] Entity supplies both retail and wholesale water; data shown in table includes total supply and demand information for both retail and wholesale customers.
Source: DWR 2015

Table 17-13
UWMP Multiple Dry Years Supply and Demand Comparison

Urban Water Suppliers	Dry Year	Multiple Dry Year Supply Totals (in acre-feet)					Multiple Dry Year Demand Totals (in acre-feet)					Demand Exceeds Supply?
		2020	2025	2030	2035	2040	2020	2025	2030	2035	2040	
California Water Service Company Marysville	First year	2,704	2,701	2,706	2,716	2,730	2,704	2,701	2,706	2,716	2,730	No
	Second year	2,540	2,537	2,541	2,551	2,564	2,540	2,537	2,541	2,551	2,564	No
	Third year	2,702	2,699	2,704	2,714	2,728	2,702	2,699	2,704	2,714	2,728	No
California-American Water Company Sacramento District	First year	42,291	45,244	48,730	52,926	--	42,291	45,244	48,730	52,926	--	No
	Second year	42,291	45,244	48,730	52,926	--	42,291	45,244	48,730	52,926	--	No
	Third year	42,291	45,244	48,730	52,926	--	42,291	45,244	48,730	52,926	--	No
Carmichael Water District	First year	23,325	23,325	23,325	23,325	23,325	10,893	10,815	10,737	10,659	10,851	No
	Second year	23,325	23,325	23,325	23,325	23,325	9,804	9,734	9,663	9,593	9,766	No
	Third year	23,325	23,325	23,325	23,325	23,325	8,715	8,652	8,590	8,527	8,681	No
Citrus Heights Water District	First year	14,425	14,775	15,127	15,478	--	14,425	14,775	15,127	15,478	--	No
	Second year	14,425	14,775	15,127	15,478	--	14,425	14,775	15,127	15,478	--	No
	Third year	14,425	14,775	15,127	15,478	--	14,425	14,775	15,127	15,478	--	No
Davis, City of	First year	23,329	23,329	23,329	23,329	--	13,492	13,971	13,560	13,560	--	No
	Second year	22,296	22,296	22,296	22,296	--	13,492	13,971	13,560	13,560	--	No
	Third year	22,390	22,390	22,390	22,390	--	13,492	13,971	13,560	13,560	--	No
El Dorado Irrigation District	First year	66,325	71,525	71,625	71,825	72,025	45,651	49,175	53,231	55,784	58,871	No
	Second year	62,405	67,605	67,705	67,905	68,105	43,369	46,716	50,569	52,995	55,928	No
	Third year	57,143	62,343	62,443	62,643	62,843	41,086	44,258	47,908	50,206	52,984	No

Urban Water Suppliers	Dry Year	Multiple Dry Year Supply Totals (in acre-feet)					Multiple Dry Year Demand Totals (in acre-feet)					Demand Exceeds Supply?
		2020	2025	2030	2035	2040	2020	2025	2030	2035	2040	
Elk Grove Water Service	First year	8,078	8,313	8,291	8,280	8,300	8,078	8,313	8,291	8,280	8,300	No
	Second year	7,271	7,481	7,462	7,452	7,470	7,271	7,481	7,462	7,452	7,470	No
	Third year	6,059	6,234	6,218	6,210	6,225	6,059	6,234	6,218	6,210	6,225	No
Fair Oaks Water District	First year	21,138	21,138	21,138	21,138	--	11,768	12,080	12,398	12,726	--	No
	Second year	21,138	21,138	21,138	21,138	--	11,768	12,080	12,398	12,726	--	No
	Third year	21,138	21,138	21,138	21,138	--	11,768	12,080	12,398	12,726	--	No
Folsom, City of	First year	37,040	37,040	37,040	37,040	37,040	26,853	29,070	29,668	30,162	30,819	No
	Second year	36,500	36,500	36,500	36,500	36,500	24,168	26,163	26,701	27,146	27,737	No
	Third year	34,750	34,750	34,750	34,750	34,750	21,483	23,256	23,734	24,130	24,655	No
Galt, City of	First year	5,760	6,296	6,889	7,543	8,266	5,760	6,296	6,889	7,543	8,266	No
	Second year	5,760	6,296	6,889	7,543	8,266	5,760	6,296	6,889	7,543	8,266	No
	Third year	5,760	6,296	6,889	7,543	8,266	5,760	6,296	6,889	7,543	8,266	No
	Fourth year (optional)	5,760	6,296	6,889	7,543	8,266	5,760	6,296	6,889	7,543	8,266	No
Georgetown Divide Public Utilities District	First year	11,060	11,060	11,060	11,060	--	7,140	8,426	9,748	11,119	--	Yes (2040)
	Second year	11,060	11,060	11,060	11,060	--	7,140	8,426	9,748	11,119	--	Yes (2040)
	Third year	11,060	11,060	11,060	11,060	--	7,140	8,426	9,748	11,119	--	Yes (2040)
Golden State Water Company Cordova	First year	17,342	17,697	18,312	18,968	19,752	17,342	17,697	18,312	18,968	19,752	No
	Second year	17,342	17,697	18,312	18,968	19,752	17,342	17,697	18,312	18,968	19,752	No
	Third year	17,342	17,697	18,312	18,968	19,752	17,342	17,697	18,312	18,968	19,752	No

Urban Water Suppliers	Dry Year	Multiple Dry Year Supply Totals (in acre-feet)					Multiple Dry Year Demand Totals (in acre-feet)					Demand Exceeds Supply?
		2020	2025	2030	2035	2040	2020	2025	2030	2035	2040	
Lincoln, City of	First year	12,905	14,152	15,908	17,627	20,947	12,905	14,152	15,908	17,627	20,947	No
	Second year	11,615	12,737	14,317	15,864	18,852	11,615	12,737	14,317	15,864	18,852	No
	Third year	10,324	11,322	12,726	14,101	16,757	10,324	11,322	12,726	14,101	16,757	No
Linda County Water District	First year	4,569	5,093	5,617	6,140	6,664	3,973	4,429	4,884	5,340	5,795	No
	Second year	4,569	5,093	5,617	6,140	6,664	3,973	4,429	4,884	5,340	5,795	No
	Third year	4,569	5,093	5,617	6,140	6,664	3,973	4,429	4,884	5,340	5,795	No
Nevada Irrigation District	First year	368,161	368,161	368,161	368,161	368,161	178,919	187,960	196,076	203,080	209,521	No
	Second year	233,225	233,225	233,225	233,225	233,225	178,919	187,960	196,076	203,080	209,521	No
	Third year	253,185	253,185	253,185	253,185	253,185	178,919	187,960	196,076	203,080	209,521	No
	Fourth year (optional)	202,611	202,611	202,611	202,611	202,611	178,919	187,960	196,076	203,080	209,521	Yes (2035, 2040)
Olivehurst Public Utilities District	First year	5,742	8,568	12,776	12,776	12,776	5,742	8,568	12,776	12,776	12,776	No
	Second year	5,742	8,568	12,776	12,776	12,776	5,742	8,568	12,776	12,776	12,776	No
	Third year	5,742	8,568	12,776	12,776	12,776	5,742	8,568	12,776	12,776	12,776	No
Orange Vale Water Company	First year	3,883	3,983	4,131	4,234	--	3,883	3,983	4,131	4,234	--	No
	Second year	3,883	3,983	4,131	4,234	--	3,883	3,983	4,131	4,234	--	No
	Third year	3,883	3,983	4,131	4,234	--	3,883	3,983	4,131	4,234	--	No
Placer County Water Agency [1]	First year	204,500	231,000	233,500	235,500	236,500	142,335	152,651	165,272	178,971	200,562	No
	Second year	204,500	231,000	233,500	235,500	236,500	142,335	152,651	165,272	178,971	200,562	No
	Third year	204,500	231,000	233,500	235,500	236,500	142,335	152,651	165,272	178,971	200,562	No

Urban Water Suppliers	Dry Year	Multiple Dry Year Supply Totals (in acre-feet)					Multiple Dry Year Demand Totals (in acre-feet)					Demand Exceeds Supply?
		2020	2025	2030	2035	2040	2020	2025	2030	2035	2040	
Rio Linda/ Elverta Community Water District	First year	5,330	6,248	7,315	8,208	--	5,330	6,248	7,315	8,208	--	No
	Second year	4,846	5,681	6,650	7,462	--	4,846	5,681	6,650	7,462	--	No
	Third year	4,846	5,681	6,650	7,462	--	4,846	5,681	6,650	7,462	--	No
Roseville, City of	First year	55,815	56,185	58,153	58,537	58,852	45,475	48,091	51,333	54,405	56,865	No
	Second year	58,421	58,791	60,759	61,143	61,458	45,475	48,091	51,333	54,405	56,865	No
	Third year	49,847	50,217	52,185	52,569	52,884	45,475	48,091	51,333	54,405	56,865	Yes (2035, 2040)
Sacramento, City of [1]	First year	293,612	313,112	330,112	330,112	330,112	140,924	155,372	175,575	184,906	197,722	No
	Second year	293,612	313,112	330,112	330,112	330,112	140,924	155,372	175,575	184,906	197,722	No
	Third year	293,612	313,112	330,112	330,112	330,112	140,924	155,372	175,575	184,906	197,722	No
Sacramento County Water Agency [1]	First year	87,900	87,900	93,900	104,900	104,900	52,241	60,315	69,021	77,378	86,047	No
	Second year	82,900	82,900	87,900	97,900	97,900	52,241	60,315	69,021	77,378	86,047	No
	Third year	75,200	75,500	80,600	90,600	90,800	52,241	60,315	69,021	77,378	86,047	No
Sacramento Suburban Water District	First year	50,000	50,000	50,000	50,000	50,000	40,004	40,813	41,345	41,340	41,304	No
	Second year	50,000	50,000	50,000	50,000	50,000	40,004	40,813	41,345	41,340	41,304	No
	Third year	50,000	50,000	50,000	50,000	50,000	40,004	40,813	41,345	41,340	41,304	No
San Juan Water District [1]	First year	68,561	69,393	70,164	70,965	71,767	55,858	58,125	60,269	62,492	64,733	No
	Second year	68,561	69,393	70,164	70,965	71,767	55,858	58,125	60,269	62,492	64,733	No
	Third year	68,561	69,393	70,164	70,965	71,767	55,858	58,125	60,269	62,492	64,733	No

Urban Water Suppliers	Dry Year	Multiple Dry Year Supply Totals (in acre-feet)					Multiple Dry Year Demand Totals (in acre-feet)					Demand Exceeds Supply?
		2020	2025	2030	2035	2040	2020	2025	2030	2035	2040	
South Feather Water and Power Agency	First year	187,349	187,349	187,349	187,349	187,349	12,291	12,638	12,819	12,988	13,166	No
	Second year	625,031	625,031	625,031	625,031	625,031	12,291	12,638	12,819	12,988	13,166	No
	Third year	303,584	303,584	303,584	303,584	303,584	12,291	12,638	12,819	12,988	13,166	No
West Sacramento, City of	First year	25,960	26,312	29,012	31,212	33,912	14,837	16,964	19,397	22,178	25,357	No
	Second year	25,960	26,312	29,012	31,212	33,912	14,837	16,964	19,397	22,178	25,357	No
	Third year	25,960	26,312	29,012	31,212	33,912	14,837	16,964	19,397	22,178	25,357	No
Woodland, City of	First year	21,360	21,360	21,360	25,080	25,080	15,911	17,024	18,217	19,492	20,833	No
	Second year	19,990	19,990	19,990	25,080	25,080	15,911	17,024	18,217	19,492	20,833	No
	Third year	20,120	20,120	20,120	25,080	25,080	15,911	17,024	18,217	19,492	20,833	No
Yuba City, City of	First year	26,064	26,064	26,064	26,064	26,064	18,088	20,905	24,171	27,958	32,346	Yes (2035, 2040)
	Second year	28,722	28,722	28,722	28,722	28,722	18,088	20,905	24,171	27,958	32,346	Yes (2040)
	Third year	15,924	15,924	15,924	15,924	15,924	18,088	20,905	24,171	27,958	32,346	Yes (all years)

[1] Entity supplies both retail and wholesale water; data shown in table includes total supply and demand information for both retail and wholesale customers.
Source: DWR 2015

Several urban water supply agencies, such as San Juan Water District, Georgetown Divide Public Utilities District, Nevada Irrigation District, City of Roseville, and City of Yuba City, expect demand to exceed supply during one or more water supply scenarios (i.e., normal year, single dry year, multiple dry years) before the time horizon of the proposed MTP/SCS (2040). There are existing forecasted shortages in long-term supplies during normal year, single dry year, and multiple dry years to meet forecasted demand, which would need to be met through one or more of the following: additional water conservation, reuse, and recycling, and additional water supply sources. It is possible that, through the execution of measures contained in the Central Valley Regional Water Quality Control Board and Lahontan Regional Water Quality Control Board's Basin Plans, more reliable groundwater resources could result in future years. See Chapter 11 – Hydrology and Water Quality for an additional discussion of regulations pertaining to groundwater, as well as an analysis of groundwater resource impacts.

The projected land use pattern under the proposed MTP/SCS would generate water demand in exceedance of the projected water supply contained in several UWMPs in the plan area of the proposed MTP/SCS. Therefore, increases in water demand associated with the projected land use pattern of the proposed MTP/SCS could exceed projected supplies during normal, single dry year, and multiple dry year scenarios for portions of the plan area. Impact USS-1 is considered potentially significant (PS) at the regional level. Mitigation is required. Mitigation Measures USS-1 and USS-2 are described below.

The ongoing construction, operation, and maintenance of existing and new transit facilities, bicycle and pedestrian facilities, highway, and roadway facilities would result in incremental increases in water demand during construction, such as for concrete mixing, dust suppression, and plant establishment, and during operations and maintenance, such as for landscape irrigation, restrooms, and drinking fountains. Although these increases in demand are anticipated to be small on a per project basis, the collective demand from all of the projects taken together could increase water demand in excess of water supply agencies' projected supplies or could be located in areas where water demand is projected to exceed available supplies.

Therefore, increases in water demand in excess of available supplies during normal, dry, or multiple dry years resulting from implementation of the planned transportation improvements of the proposed MTP/SCS are considered potentially significant (PS) impacts at the regional level for Impact USS-1. Mitigation is required. Mitigation Measures USS-1 and USS-2 are described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural and Residential Communities

Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS will be the same in each of the Community Types as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to increase the demand for surface and groundwater in excess of available supply. Available supply is dictated by water purveyor sources, not by Community Type. Purveyors adjacent to each other that serve the same Community Type may have different demands, water supplies, water rights, and water quality challenges. Transportation projects

in these Community Types have the potential to increase demand for surface and groundwater in excess of available supply.

To accommodate increases in demand created by new projects, jurisdictions must coordinate with water purveyors to ensure that sufficient supply is available. Future development projects would be required to comply with Water Code Section 10910 and Section 10912, as described above in the Regulatory Setting under Senate Bill 610 and Senate Bill 221, respectively. The enforcement of these regulations by local jurisdictions would ensure that a water supply assessment is prepared to demonstrate that sufficient water would be available to serve development projects before their approval. Additionally, water purveyors that are subject to Urban Water Management Planning are required to provide projected demand updates to the state every five years through updates to their UWMPs. If such updates indicate that water supply is no longer sufficient to meet water demand, strategies to increase water supply include, but are not limited to, contracts with other water purveyors, water imports, and conservation efforts.

Therefore, consistent with the analysis of regional impacts above, increases in water demand in excess of available supplies during normal, dry, or multiple dry years related to land use and transportation improvements from implementation of the proposed MTP/SCS for the Center and Corridor Communities, Established Communities, Developing Communities, and Rural and Residential Communities Community Types are considered potentially significant (PS) impacts for Impact USS-1. Mitigation is required. Mitigation Measures USS-1 and USS-2 are described below

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth consistent with historical trends may occur in this Community Type within the proposed MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Therefore, the impact on water supply related to the projected land use pattern in Lands Not Identified for Development, are considered less than significant (LS) for impact USS-1. No mitigation is required.

With respect to planned transportation improvements in Lands Not Identified for Development in the proposed MTP/SCS, the proposed MTP/SCS will make a limited number of transportation investments in in this Community Type by 2040, including road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. The localized impacts associated with the transportation improvements included in the proposed MTP/SCS are the same in Lands Not Identified for Development as described in the regional impacts discussion above. Implementation of the proposed MTP/SCS within this Community Type has the potential to increase the demand for surface and groundwater in excess of available supply. Available supply is dictated by water purveyor sources, not by Community Type. Purveyors adjacent to each other that serve the same Community Type may have different demands, water supplies, water rights, and water quality challenges. The projected land use pattern and planned transportation improvements in Lands Not Identified for Development have the potential to increase demand for surface and groundwater in excess of available supply.

Therefore, consistent with the analysis of regional impacts above, increases in water demand in excess of available supplies during normal, dry, or multiple dry years resulting from transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for

Development are considered potentially significant (PS) impacts for Impact USS-1. Mitigation is required. Mitigation Measures USS-1 and USS-2 are described below

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in all of the HFTAs have the potential to increase demand for surface and groundwater in excess of available supply.

Therefore, consistent with the analysis of regional impacts above, increases in water demand in excess of available supplies during normal, dry, or multiple dry years resulting from land use and planned transportation improvements from implementation of the proposed MTP/SCS for all HFTAs are considered potentially significant (PS) impacts for Impact USS-1. Mitigation is required. Mitigation Measures USS-1 and USS-2 are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measures at a project-level would reduce the impacts to utilities and service systems, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure USS-1: Implement Mitigation Measure PS-1.

The implementing agency can and should ensure that future projects would be served by sufficient water supply. This shall be documented prior to project approval in the form of a capacity analysis, provide will-serve letter, or equivalent documentation.

Mitigation Measure USS-2: Implement water conservation strategies.

The implementing agency can and should additionally implement measures regarding water conservation, efficiency, conservation, capture, and reuse identified by water suppliers in state, regional, and local plans, laws, and policies, and in their own plans and ordinances during planning, design, and project-level environment review, construction, operations, and maintenance activities. Measures include, but are not limited to, the following:

- Install drip or other water-conserving or weather-based irrigation systems for landscaping.
- Coordinate with the relevant water service provider to ensure that the provider has adequate supplies and infrastructure to accommodate the increase in demand. If the current infrastructure servicing the project site is found to be inadequate, infrastructure improvements shall be identified in each project's CEQA documentation. This can and should be documented in the form of an SB 610 Water Supply Assessment, an SB 221 Water Supply Verification, or other capacity analysis.

- Design future projects to reduce the use of potable water for landscape irrigation (xeriscaping). These design components could include drought-tolerant plantings for landscaping, water-efficient irrigation systems, the capture and use of rainwater, and the use of water-conserving fixtures (such as dual-flush toilets, waterless urinals, reduced flow faucets, EnergyStar appliances).
- For projects located in an area with existing reclaimed water conveyance infrastructure and excess reclaimed water capacity, these future projects shall use reclaimed water for non-potable uses, such as landscape irrigation, ornamental water features, concrete mixing, and dust control. For projects in a location planned for future reclaimed water service, projects should install dual plumbing systems in anticipation of future use. Large developments could treat wastewater onsite to tertiary standards and use it for non-potable uses onsite.
- Consider adoption of Tier 1 or Tier 2 Cal Green standards as mandatory local requirements.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact USS-1 would be reduced to a less than significant (LS) level. However, local jurisdictions must work with water purveyors and project developers to ensure that existing demand is met and that future demand has been taken into account. Local jurisdictions have different goals, standards, and policies related to water supply. Additionally, specific water purveyors have different capacities and resources for expansion of their systems. Therefore, due to uncertainty in individual project conditions, the extent to which this measure would reduce impacts to water supply is unknown at this time, as such details are not available at the plan level.

Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, this impact remains significant and unavoidable (SU).

IMPACT USS-2: EXCEED THE CAPACITY OF EXISTING WATER STORAGE, CONVEYANCE, DISTRIBUTION, AND TREATMENT FACILITIES SUCH THAT THE CONSTRUCTION OF NEW, EXPANDED, OR RELOCATED FACILITIES THAT COULD CAUSE SIGNIFICANT ENVIRONMENTAL EFFECTS IS REQUIRED.

Regional Impacts

Regional development could include a variety of land uses, ranging from residential to commercial or industrial uses, to provide increased goods and services to the region. Implementation of the proposed MTP/SCS will result in more compact development than existing conditions. However, an increase in population and employment will result in an increase in demand for water supply and likewise increase the demand for additional capacity of water storage, conveyance, distribution, and treatment facilities.

In more urbanized portions of the region, where water supply systems are already in place, population, housing, and employment growth could place an increased demand on these existing systems. Some of this increased demand would likely be met with existing infrastructure. However,

it is likely that by 2040 increases in water usage would cause existing water storage, conveyance, distribution, and treatment facilities to exceed capacity, requiring additional facilities to be constructed. Additionally, aging water infrastructure requires upgrades over time to improve efficiency, increase reliability and reduce waste. Besides increased demand on existing supplies, new treatment facilities may be necessary related to groundwater quality and/or capacity, or due to more restrictive drinking water standards. In developing portions of the region, where water systems might not be as developed as more urbanized parts of the region, population, housing, and employment growth will likely require additional investment in water systems infrastructure to ensure that increases in water demand will not exceed the capacity of existing water storage, conveyance, distribution, or treatment facilities.

Currently, many efforts are underway to reduce per capita rates of water consumption. Many water agencies offer free water audits or rebate programs for consumers who purchase more efficient appliances and bathroom fixtures. These programs have the potential to reduce future demand for certain types of water uses and therefore reduce demand for water storage, conveyance, distribution, and treatment facilities. However, because some of these programs and initiatives are voluntary (e.g., Tier 1 and 2 of the CALGreen Code), it is unclear what effect they will ultimately have on overall water demand. These programs would likely continue to decrease per capita rates, but the increasing overall demand for water, from population, housing, and employment growth and planned water supply increases needed to meet demand, as described in Impact USS-1, would require a combination of strategies including construction of new or expanded water storage, conveyance, distribution, and treatment facilities.

Historically, water system providers have increased the capacity of water storage, conveyance, distribution, and treatment facilities when demand warranted such investments. As shown in Table 17-1, water purveyors are showing population growth increases until 2040, consistent with the trend of increasing growth forecasted in the proposed MTP/SCS. All of the purveyors listed have over 3,000 connections in urban and suburban areas, the same communities where the proposed MTP/SCS targets development. As part of long-term water facility and system planning, the water purveyors are incorporating this planned growth into their projected capital improvement needs. Local jurisdictions must work with water purveyors and project developers to ensure that existing demand is met, and that future demand associated with forecasted growth (both construction and operation) has been taken into account. However, local jurisdictions have different goals, standards, and policies related to water supply. Additionally, specific water purveyors have different capacities and resources for expansion of their systems. Since not all water purveyors in all areas have the capacity to expand, some development could result in over-allocation of existing infrastructure.

The land use growth footprint of the proposed MTP/SCS includes the land supply needed to accommodate necessary increases in utilities and services, including water supply, conveyance, storage, and distribution systems; energy and power systems; telecommunication systems; or wastewater systems. This land supply is included in one of two ways: in cases where local plans identify specific locations and acreages for these services and utilities, they are included in the "public" development categories of the land use forecast; in cases where local plans did not identify specific locations and acreages, they are accounted for in the gross acreages of the "residential" development category of the land use forecast. SACOG does not attribute un-sited public service to specific parcels, as timing and siting decisions related to public services are the purview of local government and public service districts. For larger regional facilities, such as those for wastewater treatment and solid waste disposal, the proposed MTP/SCS does not forecast specific sites for

expansion of existing or creation of new facilities. However, as discussed above, it is likely that increases in population in the region will increase demand for utility infrastructure, such as including wastewater treatment, fire flows, solid waste, electric power, natural gas, and telecommunications may be required and this could result in exceedance of the capacity of existing utility infrastructure.

As discussed above, under Impact USS-1, for various agencies Georgetown Divide Public Utilities District, Nevada Irrigation District, City of Roseville, and City of Yuba City, expect demand to exceed supply during one or more water supply scenarios (i.e., normal year, single dry year, multiple dry years) before the time horizon of the proposed MTP/SCS (2040). Where this is the case, new, expanded or related water facilities, above and beyond those identified in adopted water infrastructure plans, may be needed to increase supply to meet the projected demand for water supply under the proposed MTP/SCS. In cases where water supplies are expected to meet demand, these facility improvements have already been identified through water agency master plans and other planning documents, such as urban water management plans. Typically, improvements are identified in regional master plans well in advance of the need for expansion, and environmental review follows with mitigation based on impacts of the expansion project. These are typically provided at a regional or, at least, citywide scale. As more utility infrastructure is needed, agencies would plan for new and expanded infrastructure. However, environmental impacts could occur from both the construction process and the conversion of undeveloped land to accommodate new or expanded facilities. The construction process could result in other environmental effects including but not limited to air quality, stormwater runoff, and noise. The conversion of underdeveloped land could result in the loss of agricultural land, increased stormwater runoff, loss of habitat, and damage to visual and cultural resources.

The construction of new infrastructure and facilities required to meet the additional demand generated by the projected land use pattern and planned transportation improvements could also result in land use conversions that could produce an adverse environmental impact. For instance, the construction and operation of new pipelines or aqueducts could be located within habitat that supports special-status species and could result in impacts to biological resources. Other possible resource areas that may be adversely affected include carbon sequestration associated with climate change, aesthetics, agricultural and forestry resources, cultural resource, soils, and hydrology and water quality. However, the degree of impact is unknown at the time of writing this Draft EIR.

Because site-specific information is needed to assess impacts, project level environmental review will be required for land use conversions for new or expanded water and wastewater facilities, as well as their construction-related impacts.

However, construction-related impacts are typically short-term and can be mitigated below a level of significance through actions of the implementing agency. This EIR discusses and addresses construction impacts by impact type in the following chapters:

- Chapter 3 −Aesthetics: Impact AES-6 and Mitigation Measures AES-8, AES-9, AES-10, AES-11, and AES-12;
- Chapter 4 − Agriculture and Forestry Resources: Impact AG-6 and Mitigation Measure AG-8;
- Chapter 5 − Air Quality: Impact AIR-4b and Mitigation Measure AIR-6;

- Chapter 6 − Biological Resources: Impacts BIO-1, BIO-2, BIO-3, BIO-4 and Mitigation Measures BIO-1a, BIO-1b, BIO-1c, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7;
- Chapter 7 − Cultural Resources: Impacts CR-1, CR-2, CR-3, CR-4, and CR-5 and Mitigation Measures CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6;
- Chapter 8 – Energy and Global Climate Change: Impact GHG-2 and ENE-1 and Mitigation Measure GHG-3;
- Chapter 9 – Geology, Soils, Seismicity, and Mineral Resources: Impact GEO-7;
- Chapter 10 – Hazards and Hazardous Materials: Impact HAZ-7;
- Chapter 11 – Hydrology and Water Quality: Impact HYD-6;
- Chapter 13 – Noise and Vibration: Impact NOI-3 and Mitigation Measure NOI-3;
- Chapter 15 – Public Services: Impact PS-2 and Mitigation Measure PS-2; and
- Chapter 16 – Transportation and Traffic: Impact TRN-8 and Mitigation Measure TRN-3.

Similarly, land use conversion–related impacts may also be minimized through appropriate siting and mitigation developed during project-level environmental review. These potential impacts and mitigation measures that could be applied to reduce impacts are discussed throughout this Draft EIR.

Therefore, regional impacts arising from the need for new, expanded, or relocated water supply infrastructure related to the projected land use pattern associated with implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact USS-2. Mitigation is required. Mitigation Measures USS-3, USS-4, and USS-5 are described below.

The ongoing operation of new transit facilities, bicycle and pedestrian facilities, and roadway facilities could result in marginal increases in water conveyance, storage, distribution, and treatment for things like sinks, toilets, water fountains, and landscaping associated with the implementation of such projects. Although these increases in demand are anticipated to be small on a per project basis, the collective demand from all of the projects taken together could increase demand in such a way as to require construction of new or expanded water conveyance, storage, distribution, and treatment systems.

Therefore, regional impacts arising from the need for new, expanded, or relocated water supply infrastructure related to planned transportation improvements associated with implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact USS-2. Mitigation is required. Mitigation Measures USS-3, USS-4, and USS-5 are described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities in the Proposed MTP/SCS
Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS is the same in each of the Community Types as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities Community Types have the potential to exceed the capacity of existing or planned water storage, conveyance, distribution, and treatment facilities. The capacities of existing facilities are different for each water purveyor, independent of Community Type served. Purveyors adjacent to each other that serve the same Community Type may have different treatment systems, demand needs, conveyance and storage capacity, and water quality challenges.

Therefore, consistent with the analysis of regional impacts above, localized impacts arising from the need for new, expanded, or relocated water supply infrastructure related to the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS for the Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities Community Types are considered potentially significant (PS) for Impact USS-2. Mitigation is required. Mitigation Measures USS-3, USS-4, and USS-5 are described below.

Lands Not Identified for Development in the MTP/SCS
Although some housing and employment growth consistent with historical trends may occur in this Community Type within the proposed MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. Therefore, the impact on service related to the projected land use pattern in Lands Not Identified for Development, are considered less than significant (LS) for impact USS-1. No mitigation is required.

With respect to planned transportation improvements in Lands Not Identified for Development in the MTP/SCS, the proposed MTP/SCS will make a limited number of transportation investments in this Community Type by 2040, including road maintenance, safety enhancements, other roadway operational improvements, and targeted capacity improvements to existing facilities that accommodate increased travel between urban areas. While increases in demand are anticipated to be small on a per project basis, the capacities of existing facilities are different for each water purveyor, independent of Community Type served. Purveyors adjacent to each other that serve the same Community Type may have different treatment systems, demand needs, conveyance and storage capacity, and water quality challenges. Therefore, implementation of the proposed MTP/SCS within this Community Type has the potential to exceed the capacity of existing or planned water storage, conveyance, distribution, and treatment facilities.

Consistent with the analysis of regional impacts above, localized impacts arising from the need for new, expanded, or relocated water supply infrastructure related to planned transportation improvements associated with implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact USS-2. Mitigation is required. Mitigation Measures USS-3, USS-4, and USS-5 are described below.

Transit Priority Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in all of the HFTAs have the potential to exceed the capacity of existing or planned water storage, conveyance, distribution, and treatment facilities.

Therefore, the impacts arising from the need for new, expanded, or relocated water supply infrastructure related to the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS for all Transit Priority Areas are considered potentially significant (PS) for Impact USS-2. Mitigation is required. Mitigation Measures USS-3, USS-4, and USS-5 are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measures at a project-level would reduce the impacts to utilities and service systems, and agencies with jurisdiction to adopt these measures should do so (PRC Section 21081).

Mitigation Measure USS-3:

Implement Mitigation Measure AES-8 through AES 12

Implement Mitigation Measure AG-8

Implement Mitigation Measure AIR-6

Implement Mitigation Measures BIO-1a through BIO-7

Implement Mitigation Measures CR-1 through CR-6

Implement Mitigation Measure GHG-3

Implement Mitigation Measure NOI-3

Implement Mitigation Measure TRN-3

Mitigation Measure USS-4: Implement Mitigation Measure USS-1

Mitigation Measure USS-5: Implement Mitigation Measure USS-2

SIGNIFICANCE AFTER MITIGATION

If an implementing agency adopts this mitigation measure, Impact USS-2 would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, this impact remains significant and unavoidable (SU).

IMPACT USS-3: EXCEED THE CAPACITY OF EXISTING UTILITY INFRASTRUCTURE, INCLUDING WASTEWATER TREATMENT, FIRE FLOWS, SOLID WASTE, ELECTRIC POWER, NATURAL GAS, AND TELECOMMUNICATIONS SUCH THAT THE CONSTRUCTION OF NEW, EXPANDED, OR RELOCATED FACILITIES THAT COULD CAUSE SIGNIFICANT ENVIRONMENTAL EFFECTS IS REQUIRED.

Regional Impacts

Regional development could include a variety of land uses, ranging from residential to commercial or industrial uses, to provide increased goods and services to the region. Implementation of the proposed MTP/SCS will result in increased demand for utility and service systems, including wastewater treatment, fire flows, solid waste, electric power, natural gas, and telecommunication systems (see Chapter 2 – Project Description for more information on land use and transportation changes in the proposed MTP/SCS). A denser and more compact growth pattern in existing areas should allow jurisdictions to leverage existing utility and service system facilities and infrastructure by absorbing some of the increased demand with facilities that are currently underutilized. This approach could minimize the number of new facilities needed to maintain adequate utilities and service system infrastructure, and at the same time reduce per capita costs to construct and maintain those new facilities that are built. Further, much of development proposed under the proposed MTP/SCS is likely to be infill development, located within the existing urban footprint, and therefore would connect to existing water infrastructure, wastewater conveyance and treatment systems, as well as electrical power, natural gas, and telecommunications infrastructure. However, the proposed MTP/SCS also allocates growth to the developing areas of the region, just outside existing developed areas. While these areas may have some existing utility and service system infrastructure serving existing developments, the amount of growth allocated to these areas would likely result in the construction of additional facilities in order to provide utility service to newly developed areas.

As such, because implementation of the proposed MTP/SCS will result in a higher concentration of residents within existing service areas, and thus would result in increased demand for wastewater treatment, fire flow, solid waste, electric power, natural gas, and telecommunications. If future development under the proposed MTP/SCS does result in exceedance of capacity for these facilities, new, expanded, or relocated facilities could be required. In most cases, utility improvements have already been identified through agency master plans and other planning documents. Typically, improvements are identified in regional master plans well in advance of the need for expansion, and environmental review follows with mitigation based on impacts of the expansion project. Some wastewater treatment facilities could face challenges expanding their discharge capacity because of pollutant load restrictions in receiving waters. In these instances, wastewater treatment capacity may need to be expanded along with the use of advanced treatment technology, reclaimed water

distribution, or groundwater recharge. Where existing utility infrastructure cannot accommodate demand generated from increased land development proposed under the MTP/SCS, and where the capacity of existing utility infrastructure is exceeded, new or expanded infrastructure, including wastewater treatment, fire flows, solid waste, electric power, natural gas, and telecommunications may be required.

Environmental impacts could occur from both construction of these utility improvements and the conversion of undeveloped land to accommodate expanded facilities. For instance, construction activities for the projected land use pattern or transportation improvements may increase the amount of wastewater generated at construction sites and increase demand on local wastewater collection, storage, conveyance, and treatment facilities. Additionally, construction activities like demolition, grading, and excavation could generate solid waste, which may be disposed of in municipal waste systems. As such, the construction process could result in other environmental effects including air quality, stormwater runoff, and noise. The conversion of underdeveloped land could result in the loss of agricultural land, increased stormwater runoff, loss of habitat, and damage to visual and cultural resources, among other impacts. Because site-specific information is needed to assess impacts, project level environmental review will be required for construction of utility facilities.

The land use growth footprint of the proposed MTP/SCS includes the land supply needed to accommodate necessary increases in utilities and services, including water supply, conveyance, storage, and distribution systems; energy and power systems; telecommunication systems; or wastewater systems. This land supply is included in one of two ways: in cases where local plans identify specific locations and acreages for these services and utilities, they are included in the "public" development categories of the land use forecast; in cases where local plans did not identify specific locations and acreages, they are accounted for in the gross acreages of the "residential" development category of the land use forecast. SACOG does not attribute un-sited public service to specific parcels, as timing and siting decisions related to public services are the purview of local government and public service districts. For larger regional facilities, such as those for wastewater treatment and solid waste disposal, the proposed MTP/SCS does not forecast specific sites for expansion of existing or creation of new facilities. However, as discussed above, it is likely that increases in population in the region will increase demand for utility infrastructure, such as including wastewater treatment, fire flows, solid waste, electric power, natural gas, and telecommunications may be required and this could result in exceedance of the capacity of existing utility infrastructure.

Therefore, due to the projected population increase that will increase service areas and the number of customers requiring service, capacity for existing utility infrastructure could be exceeded, resulting in the need for new, expanded, or relocated facilities. Thus, regional environmental impacts arising from the need for new facilities for utilities and service systems to serve the projected land use pattern from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact USS-3. Mitigation is required. Mitigation Measures USS-6 and USS-7 are described below.

The region will see diverse transportation projects, such as new high-occupancy vehicle (HOV) lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects, over the planning period which extends through 2040 (see Chapter 2 – Project Description for more information on land use and transportation changes in the proposed MTP/SCS). Depending on the

timing and location of these projects, it is possible that implementation of the proposed MTP/SCS would increase demand for utility and service systems in such a way as to require the construction of additional facilities. For instance, the ongoing operation of new transit facilities, bicycle and pedestrian facilities, and roadway facilities could result in increases in electricity to power streetlights, traffic control devices, signage, and intelligent transportation systems (ITS) infrastructure. Similarly, ITS infrastructure often relies on communication systems to relay real-time information to travelers. New transportation infrastructure could require toilets, sinks, drinking fountains, and drains that would generate a small amount of additional wastewater. These projects could also potentially increase the amount of waste collected from rubbish bins. However, most of the potential increased demand resulting from roadway improvements will occur in areas that are already covered by existing services. Although these increases in demand for utility and service systems are anticipated to be small on a per project basis, the collective demand from all of the projects taken together could increase demand in such a way as to exceed the capacity of existing utility infrastructure, including wastewater treatment, fire flows, solid waste, electric power, natural gas, and telecommunications. The construction of these facilities could result in other environmental effects including air quality, stormwater runoff, and noise. The conversion of underdeveloped land for construction of new or improved utilities could result in the loss of agricultural land, increased stormwater runoff, loss of habitat, and damage to visual and cultural resources, among other impacts. Because site-specific information is needed to assess impacts, project level environmental review will be required for construction of new utility facilities.

An expanded transportation system may contribute to the demand on these facilities, resulting in the potential exceedance capacity for existing utility infrastructure, which would result in the need for new, expanded, or relocated facilities.

Construction-related impacts are typically short-term and can be mitigated below a level of significance through actions of the implementing agency. This EIR discusses and addresses construction impacts by impact type in the following chapters:

- Chapter 3 −Aesthetics: Impact AES-6 and Mitigation Measures AES-8, AES-9, AES-10, AES-11, and AES-12;
- Chapter 4 − Agriculture and Forestry Resources: Impact AG-6 and Mitigation Measure AG-8;
- Chapter 5 − Air Quality: Impact AIR-4b and Mitigation Measure AIR-5;
- Chapter 6 − Biological Resources: Impacts BIO-1, BIO-2, BIO-3, BIO-4 and Mitigation Measures BIO-1a, BIO-1b, BIO-1c, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7;
- Chapter 7 − Cultural Resources: Impacts CR-1, CR-2, CR-3, CR-4, and CR-5 and Mitigation Measures CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6;
- Chapter 8 – Energy and Global Climate Change: Impact GHG-2 and ENE-1 and Mitigation Measure GHG-3;
- Chapter 9 – Geology, Soils, Seismicity, and Mineral Resources: Impact GEO-7;
- Chapter 10 – Hazards and Hazardous Materials: Impact HAZ-7;

- Chapter 11 – Hydrology and Water Quality: Impact HYD-6;
- Chapter 13 – Noise and Vibration: Impact NOI-3 and Mitigation Measure NOI-3;
- Chapter 15 – Public Services: Impact PS-2 and Mitigation Measure PS-2; and
- Chapter 16 – Transportation and Traffic: Impact TRN-8 and Mitigation Measure TRN-3.

Similarly, land use conversion–related impacts may also be minimized through appropriate siting and mitigation developed during project-level environmental review. These potential impacts and mitigation measures that could be applied to reduce impacts is discussed throughout this Draft EIR.

Therefore, regional environmental impacts arising from the need for new facilities for utilities and service systems related to the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact USS-3. Mitigation is required. Mitigation Measures USS-6 and USS-7 are described below.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development have the potential to result in the need for construction of additional utilities and service system infrastructure if the capacity of existing utility infrastructure, including wastewater treatment, fire flows, solid waste, electric power, and telecommunications systems are exceeded. Individual wastewater treatment service providers must meet discharge requirements established for their receiving waters. Service providers in any of the Community Types may find that treatment system upgrades become necessary with a larger service population or because of stricter discharge requirements.

Therefore, localized impacts from the exceedance of capacity for utility infrastructure and the need for new facilities for new utilities and service systems related to the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS for the Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development Community Types are considered potentially significant (PS) for Impact USS-3. Mitigation is required. Mitigation Measures USS-6 and USS-7 are described below.

Transit Priority Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impacts discussion above. Additional generated demand related to the projected land use pattern and

planned transportation improvements in all of the HFTAs have the potential to result in the construction of additional utilities and service system infrastructure to maintain adequate sewer, wastewater treatment, fire flows, solid waste, power, and telecommunications systems.

Therefore, the impacts from the exceedance of capacity for utility infrastructure and the need for new facilities for new utilities and service systems related to the projected land use pattern and planned transportation improvements associated with implementation of the proposed MTP/SCS for all HFTAs are considered potentially significant (PS) for Impact USS-3. Mitigation is required. Mitigation Measures USS-6 and USS-7are described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measures at a project-level would reduce the impacts to utilities and service systems, and agencies with jurisdiction to adopt these measures should do so (PRC Section 21081).

Mitigation Measure USS-6: Implement Mitigation Measure USS-1.

Mitigation Measure USS-7: Implement Mitigation Measure USS-2.

SIGNIFICANCE AFTER MITIGATION

If an implementing agency adopts this mitigation measure, Impact USS-3 would be reduced to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt project-specific mitigation, this impact remains significant and unavoidable (SU).

IMPACT USS-4: GENERATE SOLID WASTE IN EXCESS OF STATE OR LOCAL STANDARDS OR OTHERWISE CONFLICT WITH FEDERAL, STATE, AND LOCAL MANAGEMENT AND REDUCTION STATUTES AND REGULATIONS RELATED TO SOLID WASTE, INCLUDING SOLID WASTE REDUCTION GOALS.

Regional Impacts

The existing population and employment in the region will continue to generate solid waste that requires disposal in a licensed and regulated landfill. As discussed in Section 2.6.1, the 2040 growth forecast indicates that population in the plan area of the proposed MTP/SCS is expected to grow by 620,000 people, an increase of about 26 percent, between 2016 and 2040. CalRecycle estimates that the average resident in California disposes of 6.2 pounds of trash per day as of 2017 (CalRecycle 2019b). Assuming an average diversion (to recycling) rate of 50 percent, as required by AB 939, the region's solid waste generation would increase by approximately 961 tons per day or 350,765 tons per year. If the plan area were to comply with the state goal of achieving the 75 percent diversion rate initiative by 2020, future rates of disposal post 2020 would be 481 tons per day or 175,383 tons per year. In addition, the construction of new housing and non-residential uses under the projected

land use pattern of the proposed MTP/SCS would generate solid waste from activities such as demolition, grading, and excavation.

Landfill closure dates typically reflect the year a landfill is projected to reach capacity and take many factors into account, including rates of solid waste generation, rates of diversion, and projected growth. One major landfill, L&D Landfill Co, is estimated to close before 2040 (see Table 17-4). The remainder of the landfills in the plan area of the MTP/SCS have a total remaining capacity of 246,642,431 cubic yards.

There are a number of federal, state, and local statutes and regulations related to solid waste that are described in detail above in Sections 17.2 Environmental Setting and 17.3 Regulatory Setting (regulations related to the disposal of hazardous waste is discussed in Chapter 10 − Hazards and Hazardous Materials). Generally, statutes and regulations establish requirements for the siting, design, operation, or closure of landfills that are issued and enforced by a number of agencies by issuing and renewing permits and conducting inspections. The IWMA also ensures an effective and coordinated approach to the management of all solid waste generated within the state. The IWMA establishes a goal to reduce dependence on landfills as the primary means of solid waste disposal and introduces a hierarchy of preferred waste management practices that prioritize source reduction or waste prevention first; recycling, reuse, and composting second; waste transformation third; and finally, disposal by landfill at last resort. The IWMA also required local jurisdictions to reduce the volume of waste sent to landfills by 50 percent.

The IWMA requires the preparation of a CIWMP, including a Countywide Siting Element that must demonstrate a remaining landfill disposal capacity of at least 15 years to serve all the jurisdictions in a county. The element includes a combination of strategies to demonstrate adequate capacity, including existing, proposed, and tentative landfills or expansions; increased diversion efforts; and the export of solid waste for disposal. The Countywide Siting Element must be reviewed and updated every 5 years. The IWMA also requires local jurisdictions to prepare and adopt three additional elements that contribute to the CIWMP. The elements include a Source Reduction and Recycling Element (SRRE), a Household Hazardous Waste Element (HHWE), and a Non-Disposal Facilities Element (NFDENDFE). Local jurisdictions also have programs and policies to reduce waste generation and that regulate the disposal, collection, and processing of solid waste.

Regional development could include a variety of land uses, ranging from residential to commercial or industrial uses, to provide increased goods and services to the region. Implementation of the proposed MTP/SCS would lead to a corresponding increase in the amount of solid waste generated and requiring disposal as described above. However, as also described above, six of the seven landfills within the plan area of the proposed MTP/SCS have sufficient capacity and are estimated to close after 2040. However, depending on future projects outside of the proposed MTP/SCS, it is possible that additional landfills would be needed to ensure sufficient permitted capacity. As required by the IWMA, the need for new landfills and possible sites related to implementation of the proposed MTP/SCS would be identified through the preparation of the CIWMP, and regular updates to the Countywide Siting Element every 5 years. New landfills would be required to comply with all federal, state, and local statutes and regulations related to solid waste prior to beginning construction and operation. Local jurisdictions will also continue to prepare and update SRREs, HHWEs, and NFDEs and continue all programs and policies necessary to meet the required diversion rate. Development that occurs pursuant to the projected land use pattern of the proposed

MTP/SCS would be subject all applicable State and local laws and regulations governing the generation, management, diversion, and reduction of solid waste.

Therefore, the projected land use pattern from implementation of the proposed MTP/SCS are not expected to generate solid waste in excess of state and local standards or conflict with federal, state, and local regulations related to solid waste, and regional impacts are considered less than significant (LS) for Impact USS-5. No mitigation is required.

On the transportation side, a variety of planned improvements are included in the proposed MTP/SCS, such as new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Waste generated from demolition, grading, and construction for these transportation network improvements would be disposed of at CDI, as required by local jurisdictions with CDI ordinances and the IWMA. Regulations related to the disposal of construction-related hazardous waste is discussed in Chapter 10 − Hazards and Hazardous Materials.

Therefore, the planned transportation improvements from implementation of the proposed MTP/SCS are not expected to generate solid waste in excess of state and local standards or conflict with federal, state, and local regulations related to solid waste, and regional impacts are considered less than significant (LS) for Impact USS-5. No mitigation is required.

Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS
The localized impacts associated with implementation of the MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are regulated by the various federal, state, and local regulations discussed in the regional analysis.

Therefore, the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are not expected to generate solid waste in excess of state and local standards or conflict with federal, state, and local statutes and regulations related to solid waste for the Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development Community Types, and localized impacts are considered less than significant (LS) for Impact USS-5. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
As with the localized impacts discussed above, the HFTA impacts associated with implementation of the proposed MTP/SCS are the same in each of the HFTAs as described in the regional impacts discussion above. The projected land use pattern and planned transportation improvements in all of

the HFTAs are regulated by the various federal, state, and local regulations discussed in the regional analysis.

Therefore, the projected land use pattern and planned transportation improvements from implementation of the proposed MTP/SCS are not expected to generate solid waste in excess of state and local standards or conflict with federal, state, and local statutes and regulations related to solid waste for all HFTAs, and the impacts are considered less than significant (LS) for Impact USS-5. No mitigation is required.

MITIGATION MEASURES

None required.

Chapter 18—Alternatives Analysis

18.1 Introduction

The purpose of this chapter is to identify and describe alternatives to the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). The primary intent of the alternatives analysis in an EIR, as stated in Section 15126.6(a) of the California Environmental Quality Act (CEQA) Guidelines, is to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Further, the State CEQA Guidelines provide that "the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly" (CEQA Guidelines Section 15126.6(b)).

Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: failure to meet most of the basic project objectives; infeasibility; and, inability to avoid significant environmental impacts (CEQA Guidelines Section 15126.6(a)(c)). "Feasible" is defined as "capable of being accomplished within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (CEQA Guidelines Section 15364). The feasibility of an alternative may be determined based on a variety of factors, including but not limited to economic viability, availability of infrastructure, and other regulatory limitations (CEQA Guidelines Section 15126.6(f)(1)).

In response to the Notice of Preparation (NOP), SACOG received comments related to project alternatives from the Sierra Club (Placer County) and ECOS. The commenters expressed that the Draft EIR should consider the following as project alternatives:

- increased density,
- all infill,
- decreased peripheral growth, and
- guided fixed rail transit system.

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines, Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts and alternatives in this chapter. Appendix PD-1 includes all NOP comments received.

18.2 Project Objectives

SACOG's mission is to "provide leadership and a dynamic, collaborative public forum for achieving an efficient regional transportation system, innovative and integrated regional planning, and a high quality of life within the greater Sacramento region." SACOG's purpose in proposing the MTP/SCS is to provide a strategy to approach the many challenges faced by the Sacramento region as the population grows and the region expands over the next few decades. The proposed MTP/SCS seeks to guide the Sacramento region toward a more sustainable future through better integration of smart land use decisions with a well-managed transportation system, as envisioned by the Blueprint. The intent of the proposed MTP/SCS is to support economic prosperity and accommodate the expected population growth and accompanying demand for transportation in the region consistent with federal and state requirements through a multi-modal approach based on the following objectives.

BUILD VIBRANT PLACES FOR TODAY'S AND TOMORROW'S RESIDENTS:

1. Support local land use authority with data, tools, incentives, and programs that reinforce the region's voluntary implementation of the Blueprint.

2. Support housing choice and diversity for all segments of the population that respond to changing economics and demographics in the region.

3. Support improved jobs-housing balance in subareas of the region and complete mixed-use communities.

4. Minimize direct and indirect land use and transportation impacts on agriculture and natural resources.

5. Meet regional air quality plans and goals.

6. Meet federal and state requirements for regional transportation plans, including Senate Bill (SB) 375 and Assembly Bill (AB) 32.

7. Achieve the greenhouse gas reduction (GHG) targets assigned to SACOG by the California Air Resources Board (CARB).

8. Activate the CEQA streamlining benefits of SB 375.

FOSTER THE NEXT GENERATION OF MOBILITY SOLUTIONS:

1. Support transportation choice and diversity for all segments of the population through a balanced transportation system where investments in various modes complement each other and support the diversity of travel demand in various community types.

2. Reduce vehicle miles traveled (VMT).

3. Broaden mobility options, as measured by an increase in the transit, bicycle, and pedestrian travel mode share.

4. Connect workers to jobs across the region.

MODERNIZE THE WAY WE PAY FOR TRANSPORTATION INFRASTRUCTURE:

1. Identify and work toward a sustainable replacement of fuel taxes for funding transportation investments.

2. Identify and work toward new funding opportunities through roadway pricing that includes facility-based tolling (e.g. managed/express lanes) and/or pay-as-you-go (PAYGO) fees based on mileage driven.

BUILD AND MAINTAIN A SAFE, RELIABLE, AND MULTIMODAL TRANSPORTATION SYSTEM:

1. Support transportation investments that provide high performance benefits for all community types in the region.

2. Improve the condition of the existing transportation system through the maintenance of transportation corridors that can support various modes of travel.

3. Maximize cost-effective investments that both preserve the current system and support the existing and future development served by that system.

4. Deliver cost-effective results from investments in each transportation mode and is feasible to construct and maintain.

3. Satisfy financial constraint requirements, such that all revenues reasonable to assume are used and matched to eligible projects.

4. Deliver more productive and cost-effective public transit services.

5. Support the economic vitality of the region through efficient goods movement that includes minimizing disruptions to the movement of agricultural products on rural roadways.

6. Utilize performance measures to prioritize transportation investments

7. Support safety and emergency preparedness, as demonstrated by land use and transportation changes that include capital investments in disaster-prone areas, transit services, and improved system maintenance.

18.3 Analysis of Alternatives

The following alternatives were identified for examination and analysis in this EIR:

- No Project Alternative
- Alternative 1: Outward Expansion
- Alternative 2: Increased Infill
- Alternative 3: All Infill Development

18.3.1 Alternatives Considered but Not Carried Forward for Detailed Analysis

ALTERNATIVE 3: ALL INFILL DEVELOPMENT OPTION

In this alternative, the projected land use pattern constrains the twenty-year growth to Center and Corridor and Established Communities. No growth in this scenario is assumed in Developing Communities or Rural Residential Communities. This scenario maintains the same growth forecast for population, homes, and jobs and similar fiscal constraints as the preferred scenario. Additionally, where developer funding contributions and fees are tied to specific development projects in Developing Communities or Rural Residential Communities, these funds are not available to support projects in other parts of the region. Planned transportation improvements are concentrated on the existing system, with relatively few new roads to serve new growth areas. New roads are limited to providing connections from the existing system to development in Established Communities.

Reasons for Rejection of Alternative 3

By limiting growth to Center and Corridor and Established Communities Alternative 3 would likely meet the GHG reduction objectives of the MTP/SCS. However, this alternative does not represent a reasonable land use forecast based on the latest available land use conditions and trends. MPOs in air quality non-attainment areas must use the latest available estimates and assumptions for population, land use, travel, employment, congestion, and economic activity in the development of the MTP (23 C.F.R. Section 450.322(e)). Not doing so would jeopardize the plan's conformity analysis by basing future emissions estimates on a land use pattern that is infeasible to implement. SACOG cannot supersede the exercise of land use authority by cities and counties within the region.

SACOG analyzed policy, regulatory, and market factors including status of local, state, and federal entitlement applications, as applicable; housing permit activity in the vicinity of the project; major infrastructure requirements; and developer readiness to pursue entitlement and construction; to inform the land use projection. The proposed MTP/SCS and Alternatives 1 and 2 reflect growth patterns that are consistent with this analysis. An all infill alternative would not acknowledge the current condition of Developing Communities that are already approved and constructing development. It also would not acknowledge that the majority of Rural Residential Communities already allow a certain amount of development by right, so excluding growth from these communities would not represent a realistic or feasible alternative.

SACOG considered additional alternatives that included higher density growth, decreased peripheral growth, and additional fixed-guideway rail, as suggested in comments received on the NOP. SACOG determined that these potential alternatives are sufficiently covered in Alternative 2, which was carried forward for full analysis herein. Alternative 2 has higher density from increased infill growth in Center and Corridor and Established Communities compared to Alternatives 1 and the proposed MTP/SCS. Alternative 2 also decreases the amount of development in the most outlying areas of the region by projecting less growth in Developing Communities. In terms of additional fixed rail, Alternative 2 and the No Project Alternative include additional light rail service to the Sacramento International Airport that is not included in Alternative 1 or the proposed MTP/SCS. However, adding additional fixed rail beyond what is included in Alternative 2 is not feasible given the financial constraint requirements for the MTP/SCS.

18.3.2 Comparative Analysis of Alternatives

Three alternatives were identified for comparative analysis: The No Project Alternative and two other potentially feasible MTP/SCS alternatives including one that increases the amount of greenfield development (Alternative 1) and one that places additional emphasis on infill development and transit (Alternative 2).

The No Project alternative, required to be analyzed under CEQA, assumes the projected land use pattern and planned transportation improvements would be consistent with those set forth in the 2016 MTP/SCS. The two other alternatives were designed to allow for analysis of truly distinct alternatives within the bounds of the projected land use pattern and planned transportation improvements that could realistically be expected to occur over the MTP/SCS planning period. In essence, all three alternatives reflect different growth patterns and different investment decisions for the transportation system. All three alternatives assume the same regional employment, population, and housing growth projections and roughly the same overall transportation budget. Land use and transportation assumptions vary in the following ways:

Land Use Variables:

- The amount of compact development, which is measured in terms of housing product mix (the mix of high- and low-density housing units) and amount of development occurring in existing developed versus undeveloped areas. Compact development has been shown to be more effectively served by transit, to support potentially higher rates of walking and biking, and to generate less vehicle travel.
- The amount of development in high-quality transit corridors, where residents are more likely to use available transit.
- The amount of complementary, mixed-use development, which supports shorter vehicle trip making and higher rates of non-motorized travel.

Transportation Variables:

- The location, intensity, and type of transit service, based on the extent of transit-supportive land uses in corridors. Higher density, mixed-use corridors provide greater opportunities for higher capacity transit, such as light rail and streetcars.
- The amount, location, and type of investment in complete streets projects, which serve multiple users in locations where land use generates a mix of travel modes.
- The extent and location of roadway and other projects to alleviate major bottlenecks and congestion points, and the extent to which investments were made to alleviate existing bottlenecks, compared to reserving investments for future bottlenecks.
- The level of investment in Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and travel demand management (TDM) programs, that allow for greater optimization of existing transportation infrastructure. More compact and mixed-use development patterns can allow some shifts in investment priorities away from road extensions and expansions to improving the function of existing roads for multi-modal travel.

- The deployment of system pricing strategies, such as tolled express lanes or mileage-based fees, as a tool for managing congestion and travel on the region's roadways.

The land use components of the three alternatives reflect a progression from most dispersed development pattern (Alternative 1) to least dispersed development pattern (Alternative 2) with the proposed MTP/SCS and the No Project alternative falling in between. Similarly, the corresponding transportation components follow a progression of most auto-oriented transportation system (Alternative 1) to most multi-modal transportation system (Alternative 2), with the proposed MTP/SCS and the No Project alternative falling in between. The alternatives identified for comparative analysis in this EIR are described according to this progression in Table 18-1. As stated above, all alternatives analyzed accommodate the same amount of regional growth: 620,500 new people, 270,000 new jobs, and 260,000 new housing units.

Table 18-1
Description of MTP/SCS Land Use and Transportation Scenarios

Scenario Name	Land Use	Transportation
Alternative 1: Outward Expansion	▪ Developing and Established Communities receive highest share of region's growth ▪ Highest growth in Rural Residential Communities of all three alternatives ▪ Smallest share of new compact and attached housing[1] (61%) ▪ Least amount of new development near high-frequency transit ▪ Smallest share of growth in High Frequency Transit Areas (HFTAs)[2] ▪ Most dispersed development pattern / highest amount of developed acres ▪ Highest amount of agricultural and natural resource lands urbanized	▪ Greatest expansion in new and widened roads, with focus on both existing and future bottlenecks ▪ Least amount of bicycle and pedestrian street and trail projects, including complete streets ▪ Least expansion in bus and rail transit service ▪ Smallest increase in transit ridership ▪ Smallest increase in bicycle and pedestrian trips ▪ Highest amount of system pricing (higher prices for tolls and higher fees per mile)
No Project	▪ Less growth in Developing and Established Communities than Alternative 1, but more than the proposed MTP/SCS and Alternative 2 ▪ Second highest amount of growth in Rural Residential Communities ▪ More homes and jobs near high-frequency transit service (compared to Alternative 1) allow for greater realization of complete streets opportunities ▪ Higher share of new compact and attached housing[1] (71%, same as 2016 MTP/SCS) ▪ More growth in HFTAs than Alternative 1, but less than the proposed MTP/SCS and Alternative 2[2] ▪ Less dispersed development pattern than Alternative 1	▪ Second highest amount of expansion in new and widened roads. ▪ More transit service than Alternative 1 ▪ More bicycle and pedestrian street and trail projects than Alternative 1 ▪ Performs in-between Alternatives 1 and 3 on most key metrics, including: non-auto mode share; share of bike and walk trips; decreases in VMT and GHG emissions per capita ▪ Smallest decrease in VMT per capita and greenhouse gas emissions ▪ No system pricing

Scenario Name	Land Use	Transportation
Alternative 2: Infill and Transit Focused	▪ Center & Corridor Communities receive highest share of growth ▪ Least amount of growth in Rural Residential Communities ▪ Highest share of new compact and attached housing[1] (76%) ▪ Highest share of growth in HFTAs[2] ▪ Least dispersed development pattern/ fewest developed acres ▪ Highest number of homes and jobs near high-quality transit ▪ Lowest amount of agricultural and natural resource lands urbanized	▪ Largest increase in bus and rail transit services ▪ Smallest increase in new and expanded roads with the greatest reliance on operational enhancements for roadways (e.g., Intelligent Transportation Systems) ▪ Greatest increase in bicycle and pedestrian projects, including complete streets ▪ Largest increase in transit and bicycle and pedestrian trips ▪ Lowest amount of system pricing (lower prices for tolls and lower fees per mile)

Notes:
[1] Compact housing is defined as small-lot single-family (8 to 25 dwelling units per acre) and attached residential (attached single-family or multi-family homes, e.g., duplexes, triplexes, apartments, condominiums, townhomes, rowhouses, halfplexes, built at densities from 8 to over 50 dwelling units per acre).
[2] High Frequency Transit Areas (HFTAs) are defined as areas within one-half mile of a rail station stop or a high-quality transit corridor. A high-quality transit corridor has fixed-route bus service with service intervals of 15 minutes or less during peak commute hours.

A more detailed description of each of these alternatives is provided below, followed by a comparative analysis of how well the alternative would achieve the project objectives and the relative level of environmental impact associated with each alternative as compared to implementation of the proposed MTP/SCS. For each resource area evaluated in this EIR the text summarizes whether the impacts of the alternative would generally be more or less severe than those of the proposed MTP/SCS. Table 18-2 provides an "at a glance" comparison of existing (2016) conditions, the three alternatives, and the proposed MTP/SCS.

Table 18-2
Comparison of Baseline, Proposed MTP/SCS, and Alternatives

	Performance Metric	2016 Baseline	Proposed MTP/SCS	No Project	Alternative 1 Outward Expansion	Alternative 2 Infill & Transit Focus
Land Use Pattern	Share of homes in Center & Corridor Communities	113,880	86,661	78,038	52,026	93,646
	(percent of total homes in region)	*12%*	*33%*	*30%*	*20%*	*36%*
	Share of homes in Established Communities	712,012	81,365	72,836	75,437	70,235
	(percent of total homes in region)	*77%*	*31%*	*28%*	*29%*	*27%*
	Share of homes in Developing Communities	20,793	89,313	104,051	122,260	93,646
	(percent of total homes in region)	*2%*	*34%*	*40%*	*47%*	*36%*
	Share of homes in Rural Residential Communities	74,438	2,789	5,203	10,405	2,601
	(percent of total homes in region)	*8%*	*1%*	*2%*	*4%*	*1%*
	Total Homes	**921,123**	**260,128**	**260,128**	**260,128**	**260,128**
	Total acres developed	686,847	46,403	47,563	75,622	37,350

	Performance Metric	2016 Baseline	Proposed MTP/SCS	No Project	Alternative 1 Outward Expansion	Alternative 2 Infill & Transit Focus
Housing Mix	Share of homes in rural residential or large-lot single-family homes	553,334	68,505	75,437	101,450	62,431
	(percent of total homes in region)	*60%*	*26%*	*29%*	*39%*	*24%*
	Share of homes in small-lot single-family or attached	367,807	191,623	184,691	158,678	197,697
	(percent of total homes in region)	*40%*	*74%*	*71%*	*61%*	*76%*
Access to Employment Activities	Jobs within 30-minute drive of homes	377,257	+109,539	+104,175	+94,749	+109,600
	Jobs within 30-minute transit of homes	4,829	+17,534	+16,128	+9,287	+19,356
	Average vehicle miles traveled per worker	18.0	16.1	16.9	16.2	16.1
Road & Highway System	New or Expanded Major Road Lane Miles (Arterial and above)	6,465	1,258	1,340	1,730	1,230
Transit System	Transit Weekday Service Hours	4,000	4,200	4,400	2,200	5,200
	Total number of homes near high-frequency transit	385,100	105,210	96,247	70,235	101,450
	(share of all homes near high-frequency transit)	n/a	40%	37%	27%	39%
	Total number of jobs near high-frequency transit	553,756	104,567	102,624	102,624	116,127
	(share of all jobs near high-frequency transit)	n/a	39%	38%	38%	43%
Travel Choice and Traffic	Household Generated VMT Per Capita	17.9	16.5	17.2	16.5	16.5
	Share of commute trips by transit, bike or walk	10.0%	13.6%	13.4%	12.4%	13.8%
	Mode share for transit, walking and bicycling *(percent of all trips)*	11.5%	14.3%	13.7%	13.0%	14.5%
System Pricing	Taxes and fees per mile of driving (in current year dollars)	~$0.02	~$0.03	~$0.01	~$0.05	~$0.02
GHG Emissions	Weekday passenger vehicle CO_2 emissions *(percent change per capita from 2005)*	n/a	19%	13%	19%	19%

NO PROJECT ALTERNATIVE

Description of No Project Alternative

The No Project Alternative assumes growth patterns and transportation investment priorities consistent with the 2016 MTP/SCS. The growth in population, jobs, and homes was higher in the 2016 plan, but is adjusted down in this alternative to match the growth forecast for the proposed plan. Projected revenues for transportation investments and funding allocations are consistent with the 2016 MTP/SCS. This alternative assumes the same housing and employment growth as the proposed MTP/SCS, but distributes the growth differently as described below. Overall, growth under this alternative would be less dispersed than Alternative 1, but slightly more dispersed than

the proposed MTP/SCS. Table 18-1 summarizes key characteristics of all the alternatives, and Table 18-2 compares performance characteristics of each alternative.

Projected Land Use Pattern

The No Project Alternative generally lands between the Proposed Plan and Alternatives 1 and 2 in terms of the projected land use pattern. This alternative has the same percentage of large-lot versus compact (small-lot or attached) housing as the proposed MTP/SCS, but spreads growth out to a higher number of developing communities.

Planned Transportation Improvements

The percentage of the budget dedicated to operations and maintenance, transit, new road capacity, bicycle and pedestrian improvements, and programs is the same as the current 2016 plan. This alternative would have more transit service, including more new Bus Rapid Transit, streetcar, and light rail service than Alternative 1. Alternative 2 would have a 109 percent increase in transit service from 2016. It also would have more bicycle and pedestrian improvements, and fewer new roads and road expansions, than Alternative 1. These differences in the transportation system would support a more compact development pattern. Alternative 2 has more new roads and road expansions, and less transit service than in Alternative 3 and the proposed MTP/SCS, as those alternatives have a more compact development pattern than Alternative 2.

Pricing

The No Project Alternative does not include pricing strategies.

No Project Alternative Attainment of Project Objectives

This alternative attains most project objectives, but less effectively and successfully than the proposed MTP/SCS.

Build Vibrant Places for Today's and Tomorrow's Residents:

While the projected land use pattern of the No Project Alternative builds on the Blueprint, it would provide more greenfield development and fewer transportation options than the proposed MTP/SCS and Alternative 2. This alternative has 71 percent of new housing in small-lot single-family or attached homes and 37 percent of all homes near high-frequency transit, fewer than both Alternative 2 and the proposed MTP/SCS. The No Project Alternative would consume more developed acres (47,563) than the proposed MTP/SCS and Alternative 2 due to a more dispersed development pattern which forecasts a higher share of housing growth in Developing Communities. This alternative offers some support to improved jobs-housing balance, but is out-performed by other alternatives, with a lower share of homes near high frequency transit and fewer jobs within a 30-minute drive or transit trip than either the Proposed MTP/SCS or Alternative 2.

The No Project Alternative does not achieve the GHG reduction targets assigned to SACOG by CARB and; therefore, would not activate the CEQA streamlining benefits of SB 375. Although this alternative was constructed to be consistent with the land use pattern and transportation investment of the 2016 MTP/SCS (which does achieve the GHG reduction targets), the No Project Alternative does not meet the targets primarily due to projected lower growth in fuel price and auto operating cost than were assumed in the 2016 MTP/SCS (U.S. Energy Information Administration 2013). While the other alternatives examined implement pricing strategies to counterbalance the expected

impacts on driving behavior and VMT associated with these projected decreases in auto operating costs, the No Project Alternative does not include any pricing strategies that would carry such effect.

Foster the Next Generation of Mobility Solutions

The No Project Alternative has more homes and jobs near high-frequency transit service than Alternative 1, allowing for greater realization of complete streets opportunities, though a smaller share than the proposed MTP/SCS and Alternative 2. While it does demonstrate some reduction from the 2016 baseline VMT, the No Project Alternative has the smallest decrease in VMT per capita and GHG emissions of all alternatives examined, underperforming in relation to the GHG emissions and air quality goals that are achieved in the other alternatives. This alternative demonstrates a broadening of mobility options from baseline conditions, with an increase in mode share for walking, biking, and transit (13.7 percent), though the increase is smaller than that demonstrated by the proposed MTP/SCS and Alternative 2. This alternative does connect workers to jobs across the region but includes fewer jobs within a 30-minute drive or transit ride than the proposed MTP/SCS and Alternative 2.

Modernize the Way We Pay for Transportation

The No Project Alternative is the only alternative that does not include pricing strategies or per-mileage fees for driving. As a result, this alternative does not meet the objective to modernize the way we pay for transportation infrastructure through new revenue-generation strategies or development of sustainable alternatives for fuel taxes as a revenue source, funding investments or sustainable alternatives to replace fuel taxes as a revenue source.

Build and Maintain a Safe, Reliable, and Multimodal Transportation System

Because the No Project Alternative does not include pricing strategies or per-mileage fees for driving, this alternative raises the least amount of revenue to build and maintain the transportation system compared with other alternatives examined. The No Project Alternative transit assumptions are similar to the proposed MTP/SCS, but do not consider new funding constraints that would affect the alternative's ability to pay for major expansion projects. The No Project Alternatives has a more dispersed overall growth pattern and includes more growth in Developing Communities than Alternative 2 or the proposed MTP/SCS. More growth in these communities and new or expanded roads to serve the relatively dispersed growth may interfere with bicycle and pedestrian connectivity objectives and may lead to conflicts along rural roadways for safe and efficient agricultural operations.

No Project Environmental Impacts

The following discussion describes the relative level of environmental impact associated with the No Project Alternative as compared to the level of environmental impact under implementation of the proposed MTP/SCS. The performance measures for this alternative and the proposed MTP/SCS are based on Table 18-2 unless stated otherwise.

Aesthetics

Impacts to scenic vistas from the projected land use pattern under this alternative would likely be less than under the proposed MTP/SCS, because this alternative assumes a somewhat lower density and intensity of development. Structures are likely to be shorter and more dispersed, with less likelihood of blocking or impeding scenic vistas. Impacts to scenic vistas would be greater under this

alternative due to the addition of lane miles to the roads and highway system. With a projected land use pattern that is more dispersed, and additional capacity-enhancing planned transportation improvements compared to the proposed MTP/SCS, the No Project Alternative would have greater impacts to scenic resources along official or eligible state scenic highways.

The potential for substantial degradation of visual character or quality of public views of sites and their surroundings in non-urbanized areas would be greater under this alternative as compared to the proposed MTP/SCS because under this alternative more of the projected land use pattern would be located within non-urbanized areas. Impacts to visual character and the quality of public views of sites and their surroundings would also be greater under the No Project Alternative because it consists of more capacity-enhancing projects in non-urbanized areas relative to the proposed MTP/SCS. With a greater amount of the projected land use pattern and additional capacity-enhancing planned transportation improvements in non-urbanized areas, the No Project Alternative would have greater impacts to existing visual character and the quality of public views of sites and their surroundings in non-urbanized areas. Impacts to scenic quality in urbanized areas would be the same as the proposed MTP/SCS because existing zoning and other regulations governing scenic quality are mandatory and would be equally enforced under this alternative.

Light and glare impacts to day or nighttime views under this alternative would likely be greater than under the proposed MTP/SCS because the projected land use pattern of this alternative would disturb 1,160 more acres of land. As such, building and site lighting and potential sources of glare would be introduced on a larger geographic scale affecting more acres by comparison to the proposed MTP/SCS. In addition, because there are slightly more detached units under this alternative, there would be fewer shared walls, which could result in the need for greater nighttime lighting as compared to attached structures that share walls. The less compact land use pattern of this alternative would introduce more sources of nighttime lighting in areas where existing nighttime views are not adversely affected by substantial sources of outdoor lighting (e.g., 14,738 additional homes in Developing Communities and 2,414 additional homes in Rural Residential Communities relative to the proposed MTP/SCS). Light and glare associated with planned transportation improvements would likely to be greater than the proposed MTP/SCS because there would be 82 additional lane miles of new or expanded roadway and highway projects, which could result in the addition of new sources of light and glare that could adversely affect nighttime views as compared to the proposed MTP/SCS.

Adverse effects of shadows from both the projected land use pattern and planned transportation improvements under this alternative would likely be less than under the proposed MTP/SCS, because it assumes a somewhat lower density and intensity of development. Structures are likely to have fewer stories and be more dispersed, with less likelihood of creating adverse shadows. However, the beneficial effects of shadows from taller buildings and increased tree canopy, such as shade during periods of high heat, would occur to a lesser extent than under the proposed MTP/SCS.

Construction-related aesthetic impacts are likely to be greater under this alternative for both projected land use pattern and planned transportation improvements because both the land area required for development is greater and the budget for new transportation capacity is higher. There is the potential that construction activities associated with this alternative could result in increased aesthetic impacts because it assumes a lower number of attached units resulting in a larger number of individual detached structures. Moreover, because more of this alternative's projected land use

pattern would occur in existing non-urbanized areas and it consists of a greater number of capacity-enhancing planned transportation improvements relative to the proposed MTP/SCS, its construction activities would have greater impacts to scenic resources along state scenic highways, visual character and quality of existing sites and their surroundings, and day and nighttime views due to light and glare. Construction impacts to scenic vistas and related to casting shadows would be less than under the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Agriculture and Forestry Resources

Conversion of agricultural land (including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance), forest land, timberland, and timberland zoned Timberland Production to non-agricultural, non-forest, or non-timber uses under this alternative would be greater than under the proposed MTP/SCS because the projected land use pattern of the No Project Alternative would be less compact and would disturb 1,160 more acres of land, and the planned transportation improvements of this alternative would include 82 more lane miles of new or expanded roadway and highways relative to the proposed MTP/SCS. The additional land disturbance associated with the less compact land use pattern and additional roadway and highway lane miles of this alternative would occur in areas with agricultural land, forest land, and timberland. The potential for conflicts with zoning, land use designations, Williamson Act contracts, and/or other applicable regulations that protect agricultural and forestry resources and timberlands would also be greater for the same reasons. Similarly, the potential for other changes that could result in the conversion of agricultural land, forest land, and timber land to developed land uses would be greater due to increases in urban-rural edge areas under this alternative as compared to the proposed MTP/SCS.

Construction-related impacts to agricultural land, forest land, and timberland would likely be greater under this alternative than the proposed MTP/SCS for the reasons provided above. The additional land disturbance associated with the less compact land use pattern and additional roadway and highway lane miles of this alternative means that additional construction activities would occur in areas with agricultural land, forest land, and timberland.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Air Quality

Regional emissions of criteria air pollutants and ozone precursors would be greater under this alternative. This is because the projected land use pattern would be less compact (1,160 additional acres of land development) and place fewer jobs and homes near high-frequency transit service. The planned transportation improvements of this alternative include 82 additional roadway and highway lane miles relative to the proposed MTP/SCS. Household generated VMT (and the associated emissions of criteria air pollutants and ozone precursors) would be higher under this alternative, and the mode share for transit, walking, and bicycling would be lower for both commute trips and all trips. The higher passenger vehicle GHG emissions under this alternative also indicate that air pollutant emissions would be higher than under the proposed MTP/SCS. As compared to the proposed MTP/SCS, this increase in emissions of criteria air pollutants and ozone precursors would result in more adverse health outcomes from greater exposure to concentrations of criteria air pollutants in excess of the national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS). This alternative may not conflict with or obstruct implementation of

applicable air quality plans, but it would result in relatively higher emissions of the criteria air pollutants and ozone precursors addressed by applicable air quality plans when compared to the proposed MTP/SCS.

The number of sensitive receptors exposed to substantial concentrations of toxic air contaminants (TACs) would likely be less under this alternative as compared to the proposed MTP/SCS. This is because TACs are pollutants of local rather than regional concern. TACs dissipate quickly from their source resulting in significantly reduced concentrations at certain distances from a source (i.e., 500 feet). Although the No Project Alternative would result in higher household generated VMT, which could create more mobile sources of TACs (along freeways and major roadways), the overall number of sensitive receptors exposed to TAC emissions would likely to be lower under this alternative. This is because its less compact land use pattern would allocate fewer people and housing units into Center, Corridor, and Established Communities. Housing units in these communities are more likely than other community types to be located in close proximity to roadways and freeways that generate substantial concentrations of TAC emissions. This impact would be less than under the proposed MTP/SCS.

This alternative would have similar odors impacts to the proposed MTP/SCS. It is possible that odor impacts could be lower due to greater dispersal of development over a larger area, thereby exposing fewer people at any one location. It is also possible, however, that the increase in overall developed acreage could result in increased exposure to odors because it would become more difficult to site land uses that introduce potential odor emissions within reasonable distances (e.g., Sacramento Metropolitan Air Quality Management District's [SMAQMD's] Recommended Odor Screening Distances) from existing or future populations susceptible to odor impacts (SMAQMD 2009).

Long-term operational criteria air emissions associated with area sources, such as natural gas emissions, landscaping equipment, applications of architectural coatings, and use of consumer products, in addition to operational vehicle exhaust emissions, would be greater under this alternative as compared to the proposed MTP/SCS. This alternative includes relatively more rural residential and large-lot single family homes, and relatively fewer small-lot single-family or attached homes. Rural residential and large-lot single family homes tend to have higher energy (including natural gas) consumption and involve greater use of landscaping equipment and architectural coatings (and higher associated criteria air pollutant emissions) than small-lot single-family or attached homes. Operational vehicle exhaust emissions would be higher under this alternative because household generated VMT would be higher.

Short-term construction criteria air pollutant emissions would be higher under this alternative because its less compact land use pattern would develop 1,160 additional acres and its planned transportation improvements would include 82 additional lane miles of roadway and highway construction, which would result in additional emissions from construction equipment and vehicles and dust generation during construction activities such as site preparation, grading, excavation, and paving. This impact would be greater than under the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Biological Resources

Impacts (direct or through habitat modification) on candidate, sensitive, or special status species (including plants, wildlife, and fish) under this alterative would be greater than under the proposed MTP/SCS, because this alternative's projected land use pattern would be less compact and include an additional 1,160 additional acres of development, and its planned transportation improvements would include an additional 82 miles of roadway and highway lane miles. The additional land disturbance resulting from the projected land use pattern and planned transportation improvements of this alternative would generally occur in Developing Communities and Rural Residential Communities, which are less developed and include more biological resources than Center, Corridor, and Established Communities. The potential for impacts to riparian habitats, oak woodlands, other sensitive natural communities, state or federally protected wetlands, migratory wildlife corridors and native wildlife nursery sites, adopted Habitat Conservation Plans (HCP) or Natural Communities Conservation Plans (NCCP), other approved habitat conservation plans, and local policies and ordinances protecting biological resources would be greater for the same reasons. This alternative would have greater impacts to fish or wildlife species habitat and population levels, the range of endangered or threatened species, and greater potential to threaten to eliminate a plant or animal community. Construction-related impacts to biological resources are likely to be greater under this alternative for the reasons provided above. The additional land disturbance associated with the less compact land use pattern and additional roadway and highway lane miles of this alternative means that additional construction activities would occur in areas with biological resources, and would result in greater direct and indirect impacts to biological resources during construction activities (e.g., equipment staging, construction lighting and noise, dust generation and exhaust emissions).

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Cultural, Paleontological, and Tribal Cultural Resources

Impacts to cultural resources (historic built environments, archeological, paleontological, and tribal cultural resources, and human remains, and important examples of major periods of California history or prehistory) under this alterative would be greater than under the proposed MTP/SCS because this alternative's projected land use pattern would be less compact and include an additional 1,160 acres of development, and its planned transportation improvements would include an additional 82 miles of roadway and highway lane miles. The additional land disturbance, such as grading and excavation, resulting from the projected land use pattern and planned transportation improvements of this alternative would result in greater likelihood of encountering unknown surface or subsurface archaeological, paleontological, and tribal cultural resources, or human remains; it would also result in greater impacts to the character of settings that contribute to the significance of historic built environments and to the traditional use and cultural character and integrity of tribal cultural resources. By subjecting a larger land area to disturbance and physical change this alternative would result in greater indirect impacts to tribal cultural resources by increasing public accessibility to tribal cultural resources. Construction activities under this alternative would also have greater impacts to historic built environments, archaeological, paleontological, and tribal cultural resources, human remains, and important examples of major periods of California history or prehistory for the reasons provided above.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Energy and Global Climate Change

This alternative would result in a 13 percent reduction in per capita CO_2 emissions by 2035 relative to a 2005 baseline, which is less than the 19 percent reduction target established for SACOG by CARB. Therefore, this alternative would conflict with the SACOG region's achievement of its SB 375 GHG emissions reduction target, which is a significant impact. The proposed MTP/SCS would achieve the 2035 target. Because achievement of SB 375 GHG reduction targets contribute to achievement of the state's long-term climate goals set forth in CARB's 2017 Scoping Plan, failure to achieve the 2035 target under the No Project alternative would substantially interfere with achievement of the state's long-term climate goals, which is a significant impact that would not occur under the proposed MTP/SCS. The higher rate of household generated VMT under the No Project Alternative would interfere with achievement of the state's long-term climate goals, which rely on decreases in the rate of VMT. For similar reasons, the lower rate of passenger vehicle GHG emissions reductions and higher rates of household generated VMT under this alternative would conflict with applicable local GHG reduction plans, which rely in part on a regional land use pattern and planned transportation improvements that would contribute to lower passenger vehicle GHG emissions and lower rates of household generated VMT. The impact to applicable local GHG reduction plans would be greater under this alternative relative to the proposed MTP/SCS.

The No Project Alternative would likely result in increased use of energy and generation of GHG emissions during construction because the No Project Alternative assumes fewer attached units, resulting in a larger number of individual detached structures. These individual structures require more energy for materials, more materials overall, and more fuels to build (e.g., additional equipment and vehicle use for site development, grading, and excavation) than would be needed for attached structures. Construction impacts from planned transportation improvements would also likely be greater because of the additional energy consumed and GHG emissions generated to construct 82 additional lane miles of road and highway improvements. Per-capita energy consumption under this alternative would be greater than under the proposed MTP/SCS because this alternative would result in a less compact land use pattern. The No Project Alternative also includes a housing mix with a greater proportion of large-lot single-family homes (29 percent) as compared to the proposed MTP/SCS (26 percent). Because the No Project Alternative would include more large-lot single-family homes, which require more energy use per capita as compared to attached and multi-family homes, the No Project Alternative would likely result in more energy use per capita as compared to the proposed MTP/SCS. The less compact land use pattern and additional roadway and highway lane miles under this alternative also lead to higher rates of household generated VMT, which means more inefficient consumption of transportation energy than under the proposed MTP/SCS. While it would be likely that, as compared to baseline conditions (2016), per capita energy consumption would go down under this alternative, per capita energy consumption would be higher than under the proposed MTP/SCS. Therefore, the No Project Alternative would result in greater impacts related to the wasteful, inefficient, or unnecessary consumption of energy during construction activities and long-term operations.

This alternative is likely to have similar impact on state and local plans for renewable energy or energy efficiency as compared to the proposed MTP/SCS. Use of some renewable energy sources could be facilitated, while the use of other renewable energy sources could be hindered by this alternative. The economics of some small-scale renewable energy sources benefit from serving higher density development and development patterns that produce balanced loads and minimize peak demand; other renewable energy sources require larger areas of land to site, making lower

density patterns more optimal. Implementation of the California Energy Code and State goals for increasing the percentage of electricity from renewable and zero-carbon sources under this alternative would be the same as under the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Geology, Soils, Seismicity, and Mineral Resources

The following impacts associated with earthquakes and seismic activity under this alternative would be the same as the proposed MTP/SCS: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; and landslides. Existing state laws and state and local building code requirements addressing substantial adverse effects due to earthquakes and seismic activity would apply to the projected land use pattern and planned transportation improvements of the proposed MTP/SCS. The following operational and construction impacts of the No Project Alternative would be greater than the proposed MTP/SCS because this alternative includes a less compact land use pattern that would develop an additional 1,160 acres, including additional land development within Developing Communities and Rural Residential Communities: soil erosion and loss of topsoil; on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse; development on expansive soil; and inadequate soils for alternative wastewater systems. The more compact land use pattern of the proposed MTP/SCS projects less land development within areas subject to adverse impacts from the geologic and soils conditions.

Impacts to unique geologic features and mineral resources would be greater under this alternative than under the proposed MTP/SCS because the projected land use pattern of this alternative is less compact and would develop 1,160 additional acres and the planned transportation improvements include 82 additional lane miles on the roadway and highway network. The additional land disturbance resulting from the projected land use pattern and planned transportation improvements under this alternative would result in greater impacts to unique geologic features and restricted access to and potentially the inability to harvest a greater proportion of mineral resources, including those of value to the region and the state, and locally-important mineral resource recovery sites delineated on a local land use plan.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hazards, Hazardous Materials, and Wildfire

Hazardous materials impacts to the public or the environment associated with construction activities and operations under this alternative would be the same as the impacts under the proposed MTP/SCS. This is because of the numerous federal, state, and local requirements and regulations that minimize the creation of significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials; through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment and through handling of hazardous materials, substances, and waste within 0.25 mile of an existing or proposed school. These existing requirements and regulations would apply equally to the different projected land use patterns and planned transportation network improvements of this alternative and the proposed MTP/SCS, so impacts would be the same. The same is true for existing requirements and regulations addressing potential safety hazards and excessive noise within an airport land use plan or within two miles of a public or public use airport, so airport-related safety and noise impacts to people residing or working in the plan area would be the same under this alternative.

This alternative assumes a less compact land use pattern dispersed over 1,160 additional acres and 82 additional lane miles of road and highway construction. The additional land disturbance including site preparation and grading during construction activities under this alternative could expose more people, such as construction workers or nearby residents and employees, or the environment to significant hazards involving the accidental release of naturally occurring asbestos and hazardous materials present in soil or groundwater, such as aerially-deposited lead in exposed surface soils immediately adjacent to existing roadways and highways. The less compact land use pattern of this alternative includes fewer housing units and jobs within Center, Corridor, and Established Communities relative to the proposed MTP/SCS, where sites included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, such as those contaminated by past industrial uses are more likely to occur. Therefore, impacts associated with development on such hazardous materials sites would be less under this alternative.

Additionally, construction impacts would be greater for this alternative, because it assumes a lower number of attached units, resulting in a larger number of individual detached structures, and a larger land area to accommodate its projected land use pattern, and construction of additional lane miles of transportation capacity projects. Construction-related activities will require the use of construction equipment and materials, which may include hazardous substances and/or release hazardous materials into the environment.

The more dispersed land use pattern and additional lane miles of roadway and highway construction under this alternative would be more automobile-oriented than the proposed MTP/SCS and could complicate emergency evacuation plans that rely in part on public transit. This alternative also would result in a greater share of homes within Rural Residential Communities, which have a higher risk of wildfire than other Community Types and are more likely to exacerbate post-fire flooding or landslide hazards that would require emergency responses or emergency evacuation. Therefore, the less compact land use pattern of this alternative would result in greater impacts associated with impairing the implementation of adopted emergency response and emergency evacuation plans (including within or near state responsibility areas or lands classified as very high fire hazard severity zones), exposing people or structures to significant risk of loss, injury, or death involving wild land fire, and exacerbating wildfire risk or post-fire flooding or landslide hazards.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hydrology and Water Quality

Impacts associated with hydrology and water quality under this alternative would be greater than under the proposed MTP/SCS because its less compact land use pattern and additional lane miles of roadway and highway construction would result in disturbance to a larger land area during construction activities and would permanently convert a greater amount of land to impervious surfaces, such as parking lots, buildings, roadways, highways, and other paved areas, as compared to the proposed MTP/SCS. The additional land area subject to construction disturbance would increase potential for short-term discharge of pollutants from construction sites into surface or groundwater. Construction impacts to hydrology and water quality would be greater under this alternative.

The additional land area permanently converted to impervious surfaces would increase the potential volume and decrease the water quality of stormwater and nonstormwater flows. Additional impervious surfaces also would interfere with groundwater recharge and alter drainage patterns in a

manner that would increase the potential for substantial erosion, siltation, and flooding relative to the proposed MTP/SCS. This alternative would require greater storm drainage system capacity than the proposed MTP/SCS because of its conversion of additional land area to impervious surface area. In addition, the housing mix of this alternative would include a larger number of rural residential and large-lot single-family homes, which would result in more managed landscaping areas and associated pollutants such as nutrients, herbicides, and irrigated runoff, which in turn could adversely affect surface and groundwater quality. Because the projected land use pattern and planned transportation improvements of this alternative would convert a greater amount of land to impervious surfaces that would collect water quality contaminants, this alternative would increase the risk of release of pollutants if such impervious surfaces areas were inundated during a flood hazard or seiche. The projected land use pattern and planned transportation improvements of this alternative would not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan, but for the reasons describe above implementing the goals and objectives of these plans would be more difficult under this alternative as compared to the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Land Use and Planning

The less compact land use pattern of this alternative provides less connectivity within existing communities because of its more disperse allocation of future growth, but it would not physically divide any existing communities. This impact is the same as under the proposed MTP/SCS. New roadway or highway improvements can physically divide existing communities by providing physical barriers where none previously existing. Expansion of existing roadways and highways also can physically divide existing communities to the extent that wider facilities with additional lanes represent greater physical barriers than narrower facilities. The planned transportation improvements of this alternative would include 82 additional lane miles along the roadway and highway network. The planned transportation improvements of this alternative would result in greater impacts from physically dividing existing communities.

This alternative would not substantively satisfy the SCS requirements of SB 375. Under this alternative, per capita passenger vehicle CO_2 emissions in 2035 would be 13 percent lower relative to a 2005 baseline. This performance would not achieve the 19 percent reduction target established for SACOG by CARB. This alternative would not meet the core requirement of SB 375 to prepare an SCS that aligns land use patterns, housing, and regional transportation planning to achieve CARB targets for per capita reductions in passenger vehicle CO_2 emissions by 2035. This is a greater impact than the proposed MTP/SCS.

All of the alternative's direct growth to areas within city boundaries in the Delta, and all subsequent projects within the proposed MTP/SCS that fall within the LURMP boundaries will be required to demonstrate consistency with the LURMP and satisfy mitigation requirements. However, because this alternative would include a less compact land use pattern and additional lane miles of roadway and highway improvements that would result in additional land disturbance relative to the proposed MTP/SCS, it would have greater impacts to resources within the Delta that are protected by the provisions of the 2010 LURMP, including agriculture, biological resources, and recreational land, and from contaminated runoff and construction of new utilities facilities, especially at the rural-urban edge. Impacts to these resources under this alternative may not rise to the level of a conflict

with the 2010 LURMP, but for the reasons described above, implementing its goals would be more difficult under this alternative as compared to the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Noise and Vibration

This alternative would generate noise levels generally similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. However, the less compact land use pattern of this alternative would direct more housing growth to Developing and Rural Residential Communities, increasing construction and operational noise levels in these areas that tend to have lower existing noise levels than more developed and urbanized communities. Noise thresholds could be exceeded in these communities. The higher rate of household generated VMT per capita, and higher rates of commute and all trips completed by driving indicate that traffic noise levels may be higher under this alternative, and noise thresholds could be exceeded. The additional lane miles of roadway and highway improvements under this alternative could lead to increased traffic volumes and associated localized noise levels, and noise thresholds could be exceeded. Localized short-term noise levels would be higher during construction of the additional lane miles included in this alternative.

The projected land use pattern of this alternative, while less compact than the proposed MTP/SCS, would not result in land use types that would result in meaningfully different levels of vibration or groundborne noise. The planned transportation improvements of this alternative would include additional lane miles of roadway and highway improvements, but this would also not result in meaningfully different levels of vibration or groundborne noise relative to the planned transportation improvements identified in the proposed MTP/SCS. This impact is the same under this alternative.

There would potentially be more construction-related noise impacts under this alternative due to the additional land area that would be subject to disturbance during construction activities associated with the less compact land use pattern and the additional lane miles of construction along the roadway and highway network. This would increase the number of separate construction sites, which would exacerbate overall noise levels associated with construction activities.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Population and Housing

Impacts related to population and housing should be similar under all alternatives, because the same number of people and dwelling units are assumed. The less compact land use pattern of this alternative and its additional lane miles of roadway and highway improvements would not result in displacement of substantial numbers of people or existing housing that necessitates the construction of replacement housing elsewhere. This impact is the same as the proposed MTP/SCS.

No mitigation measures were identified for population and housing impacts for the proposed MTP/SCS.

Public Services and Recreation

This alternative is anticipated to result in public service and recreation impacts (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS, because the same total population, housing, and employment are assumed. However, this alternative could exacerbate the ability to achieve local levels of service due to a more dispersed land use pattern that makes it more difficult to efficiently serve the population. This impact is greater than the proposed MTP/SCS. The planned transportation improvements of this alternative would have the same public services and recreation impacts as the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Transportation

This alternative would result in higher levels of household generated VMT per capita than under the proposed MTP/SCS, in part because of its less compact land use pattern and additional lane miles of roadway and highway improvements; it would also locate fewer homes and jobs near high frequency transit service. According to CARB much greater VMT reductions (beyond those achieved by the proposed MTP/SCS) will be required to meet the state's long-term climate goals for 2030 and 2050. Therefore, the VMT impact of this alternative is greater than under the proposed MTP/SCS. For the reasons provided above, this alternative would also result in lower levels of transit ridership, walking, and biking for commute trips and all trips, and it would be less complementary to existing and planned bicycle and pedestrian facilities.

The projected land use pattern of this alternative would locate additional homes in Developing and Rural Residential Communities, which is expected to result in greater interference with the movement of agricultural equipment and farm products on rural roadways, because physical changes associated with development increased passenger vehicle trips on existing rural roadways may interfere with movement of agricultural equipment and limit or impede efficient access to farmland. There are no aspects of this alternative that would result in greater impacts related to disrupting aviation access or service of goods movement into or through the SACOG region, or inconsistency with project design standards related to project safety.

Construction-related transportation impacts would likely be greater under this alternative because the less compact land use pattern and additional lane miles of roadway and highway investments would subject a greater amount of land to construction activities and their resulting short-term disruptions to ongoing operations of regional and local area transportation systems.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Utilities and Service Systems

This alternative is anticipated to result in impacts to utilities and service systems (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment numbers are assumed. The larger share of rural residential and large-lot single-family homes under this alternative would likely increase the demand for surface and groundwater supplies because such housing units have higher demand for water, for example due to increased irrigation demand for landscaping areas and additional appliances and fixtures that use potable water (e.g., sinks, toilets, showers). As a result, this alternative could exceed the capacity of existing water storage, conveyance, distribution, and

treatment facilities to a greater degree than the proposed MTP/SCS and result in construction of new, expanded, or relocated facilities. These impacts of this alternative are greater than under the proposed MTP/SCS.

In addition, this alternative could adversely affect the capacity of the necessary utility conveyance and distribution systems (e.g. wastewater, fire flows, storm drain, electricity, natural gas, and telecommunications) due to a more dispersed projected land use pattern that makes it more difficult to efficiently serve the population Also, the increase in transportation capacity projects as compared to the proposed MTP/SCS would demand more water and energy and produce more waste during construction. All of the alternatives would be required to follow the same federal, state, and local statutes and regulations related to solid waste. This alternative would have the same impact related to solid waste generation and conflicts with solid waste management and reduction statutes and regulations.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

ALTERNATIVE 1: OUTWARD EXPANSION

Description of Alternative 1

Alternative 1 assumes the same growth and transportation investment as the proposed MTP/SCS, but with less compact development and less focus on maintaining and improving the current transportation system. Overall this alternative is the most dispersed and provides the fewest housing and transportation options. Table 18-1 summarizes key characteristics of all the alternatives, while Table 18-2 compares performance characteristics of each alternative.

Land Use Pattern

Compared to the other two alternatives and the proposed MTP/SCS, this alternative provides the most new large lot single-family and rural residential housing, the least amount of growth through infill and redevelopment, and the least improvement in jobs-housing balance within sub-areas of the region. Specifically, 61 percent of the new homes are small-lot or attached and just over half (51 percent) of the new homes are in Developing or Rural Residential Communities, which is significantly higher than the other alternatives. More specifically, this alternative assumes that growth will occur in a higher number of Developing Communities compared to the other alternatives. In other words, while the overall proportion of growth across community types in this scenario only varies by a few percent compared to the proposed MTP/SCS and Alternative 2, this growth is spread across more planned developments (57 new communities) and is spread across a wider area. This means that fewer communities are built out to the point where they have a full mix of amenities, jobs, and transportation options. This point is illustrated in part, by the much higher land consumption in Alternative 1 of almost 76,000 acres of land.

Transportation

Compared to the other two alternatives, Alternative 1 invests in the largest number of new roads and road expansion projects. Alternative 1 has less expansion of transit than the other alternatives. This is largely due to the more dispersed land use pattern.

Pricing

Compared to the other two alternatives, this alternative relies on higher fees for driving, in part because of greater expansion of the road and highway system that require a larger investment to build. Additionally, because of the more dispersed land use pattern, a greater price signal to drivers is needed to achieve the plan's objective to reduce vehicle miles traveled per capita.

Alternative 1 Attainment of Project Objectives

This alternative attains many project objectives, but less effectively and successfully than the proposed MTP/SCS.

Build Vibrant Places

While the land use pattern of this alternative has some Blueprint-supportive aspects, it would provide the lowest increase in housing options and the lowest increase in transportation options. Specifically, this alternative has the lowest share of housing in small-lot single-family or attached homes combined. Alternative 1 has the lowest number of housing near high-frequency transit (70,235) and shares the lowest number of jobs near high-frequency transit (102,624) with the No Project Alternative. This alternative would have the greatest amount of developed acres of all the alternatives due to its dispersed development pattern, which forecasts the highest proportion of growth in Developing Communities and in Rural Residential Communities. Similarly, it has the greatest impact on agriculture and natural resources.

Through the combination of land use and transportation changes, Alternative 1 would have the highest direct and indirect impacts to the environment. For instance, this alternative has the greatest increase in new or expanded major road lane miles (1,730) and the largest amount of developed acres (75,622) of all the alternatives due to the fact that it has the highest proportion of growth in Developing Communities and the largest share of homes in rural residential and large-lot single family homes of all the alternatives. This alternative would have the greatest amount of total developed acres of all the alternatives due to its dispersed development pattern, which forecasts the highest proportion of growth in Developing and Rural Residential Communities. This alternative meets the requirements for regional transportation plans and achieves the GHG reduction targets assigned to SACOG by CARB and would therefore activate the CEQA streamlining benefits of SB 375. To achieve the GHG targets with a more dispersed land use pattern, this alternative relies more heavily on system pricing strategies than the other alternatives. The per-mile fee included in this scenario is roughly two cents higher per mile than Alternative 2 or the proposed MTP/SCS.

Foster the Next Generation of Mobility Solutions

Alternative 1 has the same level of per capita household VMT (16.5) as both the proposed MTP/SCS and Alternative 2, but depends on increased cost on tolled facilities and mileage fees to manage VMT. The alternative has lower VMT per capita than both the baseline levels and the No Project Alternative. Alternative 1 has the lowest number of jobs and homes near high-frequency transit. While all of the alternatives are shown to broaden mobility options through increased mode-share for walking, biking, and transit, Alternative 1 has the smallest degree of mode shift of any alternative. Alternative 1 improves connections between workers to jobs over the baseline conditions, however it is less effective at meeting this objective than the proposed MTP/SCS and other alternatives, with the fewest jobs within a 30-minute drive or transit trip of homes of any alternative examined.

Modernize the Way We Pay for Transportation

Alternative 1 has the highest level of system pricing of any alternative. The pricing strategies included in this alternative support the objective to modernize the way that we pay for transportation by offering new avenues of funding for transportation improvements. However, the higher per-mile fees in this alternative could negatively impact lower income households and rural communities where there may be fewer alternatives to driving or a greater number of miles per trip relative to urban communities.

Build and Maintain a Safe, Reliable, and Multimodal Transportation System

Alternative 1 includes pricing strategies that help to generate funding for investment in the transportation system. This alternative has the largest expansion of the road and highway system, with 1,730 new or expanded road lane miles, so would likely have the least remaining funding available for investments in maintenance. Alternative 1 includes the second least increase in transit, walking, and bicycling trips, which may impact gains in economic vitality relative to other alternatives. Alternative 1 has the highest level of growth in Developing Communities, Rural Residential Communities, and total acres developed compared with the other alternatives. The larger urban footprint and more dispersed growth pattern makes goods movement travel less efficient between locations, increases encroachment on agricultural lands, and results in commuter traffic along rural roadways that may complicate safe and efficient farm-to-market access to farmlands.

Alternative 1 Environmental Impacts

The following discussion describes the relative level of environmental impact associated with Alternative 1 as compared to the level of environmental impact under implementation of the proposed MTP/SCS. The performance measures for this alternative and the proposed MTP/SCS are based on Table 18-2 unless stated otherwise.

Aesthetics

Impacts to scenic vistas from the projected land use pattern under this alternative would likely be less than under the proposed MTP/SCS, because this alternative assumes a significantly lower density and intensity of development. Structures are likely to be shorter and more dispersed, with less likelihood of blocking or impeding scenic vistas. Impacts to scenic vistas would be greater under this alternative due to the nearly 500 additional lane miles of new roads and capacity-enhancing projects. With a projected land use pattern that is more dispersed, and additional new roads and capacity-enhancing planned transportation improvements compared to the proposed MTP/SCS, this alternative would have greater impacts to scenic resources along official or eligible state scenic highways.

The potential for substantial degradation of visual character or quality of public views of sites and their surroundings in non-urbanized areas would be greater under this alternative as compared to the proposed MTP/SCS because under this alternative significantly more of the projected land use pattern would be located within existing non-urbanized areas, such as Developing and Rural Residential Communities. Impacts to visual character and the quality of public views of sites and their surroundings would also be greater under this alternative because it consists of a greater number of new roads and capacity-enhancing projects in non-urbanized areas relative to the proposed MTP/SCS. With a greater amount of the projected land use pattern and additional capacity-enhancing planned transportation improvements in non-urbanized areas, this alternative

would have greater impacts to existing visual character and the quality of public views of sites and their surroundings in non-urbanized areas. Impacts to scenic quality in urbanized areas would be the same as the proposed MTP/SCS because existing zoning and other regulations governing scenic quality would be equally enforced under this alternative.

Light and glare impacts to day or nighttime views under this alternative would likely be greater than under the proposed MTP/SCS because the projected land use pattern of this alternative would disturb nearly 30,000 more acres of land. As such, building and site lighting and potential sources of glare would be introduced on a larger geographic scale affecting more acres by comparison to the proposed MTP/SCS. In addition, because there are significantly more rural residential or large-lot single-family homes under this alternative, there would be fewer shared walls, which could result in the need for greater nighttime lighting as compared to attached structures that share walls. The less compact land use pattern of this alternative would introduce more sources of nighttime lighting in areas where existing nighttime views are not adversely affected by substantial sources of outdoor lighting (e.g., over 30,000 additional new homes in Developing Communities and nearly 8,000 additional new homes in Rural Residential Communities relative to the proposed MTP/SCS). Light and glare associated with planned transportation improvements would be greater than the proposed MTP/SCS because there would be nearly 500 additional lane miles of new or expanded roadway and highway projects, which could result in the addition of new sources of light and glare that could adversely affect nighttime views as compared to the proposed MTP/SCS.

Adverse effects of shadows from both the projected land use pattern and planned transportation improvements under this alternative would likely be less than under the proposed MTP/SCS, because of the lower density and intensity of development. Structures are likely to have fewer stories and be more dispersed, with less likelihood of creating adverse shadows. However, the beneficial effects of shadows from taller buildings and increased tree canopy, such as shade during periods of high heat, would occur to a lesser extent than under the proposed MTP/SCS.

Construction-related aesthetic impacts would be greater under this alternative for both projected land use pattern and planned transportation improvements because it would result in physical development of nearly 30,000 additional acres of land and nearly 500 additional lane miles of new roads and roadway expansion projects. Moreover, because more of this alternative's projected land use pattern would occur in existing non-urbanized areas and it consists of a greater number of capacity-enhancing planned transportation improvements relative to the proposed MTP/SCS, its construction activities would have greater impacts to scenic resources along state scenic highways, visual character and quality of existing sites and their surroundings, and day and nighttime views due to light and glare. Construction impacts to scenic vistas and related to casting shadows would be less than under the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Agriculture and Forestry Resources

Conversion of agricultural land (including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance), forest land, timberland, and timberland zoned Timberland Production to non-agricultural, non-forest, or non-timber uses under this alternative would be greater than under the proposed MTP/SCS because the projected land use pattern of t Alternative 1 would be significantly less compact and would disturb nearly 30,000 more acres of land, and the planned transportation improvements of this alternative would include nearly 500 more lane miles of new or

expanded roadway and highways relative to the proposed MTP/SCS. The additional land disturbance associated with the less compact land use pattern and additional roadway and highway lane miles of this alternative would occur in areas with agricultural land, forest land, and timberland. The potential for conflicts with zoning, land use designations, Williamson Act contracts, and/or other applicable regulations that protect agricultural and forestry resources and timberlands would also be greater for the same reasons. Similarly, the potential for other changes that could result in the conversion of agricultural land, forest land, and timber land to developed land uses would be greater due to increases in urban-rural edge areas under this alternative as compared to the proposed MTP/SCS.

Construction-related impacts to agricultural land, forest land, and timberland would likely be greater under this alternative than the proposed MTP/SCS for the reasons provided above. The additional land disturbance associated with the less compact land use pattern and additional roadway and highway lane miles of this alternative means that additional construction activities would occur in areas with agricultural land, forest land, and timberland.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Air Quality

Regional mobile source emissions of criteria air pollutants and ozone precursors would be similar to the proposed MTP/SCS under this alternative, even with a projected land use pattern that would be significantly less compact (almost 30,000 additional acres of land development) and place fewer jobs and significantly fewer homes near high-frequency transit service. The planned transportation improvements of this alternative include nearly 500 additional roadway and highway lane miles relative to the proposed MTP/SCS. The mode share for transit, walking, and bicycling would be lower for both commute trips and all trips. However, household generated VMT per capita (and the associated emissions of criteria air pollutants and ozone precursors) would be the same under this alternative as the proposed MTP/SCS because the alternative includes more aggressive pricing strategies that would result in higher fees for driving in order to reduce VMT.

As compared to the proposed MTP/SCS, the similar emissions of criteria air pollutants and ozone precursors would result in similar adverse health outcomes from greater exposure to concentrations of criteria air pollutants in excess of the NAAQS and CAAQS). This alternative would have the same impact related to implementation of or conflict with an applicable air quality plan.

The number of sensitive receptors exposed to substantial concentrations of TACs would likely be less under this alternative as compared to the proposed MTP/SCS. This is because TACs are pollutants of local rather than of regional concern. TACs dissipate quickly from their source resulting in significantly reduced concentrations at certain distances from a source (i.e., 500 feet). The overall number of sensitive receptors exposed to TAC emissions would likely be lower under this alternative because its significantly less compact land use pattern would allocate fewer people and housing units into Center, Corridor, and Established Communities. Housing units in these communities are more likely than other community types to be located in close proximity to roadways and freeways that generate substantial concentrations of TAC emissions. This impact would be less than under the proposed MTP/SCS.

This alternative would have the same odors impacts as the proposed MTP/SCS. It is possible that odor impacts could be lower due to greater dispersal of development over a larger area; therefore,

exposing fewer people at any one location. It is also possible, however, that the increase in overall developed acreage could result in increased exposure to odors because it would become more difficult to site land uses that introduce potential odor emissions within reasonable distances (e.g., SMAQMD's Recommended Odor Screening Distances) from existing or future populations susceptible to odor impacts (SMAQMD 2009).

Long-term operational criteria air emissions associated with area sources, such as natural gas emissions, landscaping equipment, applications of architectural coatings, and use of consumer products would be greater under this alternative as compared to the proposed MTP/SCS. This alternative includes relatively more rural residential and large-lot single family homes, and relatively fewer small-lot single-family or attached homes. Rural residential and large-lot single family homes tend to have higher energy (including natural gas) consumption and involve greater use of landscaping equipment and architectural coatings (and higher associated criteria air pollutant emissions) than small-lot single-family or attached homes.

Short-term construction criteria air pollutant emissions would be higher under this alternative because its less compact land use pattern would develop nearly 30,000 additional acres and its planned transportation improvements would include close to 500 additional lane miles of roadway and highway construction, which would result in additional emissions from construction equipment and vehicles and dust generation during construction activities such as site preparation, grading, excavation, and paving. This impact would be greater than under the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Biological Resources

Impacts (direct or through habitat modification) on candidate, sensitive, or special status species (including plants, wildlife, and fish) under this alterative would be greater than under the proposed MTP/SCS, because this alternative's projected land use pattern would be significantly less compact and include almost 30,000 additional acres of development, and its planned transportation improvements would include close to 500 additional roadway and highway lane miles. The additional land disturbance resulting from the projected land use pattern and planned transportation improvements of this alternative would generally occur in Developing Communities and Rural Residential Communities, which are less developed and include more biological resources than Center, Corridor, and Established Communities. The potential for impacts to riparian habitats, oak woodlands, other sensitive natural communities, state or federally protected wetlands, migratory wildlife corridors and native wildlife nursery sites, adopted HCP or NCCP, other approved habitat conservation plans, and local policies and ordinances protecting biological resources would be greater for the same reasons. This alternative would have greater impacts to fish or wildlife species habitat and population levels, the range of endangered or threatened species, and greater potential to threaten to eliminate a plant or animal community. Construction-related impacts to biological resources are likely to be greater under this alternative for the reasons provided above. The additional land disturbance associated with the significantly less compact land use pattern and additional roadway and highway lane miles of this alternative means that additional construction activities would occur in areas with biological resources, and would result in greater direct and indirect impacts to biological resources during construction activities (e.g., equipment staging, construction lighting and noise, dust generation and exhaust emissions).

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Cultural, Paleontological, and Tribal Cultural Resources

Impacts to cultural resources (historic built environments, archeological, paleontological, and tribal cultural resources, and human remains, and important examples of major periods of California history or prehistory) under this alterative would be greater than under the proposed MTP/SCS because this alternative's projected land use pattern would be significantly less compact and include nearly 30,000 additional acres of development, and its planned transportation improvements would include almost 500 additional roadway and highway lane miles. The additional land disturbance, such as grading and excavation, resulting from the projected land use pattern and planned transportation improvements of this alternative would result in greater likelihood of encountering unknown surface or subsurface archaeological, paleontological, and tribal cultural resources, or human remains; it would also result in greater impacts to the character of settings that contribute to the significance of historic built environments and to the traditional use and cultural character and integrity of tribal cultural resources. By subjecting a larger land area to disturbance and physical change this alternative would result in greater indirect impacts to tribal cultural resources by increasing public accessibility to tribal cultural resources. Construction activities under this alternative would also have greater impacts to historic built environments, archaeological, paleontological, and tribal cultural resources, human remains, and important examples of major periods of California history or prehistory for the reasons provided above.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Energy and Global Climate Change

While the less compact development pattern assumed for this alternative would ordinarily lead to increased VMT, thereby increasing GHG emissions, this alternative also assumes pricing strategies that would reduce VMT to the same level estimated under the proposed MTP/SCS. Therefore, this alternative would result in a 19 percent reduction in per capita CO_2 emissions by 2035 relative to a 2005 baseline, which attains the 19 percent reduction target established for SACOG by CARB. This alternative would not conflict with the SACOG region's achievement of its SB 375 GHG emissions reduction target, the same impact conclusion as the proposed MTP/SCS. Achievement of the SB 375 GHG reduction target contributes to achievement of the state's long-term climate goals set forth in CARB's 2017 Scoping Plan. Same as the proposed MTP/SCS, the per capita passenger vehicle GHG reductions achieved by this alternative would not be enough to achieve the state's long-term climate goals. Achievement of the SB 375 GHG reduction target under this alternative would also contribute to local GHG reduction plan goals. These impacts are the same as under the proposed MTP/SCS.

This alternative would likely result in increased use of energy and generation of GHG emissions during construction because it assumes fewer attached units, resulting in a larger number of individual detached structures. These individual structures require more energy for materials, more materials overall, and more fuels to build (e.g., additional equipment and vehicle use for site development, grading, and excavation affecting nearly 30,000 additional acres) than would be needed for attached structures. Construction impacts from planned transportation improvements would also likely be greater because of the additional energy consumed and GHG emissions generated to construct nearly 500 additional lane miles of road and highway improvements. Per-capita energy consumption under this alternative would be greater than under the proposed MTP/SCS because this alternative would result in a significantly less compact land use pattern. This alternative also includes a housing mix with a greater proportion of large-lot single-family homes (39 percent) as

compared to the proposed MTP/SCS (26 percent). Because this alternative includes more large-lot single-family homes, which require more energy per capita as compared to attached and multi-family homes, it would likely result in more energy use per capita as compared to the proposed MTP/SCS. While it would be likely that, as compared to baseline conditions (2016), per capita energy consumption would go down under this alternative, per capita energy consumption would be higher than under the proposed MTP/SCS. Therefore, this alternative would result in greater impacts related to the wasteful, inefficient, or unnecessary consumption of energy during construction activities and long-term operations.

This alternative is likely to have a similar impact on state and local plans for renewable energy or energy efficiency as compared to the proposed MTP/SCS. Use of some renewable energy sources could be facilitated, while the use of other renewable energy sources could be hindered by this alternative. The economics of some small-scale renewable energy sources benefit from serving higher density development and development patterns that produce balanced loads and minimize peak demand; other renewable energy sources require larger areas of land to site, making lower density patterns more optimal. Implementation of the California Energy Code and State goals for increasing the percentage of electricity from renewable and zero-carbon sources under this alternative would be the same as under the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Geology, Soils, Seismicity, and Mineral Resources

The following impacts associated with earthquakes and seismic activity under this alternative would be the same as the proposed MTP/SCS: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; and landslides. Existing state laws and state and local building code requirements addressing substantial adverse effects due to earthquakes and seismic activity would apply to the projected land use pattern and planned transportation improvements of the proposed MTP/SCS. The following operational and construction impacts of this alternative would be greater than the proposed MTP/SCS because this alternative includes a significantly less compact land use pattern that would develop nearly 30,000 additional acres, including additional land development within Developing Communities and Rural Residential Communities: soil erosion and loss of topsoil; on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse; development on expansive soil; and inadequate soils for alternative wastewater systems. The more compact land use pattern of the proposed MTP/SCS projects less land development within areas subject to adverse impacts from the geologic and soils conditions.

Impacts to unique geologic features and mineral resources would be greater under this alternative than under the proposed MTP/SCS because the projected land use pattern of this alternative is less compact and would develop nearly 30,000 additional acres and the planned transportation improvements include nearly 500 additional lane miles on the roadway and highway network. The additional land disturbance resulting from the projected land use pattern and planned transportation improvements under this alternative would result in greater impacts to unique geologic features and restricted access to and potentially the inability to harvest a greater proportion of mineral resources, including those of value to the region and the state, and locally-important mineral resource recovery sites delineated on a local land use plan.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hazards, Hazardous Materials, and Wildfire

Hazardous materials impacts to the public or the environment associated with construction activities and operations under this alternative would be the same as the impacts under the proposed MTP/SCS. This is because of the numerous federal, state, and local requirements and regulations that minimize the creation of significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials; through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment and through handling of hazardous materials, substances, and waste within 0.25 mile of an existing or proposed school. These existing requirements and regulations would apply equally to the different projected land use patterns and planned transportation network improvements of this alternative and the proposed MTP/SCS, so impacts would be the same. The same is true for existing requirements and regulations addressing potential safety hazards and excessive noise within an airport land use plan or within two miles of a public or public use airport, so airport-related safety and noise impacts to people residing or working in the plan area would be the same under this alternative.

This alternative assumes a less compact land use pattern dispersed over almost 30,000 additional acres and close to 500 additional lane miles of road and highway construction. The additional land disturbance including site preparation and grading during construction activities under this alternative could expose more people such as construction workers or nearby residents and employees or the environment to significant hazards involving the accidental release of naturally occurring asbestos and hazardous materials present in soil or groundwater, such as aerially-deposited lead in exposed surface soils immediately adjacent to existing roadways and highways. The less compact land use pattern of this alternative includes fewer homes and jobs within Center, Corridor, and Established Communities relative to the proposed MTP/SCS, where sites included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, such as those contaminated by past industrial uses are more likely to occur. Therefore, impacts associated with development on such hazardous materials sites would be less under this alternative.

Additionally, construction impacts would be greater for this alternative, because it assumes a lower number of attached units, resulting in a larger number of individual detached structures, and a larger land area to accommodate its projected land use pattern, and construction of additional lane miles of transportation capacity projects. Construction-related activities will require the use of construction equipment and materials, which may include hazardous substances and/or release hazardous materials into the environment.

The more dispersed land use pattern and additional lane miles of roadway and highway construction under this alternative would be more automobile-oriented than the proposed MTP/SCS and could complicate emergency evacuation plans that rely in part on public transit. This alternative also would result in a greater share of homes within Rural Residential Communities, which have a higher risk of wildfire than other Community Types and when developed are more likely to exacerbate post-fire flooding or landslide hazards that would require emergency responses or emergency evacuation. Therefore the less compact land use pattern of this alternative would result in greater impacts associated with impairing the implementation of adopted emergency response and emergency evacuation plans (including within or near state responsibility areas or lands classified as very high fire hazard severity zones), exposing people or structures to significant risk of loss, injury, or death involving wild land fire, and exacerbating wildfire risk or post-fire flooding or landslide hazards.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hydrology and Water Quality

Impacts associated with hydrology and water quality under this alternative would be greater than under the proposed MTP/SCS because its significantly less compact land use pattern and significantly more lane miles of roadway and highway construction would result in disturbance to a larger land area during construction activities and would permanently convert a greater amount of land to impervious surfaces, such as parking lots, buildings, roadways, highways, and other paved areas, as compared to the proposed MTP/SCS. The additional land area subject to construction disturbance would increase potential for short-term discharge of pollutants from construction sites into surface or groundwater. Construction impacts to hydrology and water quality would be greater under this alternative.

The additional land area permanently converted to impervious surfaces would increase the potential volume and decrease the water quality of stormwater and nonstormwater flows. Additional impervious surfaces also would interfere with groundwater recharge and alter drainage patterns in a manner that would increase the potential for substantial erosion, siltation, and flooding relative to the proposed MTP/SCS. This alternative would require greater storm drainage system capacity than the proposed MTP/SCS because of its conversion of additional land area to impervious surface area. In addition, the housing mix of this alternative would include a larger number of rural residential and large-lot single-family homes, which would result in more managed landscaping areas and associated pollutants such as nutrients, herbicides, and irrigated runoff, which in turn could adversely affect surface and groundwater quality. Because the projected land use pattern and planned transportation improvements of this alternative would convert a greater amount of land to impervious surfaces that would collect water quality contaminants, this alternative would increase the risk of release of pollutant if such impervious surfaces areas were inundated during a flood hazard or seiche. The projected land use pattern and planned transportation improvements of this alternative would not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan, but for the reasons described above implementing the goals and objectives of these plans would be more difficult under this alternative as compared to the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Land Use and Planning

The less compact land use pattern of this alternative provides less connectivity within existing communities because of its more disperse allocation of future growth, but it would not physically divide any existing communities. This impact is the same as under the proposed MTP/SCS. New roadway or highway improvements can physically divide existing communities by providing physical barriers where none previously existing. Expansion of existing roadways and highways also can physically divide existing communities to the extent that wider facilities with additional lanes represent greater physical barriers than narrower facilities. The planned transportation improvements of this alternative would include close to 500 additional lane miles along the roadway and highway network. The planned transportation improvements of this alternative would result in greater impacts from physically dividing existing communities.

This alternative would substantively satisfy the SCS requirements of SB 375, including achievement of the 19 percent per capita passenger vehicle CO_2 emissions reduction target established for SACOG by CARB. This is impact is the same as under the proposed MTP/SCS.

All of the alternatives direct growth to areas within city boundaries in the Delta, and all subsequent projects within the proposed MTP/SCS that fall within the LURMP boundaries will be required to demonstrate consistency with the LURMP and satisfy mitigation requirements. However, because this alternative would include a less compact land use pattern and additional lane miles of roadway and highway improvements that would result in additional land disturbance relative to the proposed MTP/SCS, it would have greater impacts to resources within the Delta that are protected by the provisions of the 2010 LURMP, including agriculture, biological resources, and recreational land, and from contaminated runoff and construction of new utilities facilities, especially at the rural-urban edge. Impacts to these resources under this alternative may not rise to the level of a conflict with the 2010 LURMP, but for the reasons describe above implementing its goals would be more difficult under this alternative as compared to the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Noise and Vibration

This alternative would generate noise levels generally similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. However, the significantly less compact land use pattern of this alternative would direct more housing growth to Developing and Rural Residential Communities, increasing localized operational noise levels in these areas that tend to have lower existing noise levels than more developed and urbanized communities. Noise thresholds could be exceeded in these communities. The additional lane miles of roadway and highway improvements under this alternative could lead to increased traffic volumes and associated localized noise levels, and noise thresholds could be exceeded. Operational noise impacts of the projected land use pattern and planned transportation improvements of this alternative would be greater than under the proposed MTP/SCS.

The projected land use pattern of this alternative, while less compact than the proposed MTP/SCS, would not result in land use types that would result in different levels of vibration or groundborne noise. The planned transportation improvements of this alternative would include additional lane miles of roadway and highway improvements, but this would also not result in significantly different levels of vibration or groundborne noise relative to the planned transportation improvements identified in the proposed MTP/SCS. This impact is the same under this alternative.

There would potentially be greater construction-related noise impacts under this alternative due to the nearly 30,000 acres of additional land area that would be subject to disturbance during construction activities associated with the less compact land use pattern and the nearly 500 additional lane miles of construction along the roadway and highway network. This would increase the number of separate construction sites, which would exacerbate overall noise levels associated with construction activities.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Population and Housing

Impacts related to population and housing should be similar under all alternatives, because the same number of people and dwelling units are assumed. The less compact land use pattern of this alternative and its additional lane miles of roadway and highway improvements would not result in

displacement of substantial numbers of people or existing housing that necessitates the construction of replacement housing elsewhere. This impact is the same as the proposed MTP/SCS.

No mitigation measures were identified for the proposed MTP/SCS.

Public Services and Recreation

This alternative is anticipated to result in public service and recreation impacts (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS, because the same total population, housing, and employment are assumed. However, this alternative could exacerbate the ability to achieve local levels of service due to the significantly more dispersed land use pattern that makes it more difficult to efficiently serve the population. This impact is greater than the proposed MTP/SCS. The planned transportation improvements of this alternative would have the same public services and recreation impacts as the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Transportation

This alternative would result in the same rate of household generated VMT per capita as the proposed MTP/SCS. This alternative includes pricing strategies that increase the cost of driving to compensate for the relatively higher household generated VMT per capita that would otherwise occur because of its significantly less compact land use pattern and significant increase in construction of roadway and highway lane miles. According to CARB much greater VMT reductions (beyond those achieved by the proposed MTP/SCS and this alternative) will be required to meet the state's long-term climate goals for 2030 and 2050. Therefore, the VMT impact of this alternative is the same as under the proposed MTP/SCS. However, the projected land use pattern and planned transportation improvements of this alternative are more automobile-oriented than the those of the proposed MTP/SCS and would result in lower levels of transit ridership, walking, and biking for commute trips and all trips, and it would be less complementary to existing and planned bicycle and pedestrian facilities. These impacts are greater than under the proposed MTP/SCS.

The projected land use pattern of this alternative would locate significantly more homes in Developing and Rural Residential Communities, which is expected to result in greater interference with the movement of agricultural equipment and farm products on rural roadways, because physical changes associated with development increased passenger vehicle trips on existing rural roadways may interfere with movement of agricultural equipment and limit or impede efficient access to farmland. There are no aspects of this alternative that would result in greater impacts related to disrupting aviation access or service of goods movement into or through the SACOG region, or inconsistency with project design standards related to project safety.

Construction-related transportation impacts would likely be greater under this alternative because the less compact land use pattern and additional lane miles of roadway and highway investments would subject a greater amount of land to construction activities and their resulting short-term disruptions to ongoing operations of regional and local area transportation systems.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Utilities and Service Systems

This alternative is anticipated to result in impacts to utilities and service systems (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. The larger share of rural residential and large-lot single-family homes under this alternative would likely increase the demand for surface and groundwater supplies because such housing units have higher demand for water, for example due to increased irrigation demand for landscaping areas and additional appliances and fixtures that use potable water (e.g., sinks, toilets, showers). As a result, this alternative could exceed the capacity of existing water storage, conveyance, distribution, and treatment facilities to a greater degree than the proposed MTP/SCS and result in construction of new, expanded, or relocated facilities. These impacts of this alternative are greater than under the proposed MTP/SCS.

In addition, this alternative could adversely affect the capacity of the necessary utility conveyance and distribution systems (e.g. wastewater, fire flows, storm drain, electricity, natural gas, and telecommunications) due to a significantly more dispersed projected land use pattern that makes it more difficult to efficiently serve the population Also, the significant increase in transportation capacity projects as compared to the proposed MTP/SCS would demand more water and energy and produce more waste during construction. All of the alternatives would be required to follow the same federal, state, and local statutes and regulations related to solid waste. This alternative would have the same impact related to solid waste generation and conflicts with solid waste management and reduction statutes and regulations.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

ALTERNATIVE 2: INFILL & TRANSIT FOCUS

The following discussion describes the relative level of environmental impact associated with Alternative 2 as compared to the level of environmental impact under implementation of the proposed MTP/SCS. The performance measures for this alternative and the proposed MTP/SCS are based on Table 18-2 unless stated otherwise.

Description of Alternative 2

This alternative assumes the same growth in population, jobs, and housing numbers as the proposed MTP/SCS, but with more compact and mixed land uses. Overall this alternative would be less dispersed than the proposed MTP/SCS. This alternative includes a more compact growth footprint and increased transit service for the purposes of gaining an understanding of what would be required to generate a high increase in transit ridership. To achieve this level of transit performance for Alternative 2, land use assumptions were made that go beyond the federal requirements of what is reasonable to assume. For instance, the alternative relies on a higher amount of attached housing, especially near transit, than the market and financial incentives currently will support. Additionally, Alternative 2 includes a high funding allocation for transit and relies on an exceptionally high farebox recovery rate, which would be unlikely to occur under current operations.

Table 18-1 summarizes key characteristics of all the alternatives, while Table 18-2 compares performance characteristics of each alternative.

Land Use Pattern

Alternative 2 has the highest percentage of new compact housing (76 percent) and the smallest development footprint in comparison to the proposed MTP/SCS and the alternatives described above. This alternative would have the highest percentage of new homes in Center and Corridor Communities and the least amount of new growth in Developing Communities and Rural Residential Communities. Like the description for Alternative 1, the proportion of growth in this alternative across community types is not significantly different from the proposed MTP/SCS; however, growth in these communities is distributed among fewer new developments (47 new communities). Therefore, these communities would be more built out with a higher mix of uses, access to local amenities and jobs, and more transportation options under Alternative 2.

Transportation

Because it has the least dispersed development pattern, this alternative has the highest amount of bus and rail projects of all of the alternatives and would increase transit service (vehicle service hours) by 130 percent from 2016. It also has the highest amount of bicycle and pedestrian projects, and the fewest new roads and road expansions.

Pricing

Compared to the other two alternatives, this alternative relies on lower fees for driving, in part because the reduced expansion of new roads and highways requires a smaller investment to build and maintain. Additionally, because of the more compact land use pattern and robust transit system, a smaller price signal to drivers is needed to achieve the plan's objective to reduce vehicle miles traveled per capita.

Alternative 2 Attainment of Project Objectives

Build Vibrant Communities

This alternative would have the lowest number of total new homes in Rural Residential Communities (2,601) as compared to all the alternatives being analyzed and fewer new homes in Developing Communities (93,646) than Alternative 1 and the No Project Alternative. Alternative 2 would have the highest number of attached or small-lot single-family homes (197,697). While this alternative is consistent with the objective of increasing housing choice, it may result in more attached housing than the market and financial incentives currently will support. This alternative has the highest share of jobs near high-frequency transit (43 percent) of any alternative examined, as well as a large number of homes in high-frequency transit areas (101,450), though fewer than those in the proposed MTP/SCS. This alternative would have the smallest amount of developed acres (37,350) of all the alternatives due to the fact that it has the highest proportion of growth in Center and Corridor Communities and the highest proportion of compact housing- such as small lot single family homes or attached homes- of all of the alternatives. As such, this alternative would also result in the smallest amount of converted farmland and impacted biological resources. This alternative meets the requirements for regional transportation plans and achieves the GHG reduction targets assigned to SACOG by CARB and would therefore activate the CEQA streamlining benefits of SB 375.

Foster the Next Generation of Mobility Solutions

Alternative 2 has the greatest increase in bicycle and pedestrian projects, including complete streets, and the smallest increase in new or expanded major roadways. Alternative 2 has the same level of per capita household VMT (16.5) as both the proposed MTP/SCS and Alternative 1, but relies more on a compact land use pattern and lower pricing than the proposed MTP/SCS and Alternative 1. Alternative 2 has lower VMT than both the baseline levels and the No Project Alternative. Transit, bike, and walk travel mode shares increase substantially due to the supportive land uses and the focus on these investments. Alternative 2 has the largest number of jobs within a 30-minute drive of residence, slightly outperforming the proposed MTP/SCS. Due to the strong emphasis on transit investment, this alternative also has the highest number of jobs within a 30-minute transit ride from home, as well as the highest increase in the share of commute trips made by transit, walking, or biking. Alternative 2 and the proposed MTP/SCS also share the lowest VMT per worker (16.1).

Modernize the Way We Pay for Transportation

Alternative 2 has lower per-mile pricing than the proposed MTP/SCS and Alternative 1. The increase in pricing strategies over the No Project Alternative offer new funding opportunities to replace diminishing fuel tax revenues and fund investments in transportation infrastructure and system maintenance. However, this alternative relies less on pricing for achieving the GHG target compared to the proposed MTP/SCS and Alternative 1.

Build and Maintain a Safe, Reliable, and Multimodal Transportation System

Alternative 2 includes pricing strategies that help to generate funding for investment in the transportation system. Alternative 2 limits investment in new roadway capacity, emphasizing investment in transit. Alternative 2 has the highest investment in transit service; however, may be less cost-effective than the balance of investments in the proposed MTP/SCS, with this alternative demonstrating just a marginal increase in mode share of transit, walking, and biking above the levels in the proposed MTP/SCS, despite this greater level of investment. The compact land use pattern of Alternative 2 minimizes interference with agricultural lands, with the smallest total acreage of new development. This alternative has the highest investment in transit, with weekday service hours. This investment in the transit system and the increase in service levels under this alternative may assist emergency evacuations, in support of safety and emergency preparedness objectives.

Alternative 2 Environmental Impacts

Aesthetics

Impacts to scenic vistas from the projected land use pattern under this alternative would likely be greater than under the proposed MTP/SCS, because this alternative assumes a higher density and intensity of development. Structures are likely to be taller and more concentrated, with greater likelihood of blocking or impeding scenic vistas. Impacts to scenic vistas would be less under the planned transportation improvements of this alternative due to the fewer lane miles of new roads and capacity-enhancing projects. With a projected land use pattern that is more compact, and fewer lane miles of new roads and capacity-enhancing planned transportation improvements compared to the proposed MTP/SCS, this alternative would have less impacts to scenic resources along official or eligible state scenic highways.

The potential for substantial degradation of visual character or quality of public views of sites and their surroundings in non-urbanized areas would be less under this alternative as compared to the

proposed MTP/SCS because under this alternative a smaller share of the projected land use pattern would be located within existing non-urbanized areas, such as Rural Residential Communities. Impacts to visual character and the quality of public views of sites and their surroundings would also be less under this alternative because it consists of fewer lane miles of new roads and capacity-enhancing projects in non-urbanized areas relative to the proposed MTP/SCS. With a more compact projected land use pattern and fewer capacity-enhancing planned transportation improvements in non-urbanized areas, this alternative would have less impacts to existing visual character and the quality of public views of sites and their surroundings in non-urbanized areas. Impacts to scenic quality in urbanized areas would be same as the proposed MTP/SCS because existing zoning and other regulations governing scenic quality are mandatory and would be equally enforced under this alternative.

Light and glare impacts to day or nighttime views under this alternative would likely be less than under the proposed MTP/SCS because the projected land use pattern of this alternative would disturb approximately 9,000 fewer acres of land. As such, building and site lighting and potential sources of glare would be introduced on a smaller geographic scale affecting fewer acres and more focused in existing communities that already feature building and site lighting and source of glare. In addition, because there are fewer rural residential or large-lot single-family homes under this alternative, there would be fewer detached structures, which could result in the need for less nighttime lighting. The more compact land use pattern of this alternative would introduce fewer sources of nighttime lighting in areas where existing nighttime views are not adversely affected by substantial sources of outdoor lighting. Light and glare associated with planned transportation improvements would be less than the proposed MTP/SCS because there would be 28 fewer lane miles of new or expanded roadway and highway projects, which would reduce the addition of new sources of light and glare that could adversely affect nighttime views as compared to the proposed MTP/SCS.

Adverse effects of shadows from both the projected land use pattern and planned transportation improvements under this alternative would likely be greater than under the proposed MTP/SCS, because of the increased density and intensity of development. Structures are likely to be taller and more concentrated, increasing the likelihood of creating adverse shadows. However, the beneficial effects of shadows from taller buildings and increased tree canopy, such as shade during periods of high heat, would occur to a greater extent than under the proposed MTP/SCS.

Construction-related aesthetic impacts would be less under this alternative for both projected land use pattern and planned transportation improvements because it would result in physical development of approximately 9,000 fewer acres of land and 28 fewer lane miles of new roads and roadway expansion projects. Moreover, because a smaller proportion of this alternative's projected land use pattern would occur in existing non-urbanized areas and it consists of a lesser number of capacity-enhancing planned transportation improvements relative to the proposed MTP/SCS, its construction activities would have fewer impacts to scenic resources along state scenic highways, visual character and quality of existing sites and their surroundings, and day and nighttime views due to light and glare. Construction impacts to scenic vistas and related to casting shadows would be the same as under the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Agriculture and Forestry Resources

Conversion of agricultural land (including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance), forest land, timberland, and timberland zoned Timberland Production to non-agricultural, non-forest, or non-timber uses under this alternative would be less than under the proposed MTP/SCS because the projected land use pattern of the Alternative 2 would be more compact and would disturb approximately 9,000 fewer acres of land, and the planned transportation improvements of this alternative would include 28 fewer lane miles of new or expanded roadway and highways relative to the proposed MTP/SCS. The more compact land use pattern and fewer roadway and highway lane miles of this alternative would reduce the amount of land disturbance in areas with agricultural land, forest land, and timberland. The potential for conflicts with zoning, land use designations, Williamson Act contracts, and/or other applicable regulations that protect agricultural and forestry resources and timberlands would also be less for the same reasons. Similarly, the potential for other changes that could result in the conversion of agricultural land, forest land, and timber land to developed land uses would be less due to decreases in urban-rural edge areas under this alternative as compared to the proposed MTP/SCS.

Construction-related impacts to agricultural land, forest land, and timberland would likely be less under this alternative than the proposed MTP/SCS for the reasons provided above. The reduced land disturbance associated with the less compact land use pattern and additional roadway and highway lane miles of this alternative means that fewer construction activities would occur in areas with agricultural land, forest land, and timberland.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Air Quality

Regional mobile source emissions of criteria air pollutants and ozone precursors would be similar to the proposed MTP/SCS under this alternative as indicated by the same projected household VMT per capita performance as the proposed MTP/SCS. As compared to the proposed MTP/SCS, the similar emissions of criteria air pollutants and ozone precursors would result in similar adverse health outcomes from greater exposure to concentrations of criteria air pollutants in excess of the NAAQS and CAAQS. This alternative would have the same impact related to implementation of or conflict with an applicable air quality plan.

The number of sensitive receptors exposed to substantial concentrations of (TACs) would likely be greater under this alternative as compared to the proposed MTP/SCS. This is because TACs are pollutants of local rather than of regional concern. TACs dissipate quickly from their source resulting in significantly reduced concentrations at certain distances from a source (i.e., 500 feet). The overall number of sensitive receptors exposed to TAC emissions would likely be greater under this alternative because its more compact land use pattern would allocate more people and housing units into Center, Corridor, and Established Communities. Housing units in these communities are more likely than other community types to be located in close proximity to roadways and freeways that generate substantial concentrations of TAC emissions. This impact would be greater than under the proposed MTP/SCS.

This alternative would have the same odors impacts as the proposed MTP/SCS. It is possible that odor impacts could be greater due to more concentration of development in a smaller area; therefore, exposing more people at any one location. It is also possible, however, that the decrease

in overall developed acreage could result in decreased exposure to odors because it would be relatively more opportunities to site land uses that introduce potential odor emissions within reasonable distances (e.g., SMAQMD's Recommended Odor Screening Distances) from existing or future populations susceptible to odor impacts (SMAQMD 2009).

Long-term operational criteria air emissions associated with area sources, such as natural gas emissions, landscaping equipment, applications of architectural coatings, and use of consumer products, would be less under this alternative as compared to the proposed MTP/SCS. This alternative includes relatively fewer rural residential and large-lot single family homes, and relatively more small-lot single-family or attached homes. Rural residential and large-lot single family homes tend to have higher energy (including natural gas) consumption and involve greater use of landscaping equipment and architectural coatings (and higher associated criteria air pollutant emissions) than small-lot single-family or attached homes.

Short-term construction criteria air pollutant emissions would be lower under this alternative because its more compact land use pattern would develop approximately 9,000 fewer acres and its planned transportation improvements would include 28 fewer lane miles of roadway and highway construction, which would result in lower emissions from construction equipment and vehicles and dust generation during construction activities such as site preparation, grading, excavation, and paving. This impact would be less than under the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Biological Resources

Impacts (direct or through habitat modification) on candidate, sensitive, or special status species (including plants, wildlife, and fish) under this alterative would be less than under the proposed MTP/SCS, because this alternative's projected land use pattern would be more compact and include approximately 9,000 fewer acres of development, and its planned transportation improvements would include 28 fewer roadway and highway lane miles. The reduced land disturbance resulting from the projected land use pattern and planned transportation improvements of this alternative would generally occur in Rural Residential Communities, which are less developed and include more biological resources than Center, Corridor, and Established Communities. The potential for impacts to riparian habitats, oak woodlands, other sensitive natural communities, state or federally protected wetlands, migratory wildlife corridors and native wildlife nursery sites, adopted HCP or NCCP, other approved habitat conservation plans, and local policies and ordinances protecting biological resources would be lower for the same reasons. This alternative would have less impacts to fish or wildlife species habitat and population levels, the range of endangered or threatened species, and potential to threaten to eliminate a plant or animal community. Construction-related impacts to biological resources are likely to be less under this alternative for the reasons provided above. The reduced land disturbance associated with the more compact land use pattern and fewer roadway and highway lane miles of this alternative means that less construction activities would occur in areas with biological resources, and would result in less direct and indirect impacts to biological resources during construction activities (e.g., equipment staging, construction lighting and noise, dust generation and exhaust emissions).

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Cultural, Paleontological, and Tribal Cultural Resources

Impacts to cultural resources (historic built environments, archeological, paleontological, and tribal cultural resources, and human remains, and important examples of major periods of California history or prehistory) under this alterative would be less than under the proposed MTP/SCS because this alternative's projected land use pattern would be more compact and include approximately 9,000 fewer acres of development, and its planned transportation improvements would include 28 fewer roadway and highway lane miles. The reduced land disturbance, such as grading and excavation, resulting from the projected land use pattern and planned transportation improvements of this alternative would result in lower likelihood of encountering unknown surface or subsurface archaeological, paleontological, and tribal cultural resources, or human remains; it would also result in less impacts to the character of settings that contribute to the significance of historic built environments and to the traditional use and cultural character and integrity of tribal cultural resources. By subjecting a smaller land area to disturbance and physical change this alternative would result in less indirect impacts to tribal cultural resources by resulting in a smaller increase in public accessibility to tribal cultural resources relative to the proposed MTP/SCS. Construction activities under this alternative would also have less impacts to historic built environments, archaeological, paleontological, and tribal cultural resources, human remains, and important examples of major periods of California history or prehistory for the reasons provided above.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Energy and Global Climate Change

This alternative would result in a 19 percent reduction in per capita CO_2 emissions by 2035 relative to a 2005 baseline, which attains the 19 percent reduction target established for SACOG by CARB. Therefore, this alternative would not conflict with the SACOG region's achievement of its SB 375 GHG emissions reduction target, the same impact as the proposed MTP/SCS. Achievement of the SB 375 GHG reduction target contributes to achievement of the state's long-term climate goals set forth in CARB's 2017 Scoping Plan. Same as the proposed MTP/SCS, the per capita passenger vehicle GHG reductions achieved by this alternative would not be enough to achieve the state's long-term climate goals. Achievement of the SB 375 GHG reduction target under this alternative would also contribute to local GHG reduction plan goals. These impacts are the same as under the proposed MTP/SCS.

This alternative would likely result in decreased use of energy and generation of GHG emissions during construction because it assumes more attached units and fewer individual detached structures. These individual detached structures require more energy for materials, more materials overall, and more fuels to build than would be needed for attached structures. Construction impacts from planned transportation improvements would also likely be fewer because of the decreased energy consumed and GHG emissions generated to construct 28 fewer lane miles of road and highway improvements. Per-capita energy consumption under this alternative would be lower than under the proposed MTP/SCS because this alternative would result in a more compact land use pattern. This alternative also includes a housing mix with fewer large-lot single-family homes (24 percent) and more small-lot single-family or attached homes (76 percent) as compared to the proposed MTP/SCS (26 percent and 74 percent, respectively). As a result, this alternative would likely result in lower energy use per capita because small-lot single-family and attached homes require less energy per capita as compared to large-lot single-family homes. This alternative would

result in less impacts related to the wasteful, inefficient, or unnecessary consumption of energy during construction activities and long-term operations.

This alternative is likely to have less impact on state and local plans for renewable energy or energy efficiency as compared to the proposed MTP/SCS. Use of renewable energy sources could be facilitated by this alternative. The economics of some small-scale renewable energy sources benefit from serving higher density development and development patterns that produce balanced loads and minimize peak demand; other renewable energy sources would benefit from larger areas of land required for siting, making more compact land use patterns more compatible than more dispersed development. Implementation of the California Energy Code and State goals for increasing the percentage of electricity from renewable and zero-carbon sources under this alternative would be the same as under the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Geology, Soils, Seismicity and Mineral Resources

The following impacts associated with earthquakes and seismic activity under this alternative would be the same as the proposed MTP/SCS: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; and landslides. Existing state laws and state and local building code requirements addressing substantial adverse effects due to earthquakes and seismic activity would apply to the projected land use pattern and planned transportation improvements of the proposed MTP/SCS. The following operational and construction impacts of this alternative would be less than the proposed MTP/SCS because this alternative includes a more compact land use pattern that would develop approximately 9,000 fewer acres: soil erosion and loss of topsoil; on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse; development on expansive soil; and inadequate soils for alternative wastewater systems. The projected land use pattern of the proposed MTP/SCS projects more land development within areas subject to adverse impacts from the geologic and soils conditions than this alternative.

Impacts to unique geologic features and mineral resources would be less under this alternative than under the proposed MTP/SCS because the projected land use pattern of this alternative is more compact and would develop fewer acres and the planned transportation improvements include 28 fewer lane miles on the roadway and highway network. The decreased land disturbance resulting from the projected land use pattern and planned transportation improvements under this alternative would result in less impacts to unique geologic features and restricted access to and potentially the inability to harvest a greater proportion of mineral resources, including those of value to the region and the state, and locally-important mineral resource recovery sites delineated on a local land use plan.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hazards, Hazardous Materials, and Wildfire

Hazardous materials impacts to the public or the environment associated with construction activities and operations under this alternative would be the same as the impacts under the proposed MTP/SCS. This is because of the numerous federal, state, and local requirements and regulations that minimize the creation of significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials; through reasonably foreseeable upset and

accident conditions involving the release of hazardous materials into the environment and through handling of hazardous materials, substances, and waste within 0.25 mile of an existing or proposed school. These existing requirements and regulations would apply equally to the different projected land use patterns and planned transportation network improvements of this alternative and the proposed MTP/SCS, so impacts would be the same. The same is true for existing requirements and regulations addressing potential safety hazards and excessive noise within an airport land use plan or within two miles of a public or public use airport, so airport-related safety and noise impacts to people residing or working in the plan area would be the same under this alternative.

This alternative assumes a more compact land use pattern dispersed over approximately 9,000 fewer acres and 28 fewer lane miles of road and highway construction. The decreased land disturbance including site preparation and grading during construction activities under this alternative would expose fewer people such as construction workers or nearby residents and employees or the environment to significant hazards involving the accidental release of naturally occurring asbestos and hazardous materials present in soil or groundwater, such as aerially-deposited lead in exposed surface soils immediately adjacent to existing roadways and highways. The more compact land use pattern of this alternative includes more homes and jobs within Center, Corridor, and Established Communities relative to the proposed MTP/SCS, where sites included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, such as those contaminated by past industrial uses are more likely to occur. Therefore, impacts associated with development on such hazardous materials sites would be greater under this alternative.

Additionally, construction impacts would be less for this alternative because it assumes a more compact land use pattern dispersed over approximately 9,000 fewer acres and 28 fewer lane miles of road and highway construction. Construction-related activities will require the use of construction equipment and materials, which may include hazardous substances and/or release hazardous materials into the environment.

The more compact land use pattern and fewer lane miles of roadway and highway construction under this alternative would be more transit-oriented than the proposed MTP/SCS and could complement emergency evacuation plans that rely in part on public transit to a greater degree. This alternative also would result in a lower share of homes within Rural Residential Communities, which have a higher risk of wildfire than other Community Types and when developed are more likely to exacerbate post-fire flooding or landslide hazards that would require emergency responses or emergency evacuation. Therefore the more compact land use pattern of this alternative would result in less impacts associated with impairing the implementation of adopted emergency response and emergency evacuation plans (including within or near state responsibility areas or lands classified as very high fire hazard severity zones), exposing people or structures to significant risk of loss, injury, or death involving wild land fire, and exacerbating wildfire risk or post-fire flooding or landslide hazards.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hydrology and Water Quality

Impacts associated with hydrology and water quality under this alternative would be less than under the proposed MTP/SCS because its more compact land use pattern and fewer lane miles of roadway and highway construction would result in disturbance to a smaller land area during construction activities and would permanently convert a smaller amount of land to impervious surfaces, such as

parking lots, buildings, roadways, highways, and other paved areas, as compared to the proposed MTP/SCS. The decreased land area subject to construction disturbance would decrease potential for short-term discharge of pollutants from construction sites into surface or groundwater. Construction impacts to hydrology and water quality would be less under this alternative.

The decreased land area permanently converted to impervious surfaces would decrease the potential volume and increase the water quality of stormwater and nonstormwater flows relative to the proposed MTP/SCS. Fewer new impervious surfaces also would reduce interference with groundwater recharge and result in less alteration of drainage patterns in a manner that would increase the potential for substantial erosion, siltation, and flooding relative to the proposed MTP/SCS. This alternative would require less storm drainage system capacity than the proposed MTP/SCS because of its conversion of reduced land area to impervious surface area. In addition, the housing mix of this alternative would include a smaller number of rural residential and large-lot single-family homes, which would result in less managed landscaping areas and associated pollutants such as nutrients, herbicides, and irrigated runoff, which in turn could adversely affect surface and groundwater quality. Because the projected land use pattern and planned transportation improvements of this alternative would convert a smaller amount of land to impervious surfaces that would collect water quality contaminants, this alternative would decrease the risk of release of pollutant if such impervious surfaces areas were inundated during a flood hazard or seiche. The projected land use pattern and planned transportation improvements of this alternative would not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan, but for the reasons describe above this alternative is more complementary to implementing the goals and objectives of these plans as compared to the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Land Use and Planning

The more compact land use pattern of this alternative provides more connectivity within existing communities, so it would not physically divide any existing communities. This impact is the same as under the proposed MTP/SCS. New roadway or highway improvements can physically divide existing communities by providing physical barriers where none previously existing. Expansion of existing roadways and highways also can physically divide existing communities to the extent that wider facilities with additional lanes represent greater physical barriers than narrower facilities. The planned transportation improvements of this alternative would include fewer lane miles along the roadway and highway network, which means it would result in less impacts from physically dividing existing communities.

This alternative would substantively satisfy the SCS requirements of SB 375, including achievement of the 19 percent per capita passenger vehicle CO_2 emissions reduction target established for SACOG by CARB. This impact is the same as under the proposed MTP/SCS.

All of the alternatives direct growth to areas within city boundaries in the Delta, and all subsequent projects within the proposed MTP/SCS that fall within the LURMP boundaries will be required to demonstrate consistency with the LURMP and satisfy mitigation requirements. However, because this alternative would include a more compact land use pattern and fewer lane miles of roadway and highway improvements that would result in decreased land disturbance relative to the proposed MTP/SCS, it would have less impacts to resources within the Delta that are protected by the

provisions of the 2010 LURMP, including agriculture, biological resources, and recreational land, and from contaminated runoff and construction of new utilities facilities, especially at the rural-urban edge. This impact is less than under the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Noise and Vibration This alternative would generate noise levels generally similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. However, the more compact land use pattern of this alternative would direct less housing growth to Rural Residential Communities, decreasing construction and operational noise levels relative the proposed MTP/SCS in these areas that tend to have lower existing noise levels than more developed and urbanized communities. Noise thresholds would be less likely to be exceeded. The fewer lane miles of roadway and highway improvements under this alternative could lead to decreased traffic volumes and associated localized noise levels, and noise thresholds would be less likely to be exceeded. Operational noise impacts of the projected land use pattern and planned transportation improvements of this alternative would be less than under the proposed MTP/SCS.

The projected land use pattern of this alternative, while more compact than the proposed MTP/SCS, would not result in land use types that would result in different levels of vibration or groundborne noise. The planned transportation improvements of this alternative would include fewer lane miles of roadway and highway improvements, but this would also not result in significantly different levels of vibration or groundborne noise relative to the planned transportation improvements identified in the proposed MTP/SCS. This impact is the same under this alternative.

There would potentially be less construction-related noise impacts under this alternative due to the approximately 9,000 fewer acres of land area that would be subject to disturbance during construction activities associated with the less compact land use pattern and the 28 fewer lane miles of construction along the roadway and highway network. This would decrease the number of separate construction sites, which would decrease overall noise levels associated with construction activities relative to the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Population and Housing

Impacts related to population and housing should be similar under all alternatives, because the same number of people and dwelling units are assumed. The more compact land use pattern of this alternative and its fewer lane miles of roadway and highway improvements would not result in displacement of substantial numbers of people or existing housing that necessitates the construction of replacement housing elsewhere. This impact is the same as the proposed MTP/SCS.

No mitigation measures were identified for the proposed MTP/SCS.

Public Services and Recreation

This alternative is anticipated to result in public service and recreation impacts (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS, because the same total population, housing, and employment are assumed. However, this alternative could result in less demand on the ability to achieve local levels of service due to the more compact

land use pattern that makes it more efficiently serve the population. This impact is less than the proposed MTP/SCS. The planned transportation improvements of this alternative would have the same public services and recreation impacts as the proposed MTP/SCS.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Transportation

This alternative would result in the same rate of household generated VMT per capita as the proposed MTP/SCS. According to CARB much greater VMT reductions (beyond those achieved by the proposed MTP/SCS and this alternative) will be required to meet the state's long-term climate goals for 2030 and 2050. Therefore, the VMT impact of this alternative is the same as under the proposed MTP/SCS. However, the projected land use pattern and planned transportation improvements of this alternative are more transit-oriented than the those of the proposed MTP/SCS and would result in higher levels of transit ridership, walking, and biking for commute trips and all trips, and it would be more complementary to existing and planned bicycle and pedestrian facilities. These impacts are less than under the proposed MTP/SCS.

The projected land use pattern of this alternative would locate fewer homes and fewer lane miles of road and highway network improvements in Rural Residential Communities, which is expected to result in less interference with the movement of agricultural equipment and farm products on rural roadways. There are no aspects of this alternative that would result in greater impacts related to disrupting aviation access or service of goods movement into or through the SACOG region, or inconsistency with project design standards related to project safety.

Construction-related transportation impacts would likely be less under this alternative because the more compact land use pattern and fewer lane miles of roadway and highway investments would subject a lesser amount of land to construction activities and their resulting short-term disruptions to ongoing operations of regional and local area transportation systems.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Utilities and Service Systems

This alternative is anticipated to result in impacts to utilities and service systems (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. The lower share of rural residential and large-lot single-family homes under this alternative could decrease the demand for surface and groundwater supplies because such housing units have higher demand for water, for example due to increased irrigation demand for landscaping areas and additional appliances and fixtures that use potable water (e.g., sinks, toilets, showers). As a result, this alternative could exceed the capacity of existing water storage, conveyance, distribution, and treatment facilities to a lesser degree than the proposed MTP/SCS and result in construction of new, expanded, or relocated facilities. These impacts of this alternative are less than under the proposed MTP/SCS.

In addition, this alternative would result in less impacts related to adversely affecting the capacity of the necessary utility conveyance and distribution systems (e.g. wastewater, fire flows, storm drain, electricity, natural gas, and telecommunications) due to the more compact land use pattern that makes it more efficient to serve the population Also, the decreased land area subject to construction

activities, such as watering for dust suppression, and the decrease in transportation capacity projects as compared to the proposed MTP/SCS would demand less water and energy and produce more waste during construction. All of the alternatives would be required to follow the same federal, state, and local statutes and regulations related to solid waste. This alternative would have the same impact related to solid waste generation and conflicts with solid waste management and reduction statutes and regulations.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

18.4 Environmentally-Superior Alternative

CEQA requires that an EIR identify the environmentally-superior alternative from among the range of reasonable alternatives that are evaluated. CEQA Guidelines Section 15126.6(d)(2) states that if the environmentally-superior alternative is the no project alternative, the EIR shall also identify an environmentally-superior alternative from among the other alternatives.

This chapter analyzes the effectiveness of the alternatives in meeting the objectives of the project and how the potential impacts of the alternatives compare to the potential impacts of the proposed MTP/SCS. Based on this evaluation, Alternative 2: Infill and Transit Focused would be the environmentally-superior alternative, because it would reduce most impacts as compared to the proposed MTP/SCS. However, the overall level of impact and the conclusions regarding those that remain potentially significant and unavoidable are similar between Alternative 2 and the proposed MTP/SCS. Table 18-3 provides a summary comparison of the pre-mitigation impacts of the No Project Alternative, Alternative 1, and Alternative 2 to those of the proposed MTP/SCS. Alternative 2 ranks the highest, because, as proposed, it would have the most reduced impacts of all alternatives as compared to the proposed MTC/SCS. The proposed MTP/SCS ranks second, the No Project Alternative ranks third, and Alternative 1: Outward Expansion ranks fourth, because it would have the most impacts of all alternatives analyzed.

18.4.1 Proposed Project (MTP/SCS) Attainment of Project Objectives

The environmental impacts of the proposed MTP/SCS are analyzed throughout this EIR and a comparison of its impacts to the impacts of the alternatives is provided in Table 18-3 below. This section provides a discussion of the ability of the proposed MTP/SCS to achieve the Project Objectives identified above in section 18.20. Under the proposed project (MTP/SCS), the projected land use pattern, in combination with strategic transportation improvements, meet SACOG's SB 375 target for GHG emissions reduction. As discussed in more detail below, the proposed MTP/SCS meets all Project Objectives.

BUILD VIBRANT PLACES FOR TODAY'S AND TOMORROW'S RESIDENTS

The MTP/SCS meets all these objectives by providing a land use forecast that delivers strong performance, while also reflecting market and regulatory realities. A key factor in meeting these objectives is focusing a large share of new growth towards infill and corridor re-urbanization opportunity sites that reduce the expansion of the urban footprint and thereby protect agricultural and natural resource lands. The proposed MTP/SCS has a greater share of new housing in small-lot single-family or attached homes and fewer new acres developed than both the No Project Alternative and Alternative 1. This smaller development footprint means less of an impact on

agriculture and natural resources. The proposed project emphasizes a greater share of new homes in Center & Corridor Communities and Established Communities, with one of the smallest shares of homes in Rural Residential Communities compared with other alternatives. The proposed MTP/SCS has the largest share of all homes near high-frequency transit (40%) of any alternative. Objectives related to improved jobs-housing balance and increased housing choice and diversity are also met through the proposed MTP/SCS, which includes the most balanced jobs-housing ratio in high frequency transit. To the extent that is reasonable to assume, mixed-use and compact activity centers expand with more jobs and a diversity of housing options to accommodate the region's forecasted changes in demographics and economics. Support towards the realization of these policy-related objectives is reflected in the MTP/SCS investment priorities. The MTP/SCS has a high level of investment in programs to fund data, tools and financial incentives that support local land use decision-making and assist in the voluntary implementation of the Blueprint. This alternative meets the requirements for regional transportation plans and achieves the GHG reduction targets assigned to SACOG by CARB and would therefore activates the CEQA streamlining benefits of SB 375.

FOSTER THE NEXT GENERATION OF MOBILITY SOLUTIONS

The proposed MTP/SCS has the same level of per capita household VMT (16.5) as both Alternative 1 and Alternative 2, with lower VMT than both the baseline levels and the No Project Alternative. The proposed MTP/SCS relies on a combination of compact land uses and moderate levels of pricing, between Alternatives 1 and 2, to manage VMT.

The proposed MTP/SCS has more homes and jobs near high-frequency transit service than Alternative 1 and the No Project Alternative, allowing for greater realization of complete streets opportunities. Mobility options are broadened, as evidenced by the increase in transit, bike and walk trips. The proposed MTP/SCS improves connections of workers to jobs across the region, with nearly the highest number of jobs within a 30-minute drive of residence, edged out slightly by Alternative 2. The proposed MTP/SCS and Alternative 2 also share the lowest VMT per worker (16.1). The proposed MTP/SCS increases the share of commute trips by alternative modes such as transit, walking, and biking, and has the second highest number of jobs within a 30-minute transit trip from home.

MODERNIZE THE WAY WE PAY FOR TRANSPORTATION

The proposed MTP/SCS has the same per-mile pricing as Alternative 2, which is the lowest level of system pricing of any alternative. The pricing strategies included in this alternative offer new funding opportunities to replace diminishing fuel tax revenues and fund investments in transportation infrastructure and system maintenance. By contrast, the No Project Alternative does not include pricing strategies that would generate new such new revenue sources and Alternative 1 has elevated pricing levels that could be more burdensome to low income and rural community members than the proposed MTP/SCS pricing strategies.

BUILD AND MAINTAIN A SAFE, RELIABLE, AND MULTIMODAL TRANSPORTATION SYSTEM

The proposed MTP/SCS meets all of these objectives. The proposed MTP/SCS includes pricing strategies that help to generate funding for investment in the transportation system. The proposed MTP/SCS limits investment in new roadway capacity, instead emphasizing the highest level of investment in system maintenance to improve the condition of the transportation system and

maximize the cost efficiency of investments. Safety and emergency preparedness objectives are also met in the MTP/SCS through compact land uses that minimize conflicts on roadways along the urban/rural edge as well as significant increases in transit investments that may support evacuations. This increase in mobility alternatives to driving allows the MTP/SCS to meet the economic vitality objectives related to commute travel and efficient goods movement.

Table 18-3
Summary of Alternative Impacts Against the Proposed MTP/SCS

S – Impact is Significant **LS – Impact is Less than Significant** **+ Impact is greater than proposed MTP/SCS** **- Impact is less than proposed MTP/SCS** **= Impact is same as proposed MTP/SCS** **Impact Statement**		**Proposed MTP/SCS**	**Alternative 1 (Outward Expansion)**	**No Project**	**Alternative 2(Infill and Transit Focus)**
AES-1: Have a substantial adverse effect on a scenic vista.	Land Use	**S**	**-**	**-**	**+**
	Transpo.	**S**	**+**	**+**	**-**
AES-2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a state scenic highway.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
AES-3: In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.	Land Use	**S (non-urbanized areas)**	**+**	**+**	**-**
	Transpo.	**S (non-urbanized areas)**	**+**	**+**	**-**
AES-4: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
AES-5: Cast shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.	Land Use	**LS**	**+**	**-**	**+**
	Transpo.	**LS**	**=**	**=**	**+**
AES-6: Result in construction impacts that would substantially adversely affect a scenic vista, substantially damage scenic resources within a state scenic highway, substantially degrade visual character or quality of public views in non-urban areas or conflict with applicable zoning and other regulations governing scenic quality in urbanized areas, create a new source of substantial light and glare with adverse effects on views, or cast shadows that cause a public hazard or substantially degrade the existing visual/aesthetic character.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP of the DOC, to non-agricultural use.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**

S – Impact is Significant LS – Impact is Less than Significant + Impact is greater than proposed MTP/SCS - Impact is less than proposed MTP/SCS = Impact is same as proposed MTP/SCS Impact Statement		Proposed MTP/SCS	Alternative 1 (Outward Expansion)	No Project	Alternative 2(Infill and Transit Focus)
AG-2: Conflict with existing zoning or general plan land use designations for agricultural use, or a Williamson Act Contract.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
AG-3: Conflict with existing zoning or land use designation for, or cause rezoning of, forest land (as defined in PRC Section 12220(G)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Gov. Code Section 51104(G)).	Land Use	**LS**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
AG-4: Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
AG-5: Result in the loss of "Forest Land" as defined in the California Forest Legacy Act of 2007 (PRC Section 12220(G)) or conversion of Forest Land to non-forest use.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
AG-6: Result in construction impacts that would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses; conflict with existing zoning or land use designation for agricultural use or a Williamson Act contract; conflict with existing zoning or land use designations for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use; or result in the loss of Forest Land or conversion of Forest Land into non-forest use.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**+**
AIR–1: Conflict with or obstruct implementation of an applicable air quality plan.	Land Use	**LS**	**=**	**+**	**=**
	Transpo.	**LS**	**=**	**+**	**=**
AIR–2: Expose sensitive receptors to substantial TAC concentrations, including those from construction or operational emissions.	Land Use	**S**	**-**	**-**	**+**
	Transpo.	**S**	**-**	**-**	**+**
AIR–3: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	Land Use	**S**	**=**	**=**	**=**
	Transpo.	**LS**	**=**	**=**	**=**
AIR-4a: Be inconsistent or exceed applicable thresholds of significance established by the local air district for long-term operational criteria air pollutant emissions.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
AIR-4b: Be inconsistent or exceed applicable thresholds of significance established by the local air district for short-term construction criteria air pollutant emissions.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**

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BIO-1: Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
BIO-6: Conflict with the Provisions of an Adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or Other Approved Local, Regional, or State Habitat Conservation Plan.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
BIO-7: Substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
CR-1: Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
CR-2: Cause a substantial adverse change in the significance of an historical or unique archaeological resource pursuant to CEQA Guidelines Section 15064.5.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
CR-3: Directly or indirectly destroy a unique paleontological resource or site.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
CR-4: Disturb any human remains, including those interred outside of formal cemeteries.	Land Use	**LS**	**+**	**+**	**-**
	Transpo.	**LS**	**+**	**+**	**-**

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CR-5: Cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is: i. Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to the criteria set forth in Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
CR-6: Eliminate important examples of major periods of California history or prehistory pursuant to CEQA Guidelines Section 15065(a)(1).	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
GHG-1: Conflict with the SACOG region's achievement of SB 375 GHG emissions reduction targets.	Land Use	**LS**	**=**	**+**	**=**
	Transpo.	**LS**	**=**	**+**	**=**
GHG-2: Substantially interfere with achievement of the state's long-term climate goals, as set forth in CARB's 2017 Scoping Plan	Land Use	**S**	**=**	**+**	**=**
	Transpo.	**S**	**=**	**+**	**=**
GHG-3: Substantially interfere with achievement of applicable local GHG reduction plan goals.	Land Use	**LS**	**=**	**+**	**=**
	Transpo.	**LS**	**=**	**+**	**=**
ENE-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	Land Use	**LS**	**+**	**+**	**-**
	Transpo.	**LS**	**+**	**+**	**-**
ENE-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Land Use	**LS**	**=**	**=**	**=**
	Transpo.	**LS**	**=**	**=**	**=**
GEO–1a: Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death due to rupture of a known earthquake fault.	Land Use	**LS**	**=**	**=**	**=**
	Transpo.	**LS**	**=**	**=**	**=**
GEO–1b: Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.	Land Use	**LS**	**=**	**=**	**=**
	Transpo.	**LS**	**=**	**=**	**=**

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GEO–1c: Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction.	Land Use	**LS**	=	=	=
	Transpo.	**LS**	=	=	=
GEO–1d: Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides.	Land Use	**LS**	=	=	=
	Transpo.	**LS**	=	=	=
GEO–2: Result in substantial soil erosion or the loss of topsoil.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
GEO–3: Locate a project on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
GEO–4: Result in development on expansive soil, creating substantial risks to life or property.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
GEO–5: Have soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems where sewers are not available for the disposal of waste water.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
Geo-6: Directly or indirectly destroy a unique geologic feature.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
GEO–7: Result in substantial impacts to geology, seismicity, and soils from construction of proposed MTP/SCS projects.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
GEO–8: Result in the loss of availability of a known designated mineral resource that would be of value to the region and the residents of the state.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-
GEO–9: Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
GEO-10: Result in a substantial impact to mineral resources from construction of proposed MTP/SCS projects.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Land Use	**LS**	=	=	=
	Transpo.	**LS**	=	=	=
HAZ-2a: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Land Use	**LS**	=	=	=
	Transpo.	**LS**	=	=	=

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HAZ-2b: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of asbestos into the environment.	Land Use	**LS**	**+**	**+**	**-**
	Transpo.	**LS**	**+**	**+**	**-**
HAZ-3: Emit hazardous emissions or cause handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Land Use	**LS**	**=**	**=**	**=**
	Transpo.	**LS**	**=**	**=**	**=**
HAZ–4: Result in development on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment.	Land Use	**LS**	**-**	**-**	**+**
	Transpo.	**LS**	**-**	**-**	**+**
HAZ-5: For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.	Land Use	**LS**	**=**	**=**	**=**
	Transpo.	**LS**	**=**	**=**	**=**
HAZ–6: Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.	Land Use	**LS**	**+**	**+**	**=**
	Transpo.	**LS**	**+**	**+**	**=**
HAZ-7: Result in construction impacts that would cause a hazard to the public or the environment.	Land Use	**LS**	**+**	**+**	**-**
	Transpo.	**LS**	**+**	**+**	**-**
HAZ-8: Expose people or structures to a significant risk of loss, injury, or death involving wild land fires.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
HAZ-9: Result in projects located in or near state responsibility areas or lands classified as very high fire hazard severity zones that could substantially impair an adopted emergency response plan or emergency evacuation plan, exacerbate wildfire risk, or post-fire create flooding or landslide hazards.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
HYD-1: Violate water quality standards or wastewater requirements or otherwise substantially degrade surface or groundwater quality.	Land Use	**LS**	**+**	**+**	**-**
	Transpo.	**LS**	**+**	**+**	**-**
HYD-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management.	Land Use	**LS**	**+**	**+**	**-**
	Transpo.	**LS**	**+**	**+**	**-**
HYD-3A: Substantially alter existing drainage patterns, including alteration of the course of a stream or river or addition of impervious surfaces, in a manner that would result in substantial erosion or siltation.	Land Use	**LS**	**+**	**+**	**-**
	Transpo.	**LS**	**+**	**+**	**-**

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HYD-3B: Substantially alter existing drainage patterns, including alteration of the course of a stream or river or addition of impervious surfaces, in a manner that would substantially increase rates or amounts of surface runoff and result in flooding.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HYD-3C: Substantially alter existing drainage patterns, including alteration of the course of a stream or river or addition of impervious surfaces, in a manner that would create or contribute runoff, water that would exceed the capacity of existing or planned stormwater drainage systems, such that the construction of new, expanded, or relocated facilities that could cause significant effects is required, or provide substantial additional sources of polluted runoff.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HYD-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HYD-5: Conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HYD- 6: Violate any water quality standards or waste discharge requirements resulting from construction and other soil disturbance activities.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
LU-1: Physically divide an existing community.	Land Use	**LS**	=	=	=
	Transpo.	**S**	+	+	-
LU-2: Cause a significant environmental impact due to a conflict with any of the following SCS requirements of Senate Bill 375 (California Government Code Section 65080(b)(2)(B)).	Land Use	**LS**	=	+	=
	Transpo.	**LS**	=	+	=
LU-3: Cause a significant environmental impact resulting from a conflict with any of the following requirements included in the Land Use and Resource Management Plan adopted by the Delta Protection Commission.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
NOI-1: Result in noise levels that exceed the community type L_{dn} thresholds identified in Table 13.4 and increase noise levels by more than 1.5 dB for Center and Corridor Communities or more than 3 dB over baseline conditions for the other community types.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-
NOI–2: Result in excessive vibration and groundborne noise.	Land Use	**LS**	=	=	=
	Transpo.	**S**	=	=	=

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NOI-3: Result in construction impacts that would increase noise levels above the community type CNEL thresholds identified in Table 13.4, result in increases of more than 1.5 dB at locations currently in exceedance of the CNEL thresholds for Center and Corridor Communities or more than 3 dBA at locations currently in exceedance of the CNEL thresholds over baseline conditions for the other community types; or result in excessive levels of vibration and groundborne noise.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
POP-1: Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere.	Land Use	**LS**	**=**	**=**	**=**
	Transpo.	**LS**	**=**	**=**	**=**
PS-1: Impede achievement of acceptable levels of service, including capital capacity, programming, equipment, and personnel, for police protection, fire protection, emergency response, school, library, social, parks and recreation, and/or other public services, and including increased use of parks and recreational facilities such that substantial physical deterioration would occur or be accelerated.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**=**	**=**	**=**
PS-2: Result in impacts associated with the construction of new or the expansion of existing facilities to maintain adequate capital capacity for police protection, fire protection, emergency response, school, library, social, park and recreation, and/or other public services.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**=**	**=**	**=**
TRN-1: Substantially interfere with achievement of VMT reductions consistent with CARB's 2017 Scoping Plan.	Land Use	**S**	**=**	**+**	**=**
	Transpo.	**S**	**=**	**+**	**=**
TRN-2: Cause combined bicycle, walk, and transit person trips per capita to be lower than the baseline average in the applicable sub-area, and cause a decline in the bicycle, walk, and transit person trips per capita that is lower than the baseline regional average.	Land Use	**LS**	**+**	**=**	**-**
	Transpo.	**LS**	**+**	**=**	**-**
TRN-3: Cause average transit passenger boardings per vehicle service hour to be lower than the baseline average for transit service provided in the relevant sub-area.	Land Use	**LS**	**+**	**+**	**-**
	Transpo.	**LS**	**+**	**+**	**-**
TRN-4: Cause an interference with existing or planned bicycle and pedestrian facilities.	Land Use	**LS**	**+**	**+**	**-**
	Transpo.	**LS**	**+**	**+**	**-**
TRN-5: Cause a disruption to the movement of agricultural products on rural roadways.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
TRN-6: Cause a disruption to aviation access or service.	Land Use	**LS**	**=**	**=**	**=**
	Transpo.	**LS**	**=**	**=**	**=**

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TRN-7: Cause a disruption to goods movement into or through the SACOG region.	Land Use	**LS**	**=**	**=**	**=**
	Transpo.	**LS**	**=**	**=**	**=**
TRN-8: Cause a disruption to the ongoing operations of the applicable regional or local area transportation system due to construction activities.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
TRN-9: Result in inconsistency with project design standards related to traffic safety.	Land Use	**LS**	**=**	**=**	**=**
	Transpo.	**LS**	**=**	**=**	**=**
USS–1: Result in an increased demand for surface or groundwater in excess of available supplies during normal, dry, or multiple dry years.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
USS-2: Exceed the capacity of existing water storage, conveyance, distribution, and treatment facilities such that the construction of new, expanded, or relocated facilities that could cause significant environmental effects is required.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
USS–3: Exceed the capacity of utility infrastructure including wastewater treatment, fire flows, solid waste, electric power, natural gas, and telecommunications such that the construction of new, expanded, or relocated facilities that could cause significant environmental effects is required.	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
USS-4: Generate solid waste in excess of State or local standards or otherwise conflict with federal, state, and local management and reduction statutes and regulations related to solid waste, including solid waste reduction goals.	Land Use	**LS**	**=**	**=**	**=**
	Transpo.	**LS**	**=**	**=**	**=**

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Chapter 19—Other CEQA Considerations

19.1 Growth-Inducing Impacts

State CEQA Guidelines section 15126.2(d) requires an EIR to evaluate the potential growth-inducing impacts of a proposed project. Specifically, an EIR must discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Growth can be induced in a number of ways, including the elimination of obstacles to growth, or by encouraging and/or facilitating other activities that could induce growth. Examples of projects likely to have growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or office complexes in areas that are currently only sparsely developed or are undeveloped.

The CEQA Guidelines are clear that while an analysis of growth-inducing effects is required, it should not be assumed that induced growth is necessarily significant or adverse. The analysis below examines these issues relative to the adoption and implementation of the proposed MTP/SCS.

In response to the Notice of Preparation (NOP), SACOG received comments related to growth inducement from the Sierra Club (Placer County) and Delta Stewardship Council (DSC). The commenters expressed that the Draft EIR should consider the following:

- growth inducement from transportation projects,
- growth inducement in the Delta Secondary Zone, and
- growth inducement in areas designated to meet the Delta's ecosystem restoration needs.

SACOG also received a comment from the Sacramento Metropolitan Utility District requesting consideration of cumulative electrical needs.

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in "identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, these comments have been carefully reviewed and considered by SACOG and are reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.

19.1.1 Project Overview

SACOG's mission is to "provide leadership and a dynamic, collaborative public forum for achieving an efficient regional transportation system, innovative and integrated regional planning, and a high quality of life within the greater Sacramento region." SACOG's purpose in proposing the MTP/SCS is to provide a strategy to approach the many challenges faced by the Sacramento region as the population grows and the region expands over the next few decades.

The proposed MTP/SCS seeks to guide the Sacramento region toward a more sustainable future through better integration of smart land use decisions with a well-managed transportation system, as reflected in the Blueprint Vision, which many jurisdictions in the region implement voluntarily. The proposed MTP/SCS identifies a growth pattern that will accommodate forecasted population and employment growth, a transportation system that is appropriate for the growth pattern, and supporting policies and strategies to implement the plan. It reflects a number of smart planning, market, policy, regulatory, and funding considerations and realities; however it was specifically developed to meet all the requirements of Senate Bill (SB) 375, and importantly to achieve the greenhouse gas (GHG) emissions reduction targets for passenger vehicles and light-duty trucks established by the California Air Resources Board (CARB).

The SACOG area consists of 28 jurisdictions and covers 3,863,373 acres. The plan area of the proposed MTP/SCS presently contains approximately 686,847 acres of developed land (2016), which represents just under 18 percent of the total land area. The plan area of the proposed MTP/SCS population is 2,376,311 (2016), with 921,123 housing units and 1,060,751 employees. The proposed MTP/SCS is described in detail in Chapter 2, Project Description, and the potential environmental impacts related to implementation of the proposed MTP/SCS are fully assessed in the topical sections of Chapters 3 through 17.

As discussed in Chapter 2, Project Description, the proposed 2016 MTP/SCS reflects a similar regional growth pattern, as compared to the 2012 MTP/SCS, of compact growth directed to Centers and Corridors and Established communities. The location and pattern of this growth is important because it influences travel behavior and provides a means for determining the impact of future vehicle emissions in the plan area of the proposed MTP/SCS. A compact growth pattern served by an efficient transportation system provides the foundation to reduce automotive travel and increase walking, bicycling, and transit use, behaviors that lower vehicle miles traveled (VMT), and reduce individual trips. The proposed 2020 MTP/SCS revisits the growth forecast, land use assumptions, and transportation investments that served as the foundation of both the 2012 and 2016 plans. The proposed 2020 MTP/SCS is the first of SACOG's plans to include roadway pricing strategies (tolling and mileage fees) to help manage traffic demand on the region's road and highway network.

The proposed MTP/SCS is an update of the 2016 MTP/SCS. The proposed MTP/SCS addresses projected changes in population growth, projected changes in funding for transportation projects, and further integrates Blueprint principles through the SCS. The 2040 forecast for the proposed MTP/SCS assumes that population in the plan area is expected to be 2.99 million in 2040. This forecast is 3 percent lower than the 2016 MTP/SCS. In addition to a lower population forecast, the proposed MTP/SCS accounts for lower projected funding from existing sources of revenue for transportation compared to the previous MTP/SCS. However, the proposed MTP/SCS assumes that roadway pricing, including tolls and mileage-based fees, will replace fuel taxes as a primary source of funding during the 20-year planning period covered by the proposed MTP/SCS. These fees will generate additional funding that will help pay for maintaining, operating, and preserving the transportation system, as well as serve as management strategies for managing traffic demand on the roadway system. The proposed MTP/SCS focuses on maximizing the efficiency of existing infrastructure and identifying investments that bring the most benefit to the regional transportation network.

Overall, the proposed MTP/SCS guides the Sacramento region toward a more sustainable future through continued integration of smart land use decisions with an efficient, well-managed, and

diverse transportation system. The updated SCS serves to implement SACOG's longstanding effort to integrate land use and transportation planning by tying the proposed MTP/SCS's performance to reduced automotive travel and increased walking, bicycling, and transit use based on Blueprint-influenced land use patterns. Table 19-1 demonstrates how projected growth in future population, employment, and housing under the proposed MTP/SCS will differ from the 2016 plan.

Table 19-1
Population, Employees, and Housing Unit Forecasts
for the 2016 MTP/SCS and the Proposed 2020 MTP/SCS

Projection	2016 MTP/SCS (by 2036)	Proposed 2020 MTP/ SCS (by 2040)
Population	2,903,090	2,996,832
Employees	1,279,016	1,330,813
Housing Units	1,144,694	1,181,251

[1]Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.
Source: SACOG and CCSCE 2017, and SACOG 2018

Table 19-2 compares change in projected growth between the 2016 MTP/SCS and the proposed MTP/SCS:

Table 19-2
Comparison of Change in Growth for the 2016 MTP/SCS
and the Proposed 2020 MTP/SCS

Projection	2016 MTP/SCS (by 2036)	Proposed 2020 MTP/ SCS (by 2040)
Population	810,634	620,521
Employees	439,354	270,062
Housing Units	284,896	260,128

[1]Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.
Source: SACOG and CCSCE 2017, and SACOG 2018

To accommodate this growth, the proposed MTP/SCS forecasts the need for an additional 56,810 acres of land (for proposed land use pattern and planned transportation improvements combined). Table 19-3 below shows acres converted by Community Type as a result of the projected land use pattern. Table 19-4 shows acres converted by Community Type as a result of planned transportation improvements alone. As noted previously, because of overlap these numbers are not additive.

Table 19-3
Changes in New Housing Units, Employment, and Acres Comparing the 2016 MTP/SCS and Proposed 2020 MTP/SCS

Community Type	Housing Units		Employment		Acres Converted	
	2016 MTP/SCS	Proposed MTP/SCS	2016 MTP/SCS	Proposed MTP/SCS	2016 MTP/SCS	Proposed MTP/SCS
Centers and Corridors Communities	86,167	86,661	152,097	82,850	3,825	3,886
Established Communities	78,750	89,313	215,116	39,754	16,619	15,963
Developing Communities	114,836	81,365	68,885	146,053	22,153	16,573
Rural Residential Communities	5,143	2,789	3,260	1,405	4,966	10,251[1]
Region Total	284,896	260,128	439,358	270,062	47,563	46,673

[1] The Rural Residential Community Type acreage likely overstates in the proposed MTP/SCS as a result of changes to land use modeling methodology use during this plan update.
Source: Data compiled by SACOG in 2019

Table 19-4
Planned Transportation Improvements in the Proposed MTP/SCS

Community Type	Improvements (100 foot buffer)
Centers and Corridors Communities	1,350
Established Communities	5,145
Developing Communities	3,312
Rural Residential Communities	244
Lands Not Identified for Development	1,580
Region Total	11,730

[1]Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally from those reported in the proposed MTP/SCS.
Source: SACOG and CCSCE 2017, and SACOG 2018

The proposed MTP/SCS includes the addition of five new Developing Communities (one each in the City of Sacramento, Sacramento County, Woodland, and two in West Sacramento), and removal of six Developing Communities (one each in El Dorado County, Auburn, Sacramento County, Yuba City, and two in Sacramento County). Additionally, five Developing Communities are more than 50 percent built out at the time of preparation of the Draft EIR, so these communities were re-categorized from Developing Communities to Established Communities. Overall, approximately 9 percent of the housing growth moves from Developing Communities to Established, and Center and Corridor Communities. In total, 64 percent of housing growth in the proposed MTP/SCS is forecast to occur in Center and Corridor (33 percent) and Established Communities (31 percent). This is compared to 58 percent of the growth forecast for these communities in the 2016 MTP/SCS.

The proposed MTP/SCS includes 82 fewer lane miles of new major roads, 200 fewer daily transit vehicle service hours, and approximately 70 new road/highway projects including some projects that were split into separate phases.

In comparison to the 2016 MTP/SCS, plan investments have been decreased slightly (from $35.0 billion to $34.9 billion). The proposed MTP/SCS maintains the same amount of spending on system maintenance and reflects some cost increases for both transit and road expansion projects. The

reduction in spending generally comes from a small reduction in total spending on transit operations reflective of a lower revenue forecast for transit specific investments.

The result is that the proposed plan is similar to the 2016 plan and has similar environmental impacts. VMT decreases over time and more jobs are created closer to homes. Trips by alternative modes (transit, bike, and walk) increase slightly as compared to the 2016 plan.

At the policy level, the proposed MTP/SCS includes refinements to emphasize the commitment towards investment in transportation system maintenance and rehabilitation; commits SACOG to further development of project level decision-support tools; acknowledges and addresses the unique issues in the range of communities in the SACOG region – suburban, rural, urban, and small towns; addresses climate adaptation; commits SACOG to pursue roadway pricing strategies, including tolling and mileage-based fees through pilot testing, outreach, and analysis in partnership with local, state, and federal partners; and reflects completed or new research, as appropriate.

As demonstrated in this Draft EIR, in comparison to existing conditions, the proposed MTP/SCS will result in the following beneficial outcomes:

- significant increases in the productivity of the transit system, evidenced by more riders and improved transit access to homes and jobs;
- greater levels of investment in a multi-modal transportation system, including complete streets, and bicycle and pedestrian facilities;
- better integration of future land use patterns transportation investments, and air quality impacts, including higher levels of development near current and future transit;
- reductions in per capita passenger vehicle GHG emissions and total GHG emissions that meet targets established for the SACOG region by CARB and contribute to achieving the goals of SB 32; and
- lower VMT per capita for the region's residents.

The content of the proposed MTP/SCS is heavily influenced by a variety of realities and requirements. From the local perspective, the power and authority to plan for and approve development throughout the region rests solely with SACOG's member cities and counties. At the regional level, the plan must reflect a realistic forecast of the likely land use pattern for the region, considering the regulatory authority of its members, market conditions, and the market-based regional growth forecasts.

From the state perspective, the proposed MTP/SCS must: identify areas within the region sufficient to house all the projected population for the 20-year plan, an eight-year projection of the regional housing need, and consider the state's housing goals; identify a transportation network to serve the regional transportation needs; and demonstrate how the region can coordinate land use and transportation planning to meet, if feasible, the GHG emissions reduction targets established pursuant to SB 375.

From the federal perspective, the proposed MTP/SCS must comply with the federal Clean Air Act and federal laws relating to regional transportation plans (RTPs), which require, among other things, that the plan identify a transportation network that will serve projected land uses in the region. It must also realistically reflect that funding for all modes of transportation is constrained. As a result,

the proposed MTP/SCS focuses on maximizing the efficiency of existing infrastructure and looking for investments that yield maximum benefits.

Furthermore, the proposed MTP/SCS reflects SACOG protocols related to transparency in modeling, model sharing and collaboration, and extensive agency and public input and involvement. As such, it reflects a regional collaboration and vision that individual jurisdictions are more likely to actively implement. This practical aspect of the proposed MTP/SCS is critical since SACOG has no independent authority to directly implement the projected land use pattern of the proposed MTP/SCS.

Finally, while the proposed MTP/SCS has a required long-term focus due to a mandatory 20-year planning horizon, it also has an integrated short-term adjustment process in the requirement that it be updated every 4 years.

19.1.2 Analysis of Growth-Inducement

This analysis examines the following potential growth-inducing impacts related to implementation of the proposed MTP/SCS and assesses whether these effects are significant and adverse:

1. Foster population growth and construction of housing.
2. Eliminate obstacles to population growth.
3. Foster economic growth.
4. Affect service levels, facility capacity, or infrastructure demand.
5. Encourage or facilitate other activities that could significantly affect the environment.

19.1.3 Foster Population Growth and Construction of Housing

Chapter 14 of this Draft EIR examines Population and Housing growth associated with the proposed MTP/SCS. As described in Chapter 2 – Project Description and Chapter 14 – Population and Housing of this Draft EIR, the process for developing the proposed MTP/SCS began with the development of a new growth forecast for the region. To develop the growth forecast, SACOG used a method grounded in an economic forecast that considers a wide range of variables affecting the U.S., state, and regional economies. Detailed demographic information is prepared with this economic forecast that includes household types (e.g., age, income, ethnicity, and size) and numbers of households. The growth forecast of projected regional population, employment numbers, and households is then used to calculate the new building square footage required for different segments of the economy (e.g., retail, office, industrial, etc.) and the new housing units required to house the projected population of the region.

In other words, population growth was projected prior to preparation of the proposed MTP/SCS and was used as a basis for the housing and employment growth projections of the proposed MTP/SCS. In this regard, the SACOG MTP/SCS planning process significantly differs from the land use planning processes of its member agencies. Local government land use planning may be driven by a vision for a community that is not required to be constrained by specific economic or population forecasts, or by a mandated horizon date.

By law and by design, the proposed MTP/SCS provides a coordinated strategy for managing land use patterns and transportation improvements to accommodate projected population growth. The proposed MTP/SCS is intended to help shape growth patterns in the region, leading to better efficiency, higher sustainability, and more compact and mixed patterns of land use that are better served by transit and other mode choice options. But, for the reasons summarized above, it would be inaccurate to conclude that the proposed MTP/SCS would induce that growth. First, SACOG wields no land use authority in this regard. All land use decisions remain at the local level with the 28 member cities and counties. Second, as required by law, the proposed MTP/SCS identifies areas within the region sufficient to house the population of the region; therefore, it is tailored to meet population growth, not to foster the construction of housing that has the potential to induce growth.

While population growth remains a factor generally outside of local control, cities and counties do control the provision of housing and employment opportunities for that population, and this ultimately determines densities, growth patterns, and resulting efficiencies in the use of land and resources. The proposed MTP/SCS reflects a concerted attempt of local governments to influence population growth in a beneficial manner. The proposed MTP/SCS represents the coordination of local land use policies with transportation investments that support mixed-use and compact development, transportation options, housing choice and diversity, conservation of agricultural land and natural resources, and use of existing assets. By accommodating efficient, sustainable, compact growth in existing developed areas and limited new areas, and not planning for anything more than nominal or by-right growth in rural areas, regional development pressures are accommodated in a more sustainable pattern, resulting in overall beneficial effects for the region.

The proposed MTP/SCS is also a less consumptive plan comparatively. By 2040, the plan area of the proposed MTP/SCS is projected to increase by approximately 620,521 people, 270,060 jobs, and 260,128 housing units. Implementation of the proposed MTP/SCS will convert approximately 56,810 acres of undeveloped land, which represents a 7 percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 21 percent and 28 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions.

Development consistent with the proposed MTP/SCS would result in additional commerce, industry, recreation, public services, and infrastructure throughout the region. However, as substantiated by the growth forecasts, this growth is projected to occur under any scenario. By influencing the location and nature of this growth, adverse outcomes are avoided or minimized, and regional opportunities are maximized. Therefore, rather than fostering population growth and the construction of housing, the plan accommodates and manages that growth.

19.1.4 Eliminate Obstacles to Population Growth

Impediments to growth may be physical, regulatory, or fiscal. A physical obstacle to growth typically involves the lack of public infrastructure or insufficient infrastructure capacity. The extension of public service infrastructure (e.g., roadways, water, and sewer lines) into areas that are not currently provided with these services may be considered growth inducing. Similarly, the elimination of a regulatory obstacle, such as a service boundary or growth management policy, or a change in land use designation, can also result in new growth in a manner that might be considered growth

inducing. In addition, resolution of infrastructure funding constraints or the identification of new sources of funding can facilitate growth by funding the construction of new infrastructure.

The proposed MTP/SCS would result in significant investments and improvements in the regional transportation system in support of planned growth. Transportation improvements can remove impediments to growth by providing access and roadway capacity to new areas for development and, depending on location, creating roadway capacity that induces travel. Additionally, because community-serving infrastructure (e.g., roadways, water, and sewer lines) and services often are located within or adjoining road rights-of-way, the construction of roadways can facilitate the expansion and/or extension of infrastructure.

In this case, however, the transportation network is designed to fit to the land use plan. The transportation improvements focus on maintaining the current system, right-sizing and/or value-engineering the expansion of roads, targeting cost-effective expansions of transit, and increasing the commitment to walking and bicycling investments. This is guided by the performance-based objectives of the proposed MTP/SCS and by the overall policy objectives of SB 375, which collectively seek to, among other things, increase roadway optimization, increase modes of travel other than SOV use, increase access to jobs and amenities, reduce VMT, and reduce GHG emissions. Among the strategies to meet these goals is a mix of land uses balanced to minimize VMT and maximize the ability for residents to conduct everyday activities within their neighborhood without the need to travel by car. In other words, the proposed MTP/SCS's roadway investments are located and sized to accommodate only the forecasted growth.

The proposed MTP/SCS does not forecast growth on Lands Not Identified for Development during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, and public facilities such as wastewater treatment facilities, etc.). Since growth is not assumed in the proposed MTP/SCS for this Community Type, there will be limited transportation improvements in these areas by 2040. Primarily, these investments will go towards ongoing road maintenance and targeted operational improvements to support safer and more efficient agricultural goods movement. A limited number of new or expanded roads are planned, but they represent less than 3 percent of the total regional route miles in the proposed MTP/SCS. Each of these proposed roadway projects is intended to connect growth areas in Established or Developed Communities and not induce growth in Lands Not Identified for Development. Most of these projects are along the rural/urban edge of the proposed MTP/SCS and nearly all are expansions within an existing right-of-way.

One of the plan objectives for the proposed MTP/SCS is to more efficiently utilize the regional transportation system. More efficient utilization of roadways demonstrated in the proposed MTP/SCS indicates that projects are right sized to match travel demand, without creating excess roadway capacity that increases VMT and induces growth. Moreover, the proposed MTP/SCS results in increasing transit productivity, increasing bicycling and walking mode share, decreasing auto mode share, and decreasing VMT per capita. This substantiates the conclusion that the strategic roadway expansions in the proposed MTP/SCS, in combination with other modal investments, support more compact development, more sustainable and more efficient development without inducing the type of population growth that would require development of more land for urban purposes.

The total revenues SACOG expects to be available for implementation of the proposed MTP/SCS are $46.3 billion in escalated dollars (escalated), or $34.9 billion in today's dollars (current) allocated by category of project. Table 19-5 summarizes the total expenditures under the proposed MTP/SCS.

Table 19-5
Proposed MTP/SCS Expenditure Breakdown (in billions)

Expenditure Category	Total Expenditures (escalated)	Total Expenditures (current)
Maintenance and Rehabilitation	$16.7	$12.6
Public Transit	$13.4	$10.1
Road and Highway	$9.0	$6.8
Bicycle and Pedestrian	$3.3	$2.5
Programs and Planning	$4.1	$3.1
TOTAL	**$46.3**	**$34.9**

Source: Data compiled by SACOG in 2019

The road and highway expenditures in Table 19-4 include $6.8 billion or 19 percent of the total expenditures in the proposed MTP/SCS for expanding the region's road and highway system. Roughly two-thirds of the road and highway expansion budget is for projects that expand existing roads. This investment, when compared to the proposed MTP/SCS's investments in system maintenance, transit, and bicycle and pedestrian facilities, demonstrates the careful adaptation of the plan to the forecasted population needs, and financial constraint, of the region.

As established above, by law and policy this transportation system investment is integrally linked to, and balanced with, the housing and employment needed to accommodate the projected population of the region. In other words, rather than eliminating obstacles to growth, the proposed MTP/SCS accommodates growth that is outside the regulatory control of SACOG.

19.1.5 Foster Economic Growth

As discussed above, the proposed MTP/SCS was developed to respond to forecasted population increases, employment opportunities, and housing needs within the region. Therefore, the proposed MTP/SCS is designed to accommodate growth that would occur with or without the proposed MTP/SCS; it is not designed, nor is it anticipated to, drive further population growth beyond the levels forecasted. The proposed MTP/SCS supports the successful economic growth and prosperity of the region as required by law. Federal regulations governing the preparation of regional transportation plans require that they "support the economic vitality of the metropolitan area" (23 Code Fed. Regulations [CFR] Section 450.306). Moreover, economic growth is critical for the success of the region. But the population growth resulting from that economic growth and vitality is accommodated by the proposed MTP/SCS—it is not a growth-inducing byproduct of the proposed MTP/SCS.

19.1.6 Affect Service Levels, Facility Capacity, or Infrastructure Demand

While growth that may occur consistent with the proposed MTP/SCS could result in increases in demand for public services and infrastructure in excess of the existing conditions, SACOG's member agencies retain the authority to ensure the provision of appropriately timed and sized services and utilities to serve new urban development concurrent with growth. Chapters 15 – Public

Services and Recreation and 17 – Utilities and Service Systems of this Draft EIR address these impacts.

19.1.7 Encourage or Facilitate Other Activities That Could Significantly Affect the Environment

This Draft EIR provides a comprehensive assessment of the potential for environmental impact associated with implementation of the proposed MTP/SCS. Please refer to Chapters 3 through 17, which comprehensively address the potential for impacts from the projected land use pattern and planned transportation improvements resulting from implementation of the proposed MTP/SCS.

19.1.8 Summary

In summary, the proposed MTP/SCS accommodates growth in a manner substantially consistent with local general plans, regional values and visions, and state and federal laws. The proposed MTP/SCS accounts for growth likely to occur during the 20-year planning horizon and makes assumptions about location and design that promote regional environmental benefits. While growth inducement can be considered an adverse impact under CEQA, the proposed MTP/SCS is growth accommodating not inducing, and results in environmentally beneficial outcomes. Therefore, the potential for adverse impact is considered less than significant (LS), and additional mitigation measures beyond those identified in Chapters 3 through 17 are not necessary.

19.2 Significant Irreversible Changes

Pursuant to Section 15126.2(c) of the CEQA Guidelines, an EIR must identify any significant irreversible environmental outcomes that could result from the implementation of a proposed project. These may include current or future uses of nonrenewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. CEQA requires that irretrievable commitments of resources be evaluated to ensure that such current consumption is justified.

For the purposes of this analysis, the required evaluation of this topic is addressed from three perspectives:

1. use of nonrenewable resources that would commit future generations;
2. irreversible damage from environmental accidents; and
3. irretrievable commitments of nonrenewable resources to justify current consumption.

Each of these is discussed below.

19.2.1 Use of Nonrenewable Resources That Would Commit Future Generations

Though not entirely irreversible, land use growth and growth patterns that would result from implementation of the proposed MTP/SCS would likely commit future generations to those uses. Once established, land use patterns can be difficult to change and/or significantly influence without considerable political, social, and economic cost. The development pattern reflected on the MTP/SCS map represents a commitment of these areas to urban uses for the foreseeable future. Under the proposed MTP/SCS, the majority (approximately 75 percent) of the SACOG region

would remain designated for agricultural and open space uses, and the remainder (approximately 25 percent) would be designated for urban and development-supporting uses.

For the purposes of this particular analysis, it is important to evaluate the proposed MTP/SCS in the context of resource commitments that would occur absent the project. As compared to existing conditions, implementation of the proposed MTP/SCS will result in an improved and more efficient land use pattern, with more growth concentrated on less land and closer to existing infrastructure. The result will be better utilization of already developed land and better utilization of new land to be converted at the urban edge or in undeveloped areas of the region. As a secondary result, per-capita use of other nonrenewable resources decreases under the proposed MTP/SCS. These include lower per-capita use of energy and fuels; less conversion of agricultural, open space, and habitat lands; and lower per-capita emissions of GHGs associated with reduced per-capita VMT.

As an example, from 1992 to 2016, a period of 24 years, the region grew by approximately 761,500 people. In that same time, approximately 184,600 acres of farmland was converted to urban and rural development. Consistent with the goals, objectives, and strategies of Rural-Urban Connections Strategy (RUCS) and the Blueprint to provide for orderly growth and development while preserving and conserving agricultural and open space land, the proposed MTP/SCS was designed to reduce the rate of agricultural and open space land conversion to urban and rural development. For the same length of time (i.e., 24 years, 2016-2040), the proposed MTP/SCS forecasts a little less population growth (620,500 people) but a significantly a lower rate of land conversion. Specifically, the proposed MTP/SCS forecasts the conversion of only 10,860 acres of farmland (in all FMMP categories combined) by 2040. As demonstrated in Chapter 4 – Agriculture and Forestry Resources of this Draft EIR, only 27 percent of that impact is protected farmland (prime, unique, and statewide significant farmlands). This significantly lower rate of conversion is due in part to local and regional efforts to balance urban expansion with the protection of economically viable farmland.

Land use and development consistent with the proposed MTP/SCS would also result in irreversible changes by increasing densities and introducing development onto infill sites that are presently undeveloped. This would be considered a beneficial outcome because it improves the efficiency of land utilization in existing developed areas.

While use of nonrenewable energy and fuel; conversion of agriculture, open space, and habitat; release of pollutant emissions into the atmosphere; and climate change effects are in and of themselves generally irreversible resource commitments, the fact that the proposed MTP/SCS changes (slows) these rates is a beneficial outcome of the proposed MTP/SCS. It increases opportunities and options for the future. In the context of outcomes under the 2016 MTP/SCS, the expected results of implementation of this proposed MTP/SCS are better for the regional environment.

Overall, implementation of the proposed MTP/SCS would commit existing and future generations to a more efficient use of nonrenewable resources than under existing or presently planned conditions.

19.2.2 Irreversible Damage from Environmental Accidents

Any growth in the region includes the potential for irreversible damage from environmental accidents. For example, greater densities expose more people in the same area to unexpected

environmental events such as fire, flood, and/or earthquake. Also, urban environments generally experience higher levels of noise, higher pollutant emissions, more vehicles, and increased people-to-people interactions. In addition, irreversible changes to the physical environment could occur from the accidental release of hazardous materials associated with transport on roadways and/or from some development activities such as certain industrial processes.

However, this exposure would exist under any growth scenario. Federal and state regulations require the proposed MTP/SCS to accommodate expected growth in the region based on market-based forecasts. The SCS minimizes the footprint of that growth. Implementation of the proposed MTP/SCS does not, in and of itself, result in greater potential of irreversible damage from an environmental accident. Chapter 10 addresses Hazards, Hazardous Materials, and Wildfire.

19.2.3 Irretrievable Commitments of Nonrenewable Resources to Justify Current Consumption

The region has multiple nonrenewable resources including agricultural lands, open space, habitat areas, and mineral resources areas that contain aggregates and natural gas. Increased levels of development outside of already developed areas could result in permanent loss or other adverse impacts to these resource areas. In addition, increased levels of development throughout the region could result in greater use of nonrenewable resources during construction, including nonrenewable aggregates, or increased use of glass, plastic, and other petroleum products.

While approximately 56,810 acres of undeveloped land would be converted to urban land uses as a result of implementation of the proposed MTP/SCS, this area of potential impact is much smaller than would otherwise occur without regional efforts to encourage more compact growth following "smart growth" principles and to direct as much growth as possible to existing developed areas. By increasing the density of development, and decreasing the footprint of growth, pressures to convert agricultural and open space lands outside areas planned for growth are decreased.

New growth generally results in additional demand for electricity, natural gas, and propane supplies and distribution. However, the proposed MTP/SCS, and other federal and state efforts, will result in lower per-capita demand by encouraging higher density infill development; encouraging energy conservation in new construction and existing buildings; and reducing the infrastructure energy demands by encouraging alternative transportation such as bicycling, walking, and public transit. Furthermore, the proposed MTP/SCS will result in lower per-capita VMT through the horizon year (2040). Chapter 8 of the DEIR further addresses Energy and Global Climate Change.

19.2.4 Summary

Any growth in the region will result in significant irreversible resource commitments. In evaluating the significance of a project's irreversible resource commitments, CEQA requires a lead agency to consider whether such commitments are "justified" (CEQA Guidelines Section 15126.2(c)). As discussed above, and consistent with the project objectives for the proposed MTP/SCS, the proposed MTP/SCS is designed to minimize irreversible resource commitments, thus maximizing opportunities for future generations. While the proposed MTP/SCS will result in irreversible resource commitments, by encouraging higher density, less-consumptive development, as compared to the environmental baseline and forecasted conditions, the commitments are justified and beneficial. Therefore, these commitments are considered a less than significant (LS) impact under CEQA.

19.3 Cumulative Impacts

CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts." Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts that are individually limited but cumulatively considerable. These impacts can result from the proposed project alone, or together with other projects. The CEQA Guidelines state: "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects" (CEQA Guidelines Section 15355). A cumulative impact of concern under CEQA occurs when the net result of combined individual impacts compounds or increases other overall environmental impacts (CEQA Guidelines Section 15355). In other words, cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. CEQA does not require an analysis of incremental effects that are not cumulatively considerable nor is there a requirement to discuss impacts which do not result in part from the project evaluated in the EIR.

19.3.1 Methodology

The proposed MTP/SCS is a "cumulative plan" by definition. It is a transportation and land use plan for an entire region of the state that shares, or is connected by, common economic, social, and environmental characteristics. The SACOG region comprises 3,863,373 acres, which equates to 6,037 square miles and includes six counties and 22 cities. Together with the other three largest regional governments in the state (Southern California, San Diego, and San Francisco Bay Area), it is home to more than 85 percent of the state's population. As such, the environmental analysis of the proposed MTP/SCS is a cumulative analysis compliant with the requirements of CEQA and the CEQA Guidelines. Furthermore, this Draft EIR contains detailed analysis of Regional (cumulative) Impacts, Localized Impacts (by Community Type), and within High Frequency Transit Areas (HFTAs) for every identified impact area. Nevertheless, the following discussion examines impacts associated with implementation of the proposed MTP/SCS, plus implementation of planned growth for all jurisdictions adjoining the SACOG region, in order to assess the potential for cumulative impacts from growth extending beyond SACOG's jurisdictional boundaries.

When evaluating cumulative impacts, CEQA allows the use of either a list of past, present, and probable future projects, including projects outside the control of the lead agency, or a summary of projections in an adopted planning document, or a thoughtful combination of the two approaches. The cumulative analysis presented below uses a projections-based approach. Land use and growth projections for the SACOG region, which are the subject of analysis throughout this Draft EIR, are combined with the growth projections for all of the counties (and their cities) that adjoin the SACOG region. In other words, the geographic scope for the subject cumulative analysis covers the entire SACOG region plus the projected growth within each county (including both unincorporated and incorporated areas) that adjoins the SACOG regional boundary, as follows:

- Alpine County;
- Amador County;
- Butte County;

- Colusa County;
- Contra Costa County;
- El Dorado County (Tahoe portion);
- Lake County;
- Napa County;
- Nevada County;
- Placer County (Tahoe portion);
- Plumas County;
- San Joaquin County;
- Sierra County; and
- Solano County.

The area will be referred to in this analysis as the "cumulative impact analysis area." As shown in Table 19-6, the population for the cumulative impact analysis area is projected to grow from 5.8 million people to 7.4 million by 2040.

As demonstrated in Table 19-6, the SACOG region comprises approximately 41 percent of the existing population, approximately 42 percent of the existing number of housing units, and about 41 percent of the existing number of employees in the cumulative impact analysis area. By 2040, this proportion is expected to be generally the same. This demonstrates that under both current and forecasted future conditions, the SACOG region represents a substantial portion of the growth in the cumulative analysis impact area. The implications of this for this analysis are that the contributions of the region are, and will continue over time to be, a large proportion of the activity in many environmental impact categories. This general assumption is reflected in the discussion below.

Table 19-6
Estimated Existing and Projected Growth for Adjacent Planning Areas (2016 to 2040)

Jurisdiction	Population			Housing Units			Employees		
	2016	2040	Annual Percent Change	2016	2040	Annual Percent Change	2016	2040	Annual Percent Change
SACOG region	2,376,311	2,990,000	1.00%	921,142	1,181,142	1.09%	1,060,742	1,330,742	0.99%
Alpine	1,150	1,027	-0.49%	1,832	1,799	-0.08%	820	840	0.10%
Amador[1]	37,612	44,602	0.74%	1,832	1,799	-0.08%	12,080	14,310	0.74%
Butte[2]	230,536	319,342	1.43%	100,554	138,716	1.41%	76,723	108,198	1.51%
Colusa[3]	22,361	28,501	1.06%	4,478	6,472	1.61%	8,720	10,040	0.61%
Contra Costa[4]	1,068,324	1,387,290	1.14%	390,333	475,380	0.86%	582,544	665,875	0.58%
Tahoe Basin[5]	42,798	46,014	0.32%	18,144	39,485	3.44%	16,601	12,480	-1.23%
Lake	64,584	70,213	0.36%	36,836	44,180	0.79%	16,340	75,570	6.89%
Napa[4]	134,863	154,525	0.59%	48,979	54,625	0.48%	73,749	34,970	-3.19%
Nevada	98,300	97,888	-0.02%	44,965	49,533	0.42%	31,530	34,970	0.45%
Plumas[6]	20,428	22,741	0.47%	16,732	21,623	1.12%	6,450	6,240	-0.14%
San Joaquin[7]	737,869	1,020,862	1.42%	241,943	321,379	1.24%	294,275	337,448	0.60%
Sierra	3,147	2,993	-0.22%	2,328	2,484	0.28%	620	560	-0.44%
Solano[4]	416,563	508,365	0.87%	142,197	168,370	0.74%	222,555	242,490	0.37%
Total	5,254,846	6,694,363	1.06%	1,972,295	2,506,987	1.05%	2,403,749	2,874,733	0.78%
SACOG as Percent of Total	45.22%	44.66%		46.70%	47.11%		44.13%	46.29%	

Note: Interpolated population and housing units for2016 and population for 2040 were based on regional transportation plans or general plan. Where population and household data from plans was not available, Caltrans County-Level Economic Forecasts by County (2018) were used. Housing units calculated based on Caltrans household projects and 2016 California Department of Finance vacancy rates applies to households. Employees estimate for 2016 and 2040 are form the Caltrans County-Level Economic Forecasts by Count (2018) unless otherwise noted.

[1] Draft 2015 Amador County Regional Transportation Plan 2016 estimates interpolated using the annual percent change for 2013 for population and housing units. 2040 projection interpolated using the annual average growth rate for 2035 for population and housing units.

[2] Butte 2016 RTP/SCS population and housing estimates for 2016 interpolated using annual percent change for 2014.
[3] Colusa County 2013 General Plan population and housing estimates were interpolating using the annual percent change for 2011. 2040 population and housing projections were interpolated using 2030 projections.
[4] Metropolitan Transportation Commission 2018 Plan Bay Area 2015 estimate and 2040 projection interpolated using the annual average growth rate for 2015.
[5] Tahoe Regional Planning Agency 2012 Regional Plan Update for the Lake Tahoe Region 2010 estimates and 2035 projections interpolated for 2016 and 2040 using the average annual growth rate.
[6] Plumas County General Plan housing and population estimates were interpolated using 2015 estimates and 2035 projections.
[7] San Joaquin Council of Governments 2018 Regional Transportation Plan/Sustainable Communities Strategy for San Joaquin County 2015 and 2040 population, household and employment estimates. 2016 population, household and employment projections interpolated using the annual percent change.
Sources: Amador County Transportation Commission, 2015, Draft 2015 Amador County Regional Transportation Plan; Butte County Association of Governments, 2011, 2012 Metropolitan Transportation Plan; California Department of Finance, 2019, E-5 Population and Housing Estimates for Cities, Counties and the State, 2010-2019; Caltrans County-Level Economic Forecasts by County, 2018; Metropolitan Transportation Commission, 2019, Plan Bay Area Projections 2040; San Joaquin Council of Governments, 2018, 2018 Regional Transportation Plan/Sustainable Communities Strategy for San Joaquin County; Tahoe Regional Planning Agency, 2011, 2012 Regional Plan Update for the Lake Tahoe Region.

19.4 Cumulative Effects of the Proposed MTP/SCS

The following analysis examines the cumulative effects of the proposed MTP/SCS. The potential cumulative effects of the proposed MTP/SCS are summarized qualitatively below for each of the topics analyzed in Chapters 3 through 17 of this Draft EIR.

19.4.1 Aesthetics

Aesthetic impacts associated with implementation of the proposed MTP/SCS are analyzed in Chapter 3 – Aesthetics of this Draft EIR. Many of the aesthetic resources experienced in the cumulative impact analysis area are similar to those experienced regionally in the plan area of the proposed MTP/SCS: agricultural lands and open space, skylines and mountain views, historic downtowns and landmarks, forests and habitat areas, parks and recreation areas, and rivers and waterways.

Some types of impacts to aesthetic resources are localized and not cumulative in nature. For example, the creation of light, glare, or shadows at one location is not worsened by light, glare, or shadows created at another location. Rather these effects are independent, and the determination as to whether they are adverse is specific to the characteristics of the project and location of the site where they would occur. Projects that block a view or affect the visual quality of a site also result in localized impacts. The impact occurs specific to a site or area and remains independent from another project elsewhere that may block a view or degrade the visual environment of a specific site.

There are two types of aesthetic impact that may be additive in nature and thus cumulative, night sky lighting and overall changes in the visual environment as the result of increasing urbanization of large areas. As development in one area, such as a regional urban center like downtown Sacramento, increases and possibly expands over time and meets or connects with development in an adjoining ex-urban area, the effect of night sky lighting experienced outside of the region may increase in the form of larger and/or more intense nighttime glow in the viewshed. Although growth in the proposed MTP/SCS is primarily focused on Centers and Corridors and Established Communities, development outside of those geographies with long-distance views, may result in nighttime lighting becoming more visible, covering a larger area, and/or appearing in new areas as a result of projected development under the proposed MTP/SCS.

With regard to the visual environment experienced throughout the cumulative impact analysis area, as planned cumulative development occurs over time the overall visual environmental would change. Whether this overall change in land use is experienced as an adverse or beneficial outcome is highly subjective. However, the combination of forecasted development in the SACOG region and planned development in neighboring counties would result in a different visual environment than currently exists. For the purposes of this analysis, the cumulative impacts associated with night sky lighting and changes in the visual environment are considered potentially significant (PS) and the contribution of the region to these impacts may be cumulative considerable.

Implementation of mitigation measures in Chapter 3 would minimize the contribution of the proposed MTP/SCS to cumulative aesthetic impacts. While impacts within the cumulative impact analysis area may remain potentially significant, impacts associated with the regional contribution to this impact would be mitigated to less than significant (LS).

IMPACT CUM-1: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE AESTHETIC IMPACTS IN THE FORM OF NIGHT SKY LIGHTING AND CUMULATIVE CHANGES IN THE VISUAL ENVIRONMENT MAY BE CUMULATIVELY CONSIDERABLE. THIS IS CONSIDERED A POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-1: Implement Mitigation Measures in Chapter 3.

If the implementing agency adopts these mitigation measures, it would reduce the contribution of the proposed MTP/SCS to cumulative impacts on the visual environment to less-than-significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources Code [PRC] Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, the regional contribution to this cumulative impact is potentially significant and unavoidable (SU).

19.4.2 Agriculture and Forestry Resources

Loss of agriculture and forestry resources associated with implementation of the proposed MTP/SCS is analyzed in Chapter 4 – Agriculture and Forestry Resources of this Draft EIR. The following discussion addresses cumulative impacts to agriculture and forestry resources.

Based on data in the state's Farmland Mapping and Monitoring Program (FMMP), implementation of the proposed MTP/SCS would result in conversion of approximately 2,897 acres of prime, unique, and statewide important farmland to urban use. Based on local zoning, approximately 5,206 acres of land zoned for agricultural use would be lost. There is an unknown overlap between these acreage totals, they are not additive. While this represents total agricultural land lost in the SACOG region, neighboring counties would also continue to convert agricultural land due to development outside of the SACOG region. Collectively this adds to the overall conversion of agricultural lands in the cumulative impact analysis area. As such, the cumulative loss of agricultural lands may be potentially significant (PS).

Based on local general plan land use mapping, the amount of designated forestry resources that would be impacted or lost as a result of implementation of the proposed MTP/SCS is 259 acres. Additionally, as defined by the California Forest Legacy Act, the proposed MTP/SCS would overlap with 7,120 acres of "forest land." While loss of forestry resources and forest lands would not extend beyond this amount within the SACOG region, neighboring counties could also convert forestry resources and forest lands due to development, which would add to the overall conversion of forestry resources and forest lands in the cumulative impact analysis area. As such, the cumulative loss of forestry resources and forest lands may be potentially significant (PS).

Implementation of mitigation measures in Chapter 4 would minimize the contribution of the proposed MTP/SCS to cumulative agricultural and forest land impacts, but would not reduce them to less-than-significant levels. Furthermore, as the cumulative impact analysis area develops, land use conflicts between agricultural and forest land, and urban uses could intensify particularly at the edge of existing cities and communities. Consequently, cumulative impacts to agricultural and forest resources, and the regional contribution to them, remain significant and unavoidable (SU).

IMPACT CUM-2: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE LOSS OF AGRICULTURAL AND FOREST LAND WOULD BE CUMULATIVELY CONSIDERABLE. THIS IS CONSIDERED A POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-2: Implement Mitigation Measures in Chapter 4.

If the implementing agency adopts these mitigation measures, it would reduce the contribution of the proposed MTP/SCS to cumulative impacts on agriculture and forest resources but not to a less-than-significant level. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant (LS). However, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU) for purposes of this program-level review.

19.4.3 Air Quality

Chapter 5 – Air Quality includes a detailed analysis of the air quality conditions related to implementation of the proposed MTP/SCS, including an analysis of regional and localized air quality impacts from air emissions during construction and operation, exposure to TACs, and odor impacts. The discussion below addresses cumulative air quality impacts beyond the region.

California is divided geographically into 15 air basins for the purpose of managing the air resources of the state on a regional basis. An air basin generally has similar meteorological and geographic conditions throughout. The SACOG region falls primarily within the Sacramento Valley Air Basin with portions of Placer and El Dorado counties within the Mountain Counties Air Basin. The counties outside of the SACOG region, within the cumulative analysis impact area, lie within the following adjoining air basins:

- Alpine County – Great Basin Valleys,
- Amador County – Mountain Counties,
- Butte County – Sacramento Valley,
- Colusa County – Sacramento Valley,
- Contra Costa County – San Francisco Bay Area,
- El Dorado County (Tahoe portion) – Lake Tahoe,
- Lake County – Lake County,
- Napa County – San Francisco Bay Area,
- Nevada County – Mountain Counties,
- Placer County (Tahoe portion) – Lake Tahoe,
- Plumas County – Mountain Counties,
- San Joaquin County – San Joaquin,

- Sierra County – Mountain Counties, and
- Solano County – Sacramento Valley and San Francisco Bay Area.

In each of these basins, CARB has identified criteria air pollutants for which emissions levels have exceeded applicable federal and state pollutant standards. These pollutants are identified as "nonattainment" for the basin. Growth in the cumulative impact analysis area would exacerbate the nonattainment status of these basins by adding criteria pollutants emitted from various planned land uses. Growth within a specific region can exacerbate pollution levels within the basin in which it lies but it can also potentially exacerbate pollution levels within neighboring basins when pollutant "transport" occurs. Pollutant transport is a result of a variety of topographical and atmospheric conditions that cause pollution generated in one location to be moved (transported) to another location outside of the air basin in which it originated.

Projected growth within the cumulative impact analysis area will result in a potentially significant (PS) cumulative impact from air emissions adversely affecting a number of air basins. The regional contribution to these cumulative air quality impacts may also be potentially significant (PS). Implementation of mitigation measures in Chapter 5 would minimize the contribution of the proposed MTP/SCS to cumulative air quality impacts, but would not reduce them to less-than-significant levels. Consequently, cumulative impacts to air quality, and the regional contribution to them, remain significant and unavoidable (SU).

IMPACT CUM-3: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE AIR QUALITY IMPACTS IN THE REGION WOULD BE CUMULATIVELY CONSIDERABLE. THIS IS CONSIDERED A POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-3: Implement Mitigation Measures in Chapter 5.

If the implementing agency adopts these mitigation measures, it would reduce the contribution of the proposed MTP/SCS to cumulative impacts on air quality. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation will reduce the impact to less than significant. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU) for purposes of this program-level review.

19.4.4 Biological Resources

The effect of implementation of the proposed MTP/SCS on regional biological resources is analyzed in Chapter 6 – Biological Resource of this Draft EIR. The discussion below addresses the project contributions to cumulative impacts to biological resources.

The amount of habitat, both wildland and agricultural, for special-status species and other important natural communities (including riparian habitat, oak woodlands, and wetlands) that would be impacted or lost as a result of development in the SACOG region through 2040 is 40,633 acres. While this represents total acres of special status species and important natural communities habitat lost at the regional level due to implementation of the proposed MTP/SCS, adjoining counties

within the cumulative impact analysis area may also convert habitat land for development outside of the SACOG region.

Implementation of the proposed MTP/SCS and cumulative development would also result in disruption of movement corridors and nursery sites. Actions by neighboring counties may further impact these biological resources. Collectively, this adds to the overall impacts to biological resources in the cumulative impact analysis area.

Projected growth within the cumulative impact analysis area will result in a potentially significant (PS) cumulative impact to biological resources. The regional contribution to these cumulative impacts to biological resources may also be potentially significant (PS). Implementation of mitigation measures in Chapter 6 would minimize the contribution of the proposed MTP/SCS to cumulative impacts to biological resources, but would not reduce the cumulative contribution to less-than-significant levels. Consequently, cumulative impacts to biological resources, and the regional contribution to them, remain significant and unavoidable (SU).

IMPACT CUM-4: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE IMPACTS TO BIOLOGICAL RESOURCES MAY BE CUMULATIVELY CONSIDERABLE. THIS IS CONSIDERED A POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-4: Implement Mitigation Measures in Chapter 6.

If the implementing agency adopts these mitigation measures, it would reduce the contribution of the proposed MTP/SCS to cumulative impacts on biological resources. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation will reduce the impact to less than significant. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU) for purposes of this program-level review.

19.4.5 Cultural, Paleontological, and Tribal Cultural Resources

The effect of implementation of the proposed MTP/SCS on cultural, paleontological, and tribal cultural resources is analyzed in Chapter 7 – Cultural, Paleontological, and Tribal Cultural Resources of this Draft EIR. While some of these resources may have regional significance, the resources themselves are site-specific, and impacts to them are project-specific. For example, impacts to a subsurface archeological find at one project site are generally not made worse by impacts from another project to a cultural resource at another site. Rather the resources and the effects upon them are generally independent. A possible exception to this would be a cultural resource that represents the last known example of its kind. For such a resource, cumulative impacts, and the contribution of the proposed MTP/SCS to them, may be potentially significant (PS).

Implementation of mitigation measures in Chapter 7 would minimize the contribution of the proposed MTP/SCS to cumulative impacts to cultural, paleontological, and tribal cultural resources. While impacts within the cumulative impact analysis area may remain potentially significant, impacts associated with the regional contribution to this impact would be mitigated to less than significant (LS).

IMPACT CUM-5: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE IMPACTS TO CULTURAL RESOURCES MAY BE CUMULATIVELY CONSIDERABLE. THIS IS CONSIDERED A POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-5: Implement Mitigation Measures in Chapter 7.

If the implementing agency adopts these mitigation measures, it would reduce the contribution of the proposed MTP/SCS to cumulative impacts on cultural, paleontological, and tribal cultural resources, but not to less-than-significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (Pub. Resources Code Section 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, the regional contribution to this cumulative impact is potentially significant and unavoidable (SU).

19.4.6 Energy and Global Climate Change

Energy consumption related to implementation of the proposed MTP/SCS is analyzed in Chapter 8 – Energy and Global Climate Change of this Draft EIR. Demand for electrical power and natural gas has the potential to affect an area larger than the SACOG region in a cumulative manner, because energy systems are interconnected over large areas that may even crossover into other states and countries. If growth of area-wide supplies does not keep pace with area-wide demand, the effects of growth and development in the cumulative impact analysis area have the potential to create shortages, resulting in a potentially significant (PS) cumulative impact.

To reduce the consumption of energy and maintain consistency with smart growth principals, the proposed MTP/SCS includes a projected land use pattern and planned transportation improvements focused on mixed uses, compact development, and transportation choices. As a result, as documented in Chapter 8, implementation of the proposed MTP/SCS is anticipated to result in a per-capita and total reduction in energy use in the SACOG region. As such, despite other growth and development in the cumulative impact analysis area that could result in increases in the demand for energy, the contribution of the proposed MTP/SCS to cumulative energy impacts is not cumulatively considerable and would be less than significant (LS).

IMPACT CUM-6: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE ENERGY CONSUMPTION IS CONSIDERED A LESS THAN SIGNIFICANT IMPACT (LS).

Mitigation Measure CUM-6: None required.

Chapter 8 – Energy and Global Climate Change also analyzes climate change impacts associated with implementation of the proposed MTP/SCS. Climate change is considered an inherently global, cumulative issue due to the nature of associated environmental changes and atmospheric science. GHGs are pollutants are varying heat trapping potential and atmospheric lifespans spanning from 1 to several hundred year. Construction emissions would occur from implementation of the proposed MTP/SCS and, although short-term in nature, these emissions would contribute and potentially exacerbate the greenhouse effect for a prolonged time.

As demonstrated in Chapter 8, implementation of the proposed MTP/SCS would achieve the regional target for future year emissions reductions required under SB 375. However, as discussed under Impact GHG-2, CARB has concluded that greater reductions will be needed statewide in order to meet statewide goals for GHG emissions reduction in future years. CARB has identified that a reduction of 25 percent below 2005 statewide per-capita passenger and light duty vehicle GHG emissions is needed by 2035 to attain state climate goals but that adjusting MPO targets to achieve that would be infeasible with currently available resources. Regional planning agencies like SACOG lack the authority and funding to take additional steps at the time of writing this Draft EIR. Additionally, CARB notes the necessary programs and strategies to achieve the 25 percent target do not yet exist.

Collectively, CARB had projected that all the adopted SCSs will achieve approximately 19percent of the 25 percent. CARB has acknowledged that the remaining unallocated gap of 6 percent must be achieved through additional statewide programs. SACOG's regional share of that unallocated statewide gap is unknown. SACOG's currently assigned 2035 share is a reduction of 19 percent below 2005 regional per-capita passenger and light-duty vehicle GHG emissions for the region. Although SACOG has demonstrated that the proposed MTP/SCS will achieve the assigned regional GHG reduction target for 2035, there is an unmet gap in achieving the statewide goals for GHG reduction. For this reason, the contribution of the proposed MTP/SCS to this cumulative impact is cumulatively considerable and would be potentially significant (PS).

Implementation of mitigation measures in Chapter 8 would minimize the contribution of the proposed MTP/SCS to cumulative GHG emissions and global climate change, but would not reduce them to less-than-significant levels. Until the state identifies a program for further GHG reductions, and regional planning agencies have funding and authorization to achieve them, cumulative GHG emissions and the regional contribution to them, remain significant and unavoidable (SU).

IMPACT CUM-7: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE GHG EMISSIONS AND GLOBAL CLIMATE CHANGE IS CONSIDERED A POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-7: Implement Mitigation Measures in Chapter 8.

If the implementing agency adopts these mitigation measures, it would reduce the contribution of the proposed MTP/SCS to cumulative impacts from GHG emissions and global climate change. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels and there are no known additional feasible mitigation measures available at this time. For projects proposing to streamline environmental review, lead agencies must comply with state guidance on VMT reduction and conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the VMT impact to less than significant. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU) for purposes of this program-level review.

19.4.7 Geology, Soils, Seismicity, and Mineral Resources

Impacts to geology, soils, seismicity, and mineral resources, related to implementation of the proposed MTP/SCS are analyzed in Chapter 9 – Geology, Soils, Seismicity, and Mineral Resources of this Draft EIR. While some geologic features may affect regional construction practices, such as

seismicity or soil elasticity, impacts and mitigation measures are site-specific and project-specific. For example, impacts resulting from development on expansive soils at one project site are not worsened by impacts from development on expansive soils at another project site. Rather the soil conditions, and the implications of those conditions for each project, are independent.

Mineral resources are similar in that impacts resulting from development over sub-surface mineral resources at one project site are generally not worsened by impacts from development over mineral resources at another project site. The exception would be where a particular resource deposit is rare and/or unique.

As such, the potential for cumulative impacts related to geology, soils, seismicity and mineral resources, to which implementation of the proposed MTP/SCS might contribute, is less than significant (LS).

IMPACT CUM-8: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE IMPACTS TO GEOLOGY, SOILS, SEISMICITY, OR MINERAL RESOURCES IS CONSIDERED A LESS THAN SIGNIFICANT IMPACT (LS).

Mitigation Measure CUM-8: None required.

19.4.8 Hazards, Hazardous Materials, and Wildfire

Impacts associated with hazards, hazardous materials, and wildfire related to implementation of the proposed MTP/SCS are analyzed in Chapter 10 – Hazards, Hazardous Material, and Wildfire of this Draft EIR. Hazardous materials and other public health and safety issues are generally site-specific and/or project-specific, and would not be significantly affected by other development outside of the region. For example, an underground tank or residual pesticides on a project site at one location is not affected or cumulatively worsened by the same findings at another location. These are distinct, site-specific outcomes. Therefore, the contribution of the proposed MTP/SCS to cumulative impacts related to hazards and hazardous materials would be less than significant (LS).

IMPACT CUM-9: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE IMPACTS ASSOCIATED WITH HAZARDS AND HAZARDOUS MATERIALS WOULD NOT BE CUMULATIVELY CONSIDERABLE. THIS IS CONSIDERED A LESS THAN SIGNIFICANT IMPACT (LS).

Impacts associated with exposure to significant risk from wildfire, interference with emergency plans in defined fire prone areas, and development and related activities that might exacerbate the risk of fire including various adverse outcomes, are analyzed in Chapter 10 – Hazards, Hazardous Material, and Wildfire of this Draft EIR. Wildfire impacts may be site-specific, community specific, or larger within the region, and therefore may be cumulative in nature. Successful minimization of wildfire risk and minimization of exposure to wildfire impacts occurs at the site specific, community and regional level. Impacts from and after a wildfire typically affect large areas and/or entire communities. As documented in Chapter 10, implementation of the proposed MTP/SCS would be generally beneficial with respect to wildfire impacts because the plan focuses growth within existing communities and infill areas, and because the planned transportation improvements would generally improve regional accessibility. Nevertheless, impacts from implementation of the proposed MTP/SCS are conservatively identified as potentially significant and mitigation measures are identified that would reduce these impacts to a less-than-significant level. Given the increasing frequency and severity wildfires regionally due to drought and changing climate associated with

global climate change, this impact is conservatively considered cumulatively significant for the cumulative impact analysis area, and the contribution of the proposed MTP/SCS is conservatively cumulatively considerable.

Implementation of mitigation measures in Chapter 10 would minimize the contribution of the proposed MTP/SCS to cumulative impacts associated with exposure to significant risk from wildfire, interference with emergency plans in defined fire prone areas, and development and related activities that might exacerbate the risk of fire including various adverse outcomes.

IMPACT CUM-10: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE IMPACTS ASSOCIATED WITH WILDFIRE IS CONSIDERED TO BE POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-9: Implement Mitigation Measures in Chapter 10.

If the implementing agency adopts these mitigation measures, it would reduce the contribution of the proposed MTP/SCS to cumulative wildfire impacts to less-than-significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (Pub. Resources Code Section 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, the regional contribution to this cumulative impact is potentially significant and unavoidable (SU).

19.4.9 Hydrology and Water Quality

Impacts associated with hydrology and water quality related to implementation of the proposed MTP/SCS are analyzed in Chapter 11 – Hydrology and Water Quality of this Draft EIR. Some types of impacts are localized and not cumulative in nature; for example, creating or contributing to runoff, exposure to risk from failure of a levee or dam, mudflow inundation, and violations of water quality and/or discharge standards. These effects occur independently of one another, related to site-specific and project-specific characteristics and conditions.

There are, however, hydrology and water quality impacts that may be additive in nature and thus cumulative, including for example, placing housing or other structures within a flood hazard area, alterations of the drainage pattern of an area that results in off-site flooding, land subsidence from groundwater overdraft, and general degradation of water quality.

Development within a flood hazard area results in incremental modifications over time that can have cumulative adverse effects during a flood event by impeding and displacing flows, and thereby potentially exacerbating flooding overall. With regard to alterations of the drainage pattern of an area, as development in one area contributes incrementally to surface drainage runoff or degrades water quality, and development in another area up- or down-stream does the same, the capacity of a drainage-way to carry flood flows and/or the overall quality of the water may be cumulatively affected. Similarly, depending on the aquifer characteristics, the effects of groundwater withdrawal in one area can be exacerbated by effects elsewhere and have a cumulative effect which manifests itself in the form of land subsidence. Moreover, new development and associated impervious cover, in areas of moderate and high potential for recharge, would have a significant cumulative impact on

groundwater recharge. These impacts, and the contribution of the proposed MTP/SCS to them, could be potentially significant on a cumulative basis.

Implementation of mitigation measures identified in Chapter 11 will minimize the contribution of the proposed MTP/SCS to cumulative hydrology and water quality impacts. While impacts within the cumulative impact analysis area may remain potentially significant, impacts associated with the regional contribution to this impact would be mitigated to less than significant (LS).

IMPACT CUM-10: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE IMPACTS TO HYDROLOGY AND WATER QUALITY IN THE FORM OF OFF-SITE FLOODING, LAND SUBSIDENCE FROM GROUNDWATER OVERDRAFT, AND GENERAL DEGRADATION OF WATER QUALITY MAY BE CUMULATIVELY CONSIDERABLE. THIS IS CONSIDERED A POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-10: Implement Mitigation Measures in Chapter 11.

If the implementing agency adopts these mitigation measures, it would reduce the impacts of the proposed MTP/SCS on hydrology and water quality to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (Pub. Resources Code Section 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above to address site-specific conditions. However, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).

19.4.10 Land Use and Planning

Impacts associated with land use and planning related to implementation of the proposed MTP/SCS are analyzed in Chapter 12 – Land Use and Planning of this Draft EIR. Impacts related to physically dividing a community are not experienced at the regional level and would not be exacerbated by conditions across the region.

Consistency with SB 375 within the cumulative impact analysis area is potentially significant; however, the requirements of state and federal law, and CEQA requirements for these plan updates, provide mechanisms for public disclosure and consistency. The proposed MTP/SCS has been analyzed for consistency with SB 375 and found to be fully compliant. This impact is primarily programmatic and does not manifest itself physically. Consistency with the legal requirements are analyzed for the entire proposed MTP/SCS and do not extent beyond the region into the cumulative impact analysis area.

Growth outside of the region could affect consistency with the Land Use and Resource Management Plan (LURMP) adopted by the Delta Protection Commission (DPC) because development at the urban edge could adversely impact agriculture, natural resources, recreational land, and water quality in the Delta. However, jurisdictions with land in the Primary Zone are required by PRC Section 29763 to adopt general plans with land uses consistent with the goals and policies in the LURMP, subject to review by the DPC. Therefore, subsequent projects within the proposed MTP/SCS that fall within the LURMP boundaries will be required to demonstrate consistency with the LURMP and satisfy mitigation requirements.

Therefore, the contribution of the proposed MTP/SCS to cumulative impacts related to land use and planning would be less than significant (LS).

IMPACT CUM-11: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE LAND USE AND PLANNING IMPACTS IS CONSIDERED A LESS THAN SIGNIFICANT IMPACT (LS).

Mitigation Measure CUM-11: None required.

19.4.11 Noise and Vibration

Impacts associated with noise and vibration related to implementation of the proposed MTP/SCS are analyzed in Chapter 13 – Noise and Vibration of this Draft EIR. Noise impacts are generally experienced locally and are not cumulative in nature. These effects occur independently of one another, related to site-specific and project-specific characteristics and conditions.

However, increased traffic from implementation of the proposed MTP/SCS could contribute to a significant increase in traffic noise levels on roadway segments throughout the cumulative impact analysis area, beyond accepted thresholds in various communities outside of the region. This impact could be potentially significant on a cumulative basis.

Implementation of mitigation measures identified in Chapter 13 would minimize the contribution of the proposed MTP/SCS to cumulative noise impacts. However, the combination of planned development in the SACOG region along with planned development in neighboring counties that comprise the cumulative impact analysis area may result in cumulative noise impacts that are not fully mitigated. For this reason, the contribution of the proposed MTP/SCS to this cumulative impact is considered significant and unavoidable (SU).

IMPACT CUM-12: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE NOISE IMPACTS MAY BE CUMULATIVELY CONSIDERABLE. THIS IS CONSIDERED A POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-12: Implement Mitigation Measures in Chapter 13.

If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts related to noise. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation will reduce the impact to less than significant. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).

19.4.12 Population and Housing

Impacts associated with population and housing related to implementation of the proposed MTP/SCS are analyzed in Chapter 14 – Population and Housing of this Draft EIR. Through 2040, an additional 620,521 people and 260,128 housing units are forecasted to be added in the region. As

noted above, this will represent about 41 percent of the population and 42 percent of the housing expected to be added overall in the cumulative impact analysis area by 2040.

Environmental impacts associated with these increases in population and housing are addressed in the other chapters of this Draft EIR, and throughout this cumulative analysis discussion. Independently, the projected increases in population and housing will have no additional cumulative effects. Therefore, this impact is considered less than significant (LS).

IMPACT CUM-13: IMPLEMENTATION OF THE PROPOSED MTP/SCS IN CONJUNCTION WITH OTHER PLANNED DEVELOPMENT OUTSIDE OF THE REGION WOULD RESULT IN INCREASES IN POPULATION AND HOUSING. THE POTENTIAL CUMULATIVE ENVIRONMENTAL IMPACTS OF THIS ARE ADDRESSED IN OTHER IMPACT STATEMENTS IN THIS CHAPTER. THIS CHANGE, IN AND OF ITSELF, IS LESS THAN SIGNIFICANT (LS).

Mitigation Measure CUM-13: None required.

19.4.13 Public Services and Recreation

Impacts to public services and recreation related to implementation of the proposed MTP/SCS are analyzed in Chapter 15 – Public Services and Recreation of this Draft EIR. This assessment includes an analysis of law enforcement, fire protection, emergency response, schools, libraries, social services, and parks and recreation. These public services are generally provided by local governments for areas within their jurisdictions and are typically not provided on a regional or extra-regional basis. However, there are some exceptions, which are discussed below.

Law enforcement and fire protection are provided by local governments or fire protection districts for areas within their jurisdiction, although mutual aid agreements between agencies do help spread resources. The California Highway Patrol (CHP) has specific jurisdiction over all California state routes (including all freeways and expressways), US Highways, Interstate Highways, and all public roads in unincorporated parts of a county. The US Forest Service and State Department of Forestry and Fire Protection (CAL FIRE) provide fire protection services within many rural areas.

Social services are generally provided by counties, and not provided on a regional basis. Public schools are provided by school districts to areas within their jurisdictions. While districts may have cross-jurisdictional boundaries, school services are provided at the local, rather than regional, level.

Libraries are also generally provided by local governments for areas within their jurisdiction, and services are not provided on a regional basis, although there are often regional cooperation programs. Neighborhood and city/county parks and recreational services are provided by local governments for areas within their jurisdiction. The SACOG area also includes numerous regional, state, and federal parks, open space, and recreational areas.

The potential for cumulative impacts related to most public services and local parks and recreation, to which implementation of the proposed MTP/SCS might contribute, is less than significant (LS). The potential for cumulative impacts to state routes, freeways, and other roads under the jurisdiction of the CHP; rural wildland fire areas protected by CAL FIRE; and regional, state, and federal parks, open space, and recreational areas is potentially significant (PS). As such, the contribution of the proposed MTP/SCS to those impacts is also potentially significant (PS).

Implementation of mitigation measures identified in Chapter 15 will minimize the contribution of the proposed MTP/SCS to cumulative public service impacts. While impacts within the cumulative impact analysis area may remain potentially significant, impacts associated with the regional contribution to this impact would be mitigated to less than significant (LS).

IMPACT CUM-14: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE PUBLIC SERVICE IMPACTS IN THE FORM OF STATE ROUTES, FREEWAYS, AND OTHER ROADS UNDER THE JURISDICTION OF THE CHP; RURAL WILDLAND FIRE AREAS PROTECTED BY CAL FIRE; AND REGIONAL, STATE, AND FEDERAL PARKS, OPEN SPACE, AND RECREATIONAL AREAS MAY BE CUMULATIVELY CONSIDERABLE. THIS IS CONSIDERED A POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-14: Implement Mitigation Measures in Chapter 15.

If the implementing agency adopts these mitigation measures, it would reduce the contribution of the proposed MTP/SCS to cumulative impacts on public services to less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (Pub. Resources Code § 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, the regional contribution to this cumulative impact is potentially significant and unavoidable (SU).

19.4.14 Transportation

Impacts to transportation related to implementation of the proposed MTP/SCS are analyzed in Chapter 16 of this Draft EIR. With the exception of VMT which is discussed separately below, and impacts related to the movement of agricultural products in certain community types and construction impacts, transportation impacts associated with implementation of the proposed MTP/SCS are less than significant, which reflects the success of the proposed MTP in: increasing person trips by bicycle, walking, and transit; improving infrastructure and connectivity for pedestrians, bicycles, and transit; and minimizing impacts to the movement of goods.

As described in Chapters 2 – Project Description, 12 – Land Use and Planning, and 14 – Population and Housing, the proposed MTP/SCS is explicitly designed to maintain and foster the balance between jobs and housing within the region. The additional population, housing, and job growth forecasted for the 20-year planning period is not a result of the proposed MTP/SCS; rather, the proposed MTP/SCS provides a strategy to allocate growth in such a way as to achieve a more balanced jobs/housing ratio and to optimize transportation investments that support those land uses. By doing this, the proposed MTP/SCS results in lower VMT per capita and a greater mode share for non-motorized modes.

As discussed in Impact TRN-1 in Chapter 16, although per-capita VMT within the region is forecast to continue to decline by 2040, total household-generated VMT as a result of the proposed MTP/SCS is forecast to increase largely due to adding about 620,500 new residents. The VMT per-capita decline indicates that the projected land use pattern and planned transportation improvements assumed in the proposed MTP/SCS would effectively work together to improve system efficiency and minimize increases in VMT. However, at a statewide level, CARB has reported that the state has

not gone far enough in making changes in how communities are designed to meet state climate goals. While implementation of the proposed MTP/SCS will achieve VMT reductions per capita, they are not enough to help the state successfully achieve desired statewide goals. See detailed discussion in Chapter 16 – Transportation.

CARB has explicitly recognized that MPOs could not achieve reductions without additional state policies and funding. However, at the time of writing this Draft EIR, it is unknown how CARB through statewide programs or coordination with local governments would meet the higher percent VMT reduction target by 2035 as identified in the 2017 Scoping Plan and other supporting documents. Therefore, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains. The contribution of the proposed MTP/SCS to this cumulative impact is cumulatively considerable and would be potentially significant (PS).

Implementation of mitigation measures in Chapter 16 would minimize the contribution of the proposed MTP/SCS to cumulative VMT, but would not reduce this impact to less-than-significant levels. Until the state identifies a program for further VMT reductions, and regional planning agencies have funding and authorization to achieve the reductions, cumulative VMT and SACOG's regional contribution, remain significant and unavoidable (SU).

IMPACT CUM-15: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE VMT IS CONSIDERED A POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-15: Implement Mitigation Measures in Chapter 16.

If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative VMT. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels and there are no known additional feasible mitigation measures available at this time. For projects proposing to streamline environmental review, lead agencies must comply with state guidance on VMT reduction and conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation will reduce the VMT impact to less than significant. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU) for purposes of this program-level review.

19.4.15 Utilities and Service Systems

Impacts to utilities and services related to implementation of the proposed MTP/SCS are analyzed in Chapter 17 of this Draft EIR. This analysis includes an examination of water supply, stormwater, wastewater, solid waste, energy services, and telecommunications. The utilities identified below are generally provided or delivered on a local level, but often originate from sources outside of the local jurisdiction and/or as part of a regional distribution system. The project's contribution to cumulative impacts associated with the provision of utilities is discussed below.

WATER SUPPLY AND INFRASTRUCTURE

Water supply and associated infrastructure have both local and regional aspects. The rivers that provide virtually all the surface water supplies in the SACOG region originate outside the region,

and travel through the region and beyond, providing water supply to jurisdictions inside and outside of the SACOG region along the way.

An increase in demand and water consumption in one region has the potential to affect supplies throughout California, because the surface water supply systems are interconnected. Whereas, the groundwater upon which many parts of the SACOG region are dependent is generally local, based on aquifer characteristics. However, as shown in Figure 11-4, Groundwater Sub-Basins (Chapter 11 – Hydrology and Water Quality) portions of area groundwater sub-basins fall outside the SACOG region.

Development of future water supply and associated infrastructure regionally and beyond depends on several factors, such as surface water availability, groundwater recharge, land use density and land use type. Future urban growth (population, housing, and employees) will result in an increase in water supply needs and demand. Future growth in the cumulative impact analysis area could lead to potential future water shortages and depletion of existing water supplies. The potential effects of global climate change add further uncertainty. This impact, and the contribution of the proposed MTP/SCS to it, could be potentially significant on a cumulative basis.

Implementation of mitigation measures identified in Chapter 17 would minimize the contribution of the proposed MTP/SCS to cumulative water supply and infrastructure impacts. While impacts within the cumulative impact analysis area may remain potentially significant, impacts associated with the regional contribution to this impact would be mitigated to less than significant (LS).

IMPACT CUM-16: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE WATER SUPPLY AND INFRASTRUCTURE IMPACTS MAY BE CUMULATIVELY CONSIDERABLE. THIS IS CONSIDERED A POTENTIALLY SIGNIFICANT IMPACT (PS).

Mitigation Measure CUM-16: Implement Mitigation Measures in Chapter 17.

If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts on water supply and infrastructure to less-than-significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, the regional contribution to this cumulative impact is potentially significant and unavoidable (SU).

STORMWATER AND INFRASTRUCTURE

Stormwater drainage systems in the SACOG region are generally provided by local governments for areas within their jurisdictions or for county/city areas combined, and are not typically provided on a regional or extra-regional basis. Stormwater drainage solutions typically depend on site-specific and project-specific characteristics and implementation. As such, stormwater drainage systems within the SACOG region would not be significantly affected by development outside of the region. Therefore, the potential for cumulative impacts related to stormwater and associated infrastructure, and the contribution of the proposed MTP/SCS to them, is considered to be less than significant (LS).

IMPACT CUM-17: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE IMPACTS TO STORMWATER AND ASSOCIATED INFRASTRUCTURE IS CONSIDERED A LESS THAN SIGNIFICANT IMPACT (LS).

Mitigation Measure CUM-17: None required.

WASTEWATER AND INFRASTRUCTURE

Wastewater service (sewer treatment) is generally a local or regional concern, as the wastewater treatment facilities and services are usually provided and regulated by local governments or special districts for areas within their jurisdiction. There are examples of service districts that have expanded their service area to include lands outside of the city or county of origin. For example, the Sacramento Regional County Sanitation District serves Sacramento County and its cities, as well as other adjoining areas. However, there are no examples of sewer systems or sewer service providers inside the SACOG region that serve areas outside of the SACOG region. As such, wastewater systems and associated infrastructure within the SACOG region would not be significantly affected by development outside of the region. The potential for cumulative impacts related to wastewater and associated infrastructure, and the contribution of the proposed MTP/SCS to them, would be less than significant (LS).

IMPACT CUM-18: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE IMPACTS TO WASTEWATER AND ASSOCIATED INFRASTRUCTURE IS CONSIDERED A LESS THAN SIGNIFICANT IMPACT (LS).

Mitigation Measure CUM-18: None required.

SOLID WASTE

Solid waste management is generally provided at the county level by the respective counties and not on a regional basis. However, some jurisdictions have contracted with areas outside of the region to accept and/or export their solid waste. For example, Yolo County accepts waste from other jurisdictions in the region, and Placer County exports waste to the Lockwood Regional Landfill in the State of Nevada.

Implementation of the proposed MTP/SCS, in conjunction with other development projected to occur in the cumulative impact analysis area, has the potential to exceed available local solid waste capacity. Therefore, the potential for cumulative impact associated with solid waste could be potentially significant (PS) on a cumulative basis. Implementation of mitigation measures identified in Chapter 17 would minimize the contribution of the proposed MTP/SCS to impacts related to solid waste. While impacts within the cumulative impact analysis area may remain potentially significant, impacts associated with the regional contribution to this impact would be mitigated to less than significant (LS).

IMPACT CUM-19: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE IMPACTS ASSOCIATED WITH SOLID WASTE MANAGEMENT IS CONSIDERED POTENTIALLY SIGNIFICANT (PS).

Mitigation Measure CUM-19: Implement Mitigation Measures in Chapter 17.

If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts on solid waste management to less than significant (LS).

Projects taking advantage of CEQA Streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, the regional contribution to this cumulative impact is potentially significant and unavoidable (SU).

ENERGY SERVICES AND TELECOMMUNICATIONS

Natural gas, propane, electricity, and telecommunications services are provided by various public and private utility providers serving the region. Market competition ensures the provision of these services, and with the exception of propane service, regulatory oversight is provided by the State Public Utilities Commission. Infrastructure issues are generally site-specific and/or project-specific in nature, and would not be significantly affected by development outside of the region. Therefore, cumulative impacts related to natural gas, propane, electricity, and telecommunications, and the contribution of the proposed MTP/SCS to them, would be less than significant (LS).

IMPACT CUM-20: THE CONTRIBUTION OF THE PROPOSED MTP/SCS TO CUMULATIVE IMPACTS RELATED TO ENERGY SERVICES OR TELECOMMUNICATIONS SERVICES IS CONSIDERED A LESS THAN SIGNIFICANT IMPACT (LS).

Mitigation Measure CUM-20: None required.

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